Assessment of healthcare quality among village clinicians in rural China: the role of internal work motivation

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A B S T R A C T

Introduction: The quality of primary care is important for health outcomes among residents in China. There is evidence that internal work motivation improves the quality of healthcare provided by clinicians. However, few empirical studies have examined the relationship between internal work motivation and clinical performance among village clinicians in rural China. This study was performed to evaluate healthcare quality among village clinicians, then explore its relationships with internal work motivation among those clinicians.

Methods: We collected survey data using a standardised patient method and a structured questionnaire. We observed 225 interactions between standardised patients and village clinicians from 21 counties in three provinces. We used logistic regression models to analyse the relationships between work motivation and healthcare quality, then conducted heterogeneity analysis.

Results: Healthcare quality among village clinicians was generally low. There was a significantly positive correlation between internal work motivation and healthcare quality among village clinicians (P<0.1). Additionally, the positive effect of internal work motivation on healthcare quality was strongest among clinicians who received financial incentives and had a lighter workload (fewer patients per month) [P<0.1].

Conclusion: Healthcare quality among village clinicians requires urgent improvement. We recommend implementing financial incentives to stimulate internal work motivation among village clinicians, thus improving their clinical performance.

Hong Kong Med J 2023;29:57–65
https://doi.org/10.12809/hkmj219871

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This article was published on 9 Feb 2023 at www.hkmj.org.

New knowledge added by this study

- Internal work motivation was positively correlated with healthcare quality among village clinicians in rural China.
- The positive correlation was strongest among clinicians who received financial incentives and had a lighter workload (fewer patients per month).

Implications for clinical practice or policy

- Healthcare quality among village clinicians in rural China should be enhanced by improving their internal work motivation.
- Interventions that include financial incentives should be implemented to strengthen the positive effect of internal work motivation on healthcare quality among clinicians.

Introduction

Village clinics, the first tier of rural health systems in China, are responsible for preventing and treating common diseases among rural residents.[1,2] However, the quality of healthcare provided by village clinicians may be unsatisfactory in rural China.[3,4] Village clinicians generally have a low level of education and limited medical qualifications.[4] There is some evidence that, among village clinicians, the first records of formal schooling are primarily vocational school degrees; most (84.3%) of these clinicians only have the basic medical certification necessary to practise medicine in rural areas.[5] Moreover, despite limited empirical evaluation, available data indicate that rural primary clinicians have low diagnostic quality and provide poor management of chronic diseases.[6] A 2012 study in Shaanxi Province revealed that 41% of diagnoses were incorrect; treatments were considered correct or partially correct in 53% of clinician-patient interactions.[5] A systematic review of 24 studies between 2000 and 2012 showed the rate of antibiotic use in rural clinics was much

中國農村鄉村臨床醫生醫療質量評估：內部工作動機的作用

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引言：基層醫療機構的醫療服務品質對中國居民的健康情況至關重要。有證據表明，醫生較高的內部工作動機可以提高其提供的醫療服務品質。然而，關於中國鄉村醫生內部工作動機與其醫療服務質量之間關係的實證研究較少。本研究旨在評估中國鄉村醫生的醫療服務品質，並探討其與鄉村醫生內部工作動機的關係。

方法：我們採用標準化病人法和結構化問卷收集調查數據。我們觀察了來自三個省21個縣的標準化病人與鄉村臨床醫生之間的225次互動，以及採用邏輯迴歸模型分析工作動機與醫療服務品質之間的關係，並進行異質性分析。

結果：鄉村醫生的醫療服務品質水準普遍較低。鄉村醫生內部工作動機與其提供的醫療服務質量之間存在顯著正相關關係（P<0.1）。此外，內部工作動機對醫療服務質量的積極影響在接受財務激勵和工作量較輕（每月接診患者數量較少）的鄉村醫生中顯著更強（P<0.1）。

結論：中國鄉村醫生的醫療服務品質亟待提高。我們建議實施經濟激勵措施，激發鄉村醫生的內在工作動力，從而提升他們的臨床表現。

higher than the rate recommended by the World Health Organization.[7,8]

The Chinese Government has recognised the need to strengthen primary healthcare in rural areas. To improve health among rural residents, the government has recently issued multiple policies that are intended to improve service capacity within primary medical systems.[9,10] For example, to improve clinical knowledge among village clinicians, several government departments jointly implemented a plan in 2013, which focused on the provision of continuing education for clinicians.[11] In 2019, the Basic Medical and Health Promotion Law of the People's Republic of China emphasised the need to support the development of primary medical institutions and implement various policies that would improve primary medical service capabilities.[12]

Although improvements in internal work motivation among village clinicians may help to enhance their medical performance, few empirical studies have examined the relationship between these two characteristics among village clinicians in rural China. Theory-focused researches indicate that internal work motivation is important for improvements to clinician performance.[13,14] Other theory-based researches in China have suggested that clinicians with higher internal motivation are more likely to deliver higher-quality work.[15,16] Quantitative analyses of clinician behaviour, primarily conducted in other countries, have also revealed positive effects of internal work motivation on healthcare quality and work performance of clinicians.[17-19] To our knowledge, empirical studies of work motivation in China have primarily focused on individuals in business careers and similar occupations; few have considered groups of clinicians.[20-22] Thus, there have been few empirical studies involving village clinicians in rural China.

This study explored the relationship between internal work motivation and healthcare quality among village clinicians in rural China. First, using a standardised patient method and questionnaire interviews, we evaluated healthcare quality and internal work motivation among village clinicians. Second, we examined the relationships between internal work motivation and healthcare quality among village clinicians. Third, we conducted heterogeneity analysis with a focus on clinician workload and financial incentives.

Methods

Sampling and data collection

Our study sampling was conducted in the rural areas of three prefectures, each located in one of the following three provinces: Sichuan, Shaanxi, and Anhui. Representative samples were selected using a multi-level random method. First, 21 sample counties were randomly selected from the sample prefectures. Next, 10 townships from each sampled county were randomly chosen as sample townships; 209 sample townships were selected because one sample county contained only nine townships. Then, one village was randomly selected from each township. Finally, all village clinics in the sample village were included; one standardised patient interaction was completed in the sample village.

We conducted two sets of surveys to collect data regarding basic characteristics, internal work motivation, and healthcare quality among village clinicians in 2015. In the first set of surveys, we primarily gathered information regarding the characteristics of village clinics and village clinicians. Specifically, we used a facility structured questionnaire to enquire about the value of each sample clinic's medical instruments and institutional net income in 2014 (both in Renminbi [RMB]), and length of daily lunch break (hours). We recorded the following characteristics of sample village clinicians: age, gender, level of education and clinical qualifications, duration of service, monthly salary (in RMB), number of training days in 2014, clinician workload (mean number of patients per month), mean duration of consultation per patient (minutes), and any financial incentives. Additionally, we asked village clinicians to respond to questions regarding internal work motivation.

In the second set of surveys, we used a standardised patient method to evaluate the quality of healthcare provided by sample village clinicians. This method avoids problems such as the Hawthorne effect and recall bias, accurately

assesses healthcare quality among clinicians, and is widely used in other countries.[23,24] We recruited 63 individuals (ie, standardised patients; 21 in each province) to present three predetermined disease cases of diarrhoea, tuberculosis, and unstable angina in a standardised manner. Generally, we randomly allocated one standardised patient to each sample clinic to report a case that had been randomly selected prior to allocation.

Measurement of healthcare quality

We evaluated the quality of healthcare provided by village clinicians using three indicators: process quality, diagnostic accuracy, and treatment accuracy. We assigned a process quality value of 1 to clinicians who completed more than the mean percentage of suggested items, indicating a high-quality enquiry process. Otherwise, the process quality value was 0. Regarding diagnostic and treatment accuracies, we assigned a value of 0 to an 'incorrect' result, based on predetermined criteria. Otherwise, 'correct' or 'partly correct' results were assigned an accuracy value of 1. The treatment was also considered correct if the clinician referred the patient to a higher-level hospital.

Measurement of internal work motivation

According to Amabile and Mueller,[25] an individual's work motivation is defined as internal work motivation if it originates from love and interest. The internal motivation instrument in our study included four items, such as 'because I like what I do for a living'. The responses of four items were rated on a 7-point Likert-type scale, ranging from 1 = strongly disagree to 7 = strongly agree. In this study, we assigned a value of 0 to responses indicating disagreement or neutrality (with original score of 1-4) and a value of 1 to responses indicating agreement (with original score of 5-7). The total score of the four items on our instrument represented a clinician's level of internal work motivation. The total score ranges from 0 to 4; a higher score indicated a higher level of motivation.

The Cronbach's α value of the internal work motivation questionnaire was 0.826, which indicated that the scale had good internal consistency. The Kaiser–Meyer–Olkin value of the questionnaire was 0.705, indicating that the scale had good structural validity. These results confirmed that the questionnaire was an acceptable measurement tool.

Statistical analysis

STATA15.0 software (Stata Corporation; College Station [TX], United States) was used to perform descriptive and regression analyses of the collected data. Logistic regression models with a significance threshold of P<0.1 were used to analyse relationships between internal work motivation and healthcare quality.[26-28] Two items, clinician workload × internal motivation interaction and financial incentive × internal motivation interaction, were added to the model for analyses of heterogeneity. All regression analyses were adjusted for fixed effects of disease cases, standardised patients, and the coder.

Results

Characteristics of sample village clinicians and clinics

In total, 225 village clinicians from 225 village clinics

TABLE 1. Characteristics of sample village clinics and clinicians (n=225)*

Characteristics	
Age, y	49.20 ± 10.22
Gender	
Male	196 (87.11%)
Female	29 (12.89%)
Level of education	
College or above	25 (11.11%)
Below college	200 (88.89%)
Clinical qualification	
Practising clinician or above	7 (3.11%)
Below practising clinician	218 (96.89%)
Duration of service, y†	
≥27.82	99 (44.00%)
<27.82	126 (56.00%)
Monthly salary, RMB	1950 ± 1460
No. of training days in 2014	5.80 ± 6.58
Clinician workload per month†	
≥171 Patients	89 (39.56%)
<171 Patients	136 (60.44%)
Mean duration of consultation per patient, min	14.28 ± 8.55
Had financial incentives	
Yes	103 (45.78%)
No	122 (54.22%)
Value of medical equipment, RMB†	
≥920	86 (38.22%)
<920	139 (61.78%)
Institutional net income in 2014, RMB‡	
≥25 500	113 (50.22%)
<25 500	112 (49.78%)
Daily lunch break, h†	0.79 ± 1.08
≥0.79	91 (40.44%)
<0.79	134 (59.56%)

Abbreviation: RMB = Renminbi

* Data are shown as No. (%) or mean ± standard deviation

† Determined based on the mean

‡ Determined based on the median

TABLE 2. Healthcare quality among sample village clinicians determined via three disease cases*

	Overall (n=225)	Angina (n=87)	Diarrhoea (n=57)	Tuberculosis (n=81)
Recommended consultation and examination items†				
Finished ≥17%	96 (42.67%)	50 (57.47%)	23 (40.35%)	23 (28.40%)
Finished <17%	129 (57.33%)	37 (42.53%)	34 (59.65%)	58 (71.60%)
Diagnoses				
Correct or partly correct	73 (32.44%)	29 (33.33%)	30 (52.63%)	14 (17.28%)
Incorrect	152 (67.56%)	58 (66.67%)	27 (47.37%)	67 (82.72%)
Treatments				
Correct or partly correct‡	94 (41.78%)	64 (73.56%)	9 (15.79%)	21 (25.93%)
Incorrect	131 (58.22%)	23 (26.44%)	48 (84.21%)	60 (74.07%)

* Data are shown as No. (%)
† Classified according to the mean value
‡ If the prescription included any accurate medicine or the clinician recommended patient referral

TABLE 3. Internal work motivation of sample village clinics (n=225)*

Item	
Because I like what I do for a living	
Agree	213 (94.67%)
Disagree or neutral	12 (5.33%)
Because my job is interesting	
Agree	187 (83.11%)
Disagree or neutral	38 (16.89%)
Because I have fun doing my job	
Agree	206 (91.56%)
Disagree or neutral	19 (8.44%)
Because I enjoy my job	
Agree	213 (94.67%)
Disagree or neutral	12 (5.33%)
Overall internal work motivation	3.64 ± 0.85

* Data are shown as No. (%) or mean ± standard deviation

were included in this study. Table 1 describes the basic characteristics of sample village clinicians. The mean age of the clinicians was 49.20 years, and 196 clinicians (87.11%) were men. Among the 225 clinicians, 25 (11.11%) had attended college or above, whereas seven (3.11%) had a practising clinician qualification. Each clinician examined a mean of 171 patients per month. Mean salaries for village clinicians were particularly low (slightly >1900 RMB per month), and 103 clinicians (45.78%) had received financial incentives.

Table 1 also describes the characteristics of sample village clinics. The mean value of medical equipment was 920 RMB, and the mean institutional net income in 2014 was 25 500 RMB. However, only 86 clinics (38.22%) had a medical equipment value above the mean. This result indicates that the value of medical equipment considerably varied among sample clinics, and the value of medical equipment in most clinics was inadequate. Notably, clinics had a mean lunch break length of <1 hour.

Healthcare quality among village clinicians

The unannounced standardised patients completed 225 disease cases (57, 87, and 81 cases of diarrhoea, angina, and tuberculosis, respectively). Table 2 shows the healthcare quality among sample village clinicians determined via three disease cases. On average, the clinicians completed 17% of the recommended consultation and examination items. Furthermore, 129 clinicians (57.33%) completed fewer than the mean number of recommended consultation and examination items. Among all types of cases, 73 clinicians (32.44%) provided a completely or partially correct diagnosis. Furthermore, 94 clinicians (41.78%) provided correct or partly correct treatments across all types of cases. Although the results of these three indicators varied among diseases, the percentages of clinicians with number of recommended consultation and examination items above the mean, number of correct diagnoses, and number of treatments for each disease were generally low.

Internal work motivation of village clinicians

Table 3 shows the levels of internal work motivation among sample village clinicians. Overall, 213 clinicians (94.67%) believed that 'I like what I do for a living' or 'I enjoy my job' motivated their work in clinics. Furthermore, 187 (83.11%) and 206 (91.56%) clinicians indicated that their respective main work motivations were 'because my job is interesting' and 'because my job is fun'. Integration of the scores for the four items revealed that the mean overall score for internal work motivation was 3.64 ± 0.85 (range, 0-4).

TABLE 4. Logistic regression analysis of relationships between internal work motivation and healthcare quality among sample village clinicians*

	Process quality	Diagnostic accuracy	Treatment accuracy
Internal work motivation	1.130	1.422†	1.452†
	(0.186)	(0.191)	(0.202)
Clinician workload (Ref: <171 patients)§	1.824	1.188	1.641‡
	(0.382)	(0.414)	(0.466)
Had financial incentives (Ref: No)	1.060	1.223	0.346‡
	(0.361)	(0.385)	(0.430)
Age, y	1.003	0.989	1.002
	(0.031)	(0.037)	(0.046)
Gender (Ref: female)	0.857	1.239	3.892‡
	(0.502)	(0.600)	(0.627)
Level of education (Ref: below college)	0.704	0.470	3.130
	(0.562)	(0.566)	(0.750)
Clinical qualification (Ref: below practising clinician)	0.326	0.330	1.273
	(0.931)	(1.489)	(1.201)
Duration of service (Ref: <27.82 years)§	0.452	0.867	0.327
	(0.651)	(0.703)	(0.887)
Monthly salary, RMB	1.143	1.338†	0.771
	(0.159)	(0.150)	(0.192)
No. of training days in 2014	0.981	1.004	0.968
	(0.030)	(0.023)	(0.041)
Mean duration of consultation per patient, min	0.957†	0.980	0.937†
	(0.023)	(0.023)	(0.033)
Value of medical equipment (Ref: <920 RMB)§	0.398†	1.137	1.035
	(0.411)	(0.45)	(0.433)
Institutional net income in 2014 (Ref: <25 500 RMB)‖	1.008	0.706	2.524
	(0.507)	(0.534)	(0.703)
Daily lunch break (Ref: <0.79 hour)§	0.624	1.188	0.526
	(0.410)	(0.389)	(0.551)
R-squared	0.208	0.195	0.431
Observations	225	216¶	225

Abbreviation: RMB = Renminbi

* Data are shown as odds ratio scores with standard errors in parentheses, unless otherwise specified

† P<0.1

‡ P<0.05

§ Determined based on the mean

‖ Determined based on the median

¶ Standardised patient group No. 36's diagnoses were excluded because they were all incorrect and the logistic regression of diagnoses could not be determined, which resulted in nine samples less

Reference (ie, the variable with a value of 0) is reported to allow the results to be regarded as any change from that reference value

Relationships between internal work motivation and healthcare quality among village clinicians

Table 4 presents the results of logistic regression analysis of the relationship between internal work motivation and healthcare quality among village clinicians. Internal work motivation had a positive effect on clinical performance among sample clinicians. Specifically, for each one-unit increase in internal work motivation, village clinicians were 42.17% (P<0.1) and 45.61% (P<0.1) more likely to provide a correct or partially correct diagnosis and treatment, respectively.

Table 5 shows the results of heterogeneity analysis from the perspective of clinician workload and financial incentives. The clinician workload ×

TABLE 5. Heterogeneity analysis of the relationship between internal work motivation and healthcare quality among sample village clinicians*

	Process quality	Diagnostic accuracy	Treatment accuracy
Internal work motivation	1.143	1.621†	1.195
	(0.258)	(0.291)	(0.257)
Clinician workload (Ref: <171 patients)§	0.938	0.780	0.207
	(1.321)	(1.836)	(1.548)
Had financial incentives (Ref: No)	10.644	29.020†	2.340
	(1.752)	(1.896)	(1.933)
Clinician workload × internal motivation interaction	1.191	1.106	2.020†
	(0.345)	(0.477)	(0.427)
Had financial incentives × internal motivation interaction	0.540	0.429†	0.595
	(0.460)	(0.500)	(0.521)
Age, y	1.008	0.993	1.00
	(0.032)	(0.038)	(0.048)
Gender (Ref: female)	0.824	1.207	3.881‡
	(0.504)	(0.607)	(0.662)
Level of education (Ref: below college)	0.668	0.428	3.099
	(0.570)	(0.581)	(0.736)
Clinical qualification (Ref: below practising clinician)	0.353	0.357	1.429
	(0.943)	(1.498)	(1.171)
Duration of service (Ref: <27.82 years)§	0.414	0.781	0.338
	(0.656)	(0.721)	(0.895)
Monthly salary, RMB	1.172	1.377‡	0.763
	(0.164)	(0.158)	(0.206)
No. of training days in 2014	0.979	1.001	0.960
	(0.030)	(0.023)	(0.040)
Mean duration of consultation per patient, min	0.958†	0.981	0.937†
	(0.023)	(0.023)	(0.034)
Value of medical equipment (Ref: <920 RMB)§	0.403‡	1.168	1.045
	(0.410)	(0.454)	(0.436)
Institutional net income in 2014 (Ref: <25 500 RMB)‖	0.959	0.654	2.635
	(0.519)	(0.559)	(0.745)
Daily lunch break (Ref: <0.79 hour)§	0.583	1.110	0.412
	(0.418)	(0.401)	(0.602)
R-squared	0.212	0.203	0.439
Observations	225	216¶	225

Abbreviation: RMB = Renminbi

* Data are shown as odds ratio scores with standard errors in parentheses, unless otherwise specified

† P<0.1

‡ P<0.05

§ Determined based on the mean

‖ Determined based on the median

¶ Standardised patient group No. 36's diagnoses were excluded because they were all incorrect and the logistic regression of diagnoses could not be determined, which resulted in nine samples less

Reference (ie, the variable with a value of 0) is reported to allow the results to be regarded as any change from that reference value

internal motivation interaction was significantly negatively correlated with diagnostic accuracy, whereas the financial incentive × internal motivation interaction was significantly positively correlated with treatment accuracy (P<0.1). These results indicate that a heavier workload could hinder the positive effect of internal motivation on diagnostic accuracy among village clinicians. Furthermore,

among village clinicians who received financial incentives, the positive effect of their internal work motivation on their treatments was stronger than the corresponding effect among village clinicians who did not receive financial incentives.

Discussion

This study evaluated the healthcare quality among village clinicians in rural China and its relationship with internal work motivation among these clinicians, through an analysis of 225 rural village clinicians from three provinces in 2015. There were three main findings. First, healthcare quality among village clinicians needed to be improved. Second, village clinicians with stronger internal work motivation were more likely to offer appropriate treatment. Third, village clinicians with a lighter workload (fewer patients per month) or financial incentives exhibited a stronger positive correlation between internal motivation and healthcare quality.

Generally, interactions between unannounced standardised patients and sample village clinicians showed that poor healthcare quality was provided by village clinics in rural China. On average, village clinicians completed only 17% of the recommended consultation and examination items. The rates of diagnostic accuracy and treatment accuracy (including correct or partly correct treatment) were 32.44% and 41.78%, respectively. Our findings of poor healthcare quality are comparable with the results of other studies performed at primary health centres in rural China. For example, a study based on the patient's perspective, conducted in Guangdong Province, highlighted the difficulty in maintaining adequate coordination among primary medical services.[29] A survey using a standardised patient method revealed that healthcare quality was worse in rural China than in primary care settings in Nairobi, Kenya.[30] A systematic analysis of rural township health centres in Shandong Province also indicated a need for improved healthcare quality among primary care clinicians.[16]

We found that internal work motivation was generally high among village clinicians. The mean internal work motivation score was 3.64 ± 0.85, indicating that most village clinicians liked their jobs and were interested in their careers. Consistent with our findings, previous studies in other countries showed that most medical workers had high levels of internal work motivation.[31-33] Although few empirical studies have evaluated internal work motivation among village clinicians, there is some evidence that rural primary care clinicians in China experience meaning and pleasure from engaging in medical work.[13] Additionally, similar to results in other countries, we found that among the intrinsic factors, most village clinicians believed that a love for their career motivated them to work.[33-35]

Consistent with data from studies in other countries,[17,19] our empirical analysis demonstrated significant positive correlations between internal work motivation and healthcare quality among village clinicians in rural China. According to affect heuristic theory, this relationship presumably arises because individuals rely on emotions to make behavioural decisions, and a positive attitude will lead to higher-quality behaviours.[36] Empirical results from other countries support this assumption. A study in the United States demonstrated the importance of internal work motivation in medical behaviour decisions; clinicians with higher internal motivation were more willing to maintain higher quality in their work.[17] The findings of studies in developing countries, such as Ghana and Indonesia, also indicated that work motivation can significantly improve the quality of medical services provided by clinicians.[19,37] Thus, efforts to stimulate internal work motivation among village clinicians may help to improve their healthcare quality.

The results of heterogeneity analysis showed that the positive effect of internal work motivation on healthcare quality varied according to clinician workload and financial incentives. Specifically, internal work motivation had a stronger positive effect on clinical performance among village clinicians who had a lighter workload (fewer patients per month). This is presumably because clinicians with a heavier workload (more patients) are more likely to experience burnout[38] and a decreased sense of autonomy,[39,40] which could reduce internal motivation and ultimately lead to a decline in work performance.[14,39,41] Additionally, compared with village clinicians who did not receive financial incentives, clinicians who received financial incentives experienced a stronger positive effect on healthcare quality because of their internal work motivation. Studies of clinicians, combined with the results of theoretical analyses in other fields (ie, motivational synergy theory and self-decision theory), suggest that the provision of financial incentives encourages a belief of greater competence among clinicians; this belief, in conjunction with internal work motivation, enables clinicians to maintain high quality in their work.[13,14,41,42] Previous empirical studies have also demonstrated that performance-related financial incentives can improve internal work motivation among employees, leading to improvements in performance.[43]

The results of these heterogeneity analyses support efforts to enhance the positive effect of internal work motivation on healthcare quality by providing appropriate incentives for clinicians. Consistent with this perspective, the Chinese Government has been implementing incentive programmes during the past decade to improve healthcare quality among primary care clinicians

in rural China.[10,11] For example, the government is actively restructuring the salary and performance system, while asserting that healthcare systems at all levels should engage in combined efforts to provide additional financial incentives.[44]

To further promote internal work motivation among clinicians and improve their work performance, we recommend the revision of governmental incentives policies, based on existing policies. Specifically, medical institutions at all levels should establish performance accountability[45]; and emphasis should be placed on including physician performance in assessments to incentivise high-quality healthcare. Furthermore, medical institutions at all levels should provide additional financial incentives to clinicians based on assessments of patient experiences. These programmes could strengthen the positive effect of internal motivation on work performance among clinicians and improve their healthcare quality. Additionally, the workload of primary clinicians should be carefully managed to preserve the positive effect of their intrinsic motivation on job performance.

This study had a few limitations. First, it was a cross-sectional study, and the results represent correlations rather than causal relationships. Second, because we randomly selected samples from Sichuan, Shaanxi, and Anhui provinces, our results may not be fully representative of village clinicians and village clinics throughout rural China. Third, the reported level of internal work motivation may have been overestimated because this variable was self-reported by village clinicians.

Conclusion

Overall, healthcare quality was poor among village clinicians in rural China. Furthermore, there were positive correlations between internal work motivation and healthcare quality among rural village clinicians; these positive correlations were stronger among clinicians with financial incentives and lighter workload. Our findings suggest that the Chinese Government should implement policies to provide financial incentives for clinicians, with the goal of enhancing internal work motivation among village clinicians and improving their healthcare quality.

Author contributions

Concept or design: Q Gao, Y Shi, L Peng.
Acquisition of data: L Peng, S Song, Y Zhang.
Analysis or interpretation of data: L Peng, Q Gao, S Song.
Drafting of the manuscript: L Peng, Q Gao, Y Shi.
Critical revision of the manuscript for important intellectual content: All authors.

Conflicts of interest

As an International Editorial Advisory Board member of the journal, Y Shi was not involved in the peer review process. Other authors have disclosed no conflicts of interest.

Acknowledgement

All authors thank the standardised patients and investigators for their contribution and hard work.

Funding/support

This work received funding from 111 Project (Grant No.: B16031), National Natural Science Foundation of China (Grant No.: 72203134) and Innovation Capability Support Program of Shaanxi, China (Grant No.: 2022KRM007).

Ethics approval

Ethical approval was obtained from the Institutional Review Board of Sichuan University, China (Protocol No.: K2015025). The board approved the verbal consent procedure. Participants in this study were informed of the survey procedure and consented to publication.

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