

Medical students' interests on rural practices

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ABSTRACT

Misdistribution of physicians is still an issue, especially physicians' lack of interest to work in rural area. Finding characteristics from medical students that show interest to work in rural areas is important to craft effective policy to enforce young physicians to work in rural areas. This study was quantitative analytics. Participants rated the influence of 19 factors that affect their interest towards working in rural area using translated and validated questionnaire, distributed online to all medical students from 20 medical faculties in Sumatra. Out of 1,124 respondents, 748 (66.5%) subjects interested to work in rural area. Determinants which influence medical students' interest towards working in rural area are past experience of visiting rural area ($p < 0.001$), careers opportunity ($p < 0.001$), family's socioeconomic status ($p = 0.001$), proximity to family ($p = 0.001$), rural area's facilities ($p = 0.002$), culture of rural community ($p = 0.005$), students' lifestyle ($p = 0.005$), rural curriculum ($p = 0.007$), proximity to spouse ($p = 0.031$) and location of university ($p = 0.049$). Past experience of visiting rural area (OR 2.281, $p < 0.001$) is the most determining factor to influence students' interest towards working in rural area. Medical students mostly interested to work in rural area. Past experience of visiting rural area was the most influential factor for medical students' interest on rural practices.

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1. INTRODUCTION

Health development problem of health workers misdistribution is still common to be encountered in many countries worldwide. Many rural areas are in the shortage of health workers due to this misdistribution, especially in low-income and middle-income countries [1]. Healthcare workforce which is distributed unequally between urban and rural areas leads to poorer health quality for people living in rural areas [2-3]. As an illustration, on calculation, the number of doctors in Indonesia is sufficient for national needs. However, most of them are concentrated in urban areas. For example, in Nias, Indonesia, there are only 31 general practitioners and 8 specialists among 133,388 populations spread over Nias [4]. Meanwhile, WHO recommended the ratio of doctors per population by 10: 10,000 [5].

Botswana and Malaysia are also encountering similar problems [6-7]. Malaysian residents who live in the suburbs such as Sabah have difficulties in health care services due to the minimum and difficult access to health facilities [7]. Rural jobs are highly unattractive for practicing health workers [8-10]. Health workers misdistribution problem is associated with the lack of interest in young doctors to work in rural areas [11]. A study in India showed about one out of five medical students showing career interest in rural locations after graduation [12].

A person's interest can be attributed to various factors. According to previous studies done based on Green behavioral theory, there were three groups of factors that determine the interest of medical students to

work in rural areas, namely: predisposing factors including student background, lifestyle, hobbies, and social motives [13], enabling factors including facilities, culture in rural areas, geographic conditions, financial reasons, career opportunities [14], academic opportunities [15], and university (location, curriculum), and the reinforcing factors including policies made by schools, government regulations, the influence of spouses or families [14].

2. RESEARCH METHOD

This study was approved by the ethical committee of the Medical Faculty, Sriwijaya University (No. 364/kepkrsmhkunsri/2016). This research was conducted with quantitative analytical research method, from September to October 2016. The instrument used in this study was translated and validated questionnaire distributed via online to all medical students from 20 medical faculties in Sumatra, Indonesia. The expected number of samples was as many as 400 people. The dependent variable in this study was the interest of students to work in rural areas and the independent variables were the factors that affected medical students' interest to work in rural areas. Descriptive statistics and normality test was performed, followed by multiple linear regression to model the relationship between dependent variable and independent variables. Potential confounders is controlled using multivariate logistic regression analysis by analyzing the association of all variables together. Statistically significant results were defined as $p < 0.05$. The statistic analysis was done using IBM SPSS Statistics Base 22.0.

3. RESULTS AND DISCUSSIONS

In this study there were 1.124 respondents matched the inclusion criteria. The analysis was done by univariate, bivariate and multivariate. The study aimed to determine the determinants of medical students' interest to work in rural areas.

3.1. Distribution of medical students' interest to work in rural areas

There were 748 (66.5%) of students showing interest of working in rural areas as shown in Table 1. Out of 1124 respondents there were 943 of respondents had the experience of visiting rural areas, and 68.9% of them had the interest of working in rural areas. Respondents with no past experience of visiting rural areas were as many as 181 and 54.1% of them were interested to work in rural areas. The percentage of students' preference of working in rural areas was higher in those with past experience of visiting rural areas.

Table 1. Characteristics of medical students' interest to work in rural areas

| Medical students' interest to work in rural areas | N | % |
|---|-------|------|
| Interested | 748 | 66.5 |
| Uninterested | 376 | 33.5 |
| Total | 1,124 | 100 |

3.2. Determinants of medical students' interest to work in rural areas

Determinants which influenced medical students' interest of working in rural areas were past experience of visiting rural areas ($p < 0.001$), career opportunities ($p < 0.001$), family economic status ($p = 0.001$), proximity of location to family ($p = 0.001$), rural area's facilities ($p = 0.002$), rural community culture ($p = 0.005$), students' lifestyle ($p = 0.005$), curriculum about rural area ($p = 0.007$), proximity of location to spouse ($p = 0.031$), and university location ($p = 0.049$). As can be seen in Table 2, past experience of visiting rural area was the most dominant factor in influencing student interest to work in rural areas with the highest odd ratio of 2.281.

Table 2. Determinants of medical students' interest to work in rural areas

| Variables | OR (95% CI) | P |
|--|----------------------|--------|
| Past experience of visiting rural area | 2.281 (1.689-3.082) | <0.001 |
| Career opportunity | 2.157 (1.425 -3.265) | <0.001 |
| Family economic status | 0.567 (0.403-0.797) | 0.001 |
| Proximity of location to family | 0.487 (0.313-0.756) | 0.001 |
| Rural area's facilities | 0.531 (0.353-0.799) | 0.002 |
| Rural community culture | 1.709 (1.179-2.478) | 0.005 |
| Students' lifestyle | 0.616 (0.441-0.861) | 0.005 |
| Curriculum about rural area | 1.600 (1.134-2.257) | 0.007 |
| Proximity of location to spouse | 0.689 (0.491-0.967) | 0.031 |
| University location | 0.704 (0.497-0.999) | 0.049 |

Significant ($p < 0.05$); OR, Odd Ratio; CI, Confidence Interval

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3.3. Determination coefficient test (R2)

The calculation result of R2 value in regression analysis obtained the coefficient of determination adjusted R2 of 0.106 (Cox Snell R square) and 0.147 (Nagelkerke R square) as shown in Table 3. This suggested that the studied variables had accounted for 10.6% or 14.7% in determining medical students' interest to work in rural areas.

| Cox & Snell R square | Nagelkerke R square |
|----------------------|---------------------|
| 0.106 | 0.147 |

3.4. Discussion

Based on the results in this study, there were 66.5% of medical students showing interest of working in rural areas as can be seen in Table 1. This was consistent with study done in Ghana which stated that more than half of medical students had the desire to work in rural areas, as much as 57.4% [16]. The result of this study was inversely proportional to another studies done in Indonesia, also in range of Asia and Africa, which showed that medical students' preference to have career in rural areas was only 8.7% [14] and 18% [13] respectively. The disparity might be due to differences in perspective of rural conditions in each individual affected by the conditions of each regions.

In the analysis of the determinants of medical students' interest to work in rural areas, showed that past experience of visiting rural area, career opportunity, family economic status, proximity of location to family, rural area's facilities, rural community culture, students' lifestyle, curriculum about rural area, proximity of location to spouse and university location were empirically proven to be influential in determining the interest of students to work in rural areas.

Past experience of visiting rural area was the most influential and important factor in determining students' interest to work in rural areas (OR 2.281, 95% CI 1.689-3.082, $p < 0.001$). Visiting rural areas could raise student awareness of health needs and also encouraged urban-oriented students to consider themselves working in rural areas [14]. University curriculum about rural areas was also indirectly connected to the interest of students to work in rural areas [17]. Training in rural areas with a community-based curriculum and exposure to the community also motivated medical students to work in rural areas. Students who had spent at least two years in rural areas had high inclination to return back to rural areas after graduation [18]. Students with rural background or enrolled in medical schools located in rural areas also had tendencies to choose rural areas as their future career location [17, 19-22]. But this alone is not enough to ensure a return to rural areas [23-24].

The background of family with low economic status could also attract students to work in rural areas. Students coming from families with low economic status had more sense of caring to help others [16]. Thus, the background of students coming from families with low economic status could be used as priority of freshman admission in medical schools. Medical schools also may have criteria to select students with a rural background, experience and education. This inclusion of underserved communities is a potential solution for the misdistribution, because this will motivate medical students to serve in rural areas after graduation [24-27]. Students with families and spouse living in rural areas also had tendencies to choose rural areas as career location [14, 28]. Medical students also assumed that cultures of rural areas could also be in consideration in choosing rural areas as career location. While lack of infrastructure and facilities in rural areas demotivated medical students to work there [1, 29-30]. Far more advanced facilities in urban areas caused the medical students to be more interested to work in urban areas [14].

Career opportunities in rural areas also affected students' interest to rural practices [14]. Considered monetary compensation also enticed medical student to work in rural areas [28]. Willingness of working in certain areas is also influenced by the students' norms [31]. General practitioner especially in rural areas, is still the least preferred career prospect, with personal interest and social factors as main determinants. Career choices should be early introduced to students so they can start exploring and determine the right choices for it [32]. All parties including academic institutions and policymakers should consider this when planning attraction and retention strategies to decentralize doctors distribution from urban to rural areas [33].

4. CONCLUSION

Determinants of interest of medical students' to work in rural areas were past experience of visiting rural area, career opportunity, family economic status, proximity of location to family, rural area's facilities,

rural community culture, students' lifestyle, curriculum about rural area, proximity of location to spouse and university location. Past experience of visiting rural area was the most determining factor in influencing students' interest on rural practices.

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