FACTORS INFLUENCING WORK MOTIVATION AMONG HEALTH CARE PROVIDERS IN VIENTIANE LAO PEOPLE'S DEMOCRATIC REPUBLIC

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Abstract. An essential component of public health services in developing nations is ensuring the motivation of healthcare professionals. The objective of this research was to assess motivation levels with a focus on organizational factors among healthcare providers at district health offices in Vientiane, the capital of Laos. Cross-sectional research was used in the current study, involving 285 healthcare providers working at district health offices in Vientiane. Data were collected based on a structured questionnaire covering demographic characteristics, work environment, job satisfaction, and work motivation. The motivation scale had 23 items, with answers scored based on a five-point Likert scale. The motivation scores varied greatly according to educational level, with lower nursing schools scoring higher. Fairness, job satisfaction, the quantity of training received in the year prior, and support from supervisor all showed significant positive associations with motivation score. On the other hand, there is no discernible correlation between motivation and pay. The hierarchical model revealed that education level, job location, occupation, and amount of training were all substantially related to motivation scores, in addition to fairness and support from a supervisor. Fair assessments and encouragement from their manager are regarded as respect for their opinions, which makes for better work motivation among healthcare professionals. Therefore, it is anticipated that establishing a fairness and organizational justice will lead to greater motivation. Improved appraisal and encouragement from superiors and co-workers would also be expected to help increase work motivation.

Keywords: work motivation, health care providers, Lao PDR

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INTRODUCTION

Healthcare providers at the facility- and community-based health centers are essential for the provision of high-quality health care (Rowe *et al*, 2018). Healthcare providers form the backbone of any health system. Ensuring the motivation of healthcare providers in developing countries is an important part of health services in the public sector (Taye *et al*, 2019) because their motivation and performance significantly influence the quality of healthcare services in low- and middle-income countries (Buchan *et al*, 2013). Low motivation levels among healthcare providers have been associated with poor healthcare practices, a failure to retain staff and job migration (Thu *et al*, 2015).

Healthcare provider motivation has the potential to affect the quality of health services (Mutale *et al*, 2013). The World Health Organization has reported that poor healthcare provider performance is caused by a lack of knowledge and skills, and emphasized the need to focus on the motivation and appropriate management of healthcare providers (WHO, 2006).

Work motivation has been defined as an individual's degree of willingness to exert and maintain efforts toward organizational goals (Franco *et al*, 2002). The factors that determine work motivation include individual, organizational and social factors. Individual factors consist of demographic characteristics (*eg*, age, gender, ethnicity, education, years of experience, and self-efficacy). Organizational factors consist of staff, workload, evaluations by upper management, support from superiors and co-workers, supervision, knowledge and skills, and opportunities for continuing education. Social factors include the expectations and evaluations of local population.

Herzberg (2003) defined motivation as the result of interactions between internal and external motivations. Motivation has also been described as consisting of personal growth and job enrichment (Herzberg, 2003; Prytherch *et al*, 2012). Through this process, healthcare providers can obtain

organizational commitment and accept organizational goals (Penn-Kekana *et al*, 2005). Work motivation affects performance, job satisfaction and job loyalty.

Performance consists of task achievement, work quality, respect for patients (Penn-Kekana *et al*, 2005; Alam *et al*, 2012), low levels of burnout, absenteeism, and turnover, and increased conscientiousness (Penn-Kekana *et al*, 2005). Motivation is the most important influencing factor of a worker's performance. High motivation can stimulate workers to come to work regularly, perform their job diligently and exercise flexibility in carrying out necessary tasks (Franco *et al*, 2002; Wang *et al*, 2011). As a result, higher motivation leads to a better job performance and an improved provision of healthcare services. On the other hand, a lack of continued support and respect from supervisors can lead to lower motivation levels (Thu *et al*, 2015).

In terms of healthcare providers, Laos is currently facing critical issues, such as shortages, unequal staff distributions, and poor quality and low motivation among many workers in the health sector (WHO, 2013) stemming from inadequate incentives, financial problems, and lack of opportunities for career development (Jaskiewicz *et al*, 2012; Yamada *et al*, 2013).

As work motivation is closely linked to job satisfaction among healthcare providers, and increasing motivation of healthcare workers in turn leads to improved quality of nursing care, therefore, examining factors related to motivation becomes an important undertaking. The present study aimed to assess motivation levels among healthcare providers in Vientiane, the capital of Laos, with particular focus on organizational factors in district health offices (DHOs).

MATERIALS AND METHODS

Study design and setting

This cross-sectional study was conducted from October to November 2013 at a district health office in Vientiane, the capital of Laos, a lower-middle-income country with a population of 6.8 million people (World Bank, 2010).

The health system in Laos is composed of three hierarchical organizations: the Ministry of Health, provincial health offices, and DHOs; and has four tiers: national, provincial, district, and community. The district level has a DHO, while the community level has a health center.

DHOs are under the supervision of provincial health offices. Higher-level organizations supervise the health services of lower-level organizations, and DHOs control the health centers. DHOs conduct medical examinations, provide vaccinations, offer health education, and disseminate information on local health activities (Khamlub *et al*, 2013). Vientiane has nine districts, divided into areas consisting of three levels of development: urban, suburban, and rural (at the time of this research). The city has four central hospitals.

Study participants

The targeted study participants were 285 healthcare providers working at nine DHOs in Vientiane including doctors, medical assistants, nurses, midwives, pharmacists, laboratory technicians, and hygienists.

Measurement tools

Data were collected through interviews using a structured questionnaire, which was translated from English into Lao and then back-translated into English for verification of translation accuracy. The questionnaire is composed of three parts: demographic characteristics, work environment, and work motivation. Demographic characteristics include district health office area, gender, age, marital status, education, years of experience, profession, position, and employment status. Education levels are categorized by educational program: two years for lower nursing education, three years for intermediate education, and four or more years for university and above. Diploma of nursing is only awarded to a graduate of a university. Work environment include workload, sufficiency equipment (1: no, 2: yes), monthly salary, late payment of salary (1: never, 2: rarely, 3: sometimes, 4: always), amount of training in the prior year, and fairness from supervisor (1: strongly agree, 2: agree, 3: disagree, 4: strongly disagree). Social support include support from supervisors, co-workers and superagencies, and feedback from superagency. Before implementing the current study, a pilot study was carried out among healthcare staff in Vientiane prefecture to check that the questionnaire was understandable and capable of answering.

Generic job stress questionnaire (GJSQ)

Job satisfaction was measured using the GJSQ developed by the National Institute for Occupational Safety and Health (NIOSH) (Hurrell and McLaney, 1988). The current

study employed four items assessing work overload. The four questions were as follows: "How often does your job require you to work very quickly?", "How often does your job require you to work very hard?", "How often does your job leave you with little time to get things done?", and "How often is there a great deal to be done?". The replies were scored using a five-point Likert scale (1: rarely, 2: occasionally, 3: sometimes, 4: fairly often, 5: very often), with a higher score indicating a higher job dissatisfaction

Work motivation was measured using three questions from the NIOSH GJSQ: "How much do each of these people go out of their way to do things to make your work life easier for you?", "How easy is it to talk with each of the following people?", and "How willing are each of the following to listen to your problems?". People referred to were the respondent's immediate supervisor, other people at work (co-workers) and the superagency. Responses were scored on a five-point Likert scale (1: very much, 2: somewhat, 3: a little, 4: not at all, 5: no such person). The scores for the three questions were reversed, calculated, and analyzed, with higher scores indicating greater social support.

Motivation scale

The motivation scale used by Mbindyo *et al* (2009) was used to measure general motivation, burnout, job satisfaction, intrinsic job satisfaction, organizational commitment, conscientiousness, and punctuality. The scale consists of 23 items, with answers scored using a five-point Likert scale (1: strongly disagree, 2: disagree, 3: neutral, 4: agree, 5: strongly agree). The scores for the negative items were reversed when calculated, with higher scores indicating disagreement with negative statements and therefore being suggestive of higher motivation (Mutale *et al*, 2013).

Data analysis

All motivation items were calculated using a five-point Likert scale, with higher scores indicating higher motivation. A Cronbach's alpha coefficient of 0.75 (acceptable) was calculated for the survey items. The Mann-Whitney U and Kruskal-Wallis tests were used to compare motivation scores and sociodemographic characteristics. Spearman's rank correlation coefficient was employed to examine the correlations among the variables. All data analyses were performed using a Statistical Package for Social

Science (SPSS) version 20.0 (SPSS Inc, Chicago, IL), with *p*-value <0.05 considered statistically significant.

Ethical considerations

This study was approved by the National Ethics Committee for Health Research in Laos (Approval No.: 042 2013.21.NIOPH. VIE, 2013) and the Graduate School of International Health Development, Nagasaki University, Ethical Committee (Approval No.: 045, 2013). All participants provided prior written consent. Confidentiality was ensured during the data collection and analysis.

RESULTS

The questionnaire survey covered all health staff (*n* = 285). Respondents were mainly 40-49 years of age, female and married (Table 1). More than 50% of the respondents had completed intermediate level education, 26% were doctors, 86% worked fulltime, and 43% had been employed for <10 years.

The mean job satisfaction score was <12 (out of a possible maximum of 15) (Table 2). The majority of the participants earned LAK 1,500,000-2,000,000 (approximately LAK 7,900 = USD 1.00) monthly and nearly half were paid every two months. Some 50% of respondents received only one or no training session in the prior year of the survey and a similar proportion reported insufficient equipment in their workplace. Approximately 70% of the respondents indicated that their supervisor was fairness and received feedback from superagency often on their work. Support from their supervisor (40%) and co-workers (48%) received a support score of

Table 1

Demographic characteristics of respondents (N = 285)

Demographic characteristic	Frequency *n* (%)
Work area	
Urban	108 (38)
Suburban	145 (51)
Rural	32 (11)

Table 1 (cont)

Demographic characteristic	Frequency *n* (%)
Gender	
Male	71 (25)
Female	214 (75)
Age (years)	
20-29	97 (34)
30-39	47 (17)
40-49	109 (38)
50-59	32 (11)
Marital status	
Married	192 (67)
Divorced/separated/widowed	12 (5)
Single	81 (28)
Education level	
Lower	37 (13)
Intermediate	152 (53)
Advanced	5 (2)
University and higher	78 (27)
Other	13 (5)
DHO located at home town	
Yes	51 (18)
No	234 (82)
Work experience at DHO (years)	
<1	16 (6)
1-9	100 (35)
10-19	49 (17)
20-29	100 (35)
≥30	20 (7)

Table 1 (cont)

Demographic characteristic	Frequency *n* (%)
Medical staff experience (years)	
<1	17 (6)
1–9	124 (43)
10-19	54 (19)
20-29	77 (27)
≥30	13 (5)
Profession	
Doctor	74 (26)
Assistant doctor	2 (1)
Nurse	45 (16)
Pharmacist	52 (18)
Laboratory technician	24 (8)
Midwife	23 (8)
Health administrator and others	65 (23)
Position	
Leader	56 (20)
Sub-leader	28 (10)
Staff	200 (70)
Unknown	1 (0)
Employment status	
Full-time	244 (86)
Permanent	23 (8)
Volunteer	18 (6)

DHO: district health office

Table 2

Work environment and supporters (N = 285)

Work environment and supporters	N (%)
Job satisfaction score	
≤12	105 (37)
13–14	96 (34)
15–20	76 (27)
Unknown	8 (2)
Perceived equipment sufficiency	
Sufficient	99 (35)
Insufficient	186 (65)
Salary per month (LAK)	
0	8 (3)
<500,000	39 (13)
500,000 to <1,000,000	22 (8)
1,000,000 to <1,500,000	44 (15)
1,500,000 to <2,000,000	122 (43)
≥2,000,000	48 (17)
Unknown	2 (1)
Late payment of salary	
Never	100 (35)
Once every 2 months	122 (43)
Once every 3 months	47 (16)
Other	7 (2)
Unknown	9 (4)
Amount of training in the prior year (times)	
None	55 (19)
1	80 (28)
2	41 (15)
3	40 (14)
≥4	69 (24)

Table 2 (cont)

Work environment and supporters	N (%)
Perceived fairness by supervisor	
Unfair	8 (3)
Somewhat fair	70 (24)
Fair	165 (58)
Very fair	42 (15)
Score of support from supervisor	
≤9	72 (25)
10-12	113 (40)
13-15	94 (33)
Unknown	6 (2)
Score of support from co-workers	
≤9	95 (33)
10-12	137 (48)
13-15	50 (18)
Unknown	3 (1)
Score of supervise from superagency	
≤9	142 (50)
10-12	81 (28)
13-15	30 (11)
Unknown	32 (11)
Perceived feedback from superagency	
Occasionally	7 (3)
Sometimes	70 (30)
Fairly often	110 (48)
Very often	43 (19)

LAK: Lao Kip (approximately LAK 7,900 equals one US dollar)

10-12 (out of a possible maximum of 15).

The highest motivating factor mean scores (4.5/5.0) were for: "I am proud to be working for this district health office" in the category "Organizational commitment", "Overall, I am very satisfied with my job" "Job satisfaction" and "I am satisfied with the opportunity to use my abilities on the job" in the category "Intrinsic job satisfaction" (Table 3). The lowest mean score (1.6) was for "I do this job as it provides long-term security for me" in the category "General motivation". The second highest ranked work

Table 3

Questions on motivational outcomes

Question	Motivation item score Mean ± SD
General motivation (α = 0.04)*	
These days, I feel motivated to work as hard as I can	4.2 ± 0.8
I only do this job so that I get paid at the end of the month	3.3 ± 1.2
I do this job as it provides long-term security for me	1.6 ± 0.7
Burnout (α = 0.63)*	
I feel emotionally drained at the end of every day	4.2 ± 0.9
Sometimes when I get up in the morning, I dread having to face another day at work	4.3 ± 0.9
Job satisfaction (α = 0.38)*	
Overall, I am very satisfied with my job	4.5 ± 0.7
I am not satisfied with my colleagues on my ward	4.0 ± 1.1
I am satisfied with my supervisor	4.0 ± 0.8
Intrinsic job satisfaction (α = 0.20)*	
I am satisfied with the opportunity to use my abilities on the job	4.5 ± 0.6
I am satisfied that I accomplish something worthwhile in this job	4.3 ± 0.7
I do not think that my work in the district health office is valuable these days	4.0 ± 1.3

Table 3 (cont)

Question	Motivation item score Mean ± SD
Organizational commitment (α = 0.49)*	
I am proud to be working for this district health office	4.5 ± 0.6
I find that my values and this district health office's values are very similar	4.3 ± 0.6
I am glad that I work for this facility rather than at other facilities in the country	4.4 ± 0.7
I feel very little commitment to this district health office	3.3 ± 1.5
This district health office really inspires me to do my very best in the job.	4.3 ± 0.7
Conscientiousness (α = 0.39)*	
I cannot be relied on by my colleagues at work	4.1 ± 0.9
I always complete my tasks efficiently and correctly	4.1 ± 0.7
I am a hard worker	3.1 ± 0.6
I do things that need doing without being asked or told	3.4 ± 0.9
Timeliness and attendance (α = 0.38)*	
I am punctual about coming to work	3.9 ± 0.8
I am often absent from work	4.4 ± 0.8
It is not a problem if I sometimes come late to work	3.3 ±1.0
Total motivation score (α = 0.76)*	90.0 ± 8.0

Note: The scores for items with negative answers were reversed when calculated, with higher scores indicating disagreement with negative statements and therefore being suggestive of higher motivation.

*Cronbach's α coefficient (≥0.90-1.00 = excellent; 0.80-0.89 = good; 0.70-0.79 = acceptable; 0.60-0.69 = questionable; 0.50-0.59 = poor; ≤0.49 = unacceptable)

SD: standard deviation

motivation factors were "I am glad that I work for this facility rather than at other facilities in the country" in the category "Organizational commitment", and "I am often absent from work" in the category "Timeliness and attendance".

The associations among the participants' characteristics and motivation scores were compared (Table 4). Motivation scores differed significantly between areas of employment, being highest for urban (91.9), followed by suburban

Table 4

Associations between characteristics and motivation scores (N = 285)

Factor	Motivation score Mean ± SD	ρ*	*p*-value
Work area			
Urban	91.9 ± 7.5		<0.001†
Suburban	90.0 ± 7.9		
Rural	84.5 ± 7.6		
Gender			
Male	89.5 ± 7.6		0.506‡
Female	90.1 ± 8.1		
Age		0.209	<0.001
Marital status			
Married	90.3 ± 8.1		0.256†
Single	88.9 ± 7.9		
Divorced, widowed, or separated	91.9 ± 6.8		
Education level			
Lower	93.0 ± 7.6		0.005‡
Intermediate	90.1 ± 7.7		
Advanced	92.8 ± 5.6		
University and above	88.2 ± 7.7		
Other	88.2 ± 11.8		

Table 4 (cont)

Factor	Motivation score Mean ± SD	ρ*	*p*-value
District health office located at hometown			
Yes	89.3 ± 8.0		0.571‡
No	90.1 ± 8.0		
Medical staff experience		0.236	<0.001‡
Profession			
Doctor	91.3 ± 7.5		0.021†
Assistant doctor	93.0 ± 1.4		
Nurse	92.0 ± 6.9		
Pharmacist	89.6 ± 8.3		
Laboratory technician	87.5 ± 9.5		
Midwife	92.4 ± 7.6		
Other	87.3 ± 7.8		
Position			
Leader	90.3 ± 7.5		0.603†
Sub-leader	88.5 ± 8.0		
None	90.1 ± 8.1		
Employment status			
Full-time	90.1 ± 7.9		0.434†
Permanent	87.7 ± 9.6		
Volunteer	90.7 ± 5.8		

Note: For educational level, Lower: practical nurse or medical personnel; Intermediate: intermediate nurse or medical personnel; Advanced: senior nurse or medical personnel.

*Spearman's rank correlation coefficient; †Kruskal-Wallis test; ‡Mann-Whitney U test

SD: standard deviation

(90.0) and then rural area (84.5). Motivation scores also differed significantly according to education level, with the highest score for lower-level nursing schools (*p*-value = 0.005). The highest motivation score was for an assistant doctor (93.0), followed by nurse, midwife, and then doctor, with the lowest for laboratory technician. Significant positive correlations were found between motivation score and both age and medical staff experience (both *p*-value <0.001).

The associations between motivation score and work environment were also compared (Table 5). The motivation score is not

Table 5

Association between work environment and motivation score

Factor	Motivation score Mean ± SD	ρ*	*p*-value
Job satisfaction		0.167	0.005
Perceived equipment supply			
Sufficient	89.0 ± 8.0		0.179†
Insufficient	90.5 ± 7.9		
Salary			
Amount		0.088	0.138
Late payment		-0.092	0.127
Perceived fairness by supervisor		0.269	<0.001
Amount of training in the prior year		0.166	0.005
Supporter			
Supervisor		0.359	<0.001
Co-worker		0.302	<0.001
Superagency		0.184	0.002
Perceived feedback from superagency		0.198	0.003

*Spearman's rank correlation coefficient; †Mann-Whitney U test

SD: standard deviation

significantly associated with salary but is significantly correlated with fairness (p-value <0.001) and support, with the highest being supports from their supervisor (ρ (Spearman's rank correlation coefficient) = 0.359). On the other hand, the lowest motivation scores were for superagency and supervisor (ρ = 0.184). Motivation scores are significantly positively correlated with job satisfaction (ρ = 0.167), amount of training in the prior year (ρ = 0.166), and feedback from superagency (ρ = 0.198).

In a hierarchical regression analysis, Model 1 shows age is significantly associated with motivation score (regression coefficient (B) = 0.18, p-value <0.01), and university or higher education level is associated with a significantly lower motivation score (B = -3.13, p-value = 0.05). Model 2 reveals health care providers in urban and suburban area have significantly higher motivation scores than those who worked in rural areas (B = 7.78, p-value <0.01 and B = 5.27, p-value <0.01 respectively). Among professions, doctors have significantly higher motivation scores (B = 3.61, p-value = 0.01). However, neither age nor education level is significantly associated with motivation scores. Model 3 shows the amount of training is significantly associated with motivation scores (B = 0.70, p-value = 0.03), as are working in the urban (B = 7.70, p<0.01), working in the suburban area (B = 5.27, p<0.01), and being a doctor in profession (B = 2.97, p-value = 0.04). Model 4 demonstrates that fairness (B = 1.69, p-value = 0.03) and support from a supervisor (B = 0.53, p-value = 0.04) are significantly associated with motivation scores, as were education level, work area, profession, and amount of training.

DISCUSSION

This study investigated factors influencing work motivation among healthcare providers working at DHOs in Laos. The results revealed significant associations between work motivation scores and education level, profession, amount of training, fairness, and supervisor's support.

Fairness is significantly correlated with work motivation since they provide encouragement to healthcare providers in their work. Healthcare providers believe that respect for their opinions makes their work rewarding. Supporting this, a previous survey reported that fair treatment is one aspect that increases work motivation among employees (Sutanto *et al*, 2018). In general, companies are expected to act fairly by paying

Table 6

Multiple regression analysis of various factors and motivation scores

Factor	Model 1			Model 2			Model 3			Model 4		
	B	SD	*p*-value	B	SD	*p*-value	B	SD	*p*-value	B	SD	*p*-value
Gender	0.92	1.10	0.40	-0.47	1.11	0.67	-0.41	1.10	0.71	-0.08	1.14	0.95
Age	0.18	0.06	<0.01	0.07	0.15	0.66	0.19	0.16	0.23	0.11	0.16	0.49
Marital status												
Married	Reference			Reference			Reference			Reference		
Divorced/Separate/ Widowed	1.03	2.26	0.65	0.22	2.23	0.92	-0.88	2.17	0.69	-1.32	2.07	0.53
Single	1.22	1.23	0.32	0.80	1.22	0.51	0.26	1.27	0.84	-1.11	1.32	0.40
Education level*												
Lower	Reference			Reference			Reference			Reference		
Intermediate	-1.23	1.48	0.40	-0.87	1.54	0.57	-0.41	1.57	0.79	-0.78	1.61	0.63
Advanced	1.14	3.65	0.75	1.39	3.71	0.71	2.30	3.63	0.53	2.62	3.50	0.45
University and higher	-3.13	1.59	0.05	-3.12	1.96	0.11	-3.06	1.98	0.12	-4.98	1.97	0.01
Work area												
Urban				7.78	1.62	<0.01	7.70	1.88	<0.01	5.39	1.98	0.01
Sub-urban				5.27	1.52	<0.01	5.27	1.74	<0.01	2.49	1.80	0.17
Rural				Reference			Reference			Reference		
District health office located at hometown				0.37	1.19	0.76	0.60	1.23	0.63	0.43	1.32	0.74
Medical staff experience				0.04	0.14	0.78	-0.08	0.15	0.58	-0.10	0.15	0.50

Table 6 (cont)

Factor	Model 1			Model 2			Model 3			Model 4		
	B	SD	*p*-value	B	SD	*p*-value	B	SD	*p*-value	B	SD	*p*-value
Profession												
Doctor				3.61	1.43	0.01	2.97	1.44	0.04	4.45	1.52	<0.01
Assistant doctor				2.77	5.41	0.61	0.25	5.27	0.96	0.88	4.92	0.86
Nurse				2.43	1.54	0.12	1.28	1.55	0.41	2.12	1.64	0.20
Pharmacist				1.56	1.44	0.28	0.30	1.49	0.84	1.93	1.57	0.22
Laboratory technician				0.32	1.85	0.86	-0.30	1.92	0.88	-1.27	1.97	0.52
Midwife				2.96	1.99	0.14	3.74	1.98	0.06	4.09	1.95	0.04
Other				Reference			Reference			Reference		
Position												
Leader				-0.11	1.35	0.93	-0.88	1.33	0.51	-0.47	1.32	0.72
Sub-leader				-0.90	1.61	0.58	-1.08	1.59	0.50	-0.69	1.60	0.67
Staff				Reference			Reference			Reference		
Employment status												
Fulltime				1.22	1.81	0.50	1.83	2.36	0.44	-0.76	2.50	0.76
Permanent				Reference			Reference			Reference		
Volunteer				5.13	2.40	0.03	4.53	2.55	0.08	1.44	2.79	0.61
Perceived equipment							1.17	0.98	0.23	1.42	1.03	0.17
Salary amount							-0.01	0.15	0.92	0.06	0.15	0.68
Salary late payment							-0.69	0.76	0.36	-0.09	0.77	0.91

Table 6 (cont)

Factor	Model 1			Model 2			Model 3			Model 4		
	B	SD	*p*-value	B	SD	*p*-value	B	SD	*p*-value	B	SD	*p*-value
Amount of training in the prior year							0.70	0.33	0.03	0.81	0.34	0.02
Perceived fairness by supervisor										1.69	0.76	0.03
Supporter												
Supervisor										0.53	0.26	0.04
Co-worker										0.26	0.30	0.38
Superagency										-0.10	0.21	0.62
Perceived feedback from superagency										0.46	0.69	0.51

Note: Model 1: Demographic characteristics (gender, age, marital status, education level,) were taken into consideration.
Model 2: Model 1 + Demographic characteristics (work area, home town work place, work year total, profession, position, employment status) were taken into consideration.
Model 3: Model 2 + Work environment (perceived equipment, salary amount, salary late payment, amount of training) were taken into consideration.
Model 4: Model 3 + Support (perceived fairness by supervisor, supporter (supervisor, co-worker, superagency), and perceived feedback from superagency were taken into consideration. –

*Lower: practical nurse or medical personnel; Intermediate: intermediate nurse or medical personnel; Advanced: senior nurse or medical personnel.

B: regression coefficient; SD: standard deviation

appropriate wages and providing appropriate rewards based on employees' contributions. This also aligns with the theory that a company should be fair to its employees to boost motivation (Sutanto *et al*, 2018). Equity has been reported to be a priority among nurses in terms of motivational factors in Iran, and implementation of organizational justice has been shown to affect the perception of equality in the work environment (Heidarian *et al*, 2015). Therefore, implementing fairness and organizational justice can be expected to result in better motivation.

Support from a supervisor represents good communications and relationships within an organization, which leads to improved problem-solving in the work environment. Moreover, healthcare providers who experience such support would likely be more motivated at the workplace and feel an increased sense of belonging in the organization. Such support can result in heightened work motivation and better performance. A previous study in low- and middle-income countries reported that staff dynamics, which refers to problem-solving, confidence-building and teamwork through good relationships with co-workers and supervisors, provide a source of motivation at the organizational level (Bhatnagar *et al*, 2017). Therefore, support from a supervisor would be expected to improve teamwork and work motivation.

Concerning work areas, rural settings, often characterized by higher levels of poverty, were associated with lower work motivation. These regions tend to be distant from urban areas and have insufficient infrastructure. A previous study reported that rural workplaces in Laos are positively correlated with absenteeism, suggesting that health care providers' attendance is monitored less frequently at DHOs in rural areas (Yamada *et al*, 2013). Because of their location, additional training in rural areas is difficult to obtain as instructors are not reimbursed for their transportation costs or provided daily allowance.

A higher level of training leads to higher motivation because it promotes personal improvement and career advancement. Opportunities to obtain new medical skills and knowledge contribute to improved self-management and career progression (Franco *et al*, 2002). In addition, it is beneficial to residents in the region for healthcare providers to receive training. Therefore, raising awareness and demonstrating a positive attitude towards the training

of skills to medical professionals would lead to greater staff motivation (Dieleman, 2003; Tumlinson *et al*, 2020). Participation in training also presents an opportunity for healthcare providers to step away from their daily care of patients and become mentally and physically refreshed. Greater opportunities for training would provide health care or workers with new knowledge and skills in patients' care and allow them to remain active and able to maintain their skills well-honed. Thus, training would thus be expected to improve work motivation.

As for individual factors, being a doctor is significantly correlated with higher work motivation, while, surprisingly, having a university or higher level of education is significantly correlated with lower work motivation. There are insufficient medical equipment and staffing in the DHOs in Vientiane, and thus most patients choose to visit the central hospital to receive medical services (Yamada *et al*, 2013). A previous study on healthcare provider motivation in Vietnam reported that infrastructure constraints, such as the unavailability of utilities, shortage of drugs and outdated facilities negatively affect healthcare providers' ability to proffer care to patients (Thu *et al*, 2015).

In general, work motivation can be increased through incentives, such as higher salary or provision of additional daily allowance (Khamklub *et al*, 2013; Tumlinson *et al*, 2020). In the current study, salary is not significantly correlated with work motivation score. Public health workers and administrative staff receive rank-based salaries and a per diem, but these were not considered sufficient. A previous study reported healthcare providers are devoted to providing care to local villagers and to organizing outreach activities, even though they do not receive a salary or incentives (Qian *et al*, 2016). On the other hand, another study suggests insufficient incentives or unpaid wages lead to reduced work quality (Pilati, 2021). These studies indicate that salary is an essential factor for work motivation, but the current study revealed that other factors in the work environment were more related to work motivation. In Laos, it is not unusual for workers to receive their salaries in arrears, and so it may be possible to apply other means to motivate and engage them in their duties, such as the establish of a support system involving both supervisors and fellow colleagues, and more attention paid to improving relationships among all members of the workplace.

The present study has several limitations. Firstly, the validity and reliability of the work motivation scale used in the study should be confirmed for Laos. Secondly, the study participants are all working in Vientiane and caution is needed when generalizing the results to other provinces, in particular rural regions of the country. Thirdly, although associations between healthcare providers' work motivation and individual and organizational factors were identified, other factors were not investigated. Fourthly, as this was a cross-sectional study, causal relationships could not be determined. Fifthly, data were collected using face-to-face interviews instead of the self-report methods used in most previous studies in developing countries, and so the participants might have given more socially desirable answers. Sixthly, the study was conducted about 10 years ago, and the economic situation concerning healthcare providers in Vientiane has changed radically. And finally, several questions had substantial missing values; for example, scores of superagency was based on three questions that had many non-responses and had to be excluded.

In conclusion, among healthcare providers in Vientiane, Laos, fairness, support from a supervisor, training, and personal characteristics are all significantly associated with work motivation. Healthcare professionals may become more motivated in their work if ongoing education is implemented. Increased feedback from superagency and support from supervisors and co-workers could be expected in boosting work motivation. To improve job motivation among healthcare providers in Laos, we believe that additional training should be made available to staff members and supervisors together with improvements in the quality of support.

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CONFLICT OF INTEREST DISCLOSURE

The authors declare no conflict of interest.

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