

ORIGINAL RESEARCH

Health-science students' self-efficacy, social support, and intention to work in rural areas of the Lao People's Democratic Republic

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ABSTRACT

Introduction: The Lao People's Democratic Republic (PDR), like almost all countries, is faced with a shortage of qualified health workers in rural and remote areas. The situation has worsened due to the unbalanced distribution of the health workforce, resulting from a tendency to gravitate to more central areas.

Methods: This cross-sectional study aimed to assess the proportion and associated factors affecting intention to work in a rural area among health science students in Vientiane, Lao PDR. All 403 final-year undergraduate and postgraduate students at the University of Health Sciences (UHS) in Vientiane – the only tertiary education facility that produces medical, family medicine, dentistry, pharmacy, medical technology, and nursing students – were asked to fill out self-administered questionnaires. In total, 356 respondents returned the completed questionnaires, yielding a response rate of 88.3%.

Results: Of the respondents, 40.7% (145/356) reported an intention to work in a rural area; 90.0% (131/145) preferred to work at district level; 21.3% reported high self-efficacy, whereas 79.8% reported low perceived social support for working in a rural area. Multiple logistic regression analysis revealed four variables were associated with intention to work in a rural area: hometown in a rural area; moderate/high self-efficacy; father having a secondary/high school education; and being a medical, family medicine/dentistry/pharmacy student.

Conclusions: To increase the proportion of UHS graduates intending to work in a rural area, improved recruitment of students from rural areas, and enhanced self-efficacy and social support, are required.

Key words: health science students, intention, Lao PDR, rural background, self-efficacy.



Introduction

The Lao People's Democratic Republic (PDR) is a landlocked country in central South-East Asia, which shares borders with Thailand, Vietnam, China, and Myanmar¹. Laos comprises 16 administrative provinces with one capital city (Vientiane Capital). The national health system is organized administratively into four strata: central (Ministry, University of Health Sciences (UHS) and reference/specialized centers); provincial (provincial health office, provincial and regional hospitals, and nursing schools, which serve 85 000 to 800 000 people); district (district health offices and district hospitals, which serve 9000 to 150 000 people)^{2,3} and village (health centers, which serve 1000 to 5000 people⁴. The main network for the provision of healthcare services in Lao PDR remains the public system. In 2013, health facilities encompass four central teaching and referral hospitals, four regional hospitals, 12 provincial hospitals, 129 district hospitals, and 894 health centers⁵.

The quota for new staff recruited by the Ministry of Health (MoH) is fixed once a year by the Cabinet of the Prime Minister, based upon the proposal by the Ministry of Finance. The Department of Health Personnel (DHP) at the MoH is responsible for the allocation of this quota at all administrative levels: central, provincial, and district. There are two recruitment rounds per year, in April and October. Posts are announced at the levels of provincial health offices (PHO), central, and other facilities. New staff are selected at PHO level, based on a proposal by the DHP. Lists of the selected candidates are submitted to the DHP, MoH, and Ministry of Home Affairs, for approval, allocation, and posting². Within this system, candidates apply for their post freely; urban settings normally receive more applications and can choose the best qualified staff according to their needs^{2,6}.

The Department of Training and Research is responsible for training, supervises all education and in-service training, and controls all health-related educational facilities. Since 2008, there have been three providers of health worker education;

UHS, College of Health Sciences, and the nursing schools. UHS provides seven training programs: medicine, dentistry, nursing, pharmacy, medical technology, basic science, and postgraduate studies. There are three provincial Colleges of Health Sciences (in Luangprabang, Savannakhet, and Champasack) and eight provincial nursing schools (in Xien Khung, Luang Prabang, Vientiane, Khammuane, Champasack, Salavane, Oudomsay, and Savannakhet). The nursing schools provide nursing and midwifery training programs².

Lao PDR, like most countries, has insufficient numbers of qualified health workers in rural and remote areas. In 2005, there were 1.98 health workers (including health management and support workers, such as accountants in hospitals, hospital clerical workers, and drivers)⁷ per 1000 population. Only 1.59 medical health workers were working in health facilities (healthcare providers) per 1000 population, and only 0.53 qualified medical health workers (physicians, medical assistants, nurses, and midwives with 3–7 years' training) per 1000 population². While over 72.0% of the population lives in rural areas³, only about 42.0% of health workers work in these areas. In 2009, the ratio of health workers working in rural areas was 1.15 per 1000 population, whereas in urban areas it was 4.5⁸. This has resulted in people living in rural and remote areas having limited access to health services.

Key health workforce challenges in Lao PDR include the management of geographical, institutional, and skill imbalances. These unbalances have many dimensions and different backgrounds. Since salaries alone do not adequately cover the basic costs of living, health workers, like other professionals, tend to prefer urban areas. Urban areas provide better employment opportunities and living conditions, and in urban areas health professionals have better opportunities to study, and conduct private practice to earn additional income^{2,6}. In addition, many new health professionals cannot be absorbed into the Lao public health system, due to the lack of sufficient vacant posts for new graduates⁹.



The shortage of health workers in a rural area has become more severe due to the unbalanced distribution of an increasingly mobile health workforce. A study of the distribution and mobility of medical doctors in the Lao public health sector over the past 10 years showed that most moved from the peripheral to the central level¹⁰. The geographical distribution of health workers is skewed in favor of urban areas, because new recruits have mostly been allocated to the central level, especially high-level and mid-level staff (staff with 3–7 years' training). Although district-level health facilities received a reasonable share of new health workers, most are low-level staff (staff with 2–2.5 years' training). In non-urban health centers, low-level staff account for over three-quarters of the total complement, because high-level, trained health workers tend to refuse rural posts². Remote districts, in particular, lack health staff. Many graduates from central training institutions do not want to work at district and health center levels⁶.

Several previous studies, focused mainly on medical students, have elicited a number of factors related to the intention of health science students to conduct rural practices: rural background^{11–14}, rural field experience^{11,15,16}, spouse or significant other who had lived in a rural area¹², parents who did not attend college^{14,17}, educational opportunities^{11,18}, type of work available in the rural area, career opportunities^{19,20}, and professional support¹⁵. However, at present, very little has been published in the literature on this issue in Lao PDR.

Therefore, this study aimed to assess the proportion of health science students in Vientiane, Lao PDR who intended to work in a rural area and associated factors, using the concepts of social support and self-efficacy. Social support has multiple functions that support the behavior change process. Social support for health science students working in a rural area can come from a variety of sources, including parents, neighbors, friends, and institutions. Self-efficacy makes a difference in how individuals feel, their beliefs, self-motivation, and perceived capability, as key components of performance^{21–23}. These were investigated, to determine whether they directly affected the intention of health science students to work in a rural area.

Methods

Study site and samples

This cross-sectional study was conducted at the UHS, the only university in Lao PDR that produces high-level health science students for the country. There are three types of student: (1) continuing education students (public health workers who attend UHS to upgrade from middle or bachelor level to a higher level or doctors who attend family medicine training), (2) quota students (supported by the Government and selected from the provinces) and (3) self-supported students (special program), who bear the costs of studying themselves. The eligible subjects for the study were all 403 final-year undergraduate and postgraduate students at UHS. They were all willing to participate in the study and asked to fill out self-administered questionnaires. Those who took leave during the study or during field practice outside the institute, and those whose questionnaires were incomplete, were excluded from study. In all, 356 respondents returned the completed questionnaires: 137 medical, 21 family medicine, 40 dentistry, 104 pharmacy, 20 medical technology, and 34 nursing students. The response rate was 88.3%.

Measurements

The survey instrument was a four-part questionnaire in the Lao language. Part 1 consisted of 14 items about the respondent's baseline characteristics: course of study, category of student, age, sex, marital status, religion, ethnicity, current residence, home town, total monthly expenses, experience of living in a rural area in the past and while studying, and parental education.

Part 2 covered intention to work in a rural area. In this study, a rural area was defined as a district of a province outside a capital city; this equated with 132 of 142 districts in the whole country. An urban area was defined as a district located within a capital city of a province. Vientiane Capital has four urban districts, while the remaining 16 provinces



have one urban district each. The scale comprised one question to determine health science students' intention to work in a rural area after graduation. There were three possible answers: 'yes, and prefer a rural area at either district or health-center level', 'no, and prefer an urban area', and 'not sure'.

Part 3 covered self-efficacy of health science students for working in a rural area. In this study, self-efficacy was defined as a health science student's belief in their capability to exercise control over their own functioning in a rural area, their confidence in their ability to live and work in a rural area, and their ability to apply their knowledge to working in a rural area effectively. The scale comprised 15 items: 8 items for working in a rural area, and 7 items for professional self-efficacy. The questions were derived, revised, and adapted from the study by Minisini et al²³. Answers were rated on a five-point Likert scale, as '1 = very little confidence', '2 = little confidence', '3 = moderate confidence', '4 = quite a bit of confidence', and '5 = a lot of confidence'. Of the possible total score (75), a range of 14–45 (less than 60% of the total score) was classified as low/poor self-efficacy, 46–59 (60–79% of the total score) as moderate, and 60–75 (equal or greater than 80% of the total score) as high/good. The Cronbach's alpha coefficient was 0.954.

Part 4 involved social support for health science students working in a rural area. Social support was defined as financial and non-financial support provided by parents, neighbors, friends, and institutions, including care for, encouragement, motivation, accommodation arrangements, opportunity to enhance knowledge, and opportunity to get a promotion, provided to health science students working in rural areas. The scale comprised 18 items: 5 for parental support, 4 for neighbor support, 3 for friend support, and 6 for institutional support. The answers were rated according to a five-point Likert scale: '0 = not at all', '1 = a little', '2 = moderate', '3 = quite a bit', and '4 = a great deal'. Of the possible total score (72), a range of 0–43 (less than 60% of the total score) was classified as low/poor level of social support, 44–57 (60–79% of the total score) as moderate, and

58–72 (equal or greater than 80% of the total score) as high/good. The Cronbach's alpha coefficient was 0.905.

Data collection

Data were collected during February 2011. The principal investigator and two well-trained research assistants explained the objectives of the study before distributing the questionnaires to the participants and checked the completeness of the returned questionnaires.

Data analysis

Descriptive statistics (frequency, percentage, mean, and standard deviation) were used to describe all study variables. Multiple logistic regression analysis was used to obtain odds ratios (OR) and determine the associations between the study variables and health science students' intention to work in a rural area. Statistical significance was set at $p < 0.05$.

Ethical considerations

The Ethics Committee of the Faculty of Public Health, Mahidol University (COA. No. MUPH 2011-047) and the National Ethics Committee for Health Research, Ministry of Health, Lao PDR (No. 12 /NECHR), approved the research protocol.

Results

Of the 356 respondents, 38.5% were medical students, 29.2% were pharmacy students, and 11.2% were dentistry students. About 52.8% were quota students, 58.7% were aged 20–24 years (mean 26.8 years; range 20–46 years), 59.3% were female and 70.5% were single. Buddhists constituted 84.6% of respondents, and 77.8% were of Lao ethnicity; 31.5% stayed in their parents' houses and 52.2% were from urban areas. The median monthly expenditure was 800,000 LAK; the range was very wide, at 200,000–8,000,000 LAK. Of the respondents, 64.0% had experience



of living in a rural area, and 45.2% had experience of field work/clinical clerkship while studying at UHS. Of respondents' fathers, 40.7% had completed a bachelor degree or higher, while 39.3% of respondents' mothers had finished primary school or had no education (Table 1).

Intention to work in a rural area after graduation

Of the 356 respondents, 40.7% intended to work in a rural area, whereas 17.1% had not yet decided. Among those who intended to work in a rural area, 90.3% (131/145) preferred to work at district level. For students who did not want to work in a rural area, 31.3% (47/150) wanted to work in a district or provincial hospital in an urban area, followed by 28.7% who wanted to work in a central hospital, and 20.0% who preferred to continue studying (Table 2).

Self-efficacy for working in a rural area

Only 21.3% of respondents reported high overall self-efficacy to work in a rural area – 20.5% in their profession, and 26.4% in working in a rural area (Table 3). Of 356 respondents, 12.6% were very confident that they were adequately prepared to work in a rural area, 11.2% were very confident that they had the skills to communicate with other staff in a rural area effectively and appropriately, and 7.3% were very confident that they could manage working with rural facilities. The students also reported that they were very confident in the following items: being able to leave the family to work in a rural area (16.9%), being able to live without electricity (16.9%), and being able to live where there is no water supply (19.4%) (Table 4).

Social support for intention to work in a rural area

About 79.8% of respondents reported receiving low social support. The lowest source of support was from neighbors (79.2%), followed by friends (73.0%), as shown in Table 3. Approximately 49.4% of respondents did not receive and 50.5% did receive a little support from parents in encouraging them to work in a rural area while studying and after graduation. Concerning social support from neighbors,

60.6% did not get or got little support from neighbors encouraging work in a rural area, and 58.7% did not receive support or received little support from neighbors to work in a rural area (Table 5).

Social support from friends, 55.9% received no or little encouragement or persuasion from friends to work in a rural area and 50.5% had no or few friends who wanted them to work closely in a rural area. Regarding institutional social support, 45.5% of respondents received no or little incentive from the government, and 37% received no or little promotion from the Ministry (Table 5).

Factors associated with health science students' intention to work in a rural area

Univariate analysis revealed nine variables were significantly associated with intention to work in a rural area after graduation: male gender, Buddhist religion, Hmong and other ethnicity, rented apartment/house and other accommodation, moderate/ high social support, moderate/high self-efficacy, course of study, rural hometown, and father finished secondary/high school (data not shown). In multiple logistic regression analysis, all variables with $p < 0.25$ in univariate analysis were entered into the final model. Four variables were significantly associated with intention to work in a rural area: moderate/high self-efficacy, rural hometown, father finished secondary/high school, and being a medical/ family medicine/dentistry student (Table 6). The correlation matrix for intention to work in rural area model shows quite low correlations ($r < 0.30$) between respondents' background characteristics and degree of self-efficacy. For example, correlations were very weak between degree of self-efficacy and hometown ($r = 0.012$ for moderate self-efficacy and $r = -0.036$ for high self-efficacy), father's education and hometown ($r = 0.225$ for none/primary level and $r = -0.008$ for secondary/high school level), course of study and hometown ($r = -0.051$ for pharmacy and $r = -0.068$ for medicine/family medicine/dentistry).



Table 1: General characteristics of 356 health science students

Variable	Number	%
Course of study		
Medicine	137	38.5
Pharmacy	104	29.2
Dentistry	40	11.2
Nursing	34	9.6
Family medicine	21	5.9
Medical technology	20	5.6
Type of student		
Continuing education	93	26.1
Quota	188	52.8
Self-supported	75	21.1
Age (years) (mean \pm SD = 26.8 \pm 6.0, range = 20–46)		
20–24	209	58.7
25–34	95	26.7
>34	52	14.6
Sex		
Male	145	40.7
Female	211	59.3
Marital status		
Single	251	70.5
Other	105	29.5
Religion		
Buddhist	301	84.6
Not Buddhist	55	15.4
Ethnic group		
Lao	277	77.8
Hmong	45	12.6
Other	34	9.6
Current accommodation		
Parents' house	112	31.5
Rental apartment/house	85	23.8
Other	159	44.7
Home town		
Urban area	186	52.2
Rural area	170	47.8
Monthly expenditure (LAK [†]) (median = 800,000, range = 200,000–800,000)		
<950,000	225	63.2
\geq 950,000	131	36.8
Experience living in a rural area?		
Yes	228	64.0
No	128	36.0
Field work/clinical clerkship while studying at University of Health Sciences?		
Yes	161	45.2
No	195	54.8
Father's education		
None/primary level	79	22.2
Secondary/high school	132	37.1
Bachelor degree or above	145	40.7
Mother's education		
None/primary level	140	39.3
Secondary/high school	124	34.8
Bachelor degree or above	92	25.9

[†] 1 USD = 8500 LAK
SD, standard deviation.



Table 2: Intention to work in a rural area among 356 health science students

Variable	Number	%
Intention to work in a rural area after graduation		
Yes	145	40.7
No	150	42.1
Not sure	61	17.2
Preference in rural area (n=145)		
At district level	131	90.3
At village level (health center)	14	9.7
Preference in urban area (n=150)		
Provincial/ district hospital of urban area	47	31.2
Central hospital	43	28.7
Department or center at central level	16	10.7
International organization	4	2.7
Continue studying	30	20.0
Other (such as teaching at University of Health Sciences, or nursing school)	10	6.7

Table 3: Overall self-efficacy, social support, and intention to work in a rural area, among 356 health science students (%)

Variable	Low/poor	Moderate	High/good
Overall self-efficacy	29.5	49.2	21.3
Professional	24.2	55.3	20.5
Working in a rural area	27.5	46.1	26.4
Overall social support	79.8	16.9	3.4
Parents	66.6	24.2	9.3
Neighbours	79.2	14.3	6.5
Friends	73.0	20.2	6.7
Institutions	64.3	25.0	10.7

Table 4: Self-efficacy for working in a rural area among 356 health science students, by item (%)

Statement	Very little	Little	Moderate	Quite a lot	A lot
Adequately prepared to work in a rural area.	8.7	22.2	36.5	19.9	12.6
Having skills to communicate effectively and appropriately with other staff in a rural area.	4.8	16.0	32.6	35.5	11.2
Having skills to communicate effectively and appropriately with rural clients.	4.2	12.4	34.3	36.2	12.9
Able to apply the knowledge on the job, if working in a rural area.	4.2	8.7	24.2	43.8	19.1
Having enough skills to provide service to rural clients effectively.	4.2	9.6	33.7	38.5	14.0
Able to:					
work independently.	3.4	13.2	32.0	33.7	17.7
make appropriate plan for my work in a rural facility.	3.9	13.8	37.6	32.6	12.1
manage the work in a rural facility.	4.8	15.2	45.8	27.0	7.3
leave family to work in a rural area.	8.4	21.9	31.7	21.1	16.9
work outside the office (in the field).	4.2	16.0	30.6	30.3	18.8
leave my friends to work in a rural area	3.7	12.6	30.3	29.5	23.9
eat local food, which will differ from my normal diet.	2.5	10.7	20.8	32.3	33.7
live without electricity.	15.4	18.0	26.7	23.0	16.9
live without water supply.	12.6	17.1	28.9	21.9	19.4
live without internet connection.	9.8	16.6	28.9	24.2	20.5



Table 5: Social support for intention to work in a rural area among 356 health science students, by item (%)

Statement	Not at all	A little	Moderate	Strongly	A great deal
Parents					
Support for studying.	3.9	3.7	16.6	29.8	46.1
Encourage to work in a rural area while studying.	27.5	21.9	28.9	14.6	7.0
Encourage to work in a rural area after graduation.	27.2	23.3	30.1	12.1	7.3
Support if working in a rural area.	19.7	22.8	36.2	13.8	7.6
Permit to work in a rural area.	14.0	24.7	36.2	18.0	7.0
Neighbours					
Support for studying this subject.	27.5	16.9	18.5	25.0	12.1
Encourage to work in a rural area.	33.4	27.2	22.8	11.8	4.8
Support if working in a rural area.	31.5	27.2	22.5	13.8	5.1
Proud if working in a rural area.	26.1	27.8	27.2	12.6	6.2
Friends					
Support for studying this subject.	20.8	19.1	24.2	23.3	12.6
Encourage/persuade to work in a rural area.	25.0	30.9	26.7	12.9	4.5
Want to work close to them in a rural area.	25.8	24.7	25.3	16.9	7.3
Institutions					
University encourages and supports students to go to work in a rural area.	12.4	8.4	20.8	31.5	27.0
Government provides some incentives for ones who work in a rural area.	22.2	23.3	25.0	18.8	10.7
Government/community provide transportation facilities for one who works in a rural area.	16.9	19.1	32.3	23.6	8.1
Government/community provides/ arranges accommodation for one working in a rural area.	14.6	14.6	32.3	28.1	10.4
The Ministry provides better promotion opportunities for workers in rural areas.	18.5	18.5	32.9	20.8	9.3
The Ministry provides better opportunities for workers in rural areas to gain continuing education.	12.4	18.5	25.3	29.5	14.3

Table 6: Multiple logistic regression analysis for intention to work in a rural area among 356 health science students

Variable	Unadjusted		Adjusted		p value
	Odds ratio	95%CI	Odds ratio [†]	95% confidence interval	
Overall self-efficacy					0.004 [†]
Low	1.00		1.00		
Moderate	2.53	1.47–4.36	2.28	1.24–4.17	
High	5.17	2.71–9.89	3.32	1.59–6.96	
Course of study					0.001
Nursing/medical technology	1.00		1.00		
Pharmacy	3.53	1.56–7.96	6.05	2.01–18.19	
Medicine/family medicine/dentistry	4.43	2.05–9.55	6.48	2.39–17.57	
Hometown					0.002
Urban	1.00		1.00		
Rural	2.55	1.65–3.94	2.22	1.33–3.71	
Father's education					0.023
Bachelor degree or above	1.00		1.00		
Secondary/high school	1.97	1.21–3.23	2.21	1.25–3.89	
None/primary level	2.35	1.34–4.15	1.58	0.74–3.36	



Discussion

The proportion of students who intended to work in a rural area (district and health center level) was 40.7%, which was double that found in a study of occupational expectations among undergraduate medical and health technology students conducted by Soudachanh²⁴. Possible explanation was that the previous study included only undergraduate health science students, while this study included both undergraduate health science students and family doctors who had a better understanding of the needs of the health workforce in a rural area.

In addition, about 17.1% had still not decided to work in a rural area, possibly because they lacked confidence to work independently in a rural area.

Students with moderate and high overall self-efficacy were 2.3 and 3.3 times, respectively, more likely to intend to work in a rural area than those with low self-efficacy. The possible reasons for this were as follows: when the students believed in themselves, that they could work independently and confidently in a rural area, they would intend to do so; and that students believed in their capacity to live and deal with problems and difficult or challenging situations. To the best of the authors' knowledge, no published research has directly linked the effect of health science students' self-efficacy and intention to work in a rural area after graduation. A study by Minisini et al²³ reported that low self-efficacy among rural physiotherapists could result in impaired confidence in their ability to practice. They perceived that they lacked the skills and attributes to practice, which resulted in conflict with professional conduct and ethical standards.

Students with hometowns in rural areas were 2.2 times more likely to work in a rural area after graduation than those whose hometowns were in urban areas. These results were consistent with results of previous studies^{11,14,25-28} reporting

that rural background was positively associated with rural practice.

Medical/family medicine/dentistry/pharmacy students were more likely to intend to work in a rural area than nursing and medical technology students. The possible explanation for this is that there are more vacant posts in rural areas for medical/family medicine/dentistry/pharmacy graduates than for nursing and medical technology graduates, because of mobility from rural and remote areas to urban or central areas, as mentioned earlier.

Lessons learnt from the compulsory Thai rural health service, and supportive strategies to maintain its effectiveness^{29,30} may be useful in solving the shortage of qualified rural health workers in Lao PDR. The MoH of Lao PDR has just launched the first phase of the Laotian health workforce recruitment and retention policy, whereby new graduates in medicine, pharmacy, and dentistry must complete 3 years of compulsory rural service in order to receive their licences to practice. Additional incentives for rural practice include postgraduate training and permanent civil service employment^{31,32}.

Students whose fathers had finished secondary/high school were more likely to intend to work in a rural area after graduation than those with bachelor or higher degrees. This might be due to the fact that the more highly educated parents did not want their sons/daughters working in a rural setting where there was lack of infrastructure and a low living standard. The results confirmed the findings of Saini et al¹⁴, Wheat et al¹⁷, and Matsumoto & Kajji³³.

Good social support is a positive predictor for rural practice intention¹⁵. In this study, social support was a significant predictor of intention to work in a rural area by univariate analysis (data not shown). However, it became non-significant when self-efficacy was included in the model. This suggested that, among UHS graduates, self-efficacy may serve as a suppressor between social support and intention to work in a rural area. The role of social support in predicting



intention to work in a rural area may weaken when interacting with self-efficacy.

This study had some imitations. It relied on the self-reported intentions of final-year health science students at UHS, in Vientiane, Lao PDR. In addition, the cross-sectional study design was limited to determining causal associations between the study factors and intention to work in a rural area. A further longitudinal study is needed to ensure the factors affecting actual rural practice and the duration for which graduates were willing to work in a rural area. More variables should be included in the study, such as motivation, which will influence the decision of UHS graduates to work in a rural area.

Conclusion

The distribution of qualified health workers between urban and rural areas is still unbalanced. To increase the proportion of UHS graduates intending to work in rural areas, student recruitment at UHS should prioritize and provide increased quotas for those from rural areas. To improve students' self-efficacy for working in a rural area, the current curriculum should be reviewed and improved to ensure that all students have sufficient clinical practice in real situations, and that the duration for field work/clinical clerkship is extended to at least 3 months during the academic year. The Lao Ministry of Health and related organizations should focus more strongly on encouraging students to work in rural areas by providing appropriate incentives, accommodation and transportation arrangements, and discounted/free electricity and water for those prepared to work in rural areas. These supports should be introduced simultaneously with improvements to the work environments in rural facilities, the establishment of clear career paths, and the provision of promotion and educational opportunities.

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