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**Altruism of Healthcare Workers and Job Satisfaction:
Findings from a survey in central Vietnam**

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Abstract

Despite the value of altruism in this field of work, existing research across the world has not addressed its role in job satisfaction. We conduct quantitative analysis by using data collected from healthcare workers at primary facilities in central Vietnam in 2014, which includes a hypothetical question regarding the “dictator game” to obtain healthcare workers’ altruism. The results of a regression analysis show that a higher level of altruism is associated with lower job satisfaction. Further analysis reveals that more altruistic workers have lower satisfaction on healthcare quality they provide at their work in particular. This study contributes to previous knowledge on healthcare workers’ satisfaction by observing the role of altruism, which has not been sufficiently examined in previous studies.

Keywords: *altruism; job satisfaction; healthcare workers; Vietnam*

JEL classification: *C12; D64; I12*

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1. Introduction

The shortage of healthcare workers in primary facilities is a problem in many countries, and Vietnam is no exception. The public health system in Vietnam is well-regulated, and there are four levels of health facilities: national, provincial, district, and commune. There are 44 national hospitals, 476 provincial hospitals, 1,319 district hospitals, and 10,926 commune health stations (CHSs), with the latter fulfilling the central role for primary care service delivery covering 99% of communes, including rural and mountainous areas (WHO and the Ministry of Health Viet Nam 2012). However, CHSs are facing substantial shortages in staffing and suffer from the incapability to provide quality healthcare services. Further, urgent improvement is required with the current pressing challenge of an increasingly high level of overcrowding in hospitals. The government is aware of the importance of strengthening the capacity of primary care services, and efforts for better human resource management at CHSs have been made through rigorous policy intervention, particularly since 2013, such as increasing the number of medical staff from socioeconomically disadvantaged areas, regulating temporary secondment for medical staff, and sending young voluntary doctors to remote areas (Ministry of Health and Health Partnership Group 2016).

Although there have been some improvements in this regard, the general shortage of healthcare workers – particularly that of doctors – remains a serious issue as the latest statistics reveal that only 76% of CHSs had doctors at the time of the survey in 2012 (Ministry of Health and Health Partnership Group 2016). Researches on the human resource management of healthcare workers, which generally focus on nurses, identify higher job satisfaction as the main predictor to remain at work (Hayes et al. 2012). In Vietnam, however, not much is known about healthcare workers' satisfaction. Thus far, a limited number of research has suggested that CHS healthcare workers' job satisfaction is low due to insufficient salary and benefits, poor facilities and equipment, and a lack of professional development opportunities (Tran et al. 2013; Nguyen et al. 2016). These findings parallel the results of studies conducted in other developing countries, such as Uganda (Luboga et al. 2011), Senegal (Rouleau et al. 2014), Tanzania (Mbaraku et al. 2014), Afghanistan and Malawi (Fogarty et al. 2014), and Ghana (Bonenberger et al. 2014). Thus, the current study posits that further research is required through rigorous analysis to include more individual attributes, as existing research is inadequate in this realm.

This paper investigates factors associated with healthcare workers' job satisfaction by taking into account both individual attributes and the condition of their work places. In particular, the contribution of this paper is the exploration of the relationship between healthcare workers' altruism and job satisfaction in primary facilities. Although there is great emphasis on the importance of altruism among healthcare workers and the desire to help others is the most common motivation of pursuing a nursing career, studies focusing on altruism

are inexplicably limited. For example, after reviewing 100 papers related to job satisfaction among hospital nurses published between 1966 and 2011 through seven different databases, although “positive affectivity” was acknowledged as linked to job satisfaction, Lu et al. (2012) did not refer altruism in this regard.

To the best of the current authors’ knowledge, only two studies published in 2016 observed the role of altruism: a qualitative study in Iran (Nasrabadi et al. 2015), and a small sampled study in India (Gopalan et al. 2012), both of which suggested a positive correlation between altruism and job satisfaction and healthcare workers’ motivation. This may be due to the fact that healthcare workers are assumed to be altruistic, as Thompson et al. (1994) posited in *Nursing Ethics*, since healthcare professions have traditionally been characterized by self-professed altruism. In other words, altruism among healthcare workers has been taken for granted, and the effect of altruism on workers’ job satisfaction has long been neglected. It is, however, intriguing and necessary to question how altruism relates to the job satisfaction of healthcare workers, especially since this topic has been for the most part ignored in previous studies.

In order to analyze CHS healthcare workers’ job satisfaction, unique CHC and healthcare worker surveys was conducted in 2014 administered in three provinces located in central Vietnam including a hypothetical dictator game questionnaire to elicit measures reflecting altruism, which past literature has treated as an unobservable factor. Utilizing data obtained through these surveys, the current study performs quantitative analysis to reveal the association between healthcare workers’ satisfaction and altruism as well as other individual attributes to increase comprehension on the factors influencing healthcare workers’ job satisfaction. Such findings are relevant for more effective human resource management, both in and outside of Vietnam.

2. Methods

2.1 Study settings

In 2014, in affiliation with Hue University of Medicine and Pharmacy, the authors conducted a field survey in three provinces located in central Vietnam: Thua Thien Hue, Quang Tri, and Khanh Hoa. For data collection, three districts in Thua Thien Hue and Quang Tri and two districts in Khanh Hoa were chosen to include both urban and rural settings. The central region of Vietnam stretches narrowly from coastal to mountainous areas, and has very diverse agroclimatic conditions. The sampled rural and urban districts are situated among both lowland and highland areas, and may thus be considered as adequately representative of these three provinces. Based on a list of CHSs provided by the Provincial Health Department, several CHSs are randomly selected in each district to cover city, lowland and mountainous area to have a total number of CHS to be 50.

On the day of the interview, 36 healthcare workers out of 311 total workers were absent due to official duties and authorized leave. As the authors did not follow up with these workers, data were collected from a total

of 275 workers. In the main sample, administrative staff was not included, which left 243 healthcare workers belonging to 50 CHSs. Among these, samples were limited to the 241 responses that included all variables necessary for analysis. Individual healthcare workers were interviewed about their job satisfaction and other individual characteristics, and levels of altruism was also measured. Also, these 50 health facilities are surveyed to obtain information on CHS characteristics, including the supply capacity and facilities.

2.2 Altruism and the administration process

2.2.1 *Measurement of altruism*

Altruism has been described in many different ways according to the various disciplines of researchers such as psychology, sociology, and economics (Gormley 1996). However, the current study does not particularly focus on distinguishing various definitions of altruism, and instead treats the term as it is generally understood to express a regard for others as a principle for action. Altruism is measured based on responses to a hypothetical question in an exercise called the “dictator game.” This game is played between Player 1, the dictator (health worker), and Player 2, a randomly selected participant from Vietnam by lottery. Both players are blinded to one another’s identity. To begin the game, Player 1 receives 200,000 Vietnam Dong (equivalent to approximately 10 US dollars) as an endowment. Player 1 then decides how much he or she wants to keep and how much to send to Player 2. Player 1 can send any amount between 0 and 200,000 Dong to Player 2, and that amount is then automatically doubled so that Player 2 receives whatever amount contributed by Player 1 multiplied by two, plus an additional contribution of 30,000 Dong given by the project staff. The voluntary transferred amounts are, in general, interpreted as measures of altruism, assuming there is no self-involved reason for the first player to transfer money to the second player.

2.2.2 *Administration process*

The hypothetical dictator game was conducted during the interview portion of this study. During the interview, the aforementioned rules of the dictator game were explained to the respondents (healthcare workers), who were then assigned the role of Player 1. Participants were also reminded that anonymity was upheld in the game, and the rules were kept simple to avoid confusion. The data obtained from the game involved the amount of money that each respondent was willing to give to those assigned the role of Player 2, and this amount was utilized as the altruism measurement in analysis.

2.3 Data and empirical analysis

2.3.1 *Healthcare workers’ satisfaction*

We use ordered probit model to explore the relationship between healthcare workers’ satisfaction and altruism.

Healthcare workers' job satisfaction was elicited by posing the following question about their overall satisfaction: "How much are you satisfied with your overall work for the CHS?" Respondents answered according to one of the following options (according to a Likert scale): 1 = Very satisfied, 2 = Satisfied, 3 = Mostly satisfied, 4 = Dissatisfied, 5 = Very dissatisfied. For the purpose of analysis, the numbers were reversed (5 = Very satisfied to 1 = Very dissatisfied). None of the participants responded with "Very dissatisfied," and the median choice was "4 = Satisfied" (see Table 1).

2.3.2 Explanatory variables: Individual attributes

2.3.2.1 Altruism

In previous literature, individual attributes (particularly altruism) are not included as explanatory variables. This is partly due to the difficulty in observing such attributes. However, the amount reported in the dictator game enabled the current research to include altruism as a variable. Among participants, the most frequently reported amount was 100,000 Dong, accounting for 32.95% of all respondents, followed by 200,000 Dong (23.26%), 50,000 Dong (20.93%), and 0 Dong (6.59%). According to the summary statistics, over 60% of the interviewed healthcare workers would transfer half the amount of money or more to the randomly selected players. For estimation, the logarithmic value of this altruism measure was applied to treat healthcare workers who answered 0 for the transfer amount. The calculation was performed as follows: $\log(\text{altruism} + (\text{altruism}^2 + 1)^{1/2})$ (see Table 1).

2.3.2.2 Individual sociodemographic information and qualification

In addition to the variable of interest, we control individual sociodemographic information, namely age, sex, educational attainment, marital status, number of children, years employed at the CHS, whether he/she is the CHS head, and whether he/she is from the same commune as the CHS. Information on participants' hometown is used to explore whether healthcare workers' satisfaction was related to whether he/she works at a CHS located in the participant's hometown. Professional qualifications is also included in the regression model as explanatory variables to determine whether there are any differences in satisfaction and desire to transfer between different qualifications (including doctor, assistant doctor, nurse, auxiliary nurse, pharmacist, and midwife).

2.3.3 Explanatory variables: Working environment

As previous literature has explored, the working environment is an important factor in determining workers' satisfaction. The current study's analysis includes the formal, actual amount of salary, the dummy variable of training provided at the CHS (1: provided, 0: not provided), and the dummy variable of worked overtime at the CHS (1: hours worked at the CHS during last week exceeded 40 hours, 0: otherwise). In addition to actual amount of salary, we include responses as to whether one's main difficulties in working at this CHS

are limited to salaries. Additionally, CHS characteristics of supply capacity and infrastructure (the number of healthcare workers per 1,000 people, number of beds per 1,000 people, and the existence of necessary facilities), community population, dummy variables of district characteristics (city, lowland, and mountain) are controlled.

Table 1 Summary statistics

Variable	Mean	Std. Dev.	Min	Max
<i>Dependent variables</i>				
Overall satisfaction	3.913	0.681	2	5
<i>Explanatory variables: Individual characteristics</i>				
Log of altruism	16.798	5.264	0	21.203
Age	38.527	9.634	21	59
Age squared	1576.751	740.372	441	3481
Male	0.237	0.426	0	1
Education: secondary school	0.071	0.257	0	1
Education: vocational training	0.627	0.485	0	1
Education: college, university or over	0.299	0.459	0	1
Marital status (1:married 0: otherwise)	0.809	0.394	0	1
Number of children	1.017	3.198	0	6
Years worked at the CHC	12.282	9.472	0.3	44
Head of CHC	0.203	0.403	0	1
From the same community as the CHC	0.568	0.497	0	1
Qualification: Medical doctor	0.202	0.402	0	1
Qualification: Assistant doctor	0.266	0.443	0	1
Qualification: Nurse	0.068	0.252	0	1
Qualification: Auxiliary nurse	0.104	0.306	0	1
Qualification: Pharmacist	0.078	0.269	0	1
Qualification: Midwife	0.266	0.443	0	1
<i>Explanatory variables: Working Environment</i>				
Log of wage	8.410	0.366	7.090	9.241
Main difficulties in working at the CHC is limited salaries	0.680	0.467	0	1
Training provided at work (1:provided, 0:not provided)	0.834	0.373	0	1
Hours worked (attending patients) at the CHC (last week) is longer than 40 hours	0.166	0.373	0	1
Number of health workers at the CHC per 1,000 community population	6.427	1.334	4	10

Number of bed per 1,000 community population	1.079	1.635	0.042	8.214
Having refrigerator at the CHC	0.676	0.469	0	1
Having electric generator at the CHC	0.162	0.369	0	1
Log of community population	9.002	0.796	6.881	10.069
District dummy: Lowland district	0.295	0.457	0	1
District dummy: Mountain district	0.278	0.449	0	1
District dummy: City district	0.427	0.496	0	1
Provincial dummy: Thua Thien Hue	0.328	0.470	0	1
Provincial dummy: Quang Tri	0.257	0.438	0	1
Provincial dummy: Khanh Hoa	0.407	0.492	0	1

3. Results

Results are presented in Table 2, and the coefficient of the results of ordered probit are reported to locate general relationships with explanatory variables. Firstly, altruism is negatively associated with overall satisfaction, and is statistically significant at the 1-percent level. This implies that among healthcare workers, the higher the altruism level, the lower the job satisfaction levels.

Secondly, most of the individual characteristics do not correlate with satisfaction. These include age, sex, marital status, number of children, and whether he/she is from the same community as the CHS location. Further, years employed at the CHS are not associated with satisfaction. On the other hand, assistant doctors, midwives, and pharmacists tend to have higher levels of job satisfaction than medical doctors, which indicates that medical doctors have the lowest job satisfaction. Additionally, those who have gone to vocational school or who have obtained an education at the college or university (or higher) level are less satisfied than secondary-education workers. According to research data, workers who have undergone vocational training and secondary education appear to share the same position as they mainly serve as assistant doctors and nurses. Thus, results seem to indicate that workers with vocational training are not satisfied due to working in positions that do not match their job qualifications. In addition, workers holding college, university, or even higher educational qualifications are less satisfied compared to those with secondary education backgrounds. Healthcare workers trained in higher education may be dissatisfied with the limitations imposed by the CHS as they are unable to provide remedial care given the lack of equipment required to treat patients; only primary healthcare is provided at the CHS, and many healthcare workers may find this restrictive and frustrating.

Thirdly, virtually no variable of working environment shows a statistical relation with satisfaction apart from workers' subjective evaluation of their salary. Healthcare workers who identify salary limitations as the main difficulty in working at the CHS are more likely to be dissatisfied with their jobs. Despite this finding, the

salary they receive in reality is not associated with job satisfaction. Although further analysis is required, this is probably due to the fact that the formal salary of healthcare workers in Vietnam is uniformly established based upon age and professional qualifications, while the subjective evaluation on salary is determined not simply by the formal salary but also by the existence of other income sources such as allowance payments, profit shares, informal payments, and revenues from other jobs.

Table 2 Healthcare workers' overall satisfaction

Overall satisfaction (5= Very well - 2= Not much)	
	Coefficient
<i>Individual characteristics</i>	
Log of altruism	-0.0364*** (0.0141)
Age	0.066 (0.0957)
Age squared	-0.001 (0.0012)
Male	-0.043 (0.2040)
Education: vocational training (Ref: Secondary education)	-0.648** -0.306
Education: college, university or over (Ref: Secondary education)	-0.645* -0.388
Marital status	0.0272 -0.241
Number of children	0.0029 -0.117
Years worked at the CHC	-0.00153 -0.013
Head of CHC	0.140 (0.2430)
From the same community as the CHC	-0.198 (0.2110)
Qualification: Assistant doctor (Ref: Doctor)	1.028*** (0.3370)

Qualification: Nurse (Ref: Doctor)	0.496 (0.4270)
Qualification: Auxiliary nurse (Ref: Doctor)	0.692* (0.3640)
Qualification: Pharmacist (Ref: Doctor)	0.937** (0.4050)
Qualification: Midwife (Ref: Doctor)	0.802** (0.3290)
<i>Explanatory variables: Working Environment</i>	
Log of wage	0.303 (0.4460)
Main difficulties in working at the CHC is limited salaries	-0.547*** (0.1850)
Training provided at work (1:provided, 0:not provided)	-0.156 (0.2600)
Hours worked (attending patients) at the CHC (last week) is longer than 40 hours	-0.0467 (0.2150)
Number of health workers at CHC per 1,000 community population	0.005 (0.0659)
Number of bed per 1,000 community population	-0.002 (0.0858)
Having refrigerator at CHC	-0.040 (0.1970)
Having electric generator	-0.0035 (0.2800)
Log of community population	0.058 (0.2130)
District dummy: Lowland district (Ref: City district)	(0.1860) (0.2210)
District dummy: Mountain district (Ref: City district)	0.0587 (0.3280)
Provincial dummy: Thua Thien Hue (Ref: Khanh Hoa province)	0.2740 (0.3120)
Provincial dummy: Quang Tri (Ref: Khanh Hoa province)	0.2990 (0.2310)

Constant cut1	0.7080 (4.1250)
Constant cut2	1.9240 (4.1040)
Constant cut3	4.0380 (4.1090)
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Number of observation	241
Log pseudo likelihood	-212.204
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Standard Errors are adjusted for 50 clusters at community level.

*** p<0.01, ** p<0.05, * p<0.1

In order to scrutinize in what aspect more altruistic workers are less satisfied, we conduct further analysis incorporating the following dependent variables: satisfaction with the availability of drug items at the CHS, satisfaction with the staff at the CHS, and evaluation on the improvements of quality of health service provided at the CHS over the last two years. Satisfaction with the availability of drugs is a proxy measurement of healthcare quality because in the current study area, the CHS plays a central role in providing medicine to patient.

Table 3 Healthcare workers' satisfaction

	Satisfaction (availability of drug items) Mean 3.481, STDEV: 0.958, Min:1 Max:5	Satisfaction (the staff) Mean 4.155, STDEV: 0.748, Min:1 Max:5	Improvement Mean 4.46, STDEV: 0.693, Min:2 Max:5
	(5= Very well - 1= Not much)		(5=Much improved -1:Much deteriorated)
<i>Altruism</i>			
Log of altruism	-0.0274* (0.0150)	-0.019 (0.0150)	-0.0340* (0.0197)
Observation:	241	241	235

Same covariates with the main analysis are included in the analysis. Whole results are provided upon request.

Standard Errors are adjusted for 50 clusters at community level.

*** p<0.01, ** p<0.05, * p<0.1

As Table 3 reveals, the altruism measurement is negatively correlated with satisfaction with the availability

of drugs with the conventional level of 10%, and is also negatively correlated with the evaluation on the improvements of quality of health service provided at the CHS over the last two years. Meanwhile, altruism does not statistically relate to satisfaction with the CHS staff. This result display that more altruistic workers have stricter self-evaluation regarding healthcare quality, including availability of drugs. Results appear to suggest the possibility that more altruistic workers are frustrated for working in environments where resources are constrained and where healthcare workers cannot perform to their full ability despite a wish to help the others.

4. Conclusion

In conclusion, this paper is the first to quantitatively explore the relationship between altruism and job satisfaction. The current research reveals the negative association between altruism and job satisfaction, and further shows that altruistic people are less satisfied with healthcare quality measurements in particular.

This study's attempt is one of the indispensable first steps for further studies on altruism and human resource management in healthcare. Yet, there are several limitations present in the current study. First, the study sample was restricted to healthcare workers at CHSs in central Vietnam. Second, revealing the consequences of healthcare workers' low job satisfaction and associated higher altruism levels were beyond the scope of the present study. Thus, future research should test external validity through utilizing a larger sample from different settings and explore the consequences of altruistic healthcare workers' low job satisfaction with individual panel data over a longer observation period.

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