Journal of Health Organization and Management

Emerald Article: Determinants of managerial competencies for primary care managers in Southern Thailand

Faridahwati Mohd-Shamsudin, Nirachon Chuttipattana

The current issue and full text archive of this journal is available at
www.emeraldinsight.com/1477-7266.htm

Determinants of managerial competencies for primary care managers in Southern Thailand

Faridahwati Mohd-Shamsudin
College of Business, Universiti Utara Malaysia, Sintok, Malaysia, and
Nirachon Chuttipattana
Department of Human Development, Songkhla Provincial Public Health Office, Muang, Thailand

Abstract

Purpose – The purpose of this paper is first, to identify the critical managerial competencies of primary care managers; and second, to determine the relationship between personality and motivation, and managerial competency.

Design/methodology/approach – A survey was conducted involving distribution of questionnaires to 358 rural primary care managers in Southern Thailand.

Findings – The survey found six critical managerial competencies: visionary leadership; assessment, planning, and evaluation; promotion of health and prevention of disease; information management; partnership and collaboration; and communication. Both personality and motivation are found to significantly influence primary care managers' managerial competency. In particular, conscientiousness (i.e. perseveres until the task is finished, does a thorough job, full of energy, does things efficiently, and a lot of enthusiasm) is related to all managerial competencies. It is clear that extrinsic and intrinsic factors (i.e. quality of supervision and leadership, organizational policy and administration, interpersonal relationship, working conditions, work itself, amount of responsibility, and job recognition) are influential in primary care manager motivation that can significantly improve morale.

Research limitations/implications – The short version of the personality instrument may limit the generalization of some of the findings. Future research is needed to assess the relationship between managerial competency and performance. Further research could be done in other countries to see if this conclusion is in fact correct. It would also be useful to research if the findings apply to other health and social areas.

Practical implications – Personality and motivation are able to co-predict managerial competency whereby motivation tends to have a stronger influence than personality. These findings will be useful to policy makers and to those responsible for the human development in the preparation of management training and development programs. Moreover, top management should not overlook the motivational system as a way to encourage managers to be competent in their job.

Originality/value – The paper contributes to our understanding of managerial competency within the context of rural primary care sectors. The success of any organized health program depends upon effective management, but health systems worldwide face a lack of competent management at all levels. Management development for health systems, particularly at the first line of supervision, must be given much higher priority for investment.

Keywords Thailand, Health care, Primary care, Rural areas, Management skills, Personality, Motivation, Managerial competency, Primary care managers

Paper type Research paper

Journal of Health Organization and Management
Vol. 26 No. 2, 2012
pp. 258-280

1477-7266
DOI 10.1108/14777261211230808

Introduction

The public health sector is an important sector in the public service of any country, as it contributes to the quality of life of its citizens. This sector is run by health

professionals, namely nurses, medical specialists, and managers. Although the professionals require a high degree of competency to perform their duties, many studies seem to focus on competencies of nurses and medical specialists only (Chan *et al.*, 2009; Jay *et al.*, 2009; Prows and Saldana, 2009), or on health executive rather than frontline organizations (Scutchfield *et al.*, 2002). Research on the managerial competency of managers, especially on those managers based in rural centers, is scarce.

In Thailand, rural managers are defined as primary care managers based in the primary care sectors in the sub-districts of every province, or those managers who are based outside of the headquarters of most organizations (head offices are usually located in the cities or urban areas). In this study, primary care managers are defined as front line managers, such as Public Health Administrative Officer, Public Health Technical Officer, Registered Nurse, and Community Health Officer, who work at a health center or community hospital in Southern rural areas, and are responsible for planning, organizing, staffing, directing, and controlling health-care related activities (Jarunee, 2007; Rampaporn, 2006). Because in Thailand frontline or rural health managers are important in the health management system, it is imperative that a study is conducted on the job competencies of this group.

Primary care managers have been given the heavy responsibility of ensuring that quality health is provided to the rural public in Thailand (Nirachon *et al.*, 2007). Thailand's Ministry of Public Health (TMPH) introduced the quality evaluation system throughout its public health service in 2003; however, very few primary care sectors were able to meet the quality service standard set by TMPH. Analysis of the literature indicated possible reasons for this to be as follows:

- there is no "competency assessment" available for managers in primary care sectors;
- the competency model used for primary care managers is probably ineffective;
- there is no clear evidence whether the primary care managers know their roles and have the required skills; and
- at present, the primary care managers are suspected to be unable to push primary care services up to an acceptable quality level.

To enable primary care managers to provide excellent services to the public, the health organizations need to have extensive knowledge in two areas. They need to know:

(1) the managerial competencies of the primary care managers; and

(2) the important factors that determine the competencies of these managers (Nirachon *et al.*, 2007).

Hence, this paper aims to identify the critical managerial competencies of primary care managers and determine the effects of personality and motivation on managerial competency of primary care managers, because these two factors were found to influence managerial competency (Bishop *et al.*, 2001; Hogan and Kaiser, 2005; Judge *et al.*, 2002; Wilavan, 2002; Robertson *et al.*, 2000), despite the limited studies that have been conducted on the relationship.

Literature review

Managerial competency

Many scholars seem to agree that if managers have a certain set of competencies, then they will be successful in enhancing organizational performance. In the context of health care organizations that have significant impact on the lives of the public, possessing certain competencies is crucial for managers, and this is especially so when managerial roles continually evolve (Nirachon *et al.*, 2007).

While Robert White and David McCelland introduced the idea of "competency" into the human resource literature (Dubois, 1993), it was Boyatzis (1982) who popularized the term "competency" and defined it as a combination of a motive, trait, skills, aspect of one's self-image or social role, or a body of relevant knowledge. For Boyatzis, managerial competency is an attribute of an individual that is "causally related to effective or superior performance in a job" (p. 23). In a similar vein, Catano *et al.* (2001) noted that competencies have been operationalized as groups of related behaviors or the required knowledge, skill and ability (KSA) to perform a task or role.

According to Boyatzis (1982), managerial competencies can be divided into two categories: threshold competencies and differentiating competencies. Threshold competencies are basic requirements to carry out a particular job, but do not differentiate between superior and average performers, while differentiating competencies are competencies that distinguish superior from average performers. An example of a threshold competency is "concern with closed relationships", while an example of a differentiating competency is "concept formation" (Cockerill *et al.*, 1995). While Cockerill *et al.* (1995) define concern with closed relationships as the behavior of spending time talking with subordinates and co-workers when there is no particular task requirement and of making friends with others, concept formation refers to behavior of building frameworks and models or forming concepts, hypotheses or ideas on the basis of information to become aware of patterns, trends and structural cause/effect relations. Whilst scholars have categorized competencies into different groups, the aim of the present study is concerned with identification of critical managerial competencies and not with differentiation between superior and average performers.

Personality

The most frequently used definition of personality was produced by Gordon Allport (Robbins, 1993). Allport refers to personality as "the dynamic organization within the individual of those psychophysical systems that determine his unique adjustments to his environment" (p. 100), whereas Robbins (1993) defines it as the sum total of ways in which an individual reacts and interacts with others. Personality traits are dimensions of individual differences in tendencies to show consistent patterns of thoughts, feelings and actions (Korzaan and Boswell, 2008). Korzaan and Boswell (2008) argue that the more an individual has a particular trait, the more he/she exhibits certain types of behavior that are associated with that trait.

Generally speaking, a personality structure is defined by five broad domains that comprise extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience (Goldberg, 1992). Briefly, extraversion implies an energetic approach toward the social and material world and includes traits such as sociability, activity, assertiveness, and positive emotionality (John and Srivastava, 1999). According to

John and Srivastava (1999), agreeableness contrasts a prosocial and communal orientation towards others with antagonism and includes traits such as altruism, tender-mindedness, trust, and modesty, whereas conscientiousness describes socially prescribed impulse control that facilitates task- and goal-directed behavior, such as thinking before acting, delaying gratification, following norms and rules, and planning, organizing, and prioritizing tasks. Neuroticism contrasts emotional stability and even-temperedness with negative emotionality, such as feeling anxious, nervous, sad, and tense. Finally, openness to experience describes the breadth, depth, originality, and complexity of an individual's mental and experiential life. These five traits explain much of the shared variance in the numerous trait taxonomies that have been proposed, and subsume a myriad of narrower, more specific traits, "facets" or "subcomponents" (for a thorough review, see John and Srivastava, 1999).

Motivation

Bagad (2009) asserts that motivation is the force that energizes behavior, gives direction to behavior. To be motivated, individuals must be sufficiently stimulated. According to Herzberg *et al.* (1959), there are two types of factors that can motivate a person:

(1) intrinsic or motivator factors (i.e. achievement, recognition, work itself, responsibility, advancement, and personal growth); and

(2) extrinsic or hygiene factors (i.e. status, security, relationship with subordinates, personal life, relationship with peers, salary, work condition, relationship with supervisors, company policy and administration, and supervision).

Personality, motivation and managerial competency

Based on the model of management performance developed by Robertson *et al.* (1999), who proposed that overall job performance is determined by a set of work and non-work related factors, a framework in which personality factors help determine work competencies is adopted. Previous studies have indicated the role of personality in determining work competency (e.g. Robertson *et al.*, 2000; Tett *et al.*, 2003). For example, conscientiousness has been found to influence positively dimensions of managerial competency such as leadership, analysis, organization, coordination, customer service orientation, and dealing with others (Avis *et al.*, 2002; Judge *et al.*, 2002; Robertson *et al.*, 2000; Robertson *et al.*, 1999; Shao and Webber, 2006; Tett *et al.*, 2003), and to correlate negatively with communication (Robertson *et al.*, 1999).

Reasons why personality might determine managerial competency might include the following:

- Leader personality influences the dynamics and culture of the top management team, and the characteristics of the top management team influence the performance of the organization (Hogan and Kaiser, 2005).
- Transformational leaders tend to display a high level of confidence and self-esteem, which may inspire their subordinates to share a common vision and convince them of the possibility of reaching a goal that is higher than they expect (Shao and Webber, 2006). It is impossible for neurotic leaders who lack confidence and are unsure of the future, to exert idealized influence on their subordinates (Shao and Webber, 2006).

- Personal characteristics such as the ability of leaders to be persistent, able to plan well, careful, responsible, and hardworking are important attributes for accomplishing work tasks in all jobs (Barrick and Mount, 1991). That is, those individuals who exhibit traits associated with a strong sense of purpose, obligation, and persistence generally perform better than those who do not (Barrick and Mount, 1991).

As leadership performance appears to be influenced by the leader's personality, we decided to study the effect of personality on job competency and thereby on job performance of managers (Agut *et al.*, 2003; Bu, 1994; Robertson *et al.*, 1999).

In addition to personality, the possible influence of motivation on managerial competency is proposed since previous research has revealed that all aspects of intrinsic factors (such as achievement, recognition, work itself, responsibility, and advancement) are positively related to competency in public health operational planning (Pipat, 2002; Wilavan, 2002). A set of studied intrinsic motivation such as recognition from managers, colleagues, and clients was proved to be powerful motivators to enhance performance (Dieleman *et al.*, 2003). Through an encouraging and supportive attitude, superiors can strengthen their subordinates' self-efficacy and thus foster personal efforts for the achievement of organizational goals (Mathauer and Imhoff, 2006). Trust and belief from managers, colleagues, and clients also drive the workers "to work hard for them" (Dieleman *et al.*, 2003). Accomplishment of organization goal and job performance (Amaratunga and Baldry, 2002; Franco *et al.*, 2004; Polychroniou, 2008) is therefore the consequence of motivation.

Despite the strong indication that intrinsic motivations have an effect on managerial competency, little is known whether extrinsic factors have similar influence on managerial competency. If managerial competency can be characterized by intrinsic factor, it is feasible to assume that extrinsic factor can equivalently predict managerial competency of a manager. So based on the above literature, we hypothesize the following:

H1. There is a statistically significant relationship between personality and managerial competency.

H2. There is a statistically significant relationship between motivation and managerial competency.

Method

Measures

Personality. The researcher adopted the Big Five Inventory (BFI) of John and Srivastava (1999) to measure personality because properties of the BFI have been shown to be retained across many other languages and cultures (Aziz and Jackson, 2001; Denissen *et al.*, 2008). BFI has 44 personality items for five traits (i.e. openness, conscientiousness, agreeableness, extraversion, and neuroticism). The scale asked the respondents the extent to which they agree that a particular characteristic applies to them. The participants responded on a five-point Likert-type scale (1 = disagree strongly, 2 = disagree a little, 3 = neither agree nor disagree, 4 = agree a little, 5 = agree strongly). Some of the items were worded positively and negatively. For example, "I see myself as someone who (1) is full of energy (positive item) and (2)

worries a lot (negative item)". The differently worded items were meant for striving for objectivity in our survey (Walonick, 2004). All negative items were later reverse-coded.

Motivation. The instrument developed to measure motivation and hygiene items in this study was adopted from the instruments used by Brislin *et al.* (2005), Rathavoot and Ogunlana (2003), and Timmreck (2001). All in all, 14 items were adopted in this research, of which six were intrinsic factors and eight were extrinsic factors. The factors were selected to reflect Herzberg's motivation model, which is widely adopted (Rathavoot and Ogunlana, 2003; Timmreck, 2001; Usugami and Park, 2006). Herzberg's model has also been used in public health organizations (Pipat, 2002; Wilavan, 2002). The intrinsic factors asked in the present study were achievement, recognition, work itself, responsibility, advancement, and personal growth, while the extrinsic factors were self-growth, organizational policy and administration, quality of supervision and leadership, interpersonal relationship, working conditions, salary, job security, personal life, and status. The participants were asked to indicate the extent they believed the factors identified were motivational or could cause people to be motivated, on a five-point Likert-type scale ranging from "never" to "a great deal" with the following descriptors: 1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = a great deal.

Managerial competency. Because there are no existing managerial competencies for primary care managers in Thailand, the competency list that contains 120 items established by Public Health America (Nelson *et al.*, 2002) that were used to measure managerial competency. However, to make sure that the competency list was applicable to the Thai context, it was verified by 12 senior public health executives, deemed to be best qualified to determine baseline competencies for primary care managers, through the Delphi technique. In this technique they were requested to respond to a general question: "What are the behavioral competencies which primary care managers should be expected to possess today?". The question was adopted from the study of Sims (1979). The participants rated the competencies on a Likert-type format of 1 to 5 from the most important to the least important (Sims, 1979). The competencies generated were later analyzed for similarities, redundancies, and ambiguities.

Three rounds of Delphi technique was performed resulting in 56 competencies. These 56 competencies were then sent to five renowned experts in health business for further verification: three directors of Thailand's health service sector who administer primary care sectors in the Ministry of Public Health, and two academic experts who have been giving advice and consultation on developing competencies on nurses and managers for primary care sectors both in Thailand and other countries: one from a local Thai university and another one from a foreign university. The experts provided their opinion on the appropriateness and clarity of the items. Finally, based on all feedback, 47 competency items remained. After that a small group technique was conducted involving three invited primary care managers to validate the instrument to the Thai context with the entire 47 managerial competency items. No changes were made to the 47 items, and these items were later incorporated into the final questionnaire, after they had been pilot tested.

During the main study data collection stage, participants were asked to indicate how often they demonstrate the 47 competencies listed such as "facilitates staff's understanding and acceptance of overall goals" by using five-point Likert scale

ranging from never to very frequently with the following descriptors: 1 = never, 2 = infrequently, 3 = occasionally, 4 = frequently, 5 = very frequently.

All items used in the survey can be found in the Appendix.

Pilot test

To further encourage methodological rigor, a pilot test was conducted amongst rural primary care managers, senior public health executives and experts in health business in a different part of Thailand. The pilot test was carried out on all items measuring all the variables identified above. All items were translated into the Thai language from the English version and back-translation was carried out. Several experts in both languages assisted in checking for any inconsistencies in the translation. Next, to further validate the items, other techniques such as the Delphi technique, a small group discussion, and a telephone interview were used. The main purpose of the pilot test was to check for the relevance and validity of the questions asked, and for any ambiguities. Based on the feedback given, changes were incorporated into the final questionnaire before they were distributed to the participants. For example, based on the recommendations given, the items of "focuses information management in support of priority programs", "encourages program and client data exchange among departments", and "organizes information for benefit of program goals" were dropped because their meanings were already inclusive in the third item. The experts also felt that recurring or repeating items would bore the participants.

The final questionnaire consisted of the following major sections:

- questions relating to the personality construct;
- questions that measured motivation at work; and
- questions that measured managerial competency.

In addition, questions were also asked about primary care managers' demographics. There were 116 questions in the total survey and it took approximately 20 minutes for the participants to complete them.

Participants

A survey was carried out among rural primary care managers. Rural primary care managers are defined as persons who are responsible for overseeing all aspects related to promoting and supporting a healthy environment of the people (Supattra, 2009). Before a survey was carried out, the support and approval of the Provincial Public Health Office was obtained (Creswell, 2008).

The participants were recruited from five provinces of the Southern rural area by using cluster sampling. We determined the desired sample size and calculated the average size of a cluster, and then we chose at random five out of ten provinces using a simple random sampling without replacement. This was done by drawing five cards from a box that contained ten cards with the name of each province on each card. Once the five provinces were identified, we selected all primary health care managers in these provinces. Even though the research received prior support from the Public Health Office, it was made clear to the participants that their participation was voluntary and their identity would be made anonymous. Because social desirability bias can be a problem with self-reported measures as participants often answer in a way to portray themselves in good light, confidentiality was guaranteed. Furthermore,

there was no reason to suspect serious social desirability bias, as the research did not deal with something that was sensitive in nature (Spector, 1994).

All in all, 667 questionnaires were sent to rural primary care managers, and only 358 valid responses were obtained, signifying a 53.7 percent response rate. The number of participants was considered satisfactory for our analysis, in line with Hair *et al.*'s (2006) recommendations. The majority of the managers were female (58.2 percent), married (84.1 percent), and were between 40 and 49 years old (56.8 percent). Most of the managers possessed a Bachelor's degree (67.6 percent). Not all managers held a similar bureaucratic position in their primary care units: some were designated as Public Health Administrative Officers (82.6 percent), Public Health Technical Officers (7.3 percent), Registered Nurses (7.0 percent), and Community Health Officers (3.1 percent). The managers' tenure with their organization varied from one year to 40 years. The majority of the managers were found to have been employed by their organization for between 21 and 30 years (53.5 percent) and to have a job tenure as a manager of between one and ten years (56.5 percent). Ninety-five percent of the managers were working at a health centre, with only a minority working at the community-located primary care unit of a hospital (5.0 percent).

Analysis and results

Factor analysis

Before the hypotheses were tested using multiple regressions, we first performed exploratory factor analysis on all items asked to measure personality, motivation, and managerial competency variables. This statistical technique was used to determine their dimensionality and ensure internal consistency and validity (Hair *et al.*, 2006). Its specific goal is to reduce a large number of observed variables to a smaller number of factors (Hair *et al.*, 2006). A principal component factor analysis using Varimax rotation was completed to investigate the psychometric properties of them by using SPSS 15.0. Each summated scale should consist of the items loading highly on a single factor to reflect its unidimensionality. In addition, validity measures, such as convergent, discriminant, and nomological validity, were examined to indicate the set of measures accurately represents the concept of interest (Hair *et al.*, 2006).

For factor interpretation, we set a threshold value of 0.50 or higher on a specific factor and a loading of no higher than 0.35 on other factors (Igbaria *et al.*, 1995). Variables should generally have communalities of greater than 0.50 to be retained in the analysis (Hair *et al.*, 2006).

The process of scale purification reduced the number of personality items from 44 to 12 (Table I). Among these 12 items, the factor analysis extracted three factors: conscientiousness (factor 1), neuroticism (factor 2), and openness (dactor 3). Agreeableness and extraversion did not stand in the final analysis. The possible reason for the loss of these dimensions was perhaps these traits are not the critical characteristics of these participants/subjects. The variables loaded high on three factors can be explained based on the Big Five inventory of John and Srivastava (1999).

The construct of motivation consists of seven items (see Table II), and loaded on two factors: the first factor was labelled "extrinsic factor", and the second factor "intrinsic factor". The variables loaded high on two factors can be explained based on the motivation theory of Herzberg *et al.* (1959) and the study of Brislin *et al.* (2005). They

Items	Factor 1 (conscientiousness)	Factor 2 (neuroticism)	Factor 3 (openness)
Perseveres until the task is finished	0.78		
Does a thorough job	0.76		
Is full of energy	0.75		
Does things efficiently	0.74		
Generates a lot enthusiasm	0.73		
Gets nervous easily		0.74	
Worries a lot		0.74	
Can be tense		0.70	
Is depressed, blue		0.70	
Values artistic, aesthetic experiences			0.79
Has few artistic interests			0.77
Is sophisticated in art, music or literature			0.74
Reliability (Cronbach's α)	0.82	0.70	0.68

Table I.
Results of factor analysis on personality ($n = 358$)

Notes: Variance explained = 58.1 percent; Kaiser-Meyer-Olkin measure of sampling adequacy = 0.79; Bartlett's test of sphericity (significance level) = 0.000

Items	Factor 1 (extrinsic)	Factor 2 (intrinsic)
Quality of supervision and leadership	0.82	
Organizational policy and administration	0.79	
Interpersonal relationship	0.71	
Working conditions	0.68	
Work itself		0.83
Amount of responsibility		0.76
Job recognition		0.75
Reliability (Cronbach's α)	0.78	0.73

Table II.
Results of factor analysis on motivation ($n = 358$)

Notes: Variance explained = 62.67 percent; Kaiser-Meyer-Olkin measure of sampling adequacy = 0.83; Bartlett's test of sphericity (significance level) = 0.000

loaded well to reflect the factors, as expected. In addition, seven items were dropped, as they did not load highly on each summated scale.

The process of scale purification reduced the number of managerial competency items from 47 to 24 (Table III). Among these 24 items, the factor analysis extracted six factors:

(1) visionary leadership;

(2) assessment, planning, and evaluation;

(3) promotion of health and prevention of disease;

(4) information management;

(5) partnership and collaboration; and

(6) communication (see Table III).

Items	Factor 1	2	3	4	5	6
Facilitates staff's understanding and acceptance of overall goals	0.80					
Leads process of defining agency's agency mission and values	0.74					
Clarifies how own programs interact with others to contribute to the mission	0.71					
Articulates the agency's mission and priorities	0.70					
Sets framework of the agency's mission to put down in writing	0.66					
Integrates agency mission and community vision into a single direction	0.62					
Proactively supports the assessment, planning, and the evaluation process		0.74				
Designs interventions to improve patient/customer satisfaction		0.72				
Uses evaluation results to refine goals/objectives for program services		0.71				
Designs interventions to improve the standard of health services		0.69				
Provides support for colleagues in analyzing, planning, and evaluating programs		0.64				
Encourages staff to upgrade information and skills regarding the latest health maintenance and disease prevention research and strategies			0.79			
Promotes health broadly defined as quality of life in the community			0.76			
Acts as a preventive health champion in all interactions with organizations			0.74			
Promotes healthy lifestyles in the work setting			0.66			
Maintains confidentiality of individual/client data				0.80		
Applies information to the needs of individuals/ clients				0.71		
Provides information to assist identified clients in making life-style and choices				0.70		
Cooperates with other organizations sponsoring complementary health initiatives in the community					0.79	
Encourages the use of existing resources to improve community health status					0.68	
Identifies partners for potential coordination of goals and services with other agencies					0.62	
Works with the media to increase the public's knowledge of and support for public issues						0.75
Defines current and emerging public health issues to inform the community and policy makers						0.73
Provides opportunities to discuss major health promotion issues by local community						0.70
Reliability (Cronbach's α)	0.87	0.89	0.86	0.79	0.82	0.84

Notes: Factor 1, visionary leadership; factor 2, assessment, planning, and evaluation; factor 3, promotion of health and prevention of disease; factor 4, information management; factor 5, partnership and collaboration; factor 6, communication. Variance explained = 70.12 percent; Kaiser-Meyer-Olkin measure of sampling adequacy = 0.94; Bartlett's test of sphericity (significance level) = 0.000

Table III.
Results of factor analysis on managerial competency ($n = 358$)

The variables loaded highly on six factors can be explained based on the study of Nelson *et al.* (2002). Indeed, the original instrument (Nelson *et al.*, 2002) comprises seven dimensions. Only the system-thinking dimension was discarded in this study because they items correlated at 0.6, which did not exceed the recommended guideline of 0.7 (Tabachnick and Fidell, 2007).

Multiple regressions analysis

Before running multiple regression analyses, the data were first examined to confirm that the assumptions for testing the hypothesis were met. The major assumptions examined are outliers, normality, linearity, homoscedasticity, multicollinearity, and independence of errors (Coakes, 2005). Outliers were tested by using the case-wise diagnostics and based on Meyers *et al.*'s (2006) recommendation, no serious outliers were found. Normality was tested by checking skewness and kurtosis values. In line with George and Mallery's (2006) suggestion, normality values were acceptable (the skewness and kurtosis value was between ± 1.0). Linearity was tested using the bivariate scatterplots, and the plots were found to be linear. Homocedasticity was tested using the residual plots, and an oval shape was found. Tolerance and VIF were used to test multicollinearity. Tolerance was between 0.7 and 0.9, and VIF was between 1.0 and 1.4, values that showed no problem of multicollinearity. The Durbin-Watson statistic (1.7-1.8) shows that the assumption of independence of errors was not violated.

Next, based on the recommendations of Myers (1990), personality and motivation were simultaneously entered into the equation.

H1 proposed that there is a statistically significant relationship between personality and managerial competency. It was supported. The results of regression analysis are summarized in Table IV. As hypothesized, conscientiousness, neuroticism, and openness are related to managerial competency. Conscientiousness is positively related to all dimensions of managerial competency. Conscientiousness is positively related to visionary leadership, assessment, planning, and evaluation, promotion of health and prevention of disease, information management, partnership and collaboration, and communication. Neuroticism is negatively related to visionary leadership. Openness is

Table IV.
Regression analyses for personality and motivation variables predicting managerial competencies

Independent variables	Dependent variables (standard β) Visionary leadership	Assessment, planning, and evaluation	Promotion of health and prevention of disease	Information management	Partnership and collaboration	Communication
Conscientiousness	0.24^{***}	0.24^{***}	0.13^{*}	0.11^{*}	0.12^{*}	0.13^{*}
Neuroticism	-0.12^{**}	-0.07	-0.01	-0.03	-0.02	-0.08
Openness	0.06	0.09	0.12^{*}	0.02	0.16^{**}	0.06
Extrinsic factor	0.23^{***}	0.23^{***}	0.09	0.08	0.03	0.16^{**}
Intrinsic factor	0.16^{**}	0.03	0.20^{**}	0.12	0.24^{***}	0.16^{**}
R^2	0.26	0.18	0.14	0.06	0.15	0.14
n	346	348	349	349	349	346

Notes: $^{*}p < 0.05$; $^{**}p < 0.01$; $^{***}p < 0.001$

positively related to promotion of health and prevention of disease and partnership and collaboration.

H2 proposed that there is a statistically significant relationship between motivation and managerial competency. It was supported. The results of regression analysis are summarized in Table IV. As hypothesized, extrinsic and intrinsic factor are related to managerial competency. Extrinsic factor is positively related to visionary leadership, assessment, planning, and evaluation, and communication. Intrinsic factor is positively related to visionary leadership, promotion of health and prevention of disease, partnership and collaboration, and communication.

Discussion

This study has determined the managerial competencies of primary health care managers in Thailand, and examined the influence of personality and motivation on their competencies. In general, the study has found six critical managerial competencies of primary care managers:

(1) visionary leadership;

(2) assessment, planning, and evaluation;

(3) promotion of health and prevention of disease;

(4) information management;

(5) partnership and collaboration; and

(6) communication.

It was also revealed that both personality and motivation influence primary care managers' managerial competency.

This study found that conscientiousness, neuroticism, and openness are significantly related to managerial competencies. Firstly, conscientiousness is positively related to all dimensions of managerial competency. The relationship between conscientiousness and managerial competencies is supported by a study of Robertson *et al.* (1999) who found that conscientiousness was significantly and positively related to visionary leadership (a leader who motivates and empowers others in order to reach organizational goals). A study by Bishop *et al.* (2001) found that conscientiousness was significantly and positively related to planning and, a study by Tett *et al.* (2003) found that conscientiousness (achievement) was significantly and positively related to coordinating. Costa and Widiger (2002) asserted that individuals who score high on conscientiousness have high aspiration levels and work hard to achieve their goals. They are diligent and purposeful and have a sense of direction in life. These attributes link to visionary leadership.

Secondly, the significant and negative relationship between neuroticism and visionary leadership is supported by a study of Judge *et al.* (2002). It seems that managers who are high in neuroticism may be unable to give the whole organization a sense of unity and purpose and provide the focus for everyone to move in the same direction because high scorers on neuroticism are more likely to have such fears, free-floating anxiety (Costa and Widiger, 2002). Thirdly, openness is significantly and positively related to promotion of health and prevention of disease and to partnership and collaboration. The results showed that managers who are more open would promote more health and prevent disease and develop higher partnership and

collaboration. According to Barrick and Mount (1991), people who are open tend to demonstrate competency in working together with different people in the community to develop the necessary network. Further, Homan *et al.* (2008) assert that openness to experience is closely related to the essence of working in a diverse team.

In addition, the results revealed that extrinsic and intrinsic motivation are significantly and positively related to managerial competency. Extrinsic factors are significantly and positively related to visionary leadership, assessment, planning, and evaluation and communication whereas intrinsic factors are significantly and positively related to visionary leadership, promotion of health and prevention of disease, partnership and collaboration, and communication. These findings indicate that managers who are motivated by higher extrinsic and intrinsic factors tend to demonstrate higher managerial competency. There are a number of explanations for these findings.

First, the result of the relationship between extrinsic factors and visionary leadership is similar to that found by Mbindyo *et al.* (2009), who developed a tool to measure health worker motivation in rural government hospitals in Kenya. They indicated that the amount of responsibility (as evidenced by factors such as high workloads) and working condition (as evidenced by factors such as lack of equipment and medical supplies) are somewhat related to actual individual behaviors such as acceptance of organizational goals and working practices. Research in Tanzania (Manongi *et al.*, 2006), Africa (Mathauer and Imhoff, 2006), and Kenya (Mbindyo *et al.*, 2009) on rural health workers in both health centers and community hospitals found that many health workers are demotivated due to lack of means and supplies, staff shortages, lack of supervisor feedback, and high workload. In Thailand, rural primary care sectors have similar resource pressures such as high workload, inconvenient transportation, inappropriate facilities (i.e. vehicles, fuel), insufficient manpower, medical equipment and medicine, and less compensation (Chai *et al.*, 2004; Orathai and Preeda, 2004; Phenkhae and Samrit, 2003; Piroj, 2008). In these conditions, it is possible that demotivation at work is an issue. Orathai and Preeda (2004) found that the lack of medical equipment and medicine makes health workers unhappy and embarrassed in providing health services, and this leads to customer dissatisfaction. Moreover, a study of Nongnut and Nipon (2002) in Thailand revealed that good working conditions and sufficient equipment enable nurses to provide a fast service.

Second, Mbindyo *et al.* (2009) found that an inability of health staff to do their work due to constraints such as high workloads and lack of resources caused dissatisfaction with health care work and this led to adverse outcomes such as burnout and poor attitudes to patients and work. Similarly, Willis-Shattuck *et al.* (2008) found that lack of materials was an important de-motivator. Poor infrastructure does not inspire confidence from the health workers nor from patients. It seems that managers are not likely to deliver a quality service to community if they are de-motivated and this may affect competency, and result in poor attitudes toward patients and work. In addition, Dieleman *et al.* (2003) found that rural health workers have difficulty in executing their plans if they have very little allowance.

Third, communication is labeled as informing the community and policy makers and providing opportunities to discuss major health promotion issues by local community. A study of Prawit (2008) on strengthening the professionalism and management capacity of Thai District Health Service Managers found that the Chair of

the Contracting Unit for Primary care (CUP) Board provides important reinforcement. The role of CUP is to support resources fairly (i.e. budget, people, material, durable articles, medical supplies, land, and building) to Health Centers and Primary Care Units (Department of Health Service Support, 2009). Prawit (2008) asserts that if the Chair of the CUP Board has a good vision and understands its health service system and modern management, there is a trend for managers to have a mindset of promoting community participation that empowers the community in taking part in decision making for their own health. He noted that this will encourage local government, the community and people to be responsible for their self care in the long term.

Fourth, intrinsic factors are significantly and positively related to managerial competency namely visionary leadership, promotion of health and prevention of disease, partnership and collaboration, and communication. Dieleman *et al.* (2006) proposed that there should be improving mechanisms for recognition because these would ultimately contribute to improving quality of care. Many researchers have found that recognition of the work that health workers do from their managers, colleagues and clients is of great importance, as it becomes a powerful motivator to enhance performance (Dieleman *et al.*, 2003, 2006; Manongi *et al.*, 2006; Mathauer and Imhoff, 2006). Mathauer and Imhoff (2006) found that through an encouraging and supportive attitude, superiors and community recognition can strengthen managers' self efficacy and thus foster personal efforts for the achievement of organizational goals. The study of Dieleman *et al.* (2003) found that when community health workers get recognition (i.e. trust and support) from village health volunteers, health workers will work hard for them.

Motivation tends to have a stronger influence on managerial competency than personality. As shown in Table IV, the β coefficient of motivation is higher than that of personality on visionary leadership, assessment, planning, and evaluation, promotion health and preventing disease, partnership and collaboration, and communication ($\beta = 0.23$, 0.23, 0.20, 0.24, and 0.16, respectively). With the exception of information management, beta coefficient of personality is higher than motivation's ($\beta = 0.11$). This was due to the likelihood of personality being a more direct measure of actual behaviour, whereas motivation is more specific to the factors that drive actual performance (Wong *et al.*, 2002). An example of Barrick and Mount's (1991) study indicated that job performance measures associated with conscientiousness are most likely to be valid predictors for all jobs. They further assert that it is difficult to conceive of a job in which the traits associated with the conscientiousness dimension would not contribute to job success. Moreover, the finding of Bozionelos (2004) supported a significant but not strong, relationship between the big five personality and work involvement because employees who score high on agreeableness (i.e. altruism and modesty) are probably less likely to view their work as a means to satisfy ambitious needs and are therefore less likely to be involved in their work. Meanwhile motivation in a work context can be defined as an individual's degree of willingness to exert and maintain an effort towards organizational goals; it is a set of psychological processes that influences workers' allocation of personal resources towards those goals, which in turn affect workplace effectiveness and productivity (Franco *et al.*, 2004).

Limitations

Obviously, some limitations to this study should be noted. First, the biggest limitation of this study is that the competencies of the managers were self-reported, rather than independently assessed (or assessed by their supervisors). There is a large body of literature showing that self-reported behaviors are unreliable, and that people in general are not good "self-assessors". There is possibility that this may be true given that there is a significant relationship between personality, motivation and competency. However, while this might be so, the likelihood of inflated self-assessed scores (and therefore contamination of the data) was reduced because anonymity of the responses was guaranteed. Even though the managers were given the survey by their supervising organizations, one would expect that the managers had given a realistic assessment of their own competency because confidentiality was guaranteed and this allows respondents to give more truthful responses.

Second, there is a constraint on the numerous questions in our survey (around 100 items). Thus we based on a short version of personality instrument (44 items). Other instrument with more number of items could make a better instrument more appropriately for a wider range of respondents such as the revised NEO Personality Inventory or the NEO-PI-R. McCrae *et al.* (2005) stated that the NEO-PI-R has worked well in a variety of context, but it has 240 items altogether.

Implications for practice and future research

Conscientiousness was significantly related to all managerial competencies. Also, neuroticism and openness have an influence on some managerial competencies. Therefore, a selected personality may be an issue for training and development to enhance primary care managers' job achievement. Ultimately, motivation has stronger influence on managerial competency. These findings reflected the potent role of the National Health Security Office, the Ministry of Public Health, headquarters levels, and the district level for making a meaningful management process in order to support primary care managers' job success in delivering a quality health service to people in community. Future research should assess the relationship between managerial competency and performance. It would also be interesting to gather some independent data on competency to validate the self-assessed scores. Interestingly, the relationship of our variables may be moderated by other factors such as organizational factors (i.e. organizational culture, resource availability, and human resource management practices) and social factors (i.e. peer pressure, and social values). A qualitative study would be a useful method to help explain the phenomenon of this relationship. In addition, the findings may be generalized to any people working in primary care who have a responsibility to engage people in their own care. Further research could be done in other countries to see if this conclusion is in fact correct. It would also be useful to research if the findings apply to other health and social areas.

References

Agut, S., Grau, R. and Peir, J.M. (2003), "Individual and contextual influences on managerial competency needs", *Journal of Management Development*, Vol. 22 No. 10, pp. 906-18.

Amaratunga, D. and Baldry, D. (2002), "Performance measurement in facilities management and its relationships with management theory and motivation", *Facilities*, Vol. 20 No. 10, pp. 327-36.

Avis, J.M., Kudisch, J.D. and Fortunato, V.J. (2002), "Examining the incremental validity and adverse impact of cognitive ability and conscientiousness on job performance", *Journal of Business and Psychology*, Vol. 17 No. 1, pp. 87-105.

Aziz, S. and Jackson, C.J. (2001), "A comparison between three and five factor models of Pakistani personality data", *Personality and Individual Differences*, Vol. 31 No. 8, pp. 1311-9.

Bagad, V.S. (2009), *Principles of Management*, Technical Publications Pune, Shaniwar Peth.

Barrick, M.R. and Mount, M. (1991), "The Big Five personality dimensions and job performance: a meta-analysis", *Personnel Psychology*, Vol. 44 No. 1, pp. 1-26.

Bishop, G.D., Tong, E.M.W., Diong, S.M., Enkelmann, H.C., Why, Y.P., Khader, M. and Ang, J.C.H. (2001), "The relationship between coping and personality among police officers in Singapore", *Journal of Research in Personality*, Vol. 35 No. 3, pp. 353-74.

Boyatzis, R.E. (1982), *The Competent Manager: A Model for Effective Performance*, Wiley, New York, NY.

Bozionelos, N. (2004), "The Big Five of personality and work involvement", *Journal of Managerial Psychology*, Vol. 19 Nos 1/2, pp. 69-81.

Brislin, R.W., MacNab, B., Worthley, R., Florencio Kabigting, J. and Zukis, B. (2005), "Evolving perceptions of Japanese workplace motivation: an employee-manager comparison", *International Journal of Cross Cultural Management*, Vol. 5 No. 1, pp. 87-103.

Bu, N. (1994), "Red cadres and specialists as modern managers: an empirical assessment of managerial competencies in China", *International Journal of Human Resource Management*, Vol. 5 No. 2, pp. 357-83.

Catano, V.M., Cronshaw, S.F., Wiesner, W.H., Hackett, R.D. and Methot, L.L. (2001), *Recruitment and Selection in Canada*, Nelson, Scarborough.

Chai, J., Rawee, S. and Chatri, N. (2004), "The research and development of primary care unit in public health zone 3, phase 2: outcomes and related factors to implementation of health promotion programs of primary care units in public health zone 3", *Journal of Health Science*, Vol. 13 No. 3, pp. 471-9.

Chan, S.W.-C., Chien, W.-T. and Tso, S. (2009), "Evaluating nurses' knowledge, attitude and competency after an education programme on suicide prevention", *Nurse Education Today*, Vol. 29 No. 7, pp. 763-9.

Coakes, S. (2005), *SPSS: Analysis Without Anguish: Version 12.0 for Windows*, Wiley Australia, Brisbane.

Cockerill, T., Hunt, J. and Schroder, H. (1995), "Managerial competencies: fact or fiction?", *Business Strategy Review Autumn*, Vol. 6 No. 3, pp. 1-12.

Costa, P.J. and Widiger, T.A. (2002), *Personality Disorders and the Five-factor Model of Personality*, American Psychological Association, Washington, DC.

Creswell, J.W. (2008), *Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research*, Pearson/Merrill Prentice Hall, Upper Saddle River, NJ.

Denissen, J.J.A., Geenen, R., Aken, M.A.G.V., Gosling, S.D. and Potter, J. (2008), "Development and validation of a Dutch translation of the Big Five Inventory (BFI)", *Journal of Personality Assessment*, Vol. 90 No. 2, pp. 152-7.

Department of Health Service Support (2009), "Standard of administration and network development of primary care service", Department of Health Service Support, Ministry of Public Health, Thailand, available at: http://203.157.3.249/ (accessed 25 June 2009).

Dieleman, M., Cuong, P.V., Anh, L.V. and Martineau, T. (2003), "Identifying factors for job motivation of rural health workers in North Viet Nam", *Human Resources for Health*, Vol. 1 No. 10, pp. 1-10.

Dieleman, M., Toonen, J., Toure, H. and Martineau, T. (2006), "The match between motivation and performance management of health sector workers in Mali", *Human Resources for Health*, Vol. 4 No. 2, pp. 1-7.

Dubois, D. (1993), *Competency-based Performance: A Strategy for Organizational Change*, HRD Press, Boston, MA.

Franco, L.M., Bennett, S., Kanfer, R. and Stubblebine, P. (2004), "Determinants and consequences of health worker motivation in hospitals in Jordan and Georgia", *Social Science & Medicine*, Vol. 58 No. 2, pp. 343-55.

George, D. and Mallery, P. (2006), *SPSS for Windows Step by Step: A Simple Guide and Reference, 13.0 Update*, Pearson A & B, Boston, MA.

Goldberg, L.R. (1992), "The development of markers for the Big-Five factor structure", *Psychological Assessment*, Vol. 4 No. 1, pp. 26-42.

Hair, J.F., Black, W.C., Babin, B.J., Anderson, R.E. and Tatham, R.L. (2006), *Multivariate Data Analysis*, Pearson Prentice Hall, Upper Saddle River, NJ.

Herzberg, F., Mausner, B. and Snyderman, B.B. (1959), *The Motivation to Work*, Wiley, New York, NY.

Hogan, R. and Kaiser, R.B. (2005), "What we know about leadership", *Review of General Psychology*, Vol. 9 No. 2, pp. 169-80.

Homan, A.C., Hollenbeck, J.R., Humphrey, S.E., Knippenberg, D.V., Ilgen, D.R. and Vankleef, G.A. (2008), "Facing differences with an open mind: openness to experience, salience of intragroup differences, and performance of diverse work groups", *Academy of Management Journal*, Vol. 51 No. 6, pp. 1204-22.

Igbaria, M., Iivari, J. and Maragahh, H. (1995), "Why do individuals use computer technology? A Finnish case study", *Information and Management*, Vol. 29 No. 5, pp. 227-38.

Jarunee, T. (2007), "Factors affecting the performance effectiveness of primary care units under universal coverage of Phranakorn Si Ayutthaya Province", unpublished Master's thesis, Mahidol University, Bangkok.

Jay, M., Kalet, A., Ark, T., McMacken, M., Messito, M.J., Richter, R., Schlair, S., Sherman, S., Zabar, S. and Gillespie, C. (2009), "Physicians' attitudes about obesity and their associations with competency and specialty: a cross-sectional study", *BMC Health Services Research*, Vol. 9 No. 106, pp. 1-11.

John, O.P. and Srivastava, S. (1999), "The Big-Five trait taxonomy: history, measurement, and theoretical perspective", available at: www.uoregon.edu/~sanjay/pubs/bigfive.pdf (accessed 1 November 2007).

Judge, T.A., Bono, J.E., Ilies, R. and Gerhardt, M.W. (2002), "Personality and leadership: a qualitative and quantitative review", *Journal of Applied Psychology*, Vol. 87 No. 4, pp. 765-80.

Korzaan, M.L. and Boswell, K.T. (2008), "The influence of personality traits and information privacy concerns on behavioral intentions", *The Journal of Computer Information Systems*, Vol. 48 No. 4, pp. 15-24.

McCrae, R.R., Costa, P.T. Jr and Martin, T.A. (2005), "The NEO-PI-3: a more readable revised NEO personality inventory", *Journal of Personality Assessment*, Vol. 84 No. 3, pp. 261-70.

Manongi, R.N., Marchant, T.C. and Bygbjerg, I.C. (2006), "Improving motivation among primary health care workers in Tanzania: a health worker perspective", *Human Resources for Health*, Vol. 4 No. 6, pp. 1-7.

Mathauer, I. and Imhoff, I. (2006), "Health worker motivation in Africa: the role of non-financial incentives and human resource management tools", *Human Resources for Health*, Vol. 4 No. 24, pp. 1-17.

Mbindyo, P.M., Blaauw, D., Gilson, L. and English, M. (2009), "Developing a tool to measure health worker motivation in district hospitals in Kenya", *Human Resources for Health*, Vol. 7 No. 40, pp. 1-11.

Meyers, L.S., Gamst, G. and Guarino, A.J. (2006), *Applied Multivariate Research: Design and Interpretation*, Sage Publications, Thousand Oaks, CA.

Myers, R.H. (1990), *Classical and Modern Regression with Applications*, PWS-Kent Publishing Co., Boston, MA.

Nelson, J., Essien, J., Loudermilk, R. and Cohen, D. (2002), *The Public Health Competency Handbook: Optimizing Individual and Organization Performance for the Public's Health*, Center for Public Health Practice of the Rollins School of Public Health, Atlanta, GA.

Nirachon, C., Mohmad Yazam, S. and Faridahwati, M.S. (2007), "Determinants of managerial competencies in the public health sector", *Reimagining Management in an Era of Multiple Crises: Success and Sustainability of Businesses in Dynamic Asia 2007: Proceedings of the International Conference in Penang, Malaysia, 2007*, Asian Academy of Management and School of Management, Universiti Sains Malaysia, Penang, pp. 233-41.

Nongnut, O. and Nipon, K. (2002), "The relationship between professional nurse's competency and some selected factors of professional nurses in the hospitals of Public Health Ministry", *Buddhachinaraj Medical Journal*, Vol. 19 No. 1, pp. 21-8.

Orathai, K. and Preeda, T. (2004), "Clients' satisfaction towards health care services under the universal health care coverage: Phitsanulok Province", *Journal of Health Science*, Vol. 13 No. 4, pp. 642-52.

Phenkhae, L. and Samrit, S. (2003), "The first-year implementation of primary care unit of the universal health care coverage", *Journal of Health Science*, Vol. 12 No. 6, pp. 923-36.

Pipat, B. (2002), "Competency in operational planning of health personnel in Krabi Province", unpublished Master's thesis, Mahidol University, Bangkok.

Piroj, R. (2008), "Job satisfaction of hospital personnel with the Universal Coverage Health Insurance Policy", *Journal of Health Systems Research*, Vol. 2 No. 2, pp. 1095-105.

Polychroniou, P.V. (2008), "Transformational leadership and work motivation in modern organizations", *Advances in Management*, Vol. 1 No. 3, pp. 9-12.

Prawit, T. (2008), "Strengthening the professionalism and management capacity of Thai district health service managers to achieve the Universal Health Coverage Policy goal of achieving sustainability in access to quality health care", available at: www.health.nu.ac.th/CELHM2010/index.php (accessed 18 October 2010).

Prows, C.A. and Saldana, S.N. (2009), "Nurses' genetic/genomics competencies when medication therapy is guided by pharmacogenetic testing: children with mental health disorders as an exemplar", *Journal of Pediatric Nursing*, Vol. 24 No. 3, pp. 179-88.

Rampaporn, H. (2006), "The manager's competency in primary care units, Songkhla province", unpublished Master's thesis, Prince of Songkhla University, Hat Yai.

Robbins, S.P. (1993), *Organizational Behavior*, Prentice Hall, Englewood Cliffs, NJ.

Robertson, I., Gibbons, P., Baron, H., MacIver, R. and Nyfield, G. (1999), "Understanding management performance", *British Journal of Management*, Vol. 10 No. 1, pp. 5-12.

Robertson, I.T., Baron, H., Gibbons, P., Maclver, R. and Nyfield, G. (2000), "Conscientiousness and managerial performance", *Journal of Occupational and Organizational Psychology*, Vol. 73 No. 2, pp. 171-80.

Rathavoot, R. and Ogunlana, S.O. (2003), "Testing Herzberg's two-factor theory in the Thai construction industry", *Engineering, Construction and Architectural Management*, Vol. 10 No. 5, pp. 333-41.

Scutchfield, F.D., Beaulieu, L., Ireson, C. and Buege, A. (2002), "Public health competencies required by managed care organizations", *Public Health Management Practice*, Vol. 8 No. 5, pp. 22-9.

Shao, L. and Webber, S. (2006), "A cross-cultural test of the five-factor model of personality and transformational leadership", *Journal of Business Research*, Vol. 59 No. 8, pp. 936-44.

Sims, L.S. (1979), "Identification and evaluation of competency of public health nutrition", *The American Journal of Public Health*, Vol. 69 No. 11, pp. 1099-105.

Spector, P.E. (1994), "Using self-report questionnaires in OB research: a comment on the use of a controversial method", *Journal of Organizational Behavior*, Vol. 15 No. 5, pp. 385-92.

Supattra, S. (2009), "Primary health care, primary care, and family medicine: define the meaning and connections", *The Thai Journal of Primary Care and Family Medicine*, Vol. 1, pp. 11-15.

Tabachnick, B.G. and Fidell, L.S. (2007), *Using Multivariate Statistics*, Pearson/Allyn & Bacon, Boston, MA.

Tett, R.P., Steele, J.R. and Beauregard, R. (2003), "Broad and narrow measures on both sides of the personality-job performance relationship", *Journal of Organizational Behavior*, Vol. 24 No. 3, pp. 335-56.

Timmreck, T.C. (2001), "Managing motivation and developing job satisfaction in the health care work environment", *The Health Care Manager*, Vol. 20 No. 1, pp. 42-58.

Usugami, J. and Park, K.-Y. (2006), "Similarities and differences in employee motivation viewed by Korean and Japanese executives: empirical study on employee motivation management of Japanese-affiliated companies in Korea", *International Journal of Human Resource Management*, Vol. 17 No. 2, pp. 280-94.

Walonick, D.S. (2004), "Excerpts from: survival statistics", available at: www.suu.edu/faculty/wright/nfs4480/surveys.pdf (accessed 30 December 2010).

Wilavan, P. (2002), "Competency in operational planning of health center head in Ubonratchathanee Province", unpublished Master's thesis, Mahidol University, Bangkok.

Willis-Shattuck, M., Bidwell, P., Thomas, S., Wyness, L., Blaauw, D. and Ditlopo, P. (2008), "Motivation and retention of health workers in developing countries: a systematic review", *BMC Health Services Research*, Vol. 8 No. 247, pp. 1-8.

Wong, M., Gardiner, E., Lang, W. and Coulon, L. (2002), "Generational differences in personality and motivation: do they exist and what are the implications for the workplace?", *Journal of Managerial Psychology*, Vol. 23 No. 8, pp. 878-90.

Appendix. Summary of items used for measurement

Scale	Items
Managerial competency [a]	
Visionary leadership	1. Creates a vision respectful of individual's autonomy and dignity
	2. Acknowledges clients who take appropriate healthful actions
	3. Integrates agency mission and community vision into a single direction
	4. Leads process of defining agency's agency mission and values
	5. Facilitates staff's understanding and acceptance of overall goals
	6. Clarifies how own programs interact with others to contribute to the mission
	7. Influences other organizations in the support of health initiatives
	8. Encourages use of community resources in support of public health
Communication	1. Translates clients' expression of needs into clear descriptions of health needs
	2. Sets framework of the agency's mission to put down in writing
	3. Articulates the agency's mission and priorities
	4. Maintains open communication across departments and disciplines
	5. Listens carefully to accurately represent other's ideas
	6. Works with the media to increase the public's knowledge of and support for public issues
	7. Defines current and emerging public health issues to inform the community and policy makers
	8. Provides opportunities to discuss major health promotion issues by diverse constituencies
Information management	1. Provides information to assist identified clients in making life-style and choices
	2. Shows relationship of risk factors and individual behaviour issues
	3. Maintains confidentiality of individual/client data
	4. Applies information to the needs of individuals/clients
	5. Organizes information for benefit of program goals
	6. Shares and reports health information and acts as health data resource
Assessment, planning, and evaluation	1. Designs interventions to improve patient/customer satisfaction
	2. Designs interventions to improve the standard of health services
	3. Proactively supports the assessment, planning, and the evaluation process
	4. Uses evaluation results to refine goals/objectives for program services

(*continued*)

Table AI.
Summary of items used for measurement

Scale	Items
	5. Provides support for colleagues in analyzing, planning, and evaluating programs
	6. Assures periodic assessment and reporting of community's health status
	7. Mobilizes multisector community participation in the process
Partnership and collaboration	1. Supports individual/family outreach approaches in appropriate programs
	2. Acknowledges colleagues' contributions to teamwork
	3. Promotes team development and input as a management style
	4. Emphasizes complementary programs through cooperative relationships
	5. Identifies partners for potential coordination of goals and services with other agencies
	6. Cooperates with other organizations sponsoring complementary health initiatives in the community
	7. Encourages the use of existing resources to improve community health status
System thinking	1. Balances needs of individuals with the design of efficient service
	2. Provides learning environment leading to agency capacity building
	3. Addresses operational problems in the context of major priorities
	4. Identifies and assesses specific community health issues
Promoting health and preventing disease	1. Promotes preventive and self care approaches
	2. Encourages client and family empowerment in responding to health problems
	3. Promotes healthy lifestyles in the work setting
	4. Assures safe environment for the workforce
	5. Encourages staff to upgrade information and skills regarding the latest health maintenance and disease prevention research and strategies
	6. Promotes health broadly defined as quality of life in the community
	7. Acts as a preventive health champion in all interactions with organizations
Personality [b]	
Extraversion	1. Is talkative
	2. Is reserved[d]
	3. Is full of energy
	4. Generates a lot of enthusiasm
	5. Tends to be quiet[d]
	6. Has an assertive personality
	7. Is sometimes shy, inhibited[d]
	8. Is outgoing, sociable
Agreeableness	1. Tends to find fault with others[d]
	2. Is helpful and unselfish with others

Table AI.

(*continued*)

Scale	Items
	3. Start quarrels with others[d]
	4. Has a forgiving nature
	5. Is generally trusting
	6. Can be cold and aloof[d]
	7. Is considerate and kind to almost everyone
	8. Is sometimes rude to others[d]
	9. Likes to cooperate with others
Conscientiousness	1. Does a thorough job
	2. Can be somewhat careless[d]
	3. Is a reliable worker
	4. Tends to be disorganized[d]
	5. Tends to be lazy[d]
	6. Perseveres until the task is finished
	7. Does things efficiently
	8. Makes plans and follows through with them
	9. Is easily distracted[d]
Neuroticism	1. Is depressed, blue
	2. Is relaxed, handles stress well[d]
	3. Can be tense
	4. Worries a lot
	5. Is emotionally stable, not easily upset[d]
	6. Can be moody
	7. Remains calm in tense situations[d]
	8. Gets nervous easily
Openness	1. Is original, comes up with new ideas
	2. Is curious about many different things
	3. Is ingenious, a deep thinker
	4. Has an active imagination
	5. Is inventive
	6. Values artistic, aesthetic experiences
	7. Prefers work that is routine[d]
	8. Likes to reflect, play with ideas
	9. Has few artistic interests[d]
	10. Is sophisticated in art, music or literature
Motivation[c]	
Sense of achievement	1. The sense of doing something worthwhile. That work is done for the benefit of the greater good or for a worthy cause
Job recognition	2. Image of your job
Work itself	3. The nature of work itself, whether it is bringing out the best of you or not
Amount of responsibility	4. The relative weight or importance of job responsibility being given to you
Job advancement	5. Your ability to grow in terms of promotion within the organization
Self-growth	6. Relates to your personal development while in the organization
Organizational policy and administration	7. The soundness of organization's policies and the fairness of its implementation across the entire organization

(*continued*)

Table AI.

Scale	Items
Quality of supervision and leadership	8. The ability of your supervisors to guide you in carrying out the job properly or guiding the organization to a brighter future
Interpersonal relationships	9. Refers to the health of your relationship to your horizontal peers or your vertical supervisors
Working conditions	10. The physical conditions of the workplace in terms of safety, convenience, provision of proper work equipment, etc.
Salary	11. The amount of remuneration given to you in exchange for the services rendered to the organization
Job security	12. The assurance of the organization given to you for continued employment
Personal life	13. The situation or some characteristics of your job that affects your private life which cause you to feel something to your job
Status	14. Appurtenances of status regarding your job

Notes: [a]Sentence prefix: "How often you demonstrate the competencies listed below at work:" (1 = never, 2 = infrequently, 3 = occasionally, 4 = frequently, 5 = very frequently). [b]Sentence prefix: "I see myself as someone who ….:" (1 = disagree strongly, 2 = disagree a little, 3 = neither agree nor disagree, 4 = agree a little, 5 = agree strongly). [c]Sentence prefix: "What extent do you believe the following factors are motivational or can cause you to be motivated at work:" (1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = a great deal). [d]Reverse scored item

Table AI.

About the authors

Dr Faridahwati Mohd-Shamsudin is currently a Senior Lecturer in Human Resource Management at the College of Business, Universiti Utara Malaysia. Her research interests include organizational behavior, particularly counterproductive behavior, effectiveness of human resource management practices, and leadership. Dr Faridahwati Mohd-Shamsudin is the corresponding author and can be contacted at: faridah@uum.edu.my

Dr Nirachon Chutipattana is currently a Policy and Planning Analyst in the Department of Human Development at Songkhla Provincial Public Health Office, Thailand.