

Federation University ResearchOnline

<https://researchonline.federation.edu.au>

Copyright Notice

This is the peer reviewed version of the following article:

Nguyen, Duong, H. T., & Vu, T. T. (2017). Factors associated with job satisfaction among district hospital health workers in Northern Vietnam: a cross-sectional study. *The International Journal of Health Planning and Management*, 32(2), 163–179

Which has been published in final form at:

<https://doi.org/10.1002/hpm.2337>

This article may be used for non-commercial purposes in accordance with [Wiley Terms and Conditions for use of Self-Archived Versions](#).

See this record in Federation ResearchOnline at:

<http://researchonline.federation.edu.au/vital/access/HandleResolver/1959.17/181442>

Factors Associated with Job Satisfaction among District Hospital Health Workers in Northern Vietnam: A Cross-sectional Study

Nguyen Van Huy¹, Duong Huong Thao¹ & Vu Toan Thinh¹

¹*Institute for Preventive Medicine and Public Health, Hanoi Medical University, Hanoi, Vietnam*

Nguyen Van Huy (Corresponding Author)

Department of Health Management and Organization, Institute for Preventive Medicine and Public Health, Hanoi Medical University, 01 Ton That Tung Str., Dong Da Dist., Hanoi, Vietnam
Tel: +844.38523798 (ext. 108) or Cell: +84.917363919
Email: nvanhuy@yahoo.com

Duong Huong Thao

Institute for Preventive Medicine and Public Health, Hanoi Medical University, 01 Ton That Tung Str., Dong Da Dist., Hanoi, Vietnam
Email: duonghuongthao7575@gmail.com

Vu Toan Thinh

Institute for Preventive Medicine and Public Health, Hanoi Medical University, 01 Ton That Tung Str., Dong Da Dist., Hanoi, Vietnam
Email: vutoanthinhdhy@gmail.com

ABSTRACT

Background: In many developing countries, including Vietnam, little is known about job satisfaction among lower level-health staff. The purpose of this study was to assess job satisfaction and its determinants among district hospital health staff.

Methods: In a cross-sectional quantitative study, 128 health staff from a rural district hospital in Northern Vietnam were approached for data collection. Regression techniques were adopted to assess factors associated with several types of job satisfaction.

Results: Overall job satisfaction was moderately high, ranging from 69% to 91%. Across all dimensions, health workers showed their highest satisfaction with co-worker relationships, while, in comparison, it was much lower for their supervisor's style and relationship. However, they claimed their lowest satisfaction with compensation and benefits. In final multivariate models, females and those satisfied with knowledge, skills and job performance were most likely to be satisfied with relationships with co-workers. Staff who were married, received a low pay, who were not satisfied with supervisor style and relationships, and who were not satisfied with staff training, development opportunities were least likely to be satisfied with compensation and benefits.

Conclusions: The study findings highlight an important need for designing an intervention program that considers organizational factors.

Keywords: Job Satisfaction, District Hospital, Health Workers, Vietnam

INTRODUCTION

Job satisfaction is defined as the way people feel about their jobs (Dormann *et al.*, 2001; Krueger *et al.*, 2002). It is one of the critical concerns for human resource managers because low job satisfaction can result in increased staff turnover and absenteeism, which affects the efficiency of health services. While there are quite numerous studies on job satisfaction among enterprise employees, research especially in the field of healthcare systems, especially in developing countries, remains scarce so far. However, several interesting studies have emerged regarding different groups of health workers in both developed and developing countries. Overall job satisfaction in healthcare professions differed in some ways from other studies' findings. Several studies conducted in Africa reported that nearly a half of doctors and nurses were satisfied with their jobs (World Health Organization, 2006) while in Asian developing countries such as China, India and Malaysia, this proportion was slightly higher (Ai-Hong *et al.*, 2012; Jathanna *et al.*, 2011; Liu *et al.*, 2010)

In Vietnam, the level of job satisfaction among health professionals also varies across studies. A study among 2,800 Vietnamese nurses working at the national, and district hospital across 12 provinces in 2005 revealed that only 49.1% were generally satisfied with their job (Quy *et al.*, 2005). Wages, career value and working conditions were the issues of lowest satisfaction whereas colleague relationships and family/relatives' supports resulted in higher levels of satisfaction (Quy *et al.*, 2005). Another study on health workers in several health facilities in Vietnam showed staff's overall satisfaction ranged between 34.1 and 71.1%; they reported the lowest satisfaction with wages and allowance (24-32.4%), followed with infrastructure (39.4%), knowledge, skills and work effectiveness (28.9-50.0%), leadership (46.39-52.1%), staff training and development (46.45-52.5%); organizational environment (47.3-53.5%) and relationship with co-workers (26.28-67.7%) (Hung, 2010; Nhuan, 2008).

Job satisfaction among rural health workers in Vietnam is the result of a combination of factors – intrinsic and extrinsic at both individual and institutional level (Dieleman *et al.*, 2003; Grembowski *et al.*, 2005; Walker *et al.*, 2007). As such, each individual has unique needs and desires to be satisfied. In healthcare settings, the satisfaction of health workers in Taiwan was found to be positively associated with service delivery quality and patient satisfaction (Tzeng, 2002). Factors regarding job content leading to satisfaction were personal development opportunities, responsibility, success and recognition. These are factors where the individual is intrinsically rewarded. Extrinsic factors leading to job satisfaction may include wage levels, physical working conditions, job security, company policies, quality of supervision and relationships with others (Robbins, 2003). Factors contributing to high levels of job satisfaction were determined as: supportive colleagues, supportive working conditions, intellectually challenging work and equitable rewards (Locke, 1983). However, job satisfaction is a complex phenomenon. Prior literature indicates that there is an association between job satisfaction and motivation. Though motivation is hard to define, there is a positive correlation between job satisfaction, performance and motivation, whereby motivation encourages an employee, depending on his or her level of job satisfaction, to act in a certain way (Hollyforde *et al.*, 2002). Job satisfaction in Malaysia is attained when an employee becomes part of the organization, performs to the best of their ability, shows high commitment, and receives adequate rewards (Wood *et al.*, 2004). In Ezeja's study, only 29.2% of health workers agreed that their salary was enough to cater for their personal and family needs. A study conducted in Thailand showed that most of respondents were not satisfied and only a few were satisfied with their income, ranging from 2.4% who were very satisfied to 18.9% reporting relative satisfaction (Qiang, 2005).

It is necessary for leaders and managers to create an environment that encourages employees to be actively engaged in the workplace (Parisi-Carew *et al.*, 2009). This requires an

understanding of the factors influencing job satisfaction. However, the level of job satisfaction may not be consistent across various groups in different settings, but could be driven by a number of variables that need further investigation.

The healthcare system of Vietnam is hierarchically arranged into four levels – with the central level represented by Ministry of Health (MOH), the provincial level represented by Health Services, the district level represented by three units (Health Department, Hospital and Health Centre), and the lowest level represented by the commune health station. The commune health station serves as the first contact for the patients providing primary health care for the community. The district hospital is an entity that includes both inpatient and outpatient services, most of which are curative rather than preventive. Combined together, district and commune level are sometimes called grassroots level. At present, district health facilities provide a modest attraction for health professionals because of their unfavourable working conditions, equipment, training opportunities, and low wages. In district hospitals, working conditions (equipment and infrastructure) vary by departments and by types of health workers e.g., doctors, senior staff, and clinical staff have better working conditions than nurses, junior staff and para-clinical staff (Dung, 2008). Both the district and commune level of service delivery are now challenged by a high turnover of staff compared with higher levels of the healthcare system, the provincial and central (Witter *et al.*, 2011). Consequently, the consolidation and enhancement of the grassroots health network with respect to human resources is one of the most important strategies of MOH to date (Nhuan *et al.*, 2008).

A conceptual model for this study is based on one developed by Krueger in which satisfaction was measured with six factors using a five-point Likert scale - from one (very dissatisfied) to five (very satisfied). However, we slightly modified the model to fit the Vietnamese context. According to this framework, job satisfaction is affected by the following

six predictors: co-worker and supervisor relationships; co-worker relationships; knowledge, skills and job performance; organizational characteristics; compensation and benefits; and staff training and development (Krueger *et al.*, 2002; Phuc, 2010). All of these factors, if ensured, could lead to staff's higher performance and quality of work. Besides these core factors, we also modified the model by adding background factors such as socioeconomic status and individual variables to examine how they would contribute to the model.

Figure 1. Theoretical Framework of Predictors of Job Satisfaction (Krueger *et al.*, 2002)

The purpose of this study is to assess job satisfaction and identify its associated factors among health staff working in a district hospital in Northern Vietnam.

METHODS

Research Design and Location

A cross-sectional study was conducted in a rural district hospital – Yen Lac district hospital, Northern Vietnam using face-to-face interviews. Yen Lac district has an area of 106.77 km² and a population of 146,382 people, with a density of 1,371 people/km². It consists of one town and 16 communes. It is considered socio-economically advantaged with a growing number of both public and private health and education facilities. Yen Lac district is now in the process of development with convenient transportation and rapid economic growth with high capital. The location of Yen Lac also makes it more advantageous for development of clean and high quality agricultural products and developing service industry. Though the district has changed substantially, human resources still pose challenges common to other parts of the country (Krueger *et al.*, 2002; People's Committee of Yen Lac District, 2010).

Sample Size and Participants:

All of the 128 health professionals currently working at Yen Lac district hospital were eligible for interview. Among them, 108 employees completely agreed to participate in the current study (response rate of 84.4%).

Measures:

Socio-Demographic Information. Data were collected on 1) sex 2) marital status (single or married), 3) professional qualifications (vocational, university or other degrees), 4) average monthly income in USD, 5) main source of family income (if breadwinner or not), 6) seniority (less or more than 10 years of experience), 7) position (manager or staff), 8) employment status (official/contract), 9) working time (works extra hours or not) and 9) work area (clinical, paraclinical, management, other).

Job Satisfaction: To ensure both internal and external reliability, a forward-backward translation approach was used where the original English measure was translated into Vietnamese and back into English. For the translated version Cronbach's alpha coefficients were at least acceptable ($\alpha \geq 0.7$) and indicate internal reliability. Further, the measure has been widely used in previous studies in Vietnam and has shown to be consistent across studies, therewith indicating external reliability (Grembowski *et al.*, 2005; Hung, 2010; Krueger *et al.*, 2002; Nhuan, 2008; Phuc, 2010). This measure was also used in our pilot study and showed a good fit with the current Vietnamese context. Upon the pilot, the measure was slightly adapted to better suit the Vietnamese culture and language. The 5-point Likert scale ranged from 1 (= very dissatisfied) to 5 (= very satisfied).

Satisfaction with co-worker and supervisor relationship (A1) (Krueger et al., 2002) included 8 closed-ended questions: 1) satisfaction with supervisor's sharing and support; 2) satisfaction with the way that supervisors solve difficult situations; 3) satisfaction with supervisor openness); 4) satisfaction with supervisor's staff support; 5) satisfaction with the supervisor's assignment of tasks and responsibilities, representation of the employees' rights and interests; 6)

satisfaction with the supervisor's encouragement of employees when they are making progress; 7) support of leaders to enhance co-operative team work; 8) satisfaction with the supervisor's disciplinary authority in case of staff violating rules and regulations.

Cronbach's α was .93. To compute the level of satisfaction with supervisor relationships, responses to 8 items were dichotomized into 1 (satisfaction) and 0 (dissatisfaction). The values of these subscales were then summed to form an overall composite of job satisfaction, with higher scores reflecting higher levels of satisfaction. This way of summing the scores applies to all core measures of job satisfaction.

Satisfaction with co-worker relationships (A2) (Krueger et al., 2002) was assessed with 5 items including 1) satisfaction with co-workers' assistance; 2) satisfaction with job sharing; 3) satisfaction with communication and interaction; 4) satisfaction with co-workers' support when in difficulty or in crisis; 5) satisfaction with the encouragement of co-workers when performing a good job. Cronbach's α was .66. To compute the level of satisfaction with co-worker relationships, responses to 5 items were dichotomized into 1 (satisfaction) and 0 (dissatisfaction).

Satisfaction with knowledge, skill and job performance (A3) (Krueger et al., 2002) included 11 closed-ended questions 1) satisfaction with duty; 2) satisfaction with workload; 3) satisfaction with infrastructure and equipment; 4) satisfaction with working hours; 5) satisfaction with sufficient essential knowledge to cope with difficulty; 6) satisfaction with skills to respond to difficulty; 7) satisfaction with team work; 8) satisfaction with work results; 9) satisfaction with opportunities for capacity building; 10) satisfaction with the rewarding system; and 11) satisfaction with people/communities' respect of their profession. Cronbach's α was 0.76. To compute the level of satisfaction with knowledge, skill and job performance, responses to 11 items were dichotomized into 1 (satisfaction) and 0 (dissatisfaction). ***Satisfaction with***

organizational characteristics (A4) (Krueger et al., 2002) comprised 5 items: 1) staff effort to achieve general goals; 2) satisfaction with the solidarity of all employees in each department/division; 3) satisfaction with the openness of all employees in each department/division; 4) leaders' fair treatment of everyone; and 5) satisfaction with the promotion and appointment of the higher positions in their organization. Cronbach's α was 0.73. To compute the level of satisfaction with organizational characteristics, responses to 5 items were dichotomized into 1 (satisfaction) and 0 (dissatisfaction). **Satisfaction with compensation and benefits (A5) (Krueger et al., 2002)** was assessed with 7 items comprising 1) satisfaction with monthly salaries and allowances; 2) satisfaction with the department's/organization's rewards of concerning public holidays; 3) satisfaction with vacations held by their organization; 4) satisfaction with company-facilitated social activities and entertainment for both staff and family; 5) satisfaction with the annual leave policy; 6) satisfaction with support during illness; and 7) satisfaction with supports for the work of their families. Cronbach's α was .84. To compute the level of satisfaction with compensation and benefits, responses to 7 items were dichotomized into 1 (satisfaction) and 0 (dissatisfaction). **Satisfaction with staff training and development (A6) (Krueger et al., 2002)** composed of 7 items: 1) satisfaction of continuing learning; 2) satisfaction with advanced training; 3) satisfaction with job orientation; 4) satisfaction with staff planning; 5) satisfaction with the department/organization creating fair conditions for staff to learn and grow; 6) satisfaction with professional development; and 7) satisfaction with ensuring fair promotion and appointment staffing/recruiting. Cronbach's α = .82. To compute the level of satisfaction with training, development and actualization, responses to 7 items were dichotomized into 1 (satisfaction) and 0 (dissatisfaction). To ease understanding, the summary of the core measures are presented in table 1.

Data analysis

Data were analyzed by using STATA version 10. Descriptive statistics such as mean, median, standard deviation, frequency and percentage were used to describe the level of job satisfaction. Means and standard deviations were used when data were normally distributed. Inferential statistics – linear regression – were applied to assess predictors of job satisfaction. The variables were recruited into the final model if they met the model fit. The model fit for each regression model was assessed with two main indices, adjusted R-squared (the higher the value, the better fit, with a maximum value of 1.00 or 100%) and p-value of F-test (fit if p-value <0.05). In each regression model, the standardized regression coefficient, reflected with beta (β , the maximum value is 1.00), would, be understood as the correlation coefficient between the independent variable and outcome variable. The higher the co-efficient value the more robust the relationship.

Research ethics

The study protocol was approved by the scientific panel from the Department of Health Management and Organization, the Institute for Preventive Medicine and Public Health, Hanoi Medical University, Vietnam. Participation of all respondents was anonymous and voluntary. They were informed about research content and objectives as well as how the interview data would be documented and reported and that their confidentiality would be respected. Participants provided verbal informed consent and could withdraw at any time.

FINDINGS

Socio-demographic characteristics of the respondents

The vast majority of the respondents involved in the study were females (82.4%); 75.9% of the subjects were married. Thereby, the sample included diverse positions, including clinical (doctors, nurses, laboratory staff) and non-clinical officers (managers, leaders, administrative staff). For clinical areas, more nurses (61.3%) than doctors participated in our survey. More than

half of the respondents (58%) completed only secondary school or less. 63.8% reported an average monthly income of USD\$100; 77.8% worked for less than 10 years, 77.8% of respondents identified as a staff position and 70.4% as on-duty at the hospital. The proportion of official staff was up to 79.6% and close to 50% of them were specialized in a clinical field.

Job satisfaction among health professionals

The level and percentage of job satisfaction among health professionals is presented in Table 2 and Figure 2. Job satisfaction levels were rated as moderate to fairly high with most of the individual item scores and the overall scores of each type of job satisfaction at or close to 4. Of all types of job satisfaction, the highest level was reported for “satisfaction with co-worker relationships” and the lowest level was found for “satisfaction with compensation and benefits”. However, there was no type of job satisfaction approaching the highest level (very satisfied). In terms of job satisfaction percentages, the results also indicated a consistent result with the level of job satisfaction. To be specific, “satisfaction with co-worker relationship” revealed the highest proportion, at 91%, while “satisfaction with compensation and benefits” showed the lowest proportion of job satisfaction, accounting for 69%.

Factors associated with job satisfaction

Results of univariate linear regression analysis

In Table 3, the results of univariate analysis showed that there were multiple variables associated with each type of job satisfaction among the participants. Seven factors significantly were correlated with participants’ satisfaction with co-worker and supervisor relationships (A1): A2, A3, A4, A5, A6, gender and positions ($\beta=0.23-0.73$; $p<0.05$). Factors associated with A2 (participants’ satisfaction with co-worker relationships) were A1, A3, A4, A5, A6, and gender ($|\beta's| =0.28-0.74$; $P<0.05$). A3 (participants’ satisfaction with knowledge, skill and job performance) was significantly associated with A1, A2, A4, A5, A6, positions and working area

($|\beta's|=0.23-0.74$; $P<0.05$). Factors related to A4 (participants' satisfaction with organizational characteristics) were A1, A2, A3, A5, and A6 ($|\beta's|=0.58-0.71$; $P<0.05$). Ten variables were significantly related to A5 (participants' satisfaction with compensation and benefits): A1, A2, A3, A4, A6, source of income, monthly income, position, working time, and working area ($|\beta's|=0.20-0.63$; $P<0.05$). Factors related with A6 (participants' satisfaction with staff training and development) comprised A1, A3, A4, A5, marital status, professional qualifications, and working area ($|\beta's|=0.20-0.71$; $P<0.05$).

Table 2. Univariate linear regression results of factors associated with job satisfaction

Results of multivariate linear regression analysis

The results of the multivariate analysis are presented in Table 4. The significant predictors of being more likely to be satisfied with A1 included A3 and A5 ($\beta's=0.38$ and 0.25 ; $P<0.05$). Factors associated with A2 were A3 and gender ($\beta's=0.60$ and 0.20 ; $P<0.05$). Factors related to A3 were A1, A2, and A6 ($\beta's=0.27$; 0.43 and 0.41 ; $P<0.05$). Factors related to A4 were A2, A5, A6, and marital status ($\beta's=0.26$; 0.30 ; 0.34 , and 0.17 ; $P<0.05$). Four variables associated with A5 included A1, A6, marital status, and monthly income ($\beta's=0.22$; 0.35 ; -0.26 , and 0.42 ; $P<0.05$). Factors associated with A6 comprised A3, A4, A5, marital status, and monthly income ($\beta's=0.41$; 0.35 ; 0.34 ; 0.19 ; and 0.21 ; $P<0.05$). All of the models revealed an adequate fit, explaining between 60% and 70% of the total variance of the types of job satisfaction (A1 through A6).

Table 4. Multivariate regression results of factors associated with job satisfaction

DISCUSSION

Job satisfaction among health workers

Overall, we found a fairly high level of job satisfaction among district hospital health professionals as they were scored moderate to high scores of job satisfaction. However, there were differences in the level of satisfaction across six dimensions. Of all types of satisfaction, the

highest level was found for “satisfaction with co-worker relationships” and the lowest level was related to “satisfaction with compensation and benefits”. There was no type of job satisfaction on the highest level (i.e., very satisfied). The findings of our study indicate that the proportion of respondents who were satisfied overall with their job ranged from 69% to 91%. These findings are relatively consistent with previous studies among health professionals at a district level (Nhuan *et al.*, 2009; Quy, 2010; Viet, 2010), but slightly higher than data reported at the commune level (Kebriaei *et al.*, 2009; Tran *et al.*, 2013). The higher rate of satisfaction at district than at commune level is understandable given the structure and condition of the current healthcare system. There is also better support for personal and professional development for staff at the higher level. Compared with other countries - both developed and developing countries - working conditions, salary, allowances, and career development opportunities for Vietnamese health workers are generally lower (Henderson *et al.*, 2008). The findings explain in part why health professionals in Vietnam, especially at lower level of the healthcare system, are not satisfied with compensation and benefits, working conditions and career opportunities. This can also explain why health workers, especially senior staff, are more likely to change jobs from lower to higher levels within the healthcare system, and from rural to urban areas (Institute of Public Health of Ho Chi Minh city, 2012), where improved opportunities are available for both economic and professional development (Tran *et al.*, 2013). Therefore, strengthening the lower levels of the health system, with a focus on human resource development, plays an important role in motivating and retaining health workers at the local level.

Compared with health professionals working at provincial and national level, it is not clear if the satisfaction rate among our sample is higher or lower because we could not find any current data among provincial and national health professionals, except for one study among nurses at national hospitals (Quy *et al.*, 2005). Compared to that study, our sample of district

health professionals reported higher levels of satisfaction. This higher job satisfaction may be related to the workload of health professionals. To illustrate, our study was conducted in the rural district of a rural province where the number and inflow of patients seeking healthcare at the hospital is much lower than at national hospitals. The increasing number of patients visiting national hospitals leads to a higher workload for health professionals at higher than at lower levels in Vietnam (Cuong *et al.*, 2011). Besides, our sample of health professionals, comprised medical doctors, nurses and other staff, while other research included a particular type of health professionals such as in Quy *et al.*'s study sample [12] recruiting nurses only. In most developed countries and some developing countries, the ratio of nurses to doctors is much higher. Nurse/doctor ratios for other nations have been reported as over 4.0 for the United States and England (American Academy of Family Physicians, 2012; Cawston *et al.*, 2012), 5.5 for the Philippines, 6.1 for Indonesia, and 7.7 for Thailand (World Health Organization, 2015), while Vietnam has achieved a ratio of only 1.5:1 (Somanathan *et al.*, 2014). Special attention should be given to the fact that under the Vietnamese government rule, doctors and nurses have different tasks in healthcare facilities. Doctors take tasks of largely consultation, diagnosis, and treatment decision for patients, while nurses play nursing roles such as caring for patients, doing administrative work, and professionally being subordinate assistants to doctors when required (Ministry of Health, 1997). This high workload can result in a lower satisfaction rate among Vietnamese nurses, especially in national hospitals and may explain in part higher job satisfaction in district settings as indicated from our study.

Factors associated with job satisfaction among health workers

In previous studies (Mika *et al.*, 2007; Robert *et al.*, 2007), job satisfaction was associated with a wide array of factors, including organizational factors (job reward system, work conditions) and personal factors (career development opportunities and success recognition). In our study

investigating multiple types of job satisfaction, it was useful to identify those relevant factors that are associated with each type of job satisfaction in order to inform specific programs. However, given the scope of our study, instead of discussing all types separately, we seek to explain why district health workers are most satisfied with colleague relationship and why they are least satisfied with compensation and benefits.

In our final multivariate analysis, we found that factors associated with the highest levels of satisfaction (co-worker relations) are being female and satisfaction with knowledge, skills and performance. This suggests that those who are female and who are satisfied with their knowledge, skills and performance are more likely to be satisfied with their colleagues. This finding is comparable to the study by Quy et al. (2005) reporting that female health professionals in Vietnam are more likely to be satisfied with their occupation. With respect to gender, Vietnamese women may feel satisfied with their jobs in the workplace, while the greater social expectation placed upon males to provide for their family generates higher pressure to earn optimal incomes for their families. Consequently, if there are no adequate salaries and benefits received by male health professionals, as a consequence, this might result in lower levels of job satisfaction (Huy *et al.*, 2008). In contrast, greater pressure is placed on women to fulfill a role as home maker, child and family career (Phinney, 2008). As Phinney noted, most Vietnamese men were concerned with choosing a wife who can provide a stable, happy, and harmonious home conducive to raising children. However, this socially acceptable relationship also creates a desire to escape the family domain's routine and to seek joy and identity/ experienced meaningfulness in the workplace (2008). Also, according to the Hoa Binh Women's Union, Vietnamese women feel proud of what they have done in both their familial and social sphere because they can create income to become an economic pillar as well as contribute their great effort to the society (Hoa Binh women's Union, 2013). This can be considered as work-family

enrichment. However, we did not find a significant relationship between the level of education and the level of job satisfaction. Interestingly, the study by Kalisch et al. in the US (2010), identified an inverse relationship – health staff with higher levels of education or qualifications were less likely to be satisfied with their occupation. In our study, despite no such relationship identified, health workers who were satisfied with their knowledge, skills and job performance were more likely to be satisfied with their colleague relationships. The interpretation of this result could lead us to suggest that higher education may not guarantee job satisfaction, but rather provides an important guide to how one applies their knowledge and skills into work practice. Consequently, the translation of a health professionals' education or knowledge into actual skills and job performance is more important than the provision of training and/or education.

Another important factor which has not been examined in our study is the role of organizational culture. Kalisch et al. (2010) and Kangas et al. (1999) appreciated that health professionals were more satisfied when the work culture was supportive. Staff would be more satisfied with their work if their organization created an environment that enhanced connection, ongoing career support, individual value, and autonomy. However, given the limitations of time, scope and budget for our study, only a portion of these factors were indirectly examined.

The results of our study demonstrated that district health workers were least satisfied with compensation and benefits when compared to other indices of job satisfaction. Contributing determinants included marital status, monthly income, satisfaction with supervisor style/relationship, and training, development and self-actualization. Health workers who were married, received a low pay, dissatisfied with leader style and relationships, and dissatisfied with training, development and self-actualization opportunities were less likely to be satisfied with compensation and benefits. This result accords with recent studies of health workers in Pacific

and Asian countries (Nhuan *et al.*, 2009) demonstrating the importance of financial incentives such as high salary as a motivating factor, especially in countries where government salaries are not sufficient to meet the basic needs of health-care workers (Henderson *et al.*, 2008). Similarly, studies in Fiji, Cambodia and North Vietnam have identified low salaries as an important reason for job dissatisfaction among health workers (Dieleman *et al.*, 2003; Nhuan *et al.*, 2009). A study in Peru indicates that absence of adequate salary is an important reason why doctors engage in dual practice (Jumpa *et al.*, 2007). Less satisfaction among married health workers may be explained by their financial responsibility for families. The pressure of earning income is increased, especially when pay and other benefits provided by the hospital are inadequate for supporting families. Dissatisfaction with low remuneration and benefits among health workers who are dissatisfied with supervisor style/relationships and dissatisfied with poor opportunities for career development and self-actualization may be explained by organizational factors including workplace culture. Hospital directors may have failed to create a satisfying workplace environment conducive to a shared vision, value, support, and professional development opportunities for staff.

According to research by Barnes (1998), external and internal factors are associated with job satisfaction. External factors include competitive salaries and bonuses, while internal factors comprise home life, work time, and child support. Other studies conducted in Vietnam by Quy *et al.* (2005), Dieleman *et al.* (2003), in India by Purohit and Bandyopadhyay (2014) and in Ethiopia by Yami *et al.* (2011) also support this finding that health workers are dissatisfied with their jobs for both financial and nonfinancial reasons - poor wages, fewer training opportunities and insufficient human resources. In contrast, the higher levels of motivation and satisfaction are generated by expressions of appreciation by managers, co-workers and the community, a stable job and income and training

There are several limitations of the present study. As a cross-sectional design, this study may preclude the order of causality. Another limitation is that data was collected in a rural district hospital, which though similar to most other rural hospitals in Vietnam, restricts generalization of findings to broader urban population. Issues of self-esteem for some health workers may have resulted in over- or under-reporting job satisfaction. Finally, some variables such as patients' satisfaction with healthcare services and working hours were not included in the study; therefore, future research is expected to examine about how such a variable associated with health workers' job satisfaction.

Implications

If health staff are not satisfied, they will be more likely to be absent, leave their job and/or generate a lower level of productivity. Increasing satisfaction would likely result in cost savings as high job satisfaction is linked to lower staff turnover (Hayes *et al.*, 2006) and lower intent to leave (Brewer *et al.*, 2009). Despite several limitations, our study has identified the status and factors contributing to different types of job satisfaction among district health workers. The study suggests that to improve health workers' job satisfaction it is important to critically look at organization-based interventions. One strategy would be to create a strong sense of organizational culture and a positive climate so that the employees feel affectively committed and motivated to contribute to their hospital. Another strategy would be to strengthen the lower level of the healthcare system, with a focus on more adequate allocation and development of resources (such as improve working conditions and re-structure staffing) in order to more equitably share workload among staff and increase incentives to work at the grassroots level. A third strategy would be to establish an ongoing career support program for staff through coaching, supportive supervision, mentor-protégé-programs and other development opportunities to assist staff to apply their knowledge into their job practice. It is

also crucial to improve employer-employee relationships and employer's leadership skills and develop a more competitive pay and bonus policy for health staff working at grassroots level (district and commune health facilities) so that health staff could improve their monthly income to support enough for their families and keep them working at their hospital.

In conclusion, recognizing that job satisfaction among grassroots health staff in resources-scarce settings like Vietnam are institutional rather than individual phenomena enables us to shift our public health intervention strategies from individualized prevention methods to considering the organizational contexts, and thereby alter the conditions that lower the job satisfaction among health staff. Our study has thus raised an important role of both government and institution in increasing job satisfaction among health staff who are currently working at grassroots level of the healthcare system. As Vietnam has much in common with other developing countries in Southeast Asia, this research provides evidence for policy and practice that may be useful for public health systems in similar countries.

Abbreviations

A1, satisfaction with leaders relationship; A2, satisfaction with colleagues relationship; A3, satisfaction with knowledge, skills and job performance; A4, satisfaction with organizational characteristics; A5, satisfaction with compensation and benefits; A6, satisfaction with training, development and actualization; MOH, Ministry of Health; WHO, World Health Organization.

Competing interests

We declare that we have no competing interests.

Authors' contributions

HVN advised the protocol, designed the study, analyzed the data, wrote and revised the manuscript and edited the language. THD designed the study, developed the protocol,

conducted the fieldwork and analysed the data. TTV analysed the data and wrote the manuscript. All authors read and approved the final manuscript.

Authors' information

HVN, a Master of Health and International Development, a PhD in Public Health, is a lecturer, a researcher and a deputy head of the Department of Health Management and Organization, a deputy head of the Department of Training, Scientific Research Management and International Cooperation, Institute for Preventive Medicine and Public Health, Hanoi Medical University (HMU), Vietnam.

THD, a Bachelor of Public Health, Institute for Preventive Medicine and Public Health, HMU, Vietnam.

TTV, a Bachelor of Public Health, Institute for Preventive Medicine and Public Health, HMU, Vietnam.

Acknowledgements

We would like to acknowledge the health workers as well as managers at Yen Lac district hospital in the survey from which we can have data for writing this report. We also appreciate all health workers who provided their valuable answers to our survey. We greatly appreciate Prof Henning Staar, from Business and Information Technology School, GmbH University of Applied Sciences, Germany, who help edit our paper.

REFERENCES

Ai-Hong C, Nafisah JS, Rahim MNA (2012). Comparison of job satisfaction among eight health care professions in private (non-government) settings. *Malaysian Journal of Medical Science* **19**(2): 19-26.

American Academy of Family Physicians (2012). *Primary care for the 21st century: Ensuring a quality, physician-led team for every patient*. USA: AAFP.

Barnes DS (1998). Job satisfaction and rehabilitation professionals. *American Journal of Occupational Therapy* **14**(4): 1-2.

Brewer C, Kovner C, Green W, Cheng Y (2009). Predictors of RNs' intent to work and work decisions 1 year later in a U.S. national sample. *International Journal of Nursing Studies* **46**(7): 940-956.

Cawston T, Haldenby A, Seddon N (2012). *Doctors and nurses*. London, UK: Reform.

Cuong LQ, Kinh LN, Tuan KA, Oanh TTM, Thanh TN, Hieu NTM, et al. (2011). *Research on the situation of over-load, under-load of the hospital system and proposed measures*. Hanoi, Vietnam: Health Strategy and Policy Institute.

Dieleman M, Cuong PV, Anh LV, Martineau T (2003). Identifying factors for job motivation of rural health workers in North Viet Nam *Human Resources for Health* **1**(10): doi: 10.1186/1478-4491-1181-1110.

Dormann C, Zapf D (2001). Job satisfaction: a meta-analysis of stabilities. *Journal of Organizational Behavior* **22**(5): 483–504.

Dung PT (2008). *Describing and assessing the status on facilities, human resources and management of hospital system in Vietnam*. Hanoi, Vietnam: Hanoi School of Public Health.

Grembowski D, Paschane D, Diehr P, Katon W, Martin D, Patrick DL (2005). Managed care, physician job satisfaction, and the quality of primary care. *Journal of General Internal Medicine* **20**(3): 271-277.

Hayes LJ, O'Brien-Pallas L, Duffield C, Shamian J, Buchan J, Hughes F, et al. (2006). Nurse turnover: a literature review. *International Journal of Nursing Studies* **43**(2): 237-263.

Henderson LN, Tulloch J (2008). Incentives for retaining and motivating health workers in Pacific and Asian countries. *Human resources for health* **6**: 18.

Hoa Binh women's Union (2013). Four virtue of Vietnamese women in the period of modernization: "Self-esteem, self-confidence, Resourceful, Full of kindness".

Hollyforde S, Whiddett S (2002). *The Motivation Handbook*. edn, vol. . CIPD: London.

Hung LM The situation of human resources and satisfaction with the work of governmental staff in Yen Bai city, 2010. Master of public health, Hanoi school of public health, Hanoi, 2010.

Huy NV, Udoy SS (2008). HIV/AIDS in Vietnam: A Gender Analysis. *Journal of Asian Social Science* **4**(1): 89-93.

Institute of Public Health of Ho Chi Minh city (2012). The situation of organization and management of the District Hospitals in the southern provinces.

Jathanna R, Melisha RD, Mary G, Latha KS (2011). Determinants of job satisfaction among healthcare workers at a tertiary care hospital. *Online Journal of Health and Allied Sciences* **10**(3): 1-3.

Jumpa M, Jan S, Mills A (2007). The role of regulation in influencing income-generating activities among public sector doctors in Peru. *Human Resources for Health* **5**(5): doi: 10.1186/1478-4491-1185-1185.

Kalisch BJ, Lee H, Rochman M (2010). Nursing staff teamwork and job satisfaction. *Journal of Nursing Management* **18**: 938-947.

Kangas S, Kee CC, McKee-Waddle R (1999). Organizational factors, nurses' job satisfaction, and patient satisfaction with nursing care. *The Journal of Nursing Administration* **29**(1): 32-42.

Kebriaei A, Moteghedhi MS (2009). Job satisfaction among community health workers in Zahedan District, Islamic Republic of Iran. *Eastern Mediterranean Health Journal*, **15**(5): 1156-1163.

Krueger P, Brazil K, Lohfeld L, Edward HG, Lewis D, Tjam E (2002). Organization specific predictors of job satisfaction: Findings from a Canadian multi-site quality of work life cross-sectional survey. *BMC Health Services Research* **2**(6): 1-8.

Liu JA, Wang Q, Lu ZX (2010). Job satisfaction and its modeling among township health center employees: a quantitative study in poor rural China. *BMC Health Services Research* **10**: 115.

Locke E (1983). The nature and causes of job satisfaction. In: (ed)^(eds). *Handbook of Industrial and Organizational Psychology*, edn. New York: J.Wiley & Sons. p^pp.

Mika K, Anna V, Jaana P, Hannakaisa L, Marianna V, Marko E, *et al.* (2007). Team climate, intention to leave and turnover among hospital employees: Prospective cohort study. *BMC Health Service Research* **7**: 170-178.

Ministry of Health (1997). Decision 1895/1997/QD-BYT on issuing hospital regulations, MOH (ed). Hanoi, Vietnam.

Nhuan LT (2008) The situation of human resources and satisfaction with the work of district health workers in Binh Xuyen district, Vinh Phuc province - 2008. Master of public health., Hanoi school of public health,, Hanoi, 2008.

Nhuan LT, Linh LC (2008). Development of a measurement tool on satisfaction with the work among district health workers. *Vietnam Journal of Public Health* **11**(11): 18-24.

Nhuan LT, Linh LC (2009). Satisfaction with the work among district health workers. *Vietnam Journal of Public Health* **12**: 34-37.

Parisi-Carew E, Guthrie L, Akers B, Nash C, Lozano C (2009). *Creating a motivating work environment*. Ken Blanchard Companies.

People's Committee of Yen Lac District VPP (2010). *Synthesis Report: Overall Plan - Socio-economic development at Yen Lac district, Vinh Phuc province to 2020 and vision of 2030*. Vinh Phuc, Vietnam.

Phinney HM (2008). Rice is essential but tiresome; you should get some noodles: Doi Moi and the political economy of men's extramarital sexual relations and marital HIV risk in Hanoi, Vietnam. *American Journal of Public Health* **98**(4): 650-660.

Phuc DT Research on satisfaction with the work of medical staff in Ha Dong and Thanh Oai district, Hanoi-2009. Master of public health, Hanoi medical university, Hanoi, 2010.

Purohit B, Bandyopadhyay T (2014). Beyond job security and money: driving factors of motivation for government doctors in India. *Human Resources for Health* **12**(12): doi: 10.1186/1478-4491-1112-1112.

Qiang H Job satisfaction among medical doctors in Weifang people's Hospital in China, in Primary Health Care Management. Master of Primary Health Care Management, Mahidol University, Thailand, 2005.

Quy MD Situation of human resource and job satisfaction among health workers at Duc Giang general hospital - Hanoi, 2010, Hanoi School of Public Health, Hanoi, 2010.

Quy et al. (2005). Satisfaction with the work and determinants among hospital nurses. *Proceedings of 2nd nationwide nursing scientific research*. Hanoi Transport Publishing House Company Limited. pp 33-42.

Robbins S (2003). *Organizational behaviour (10th Edition)*. edn. Prentice - Hall: New York.

Robert G, Pascale L, Raynald P, Paul AL (2007). Primary care practice à la carte among GPs: using organizational diversity to increase job satisfaction. *Family Practice* **24**(2): 138-144.

Somanathan A, Tandon A, Dao HL, Hurt K, Fuenzalida H (2014). *Moving towards universal coverage of social health insurance in Vietnam: Assessment and options*. Hanoi: World Bank.

Tran BX, Minh HV, Hinh ND (2013). Factors associated with job satisfaction among commune health workers: implications for human resource policies. *Global Health Action* **6**(18619).

Tzeng HM (2002). The influence of nurses' working motivation and job satisfaction on intention to quit: An empirical investigation in Taiwan. *International Journal of Nursing Studies* **39**(8): 867-878.

Viet VH Evaluation of job satisfaction among health workers at Tuy An and Dong Hoa hospital, Phu Yen province, Vietnam, 2010, Hanoi School of Public Health, 2010.

Walker KA, Pirotta M (2007). What keeps Melbourne GPs satisfied in their jobs? *Australian family physician* **36**(10): 877-880.

Witter S, Ha BTT, Shengalia B, Vujicic M (2011). Understanding the 'four directions of travel': qualitative research into the factors affecting recruitment and retention of doctors in rural Vietnam. . *Hum Resour Health* **9**(20).

Wood G, Yaacob A, Morris D (2004). Attitude towards pay & promotion in the Malaysian higher education sector. *Employee Relations* **26**(2): 137-150.

World Health Organization (2006). The World Health Report 2006 - working together for health. In: *WHO* Vol. 2013.

World Health Organization (2015). *World Health Statistics 2015*. Geneva, Switzerland: WHO.

Yami A, Hamza L, Hassen A, Jira C, Sudhakar M (2011). Job satisfaction and its determinants among health workers in Jimma University Specialized Hospital, Southwest Ethiopia. *Ethiopian Journal of Health Sciences* **21**(Suppl 1): 19-27.

Table 1. Core measures of job satisfaction

Core measures	References	Number of items	Scale η	Cronbach's α
Satisfaction with co-worker and supervisor relationship (A1)	(Krueger <i>et al.</i> , 2002)	8	5-point Likert scale	0.93
Satisfaction with co-worker relationships (A2)	(Krueger <i>et al.</i> , 2002)	5	5-point Likert scale	0.66
Satisfaction with knowledge, skill and job performance (A3)	(Krueger <i>et al.</i> , 2002)	11	5-point Likert scale	0.76
Satisfaction with organizational characteristics (A4)	(Krueger <i>et al.</i> , 2002)	5	5-point Likert scale	0.73
Satisfaction with compensation and benefits (A5)	(Krueger <i>et al.</i> , 2002)	7	5-point Likert scale	0.84
Satisfaction with training and development(A6)	(Krueger <i>et al.</i> , 2002)	7	5-point Likert scale	0.82

Note: η scale from 1 (negative evaluation) to 5 (positive evaluation). They are 1) very dissatisfied, 2) dissatisfied; 3) unknown/neutral, 4) satisfied, and 5) very satisfied.

Table 2. Job satisfaction among district health professionals

No	Items and Types of Job Satisfaction	Mean \pm SD (Range=1-5)
A1. Co-worker-supervisor relationship		3.82\pm0.82
1	Supervisors' sharing	4.00 \pm 0.65
2	The way that supervisors solve difficulties	3.79 \pm 0.85
3	Openness of supervisors	3.84 \pm 0.82
4	Staff support	3.79 \pm 0.93
5	Task assignment, responsibilities, rights and care of supervisors	3.74 \pm 0.87
6	Encouragement of supervisors when staff make a progress	3.73 \pm 0.86
7	Supporting staff to have team work	3.85 \pm 0.79
8	Handling disciplinary cases	3.84 \pm 0.81
A2. Co-worker Relationship		4.01\pm0.55
9	Pleased with co-workers' support	3.87 \pm 0.55
10	Job sharing	4.00 \pm 0.55
11	Communication and interaction	4.08 \pm 0.53
12	Satisfaction with co-workers' support when they have a difficulty or in crisis	4.14 \pm 0.51
13	Encouragement of co-workers when they do a good job	3.94 \pm 0.63
A3. Knowledge, skills and job performance		3.82\pm0.70
14	Duty	3.76 \pm 0.82
15	Satisfaction with workload	3.75 \pm 0.72
16	Infrastructure and equipment	3.69 \pm 0.80
17	Working time	3.92 \pm 0.62
18	Sufficient essential knowledge to cope with a difficulty	3.85 \pm 0.66
19	Skills that staff have to deal with a difficulty	4.01 \pm 0.57
20	Team work	4.00 \pm 0.44
21	Staff's work results	4.00 \pm 0.63
22	Pleased with opportunities for improving experiences	3.78 \pm 0.69
23	Satisfaction with rewarding system	3.56 \pm 1.00
24	People/communities' respect on their profession	3.73 \pm 0.79
A.4. Characteristics of one's organization		3.81\pm0.73
25	Staffs' effort to achieve general goals	3.91 \pm 0.59

26	Solidarity of all employees in each department/division	3.91±0.68
27	The openness of all staffs in each department/division	3.87±0.62
28	Leaders' fair treatment with everyone	3.66±0.89
29	Promotion and appointment of the higher positions	3.72±0.87
	A.5. Compensation and benefits	3.63±0.84
30	Satisfaction about rewards of department/division in public holidays	3.40±0.99
31	Pleased to have a vacation held by organization	3.41±0.95
32	Monthly salaries and allowances	3.81±0.73
33	Social activities and entertainment for both staff and their families	3.52±0.91
34	Annual leave policy	3.58±0.95
35	Supportive policy for staff when they get sick	3.84±0.72
36	Happy with supports for the work of staff's families	3.83±0.63
	A.6. Training and development	3.81±0.70
37	Continuous training	3.94±0.56
38	Advanced training	4.02±0.48
39	Job orientation	3.89±0.64
40	Human resources planning	3.69±0.77
41	Fair conditions for people to learn and grow	3.87±0.67
42	Professional development	3.86±0.72
43	Fair promotion and appointment	3.43±1.05

Table 3. Univariate linear regression results of factors associated with job satisfaction

Dependent variable	Standardized regression coefficients (β) of factors associated with					
	A1	A2	A3	A4	A5	A6
Independent variables						
Gender	.25*	.28**	.18	.08	.13	.13
Marital status	.15	.16	.18	.22	.14	.32**
Professional qualifications	-.16	-.12	-.16	-.16	-.19	-.25*
Main source of income	-.14	-.09	-.09	.00	-.21*	-.01
Monthly income	.03	.05	.06	-.58	.33**	.03
Seniority	.04	.10	.13	.02	.11	.09
Position	-.23*	-.10	-.29**	-.18	-.29*	-.17
Working time	-.06	.06	-.10	-.03	-.20*	-.08
Labor type	.17	.02	.14	.13	.11	.03
Working area	-.19	-.11	-.23*	-.05	-.25*	-.20**
A1	-	.64**	.73**	.63**	.59**	.53**
A2	.64**	-	.74**	.58**	.45**	.46
A3	.73**	.74**	-	.65**	.59**	.67**
A4	.63**	.58**	.65**	-	.63**	.71**
A5	.59**	.45**	.59**	.63**	-	.63**
A6	.53**	.46**	.67**	.71**	.63**	-

* $P < .05$; ** $P < .001$; - not significant theoretically or statistically; β -Standardized regression co-efficient

Table 4. Multivariate linear regression results of factors associated with job satisfaction

Dependent variables	Standardized regression coefficients (β) of factors associated with					
	A1	A2	A3	A4	A5	A6
Independent variables						
Gender	.14	.20**	-.06	-.011	.00	.03
Marital status	.01	.00	-.05	.17*	-.26**	.19*
Professional qualifications	-.02	.03	-.01	-.00	-.03	-.03

Main source of income	-0.10	-0.09	.03	.08	-0.09	.08
Monthly income	-0.12	.05	-0.02	-0.14	.42**	.21*
Seniority	-0.04	.09	-0.01	-0.07	-0.07	-0.09
Position	-0.10	.09	-0.11	-0.19	.03	.12
Working time	.10	.17	-0.03	-0.02	-0.01	-0.14
Labor type	.02	-0.05	-0.03	.05	.03	-0.09
Working area	-0.03	-0.05	-0.01	.23*	-0.00	-0.14
A1	-	.13	.27**	.14	.22*	-0.09
A2	.13	-	.43**	.26**	-0.05	-0.17
A3	.38**	.60**	-	-0.05	-0.05	.41**
A4	.18	.30	-0.04	-	-0.32	.35**
A5	.25*	-0.09	.04	.30**	-	.34**
A6	-0.11	-0.19	.41**	.34**	.35**	-
AdjR ²	.58***	.60***	.71***	.66***	.63**	.64***
Model fit	F***	F***	F***	F***	F***	F***

F means *F*-test for model fit; *adj* = adjusted; **p*<.05; ***p*<.001; *** *p*<0,001; - not significant theoretically or statistically; ***β***= standardized regression coefficient

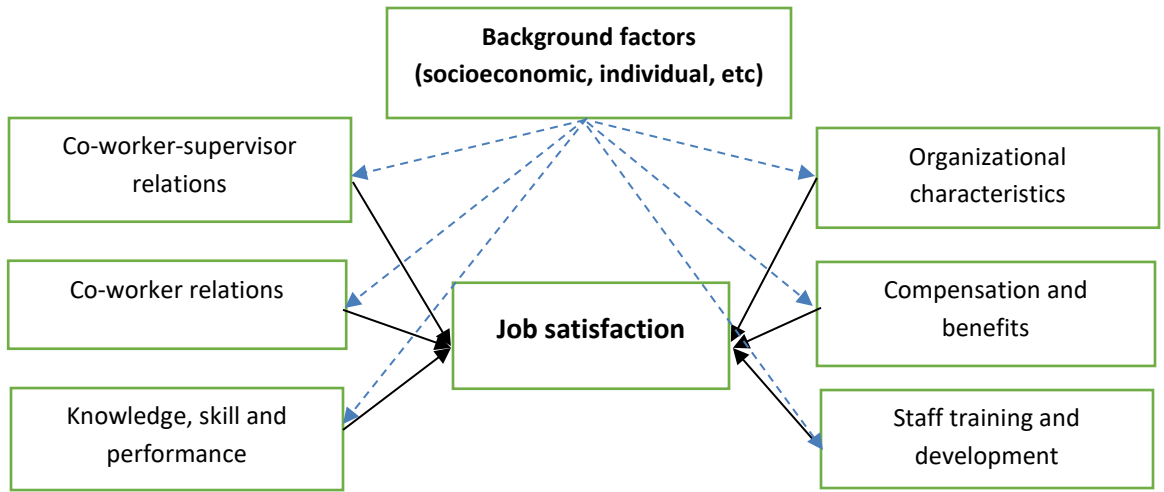


Figure 1. Theoretical Framework of Factors Associated with Job Satisfaction (Krueger *et al.*, 2002)

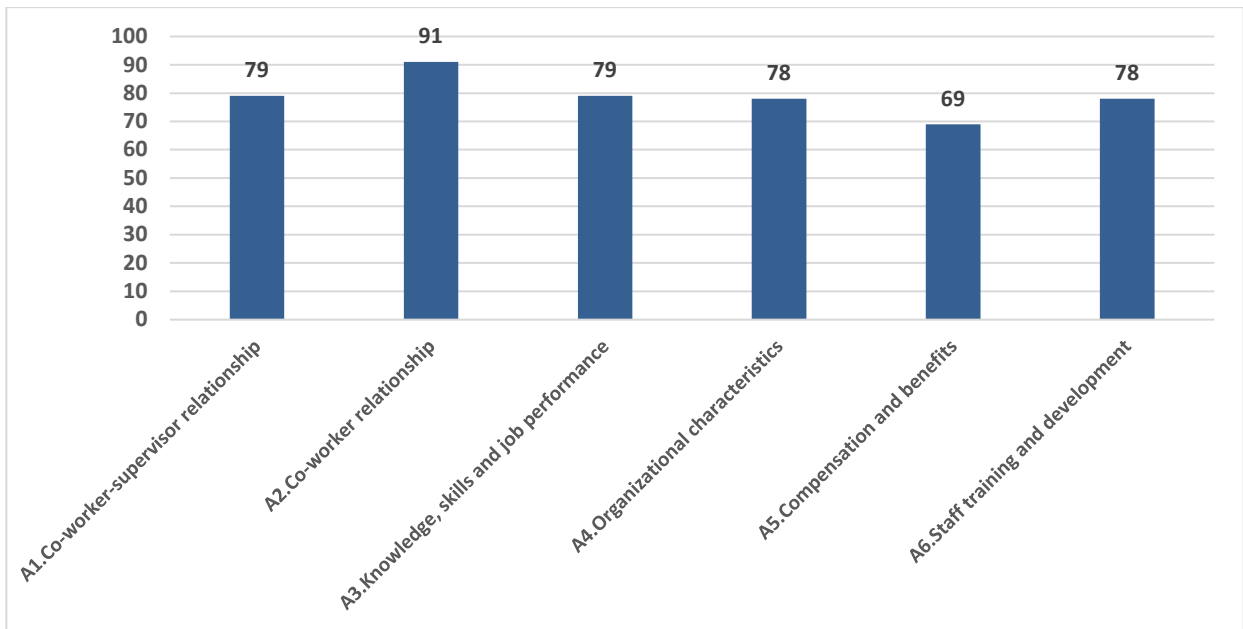


Figure 2. Percentages of job satisfaction by various kinds