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Development of a measuring instrument

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For decades, researchers have shown interest in nurses' intention to quit. Studies reveal that 17-54% of all nurses have an intention of leaving their workplace and longitudinal studies have found a significant relation between the intention and quitting. With a global shortage of nurses and an increasing need for care, the situation is critical. Results of meta-analyses show a myriad of underlying factors, loss of joint effort and a missing synthesis of measuring instruments. The aim of this study was to develop and evaluate a multidimensional instrument that measures nurses' intention to quit. 33 articles were reviewed and used to construct a 50-item questionnaire. Ten areas were found relevant: demographic, career, wages, schedule/working hours, organization, manager, work environment, work climate, health, and intention to quit. Each area became a dimension, a subscale to measure causes behind nurses' intention to quit. A questionnaire survey was conducted at a hospital in central Sweden (n = 114). The results reveal that the constructed scale Nurses’ intention to quit (NITQ) has good internal consistency (.82 - .85). Each subscale correlates well and is significant with the variable intention to quit and a standard multiple regression was statistically significant through the whole model \( F(8,105) = 27.10, p < .001 \), explaining a variance of 67.4% in the dependent variable intention to quit. The results indicate that NITQ fulfills its purpose as a measuring instrument finding nurses’ intention to quit as well as the underlying factors which give rise to the thoughts of quitting.

Keywords: nursing, intention to quit, scale development, instrument, turnover.

Introduction

Globally, studies describe that many nurses intend to quit (Flinkman, Leino-Kilpi & Salanterä, 2010; Gardulf et al., 2005; Heininen et al., 2013; Liou, 2009). At the same time, longitudinal studies show that the intentions are significantly related to quitting (Gardulf et al., 2005). Studies tend to find frequencies between 17-30%, but a study by Gardulf et al. (2005) has found results up to 54%. The current situation is described as global and urgent to solve (Flinkman et al., 2010). Problematically, researchers describe an increase in the elderly population in need of care (Pfau-Effinger & Rostgaard, 2011, Schierup, Hansen & Castles, 2010), a significant increase in long-term sickness absence in the public sector (Sandmark, 2011, Sundin, Hochwälder & Bildt, 2008), and a lack of specialized nurses (National board of Health, 2016) along with a low proportion of new recruits and organizations that fail to retain nurses (Flinkman et al., 2010; Heininen et al., 2013). Despite decades of research, studies have not found a shared and clear understanding of the situation (Hayes et al., 2012; Nei, Snyder & Litwiller, 2015). The reason for that can be explained by various factors, context differs between countries (Heinen et. al., 2013) and there is a lack of
common approach among researchers (Hayes et al., 2012). Other underlying reasons are the large numbers of cross-sectional studies with different approaches (Flinkman et al., 2010), a lack of longitudinal studies and poor synthesis of measuring instruments (Breuer & Kovner, 2014; Flinkman et al., 2010; Chan, Tam, Lung, Wong & Chau, 2013). A large number of measuring instruments that are developed specifically by the authors of the article to their cross-sectional studies (Flinkman et al., 2010), which also point out that the remaining studies use different reliable instruments as subscales, often created by various disciplines.

A comprehensive approach by researchers to create synthesis and a specific instrument that intends to measure the intention to quit seems absent. However, there are a few exceptions; basic questionnaire and exit questionnaire constructed by NEXT (Nurses early exit study) (mail correspondence by H.M. Hasselhorn, 170328).

Definitions

When constructing a scale, there needs to be an understanding of the phenomena. The concepts need to be operationalized and standardized to make definitions clear, leading to a better understanding of the phenomenon (Hochwälder & Bergsten Brucefors, 2005; Netemeyer & Bearden, 2003; Wedin & Sandell, 2004). There appears to be a lack of clarity in definitions (Flinkman et al., 2010; Hayes et al., 2012). Currently, there are numerous definitions for the same content or cause (Flinkman et al., 2010; Hayes et al., 2012). For instance, intention to leave, intention to quit or turnover intentions which seem to be described as a cognitive process in which the employee on "voluntary" basis, intends to quit her job, organization or profession (Liou, 2009; Takase, Yamashita & Oba, 2008). The concepts of intention to quit and turnover intentions, is in other words, based on individual perception and interpretation of work environment that results in attitudes and ends up in the term turnover (Takase et al., 2008), which is a more definite form and has been described with two aspects, internal; to quit but remain within the organization, and external; a worker who leaves the department, organization or profession (Currie & Carr Hill, 2012; Hayes et al., 2012). Since turnover intentions are in tune with the intention to quit, this study will relate to both and defines it as a cognitive process that develops in the interaction between the individual and work situation. A cognitive process that with significant probability ends up in turnover and a loss for the unit or organization.

A complex context

Decades of cross-sectional studies with different approaches and different contexts have created a large number of underlying factors, some contradictory (Hayes et al. 2012). A study by NEXT collected data from several European countries, the results revealed that the intention to quit not only differs between countries but also differs over time (Hasselhorn et al., 2008). Intention to quit is a complex phenomenon based on context and individual interaction with the specific context (Simon et al., 2010). Also, complexity extends beyond the organization in a given country. Brewer and Kovner (2014) problematises nurses intention to quit on an international level; discloses context from a national and international perspective. For instance, socio-economic aspects affect and enhance international mobility. In the same way factors within an organization can get a nurse to leave their job or organization to find better conditions in other agencies. There tends to be push-pull factors (Breuer & Kovner, 2014). As described, nurses intention to quit is a highly complex phenomenon (Heinen et al., 2013) and to capture something subjective and complex is problematic...
when developing instruments and scales (Netemeyer & Bearden, 2003). The researchers need to familiarize themselves with the properties (Hochwälder & Bergsten Brucefors, 2005) and characteristics which then form the basis for the realization of the dimensions. This leads the constructor to establish dimensionality with subscales (Netemeyer & Bearden, 2003) to be able to act objectively over the subjective (DeVellis, 2003; Netemeyer & Bearden, 2003), this is a necessity to understand and thereby reach progress (DeVellis, 2003).

With all the complexity and factors found globally, nurses intention to quit still needs to be solved within the specific context where it appears. That means, there needs to be a measuring instrument that in addition to finding the intention to quit, even finds the sources, which give rise to the thoughts.

**Underlying factors of intention to quit**

Although overview studies and meta-analyses agree that previous research sometimes is sprawling and finds inconsistent results (Hayes et al., 2012; Flinkman et al., 2010; Nei et al., 2015) there tends to be a common progression. It appears that a significant number of factors are consistent worldwide, leading researchers to advocate in tune. This section is a result of the literature search where 33 scientific articles were reviewed, and lead to the 10 dimensions being identified. As a result of this, the section below will be divided into sub-headings by developed scale divisions (the 10 dimensions) in the measuring instrument. They are; Demographic variables, career, wages, schedule/working hour, organization, manager, work environment, work climate, health and intention to quit.

**Demographic variables.** Most studies show that age is a crucial factor for the intention to quit (Heinen et al., 2013; Hayes et al., 2012; Gardulf et al., 2005). Newly trained nurses leave their employment, organization or profession to a greater extent than older and more experienced nurses (Lavoie-Tremblay et al. 2010). A longitudinal study by Rudman, Gustavsson and Hultell (2014) shows that one in five nurses have strong intentions to quit after only five years in the profession. In a Canadian study, Lavoie-Tremblay et al. (2010) found that it is three times more likely that a nurse of generation Y (Generation Y is a common term by researcher in this field and stands for nurses born 1981>) has the intention to quit their jobs than other hospital staff. Currie and Carr Hill (2012) describes in a US study that two-thirds of younger nurses have intentions to quit. At the same time, scientists have discussed the concept of intention, and that it does not mean that the person quits, a discussion that longitudinal studies falsified, there are significant results between intentions to quit and quitting (Flinkman et al., 2010). One factor that has been proved significant and relates to age is the term ”shock” and is described as stress among newly trained nurses, arising from high requirements/demands (Tuckett, Winters-Chang, Bogosian & Wood, 2015). Yeh and Yu (2009) describe, for example, the gap between training and managing advanced technological equipment that can put patients in danger. It becomes a negative stressor and leads, without proper mentoring, to high levels of stress and increased intention to quit. Moreover, in the long term, higher risk for burnout. Another individual factor that increases the intention to quit is job-family conflict (Flinkman et al., 2010; Russo & Bounovore, 2012; Simon et al., 2010). For instance, younger nurses with children (Hayes, 2012). Overall, researchers findings show that the conflict between work, home and the possibility of a rich social life is essential to decrease the risk of intention to quit (Currie & Carr Hill, 2012; Russo & Bounovore, 2012).
Career. Career is a variable consisting of several potential causes and the variable has been found to be a reason for the intention to quit (Gardulf et al., 2005; Nei et al., 2015). Studies reveal that nurses value challenge, development and want to find themselves in progress taking them to the next level (Lavoie-Tremblay et al., 2010; Nei et al., 2015). This has been described earlier as push-pull factor when, for example, the employee finds better working conditions somewhere else (Brewer & Kovner, 2014). Meanwhile, studies by Lavoie-Tremblay et al. (2010), found that young and recent graduate nurses tend to stay if the requirements for further development are met. Nurses have also been found mobile when there is a shortage in the population (Brewer & Kovner, 2014). It is an education that reaches out in many branches, or areas, and increased ability or mobility in the labor market increases the intention to quit (Brewer & Kovner, 2014).

Wages. The factor wages correlates inconsistently with nurses intention to quit (Brewer & Kovner, 2014). It appears in some studies that pay as an independent factor is not particularly important to remain in employment (De Gieter, De Cooman, Pepermans & Jegers, 2010; Nei et al., 2015). Rather, studies tend to find that the intention to quit is a combination of high workload, low commitment, and low job satisfaction in conjunction with a low salary (Li, Galatsch, Siegrist, Müller & Hassehorn, 2011). An explanation is given by the theory effort-reward, that there is an imbalance in what the employee feels that he or she gives in the effort against what is retrieved in reward (Hasselhorn, Tackenberg & Peter, 2004). Which also correlates with findings by De Gieter et al. (2010), who describe psychological rewards as equally important to wages. Many previous studies have been from rich western countries where wages are not low enough to threaten the employee’s social situation (Hasselhorn et al., 2004), new findings though, suggest that nursing-migrants from East Europe, emigrate precisely for socio-economic reasons (Brewer & Kovner, 2014). However, there are Western studies that have found wages to be of great importance. A study in Sweden by Gardulf et al. (2005) found that salary was the factor that was estimated highest for reasons to quit. Regardless of whether or not, Holmås (2002) points out that researchers must be careful not to create surveys that result in a discontent response. Although wages sprawl in results, researchers have found that men leave because of salary to a greater extent than women (Hayes et al., 2012).

Schedule/work hour. Research has shown that working hours involving shift work increases the risk of unhealthy stress as well as home-work conflict (Holmås, 2002; Oginska, Camerino, Estryn-Behar & Pokorski, 2003). This is often linked to nurses with children, however, it applies to nurses without children as well when it comes to the employee’s social life (Simon & Hasselhorn, 2003). Nurses that often work overtime create reduced recovery and contribute to increased conflicts at home and between colleagues (Holmås, 2002; Nei et al., 2015). Conflicts between work-home and the possibility of an abundant social life also have an increased intention to quit (Currie & Carr Hill, 2012; Hayes et al., 2012; Oginska et al., 2003; Sverke et al., 2016). These are recurring factors (Holmås, 2002; Nei et al., 2015) and can even lead to nurses quitting their profession (Simon & Hasselhorn, 2003).

Organization. Studies find that nurses want to be involved and engaged in their work (Nei et al., 2015). This includes insight in the organization (Gardulf et al., 2005). For instance, being involved in decision making or experiencing a shared culture and good communication with the board or management. Experiencing trust and being seen as a vital part of the organization are all important factors for increased job satisfaction and commitment (Gardulf et al., 2005; Nei et al., 2015). Management should relate transparently, and nurses should gain support for organizational shortcomings (Hayes et al., 2012; Jacobsen, 2013). The relationship between nurses interpretations
and the organizations feedback has proved to be an important factor to consider (Takase et al., 2008). In a bad relationship this leads to an increased intention to quit (Gardulf et al., 2005; Nei et al., 2015; Takase et al., 2008).

**Manager.** Researchers have found that the manager and the leadership should be supportive and present (Nei et al., 2015; Tuckett et al., 2015), furthermore, it should create visions and cooperation. This can be achieved by engaging employees through participation and having a clear two-way communication (Stordeur et al., 2003). For generation Y (born 1981+) this means having a "director" which leads the employees to the goal and thereby creates satisfaction (Lavoie-Tremblay et al. 2010). Cheng, Bartram, Karimi and Leggat (2016) finds transformational leadership positively correlated with increased level of healthy work climate, individual development and team spirit. The results also find negative correlations with burnout and intention to quit. In the absence or reduced presence, the leadership increases the degree of conflict, role ambiguity, uncertainty in decision making and an increased intention to quit (Jönsson, 2012; Nei et al., 2015; Stordeur, D’hoore, Dibilisceglie, Laine & van der Schoot, 2003). Results have been found more frequently in generation Y (Lavoie-Tremblay et al., 2010).

**Work environment.** The work environment is a variable with several underlying factors and is difficult to separate from any of the other aspects of work situation. It is the employees interpretation of composition variables which create different levels of satisfaction (Podsakoff, LePin & LePin, 2007; Stordeur et al., 2003; Takase et al., 2008). Depending on how the employee is experiencing stress, workload or participation in decision making; getting adequate support from the director or manager; avoiding over time and having a good relationship and communication with their organization will dictate the outcome of how the nurses interpret their work environment (Gardulf et al., 2005; Stordeur et al., 2003). Different contexts create different outcomes (Simon et al., 2009). Work environment, both the physical and the psychosocial environment are the base for healthy work conditions (Li et al., 2010). The factors named above create satisfaction and commitment or alternatively/conversely; dissatisfaction, low engagement and increased risk for disease and non-attendance (Li et al., 2010; Podsakoff et al., 2007). Poor work environment has been proved to be significantly related with increased intention to quit (Currie & Carr Hill, 2012; Gardulf et al., 2005; Jönsson, 2012; Li et al., 2010; Stordeur et al., 2003).

One factor that greatly provides significant results in the term intention to quit is workload (Currie & Carr Hill, 2012; Gardulf et al., 2005; Jourdain & Chênevert, 2010). Large departments with high work rate, many patients per nurse and low control over demands, tend to create negative stressors, and studies have found significant results with unhealthy stress (Rudman et al., 2014; Podsakoff et al., 2007). Stress combined with poor work environment can lead to depression and burnout with extended sick leave as a result (Persson & Orbaek, 2014; Sandmark, 2011; van der Schoot, Oginska & Estryn-Behar, 2003). Burnout is also a factor that correlates highly with the intention to quit (Jourdain & Chênevert, 2010; Van der Schoot et al., 2003). However, Hayes et al. (2012) and Podsakoff et al. (2007) point out that the workload is perceptually interpreted. Moreover, similar to the demand-control model of Karasek (1979), heavy workload is not causally related with depression or burnout. It depends on how the employee can control the workload that determines whether it creates negative stressors, and thereby increases the risk for mental fatigue that can lead to exhaustion, depression or burnout.

Studies have also found that nurses who find a low level of development have a higher intention to quit (Currie & Carr Hill, 2012). It seems important that the work environment stimulate nurses to reach a progression. According to Currie and Carr Hill (2012) this can be done by further education and additional training.
Work climate. Researchers have found work climate to be of importance because it creates a degree of job satisfaction (Nei et al., 2015; Podsakoff et al., 2007). Job satisfaction is described as a collective term for factors that the employees attribute attitude towards; a cognitive interpretation of their organizational and social context (Sellgren, Ekvall & Tomson, 2007; Takase et al., 2008). In other words; job satisfaction is the result of covariant variables from the environment, and researchers have found that it leads to organizational commitment (Takase et al., 2008). Studies find that nurses with a low degree of job satisfaction have an increased intention to quit (Podsakoff et al., 2007; Zangaro & Soeken, 2007) and increase the risk of dissatisfaction of the patient (Tzeng, 2002). Job satisfaction also enhances the level of commitment and dedication to their organization (Lou, 2009; Takase et al., 2008) and in absence, it correlates with the intention to quit (Lou, 2008; Podsakoff et al., 2007; Takase et al. 2008). Autonomy is another common concept and factor in achieving job satisfaction (Lavioe-Tremblay et al. 2010; van der Heijden et al., 2010) and a low degree gives rise to the intention to quit (Brewer & Kovner, 2014; Chan, et al., 2012; Zangaro & Soeken, 2007). Autonomy and empowerment can be described by the employee's self-determination, self-space or freedom of action over decisions and work situation (Cole, Wellard & Mummery, 2014; Wang & Liu, 2015; Hochwälder, 2007). Overall, a low degree of job satisfaction and commitment stands as perhaps the prime reason for turnover (Rahnfeld, Wendsche, Ihle, Mueller & Kliegel, 2016; Zangaro & Soeken, 2007).

Health. Hindrance stressors, high workload and demands that nurses have difficulties controlling, shift work and a significant share of overtime have in studies been found to lead to stress, fatigue, exhaustion, depersonalisation, and depression. Factors which correlate significantly with the intention to quit (Gardulf et al., 2005; Jourdain & Chênevert, 2010; Podsakoff et al., 2007).

Intentions to quit. Beyond specific findings, there is a bigger picture described. Accumulated, research states that the intention to quit consists of a cognitive individual with several individual personality factors that stand in relation to an organizational context. Context composed of, for instance, work environment, work climate, career and development opportunities, wages, schedule, relations with the organization, management, and colleagues (Brewer & Kovner, 2014; Hayes et al., 2012; Nei et al., 2015; Takase et al., 2008). Depending on the individuals ability to meet and find control over the organizations demands as well as the organizations efforts to meet the employees capacity will create a relationship in which the individual employee evaluates and ascribes attitudes towards the organization (Brewer & Kovner, 2014; Hayes et al., 2012; Nei et al., 2015; Stordeur et al., 2003; Takase et al., 2008). If severe conditions arise, the employee will have increased intentions to seek progress in their working lives somewhere else. Just like Brewer and Kovner (2014) explains nurse-migrants and push-pull factors. Wendsche Hacker Wegge & Rudolf (2016) describe it as a process over time, and the phenomena is well founded the day the nurse takes the decision to quit.

Models of intention to quit

Proposed model for measuring nurse's intention to leave. Based on the relationship between the individual and the organization, Liou (2009, p. 97) has proposed a model of nurses intention to leave. The model is based on individual characteristic personality factors which are in connection with work characteristic factors and previously acquired and interpreted sensory information. If the employee's personality, expectations, and perception of climate correlate positively, it forms an organizational commitment. Conversely, if the employees perception finds a negative relationship
between the interpretation and experience, intention to leave arise. The positive side of the model is that work environment and climate factors are in conjunction with the individual. The negative is that the model does not make any difference between positive and negative interpretations. For instance, what the nurse perceives as challenging or negative stressors, described by Podsakoff et al. (2007), the model remains in "it depends on" how the employee understands and interprets the situation.

Figure 1. Proposed model for measuring nurse's intention to leave (Liou, 2009, p. 97).

*Person-environment fit, organizational commitment, and turnover intention model.* Is a model developed by Takase et al. (2008). The model is similar to the *Proposed model for measuring nurse's intention to leave* by Liou (2009) from the aspect that intention to quit is a result that arises in the relation between cognition and the organizational environment that the worker perceptually interprets and subsequently attributes attitudes towards. However, this model does not have personality factors, as described in the Liou model. The disadvantage of this model is that it only explains the employees attitude toward their department or organization. Moreover, it does not provide support for the factors that nurses create attitudes towards, which as a consequence, results in low commitment and intention to quit. However, the model is described as a person-environment fit model and from that point of view, there is no doubt that employee's are cognitive beings who are referencing sensory information, resulting in attitudes and stance. That is how we understand and interact with our world (Groome et al., 2006; Smith & Kosslyn, 2014). The positive with the model is that it is not sensitive to context since context has been proven to be behind most inconsistent results in previous studies (Flinkman et al., 2010).

Figure 2. Hypothesized model illustrating person-environment fit, organizational commitment and turnover intention (Takase et al. 2008, s. 298).
Structural model examining the relationship among stressors, strain, job attitudes, turnover intentions, and turnover. A model that may help clarify understanding of why the environment, climate or requirements is interpreted differently by different individuals and therefore gets different outcomes is a model developed by Podsakoff et al. (2007). The model distinguishes between stressors that the nurse experiences as negative and draining against stressors that create a challenge, job satisfaction and commitment. The theory is that nurses are experiencing demands differently and therefore have different abilities to control a single set of requirements. The theory has massive empirical support and was first described by Karasek (1979). What makes this model interesting is that it finds significant correlations between hindrance stressors that are detrimental and turnover of nurses. Based on how the nurse interprets the stressors, Podsakoff et al. (2007) demonstrates how different stressors creates a different outcome. It depends on if the effort is positive or negative. The experience of challenging stressors effortlessly creates job satisfaction and commitment, whereas if job satisfaction is absent, stressors have a negative impact on individuals and lead only to strain. Strain and loss of job satisfaction create low commitment and lead the employees to have intentions to quit and finally to turnover. Interestingly, stressors with negative impact are a significant variable on their own in the dependent variable turnover.

Fig 3. Standardized parameter estimates for the structural model examining the relationship among stressors, strain, job attitudes, turnover intentions and turnover (Podsakoff et al., 2007, s.445).

Summary

No model explains the whole picture of intention to quit and a complete context is not possible to reproduce in a model. However, the models give an overview of how personal and organizational factors create a situation where the nurse, as a cognitive being, encounters a context that results in attitudes. The attitude towards their workplace creates an outcome in the form of job satisfaction, engagement and well-being or low job satisfaction, commitment and a desire to find a new job (Podsakoff et al., 2007; Liou, 2008; Takase et al., 2008).

Until today, there tends to be a myriad of factors to be utilized in the development of a measuring instrument and DeVellis (2003) advocates that an instrument should be designed according to the specific context that the researcher intends to measure. There appears to be a good reason to develop a new instrument instead of using a proven instrument designed in a different context and
culture. Findings in meta-analyses reinforce the claim by expressing; previous research is sprawling with sometimes inconsistent results (Flinkman et al., 2010; Hayes et al., 2012; Nei et al., 2015). A large number of measuring instruments behind earlier findings creates a low synthesis (Brewe & Kovner, 2014; Flinkman et al., 2010). The measuring instruments are often developed by the researchers themselves for a specific approach or angle of a phenomenon (Flinkman et al., 2010). There is no comprehensive research approach (Chan et al., 2013) and numerous studies using various proven instruments from different disciplines for measuring specific index variables (Flinkman et al., 2010).

Examples of reliable instruments that specifically measure the nurses' work situation and intention to quit exist, for instance; Basic Questionnaires and Leavers (exit) Questionnaires of NEXT (Nurses Early Exit) (Flinkman et al., 2010) or Turnover intentions by Sjöberg and Sverke (2000). However, none of them measures both the underlying factors and the intention to quit from a compilation of well-known intention-factors. Also, another important aspect is that context differs between countries and that a measuring instrument needs to consider that aspect, the instrument therefore needs to measure different intention factors, and just not only the main cognitive aspect "intention to quit". Further, DeVellis (2003), writes about the dilemma of using measuring instruments that are proven and reliable but often fail to measure exactly what the researcher has in mind, context obviously creates important underlying variables, variables that tend to hinder the use of other researchers measuring instruments. This studies literature review finds no access to instruments that measure variables accurately enough based on the purpose of the study, and an important element in scientific progression is to create scales and measure based on mental theorizing (DeVellis, 2003). Scientifically, there is added value in conceptualized theory and DeVellis expresses "The more researchers know about the phenomena in which they are interested, the abstract relationship that exists among hypothetical constructs, and the quantitative tools available to them, the better equipped they are to developing reliable, valid, and usable scales "(DeVellis, 2003, p. 7).

**Purpose**

The aim of this study was to develop a scale that measures nurses intentions to quit with good psychometric properties whilst also finding the underlying factors behind their intentions to quit. Management and leadership need, in addition to having access to measuring the intention to quit, also have the ability to measure the underlying factors that are the source of the phenomena. The development of this instrument has therefore focused on, in addition to only measuring the intention to quit, like Turnover intention questionnaire (Sjöberg & Sverke, 2000), expanding the questionnaire to measure co-variant variables. An opportunity to counter and correct the problem before the nurses quit.

This study's questions:

1. How will the normalization values (mean and standard deviation) look like for all subdivisions?
2. Does the instrument NITQ attain reliability, measuring nurses intention to quit?
3. Will the instrument NITQ attain validity, measuring nurses intention to quit?
4. How much variance can be explained by NITQ in the dependent variable intention to quit?
Method

Participants

This study's sample is based on cluster sampling and was directed specifically to clinically working nurses in a hospital environment. Hospital settings were chosen because it is a different form of context compared to primary care. For instance, it includes shift work. An inquiry was sent to 400 nurses through the hospital’s internal email which has templates for occupational categories. The email contained a link to the survey and a covering letter. The samples response rate; n = 114 (28.5%), external loss; 286 persons (71.5%). Distribution of gender was 106 women and eight men. Represented age range was 23-68 years (M = 40.09, SD = 12.03) and the average length of employment in years was (M = 8.14, SD = 8.42).

Material; Nurses’ intention to quit (NITQ)

Articles were collected through EBSCOhost and PSYCHinfo and resulted in 33 selected articles chosen by its relevance through abstracts. Seven of these were meta-analyses. Keywords that were used; nurses, quit, leave, intention to leave, intention to quit and turnover. Three models were found. Questions were then created based on what studies found to be significant factors with intention to quit.

The instrument nurses’ intention to quit (NITQ) has ten subscales; demographic, career, wages, schedule/working hours, manager, organization, work environment, work climate, health, and intention to quit. Altogether, the instrument consists of 50 questions and are initially developed and tested in Swedish (see Appendix 1). An English version is also developed, but the translation needs to be further examined (see appendix 2). All subscales are independent variables to the dependent variable intention to quit. Five-point Likert Scale is used and differs between subscales (see Appendix 1). The questions; 9, 15, 16, 17, 18, 19, 21, 22, 23, 24, 25, 26, 28, 29, 32, 33 are reversed coded.

Demographic features 6 questions about gender, year of birth, having children, life-ratio (single, married, cohabiting or living apart) and the number of years in the current workplace. This subscale will not be related to the dependent variable intention to quit. The scale is designed to assess participants' social characteristics. For example, if a participant finds working hours to be a reason for quitting, maybe it can be explained by children at home? Alternatively, perhaps health as a reason for thoughts of quitting can be examined by age?

Subscale Career consists of two questions. Do you feel that you have chosen the wrong career? 1 (not at all) 2 (to a small degree) 3 (to some extent) 4 (fairly high degree) 5 (very high degree). Is one of the questions that’s not based on previous research, but is relevant. Some workers should find their career choice wrong, regardless of the organization's efforts with actions. Are you actively looking for jobs that will help you to better your career? 1 (not at all) 2 (to a small degree) 3 (to some extent) 4 (fairly high degree) 5 (very high degree). The question is based on research that has found the average nurse to be active in seeking personal and professional development.

Subscale wages consists of two questions. Question 9; Is your salary in balance to the demands your employer places on you as an employee? 1 (not at all) 2 (to a small degree) 3 (to some extent) 4 (fairly high degree) 5 (very high degree). The question is based on research that finds that imbalance creates dissatisfaction and nurses with experience of not being rewarded for the effort has a higher incidence of intention to quit. Question 12; How correct do you find this claim to be?
To reach a higher salary, I need to zigzag my way up by changing my employer/workplace? 1 (not at all) 2 (to a small degree) 3 (to some extent) 4 (correct to a high degree) 5 (correct to a very high degree) is the second question that is not based on previous research. Instead, it’s based on practical experience working as an assistant nurse for 20 years. The question is also based and confirmed thru communications with four nurses. The result of this question could indicate that a large number of nurses have the intention to quit only by the factor wages.

Subscale Schedule/working hours consists of three questions. Question 11; Are your working hours a hindrance for your social life? 1 (not at all) 2 (to a small degree) 3 (to some extent) 4 (fairly high degree) 5 (very high degree). Question 12; Is your schedule hard to combine with children? 1 (have no children) 2 (not at all) 3 (to some extent) 4 (In quite high degree) 5 (In very high degree). Question 13; My current working hours have made me look for alternative career paths? 1 (not at all) 2 (to a small degree) 3 (to some extent) 4 (fairly high degree) 5 (very high degree). The questions are based on research that found that nurses who find a conflict between work, home and the possibility of a good social life have an increased intention to quit.

Subscale organizational factors consists of 3 questions. The subscale measures experienced organizational support, participation in the organization and if the nurse is experiencing communication to be transparent. In the absence of a good relationship with their organization, researchers find an increased intention to quit. Questions, 14; Do you experience a lack of support from management? 1 (not at all) 2 (to a small degree) 3 (to some extent) 4 (In quite high degree) 5 (In very high degree). Question 15; Do you feel participation in decisions relating to the organization? 1 (In a very small extent) 2 (in a small degree) 3 (to some extent) 4 (In quite high degree) 5 (In very high degree). Question 16; Does management have a transparent attitude towards their workers? 1 (in a very small extent) 2 (in a small degree) 3 (to some extent) 4 (In quite extensively degree) 5 (To a very large extent).

Subscale manager consists of 6 questions. The subscale measures the nurses' attitude to his manager or leadership. Research finds that nurses who experience low levels of support, feedback, low attendance or demanding conflicts have increased intention to quit. Questions; 17, Do you find support from your manager? 18; Is the communication from your manager clear? (instructions, tasks, goals and feedback), 19; Do you feel that your manager has a personal plan for developing your skills/competence? 20; Do you find there are conflicts between employees in the workplace that the manager does not deal with? Has all the five-point Likert scale 1 (not at all) 2 (to a small degree) 3 (to some extent) 4 (In quite high degree) 5 (In very high degree). Question 21 and 22 have a different five-point Likert scale. 21; Is your manager often present? 1 (In a very small extent) 2 (in a small degree) 3 (to some extent) 4 (In quite high degree) 5 (Yes, without a doubt). 22; When negative incidents occur, do you experience that the manager's feedback strengthens you for the future? 1 (No, not at all) 2 (In a small degree) 3 (To some extent) 4 (In quite a high degree) 5 (Yes, without a doubt).

Subscale work environment consists of 9 questions. The scale measures perceived workload, stress, autonomy, participation, self-determination. Physical and psychosocial work environment. Good environment reduces the risk of increased intention to quit. Questions; 23, Is staffing correct in ratio to the workload you are experiencing? 24; Do you feel that your nursing education matches the practical work? (for instance, handling advanced technical equipment) 30; Do you feel that the psychosocial work environment, in general, is poor? 31; Is the physical environment poor? Has all a five-point Likert scale; 1 (not at all) 2 (No, hardly) 3 (to some extent) 4 (Yes basically) 5 (Yes, without a doubt). Question 25; Do you feel that you are allowed to be involved in decisions? 26; Do you have support from co-workers? 27; Do you find your job stressful? 28; Do you feel that you have control over demands? 29; Do you experience a low degree of autonomy? Has a five-point
Likert scale 1 (in a very small extent) 2 (in a small degree) 3 (to some extent) 4 (In quite extensively degree) 5 (To a very large extent).

Subscale work climate consists of 2 questions. The subscale measures job satisfaction and the degree of development. Low degree of job satisfaction and development has shown to increase the intention to quit. Questions, 32; Do you feel you are developing? 33; Do you experience job satisfaction? 1 (in a very small extent) 2 (in a small degree) 3 (to some extent) 4 (In quite high degree) 5 (To a very large extent).

Subscale health consists of 3 questions. The subscale measures the degree of perceived exhaustion and burnout. Significant factors with increased intention to quit. Question 34; Do you feel exhausted when you get off your shift? 1 (not at all) 2 (to a small degree) 3 (to some extent) 4 (In quite high degree) 5 (To a very large extent). 35; Have you recently felt that your job has made you low? 36; Have you recently experienced that your work has made you depressed? 1 (not at all) 2 (to a small degree) 3 (to some extent) 4 (fairly high degree) 5 (undoubtedly).

Subscale intention to quit consists of 14 questions. Four questions intend to capture a general attitude of wanting to change job. The questions are constructed to be straight forward. Instead of, for example, "I am actively looking for other jobs?", As in turnover intention questionnaire by Sjöberg and Sverke (2000). Question 37; Do you have intentions to quit your job? 38; Do you have thoughts about leaving your organization? 39; Do you have thoughts about leaving your profession? 40; Have you applied for a new job during the last year? Has all the five-point Likert scale 1 (No, not at all) 2 (In a a small degree) 3 (to some extent) 4 (In quite high degree) 5 (Yes, without a doubt). The remaining questions are based and constructed on earlier subscales 1-9. Question 41; Is the physical work environment a reason for your thoughts about changing your job? 42; Is the psychosocial work environment a reason for your thoughts about changing your job? 43; Is salary the reason you are thinking about changing your job? (Zigzag your way up to better wages) 44; Is your schedule/working hours a reason why you have thoughts about quitting your current job? 45; Is your manager the reason for your thoughts about leaving your job? 46; Are organizational factors a reason for you having thoughts about quitting your job? 47; Are organizational factors reasons you have thoughts about quitting in your organization? 48; Is career a factor for you thinking thoughts about changing your job? 49; Is your health a reason for you having thoughts about changing job? 50; Is lack of development a reason for thinking thoughts about changing your job? Have all a five-point Likert scale; 1 (Have no thought about quitting) 2 (In a very small extent) 3 (to some extent) 4 (In quite high degree) 5 (Yes, to a large extent).

Procedure

A nurse who works at the hospital was contacted through email with an explanation of what the study meant to accomplish and if she could facilitate the distribution of the questionnaire. Well met, an agreement was conducted and that the questionnaire should be revised to a webb survey for easier distribution. The questionnaire and covering letter was sent as a cluster to 400 nurses by the hospitals internal email which has templates for occupational categories. The hospital is located in central Sweden. All departments with nurses working clinically and in "around the clock" hospital care were selected. The email was constructed to; 1. Ask for volunteers 2. Let them know that the email was sent by the nurse as a private person, asking colleges if they were willing to take part of a questionnaire. 3. Nobody was asked to participate in the study during working hours. Just a request for participation. The cover letter was designed to (1) explain that the data will be used for a thesis and that the work relates to good research practice, but at the same time not reveal what specifically was measured. The information read; a study which aims to capture the nurses' experience and
attitude to their job and organization. The idea was to create neutrality for an accurate measurement in the dependent variable intention to quit. (2) Explaining that participation is voluntary, confidential and that participants have the opportunity to discontinue participation if he or she wants to. Information was also given that data would only be handled by the researcher and/or supervisor. (3) The total number of questions and approximate time for participation. (4) Where participants can turn if questions arise. In addition to the hidden agenda (which was consulted with the supervisor), the ethical aspects can be considered as being met and no ethical dilemma occurred during the study. The questionnaire was asked to be finished within two weeks.

**Data processing and statistical analysis.**

Collected data was processed by SPSS version 21. Reliability and homogeneity were tested by Cronbach’s alpha coefficients. Mean index and standard deviation were created based on each participant's estimation. A Pearson product-moment correlation coefficients was conducted to test the correlation between subscales. To find out how much variance NITQ as an instrument can explain in the dependent variable intention to quit, a standard multiple regression was performed. To significantly test each subscale and to show every subscales variance in the dependent variable, a stepwise multiple regression was conducted.

**Result**

*Descriptive statistics*

The studied population consists of 106 women and 8 men. Mean age was 40.09 with a standard deviation of 12.03. 83.3% of the participants are in a relationship, 70.2% have children, and 49.1% are living without children living at home. The arithmetic mean of current employment is 8.14 years with a standard deviation of 8.42.

Table 1. *Mean index, standard deviations and Cronbach’s Alpha for each subscale*

<table>
<thead>
<tr>
<th>Questions</th>
<th>M</th>
<th>SD</th>
<th>α</th>
</tr>
</thead>
<tbody>
<tr>
<td>Career</td>
<td>1.93</td>
<td>0.90</td>
<td>.832</td>
</tr>
<tr>
<td>Wages</td>
<td>3.82</td>
<td>0.83</td>
<td>.851</td>
</tr>
<tr>
<td>Schedule/Working hours</td>
<td>2.71</td>
<td>0.78</td>
<td>.857</td>
</tr>
<tr>
<td>Organization</td>
<td>3.33</td>
<td>0.80</td>
<td>.825</td>
</tr>
<tr>
<td>Manager</td>
<td>2.74</td>
<td>0.87</td>
<td>.844</td>
</tr>
<tr>
<td>Work environment</td>
<td>2.74</td>
<td>0.55</td>
<td>.838</td>
</tr>
<tr>
<td>Work climate</td>
<td>2.30</td>
<td>0.74</td>
<td>.838</td>
</tr>
<tr>
<td>Health</td>
<td>2.62</td>
<td>1.03</td>
<td>.811</td>
</tr>
<tr>
<td>Intention to quit</td>
<td>2.40</td>
<td>0.92</td>
<td>.828</td>
</tr>
</tbody>
</table>

*Note.* The presented mean for each subscale is based on mean from every item.

Table 1 shows means, standard deviations and Cronbach Alpha coefficients for each subscale. As seen, there is a good reliability for all nine subscales, the values are between (α) .82 - .85. Based on estimates, factor wages (M = 3.82, SD = 0.83) are the highest mean. Followed by the organization (M = 3.33, SD = 0.80), work environment (M = 2.74, SD = 0.55), manager (M = 2.74, SD = 0.87),
Schedule/working hours ($M = 2.71$, $SD = 0.78$), health ($M = 2.62$, $SD = 1.03$) and work climate ($M = 2.30$, $SD = 0.74$). Lowest mean appears to be career ($M = 1.93$, $SD = 0.90$). No ceiling or floor effect appears in the arithmetic means.

According to this thesis question 1, it looks like that the normalization values are quite centered and thus indicate unbiased estimates without floor or ceiling effects. But to be clear, the normalization values hasn't been tested with Skewness or Kurtosis. To answer this thesis question 2, the Cronbach’s Alpha coefficients indicate that the instrument NITQ has a very good reliability.

**Correlations**

A Pearson’s correlation was calculated to investigate how the subscales were related to each other.

Table 2. *Pearson’s product-moment correlation coefficients between the nine subscales. Intention to quit is in bold style.*

<table>
<thead>
<tr>
<th>Scale</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Career</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Wages</td>
<td>.22*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Schedule</td>
<td>.41**</td>
<td>.16</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Organization</td>
<td>.45**</td>
<td>.40**</td>
<td>.20*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Manager</td>
<td>.32**</td>
<td>.25**</td>
<td>.12</td>
<td>.59**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Work environment</td>
<td>.43**</td>
<td>.44**</td>
<td>.25**</td>
<td>.65**</td>
<td>.47**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Work climate</td>
<td>.38**</td>
<td>.25**</td>
<td>.28**</td>
<td>.48**</td>
<td>.42**</td>
<td>.52**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Health</td>
<td>.46**</td>
<td>.27**</td>
<td>.23**</td>
<td>.43**</td>
<td>.27**</td>
<td>.63**</td>
<td>.35**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Intention to quit</td>
<td>.68**</td>
<td>.43**</td>
<td>.37**</td>
<td>.60**</td>
<td>.44**</td>
<td>.64**</td>
<td>.45**</td>
<td>.59**</td>
<td></td>
</tr>
</tbody>
</table>

*. $p < 0.05$ (2-tailed); **. $p < 0.01$ (2-tailed).

The eight subscales correlate well with the variable intention to quit (bold style). According to Pallant (2013) a Pearson’s correlation has three levels, .10-.29 is considered a small correlation, .30-.39 a medium, and 50 - 1.00 as a large correlation between variables. This Pearson’s product-moment correlation reveals that Subscales career ($r = .684$), organization ($r = .601$), work environment ($r = .636$) and health ($r = .593$) correlates strongly in this sample with the intention to quit. Wages ($r = .427$), schedule/working hours ($r = .374$), manager ($r = .439$) and work climate ($r = .453$) correlates at a medium level. The overall correlation matrix, between all subscales, two scales does not find a significant result, wages and schedule/working hours find no significant correlation ($r = .158$). Neither do manager and working hours ($r = .116$). According to this thesis question number 3, It seems that the Pearson’s product-moment correlation indicate that the NITQ has the validity to measure nurse’s intention to quit.

As the demographic variable was not developed to measure the intention to quit; a Pearson’s product-moment correlation reveals that age ($r = - .347$, $p < .001$), do you have children? ($r = .260$, $p < .01$), and years at the current workplace? ($r = -.229$, $p < .05$) was statistically significant at a 5 % level in the variable intention to quit.
Regression analysis

A standard multiple regression analysis was conducted (see table 3) to examine how much variance can be explained in the dependent variable intention to quit.

Table 3. Standard multiple regression analysis with intention to quit as dependent variable

<table>
<thead>
<tr>
<th>Variables</th>
<th>βa</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Career</td>
<td>.386***</td>
</tr>
<tr>
<td>2. Wages</td>
<td>.140*</td>
</tr>
<tr>
<td>3. Schedule/working hours</td>
<td>.078</td>
</tr>
<tr>
<td>4. Organization</td>
<td>.129</td>
</tr>
<tr>
<td>5. Manager</td>
<td>.069</td>
</tr>
<tr>
<td>6. Work environment</td>
<td>.148</td>
</tr>
<tr>
<td>7. Work Climate</td>
<td>.017</td>
</tr>
<tr>
<td>8. Health</td>
<td>.187*</td>
</tr>
</tbody>
</table>

Model summary:

- Model F: 27.10***
- df: (8,105)
- R²: .674
- R² adjusted: .649

Note. a standardized coefficients
*** p < 0.001; ** p < 0.01; * p < 0.05.

The standard multiple regression analysis shows that the model as a whole is statistically significant (F (8,105) = 27.10, p < .001) explaining a variance of 67.4% in the dependent variable intention to quit. In particular, variables career (β = .386, p < .001), wages (β = .140, p < .05) and health (β = .187, p < .05) makes a statistically significant contribution, and between them, career as the strongest contribution β = .386. Since not all predictors have a significant outcome and the standard regression analysis does not provide information about each predictor’s variance in the dependent variable intention to quit, a stepwise (forward) regression analysis was performed (see table 4). Based on the criteria of SPSS, only the predictors that contribute significantly are calculated. The method, therefore, gives a better view of the factors that gives rise to nurses intention to quit, and how much variance that can be explained by each predictor in the dependent variable intention to quit.

The stepwise (forward) multiple regression analysis shows that subscales Schedule/working hours, manager and work climate was excluded. In the first step, career shows a significant contribution (β = .684, p < .001). The model as a whole is statistically significant (p < .001) and explains a variance of 46.8% of the dependent variable intention to quit. In the second step, both career (β = .505, p < .001) and work environment (β = .420, p < .001) is statistically significant, even the model as a whole (p < .001), explaining a variance of 61.3% in the dependent variable. In the third step, wages came in with a lower statistic significant impact (β = .161, p < .05). Career (β = .498) and work environment (β = .352) are still significant (p < .001). So is the model (p < .001) and together they explain a variance of 63.4% in the dependent variable intention to quit. In the fourth step, subscale health shows a statistical significants (β = .179, p < .05). Wages contribution increase to (β = .165, p < .01). Career (β = .456) and work environment (β = .256) are still at (p < .001). The model as a whole is in the fourth step still statistically significant (p < .001), and together the variables explains a variance of 65.2% in the dependent variable. In the fifth and last step,
subscale organization shows a statistic significant result ($\beta = .161$, $p < .05$). Career is still significant ($\beta = .421$, $p < .001$) but work environment ($\beta = .173$) and wages ($\beta = .143$) slip down to ($p < .05$). Health stays the same ($\beta = .183$, $p < .05$). The model as a whole is statistically significant ($F(8,105) = 42.93, p < .001$), explaining a variance of 66.5% in the dependent variable intention to quit. Which answers this thesis question 4.

Table 4. Stepwise (forward) multiple regression analysis with intention to quit as dependent variable

<table>
<thead>
<tr>
<th>Variables</th>
<th>$\beta 1$</th>
<th>$\beta 2$</th>
<th>$\beta 3$</th>
<th>$\beta 4$</th>
<th>$\beta 5$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Career</td>
<td>.684***</td>
<td>.505***</td>
<td>.498***</td>
<td>.456***</td>
<td>.421***</td>
</tr>
<tr>
<td>2. Work environment</td>
<td>.420***</td>
<td>.352***</td>
<td>.256***</td>
<td>.173*</td>
<td></td>
</tr>
<tr>
<td>3. Wages</td>
<td>.161*</td>
<td>.165**</td>
<td>.143*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Health</td>
<td>.179*</td>
<td>.183*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Organization</td>
<td>.161*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Model summary:

<table>
<thead>
<tr>
<th>Model F</th>
<th>98.71***</th>
<th>87.83***</th>
<th>63.43***</th>
<th>50.98***</th>
<th>42.93***</th>
</tr>
</thead>
<tbody>
<tr>
<td>df</td>
<td>(1.112)</td>
<td>(2.111)</td>
<td>(3.110)</td>
<td>(4.109)</td>
<td>(5.108)</td>
</tr>
<tr>
<td>$R^2$</td>
<td>.468</td>
<td>.613</td>
<td>.634</td>
<td>.652</td>
<td>.665</td>
</tr>
<tr>
<td>$R^2$ change</td>
<td>.468***</td>
<td>.144***</td>
<td>.021*</td>
<td>.018*</td>
<td>.014*</td>
</tr>
</tbody>
</table>

Note. aStandardized coefficients.

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.

Discussion

The descriptive statistics (mean and standard deviation) showed no floor or ceiling effects. With the knowledge that the bigger the sample is, the arithmetic mean tends to be close to the arithmetic mean of a population, this sample has centered arithmetic means and no major standard deviations. The normalization values in this study can therefore be expected to be similar in a population and thus be seen as unbiased estimates. All the subscales correlated significantly with the subscale intention to quit, and all the subscales attained good reliability. It should therefore be acceptable to use this thesis normalization values as a frame or for instance, in z-transformations. To answer this thesis question 1: The normalization values (arithmetic mean and standard deviation) look acceptable and should be expected in a population.

The subscales have proven to have a very good reliability by its homogenous internal consistency measured with Cronbach’s Alpha coefficients (.82 - .85). According to Pallant (2013) the value of Cronbach’s alpha should be .70 or above. DeVellis (2003, p.95-96) writes; “My personal comfort ranges for research scales are as follows: below .65 and .70, minimally acceptable; between .70 and .80, respectable; between .80 and .90, very good; much above .90, one should consider shortening the scale”. This thesis question 2 is hereby answered.

A Pearson correlation confirmed correlations with statistical significance between all indexes and intention to quit. Career ($r = .684$, $p < .001$), Wages ($r = .427$, $p < .001$), Schedule/work hours ($r = .374$, $p < .001$), organization ($r = .601$, $p < .001$), manager ($r = .439$, $p < .001$), work environment ($r = .636$, $p < .001$), work climate ($r = .453$, $p < .001$) and health ($r = .593$, $p < .001$). This result answers this thesis’ question 3; NITQ can measure what the instrument was designed to measure, and can thereby be seen as a valid instrument. Also, as described in the result section, it seems plausible that the instrument can link individual factors. In the performed survey it appears that the
nurse's experience of their work environment strongly correlates with health ($r = .636$) and that the health correlates strongly with the intention to quit ($r = .593$). It is plausible that there is a chain of connections leading to a reaction; thoughts about quitting. It seems that poor work environment causes stress (which, as a standalone variable, had an arithmetic mean of 3.60 and a standard deviation of 0.82), and exhausted nurses who also, according to this survey, find their salary low ($M = 3.72$, $SD = 1.04$), are in a negative trend; a negative spiral swirling downwards and leading to strain and poor health ($M = 2.62$, $SD = 1.03$). It seems that the theory of effort/reward may serve as an explanation. A theory that Hasselhorn et al. (2004) and Li et al. (2011) used earlier to describe nurses intention to quit. There is an imbalance between what nurses put down in the effort against what is received in reward. This imbalance with the poor work environment makes the job itself a mental hindrance stressor that leads to a wish to find better working conditions somewhere else as described by Brewer and Kovner (2014) with the term; push-pull factor. Each link in the chain is supported by previous research, for instance by Hasselhorn et al. (2004), Li et al. (2011), Jourdain and Chênevert (2010) and Podsakoff et al. (2007). A standard multiple regression analysis showed that the instrument was statistically significant through the whole model ($F(8,105) = 27.10$, $p < .001$) and has a variance of 67.4% in the dependent variable intention to quit. For a better view and to better explain the variance of each variable, and thus better answer question 4, a stepwise (forward) multiple regression analysis was performed. Partly to not affect how the variables were put in into the equation, but also to use the criteria set by SPSS. The analysis showed that career ($\beta = .421$, $p < .001$), working environment ($\beta = .173$, $p < .05$), wages ($\beta = .143$, $p < .05$), health ($\beta = .183$, $p < .05$) and organization ($\beta = .161$, $p < .05$) were statistically significant in step five. The model is significant ($F(5,108) = 42.93$, $p < .001$) and together, a variance of 66.5% is explained in the dependent variable intention to quit. A percent which is satisfying. Speculatively, by looking at the beta values, it appears that there are two kinds of reasons for terminating their employment. In one group, career ($\beta = .421$) appears to be the variable that causes nurses to have intentions to terminate their employment largely. Which fits well with what researchers have previously found about nurses seeking further development and career, such as Gardulf et al. (2005) and Lavoie-Tremblay et al. (2010). In the other group, it is plausible that the work environment ($\beta = .173$) and the organizations ($\beta = .161$) impact are inferior to health ($\beta = .183$. Which is the second largest beta value). The combination along with the experience of having low pay ($\beta = .143$) returns the idea of theory effort/reward. It is a possible scenario and not a causal conclusion. However, the numbers are clear, and it is hard not to see a sequence of events abstractly. It appears possible and should thereby be investigated further. However, the results would be consistent with what previous research have found, both in research on nurses (Currie & Carr Hill, 2012; Gardulf et al., 2005; Rudman et al., 2013; Podsakoff et al., 2007) but also within other research, such as organizational research. Poor work environment and a lack of support from the organization creates in the long run, bad health for the employee (Lindberg & Vingård, 2012). An advantage of NITQ is that it measures multiple different factors that science knows influence nurses intentions to quit. The instrument, therefore, expects that various factors will be more important depending on various studied population. It is natural that different cultures and its context cause different outcomes. Aside from the fact that the measuring instrument has good statistical properties, this is a strength and advantage compared to other found instruments, measuring nurses intention to quit. Also, another benefit of measuring different intentional-factors in a specific subscale is that individual questions in the questionnaire can be tested against individual intentional-factors. For example, nurses with children have an increased intention to quit due to working hours. Alternatively, that nurses who feel that the job has created poor health also estimates the working environment as a reason to quit.
A factor worth mentioning and considering linked to external validity and the prediction made by the regression analyses, is that the study had few respondents (n = 114 of 400), which may affect the ability to generalize. However, the result of Cronbach's alpha and the statistically significant result by a Pearson correlation, together with centered arithmetic means and no major standard deviations is an indication that the validity should be good, and that the result should be generalizable. Another factor worth mentioning is that this instrument has not repeatedly been tested, something that would have strengthened reliability even more. A good approach would have been to implement the same measurement with the same participants with approximately two weeks apart. To rule out that the estimates change over time, and that the participant at the first measurement thereby wasn’t affected by a situation. It would have been a good way to compare results, that the instrument and the drawn conclusion still would be the same. Another problem that needs to be addressed is that the English version of the questionnaire is not evaluated linguistically. Language is a sensitive choice of words that can create subtleties. Without a review of the questions by a person familiar with the area and with English as a first language, it is likely that the questions will be perceived differently than the Swedish-developed version. Finally, further statistical methods like factor analyses need to be conducted to evaluate the questionnaire. Also, interviews with nurses to evaluate the questions and thereby create an understanding of how nurses perceive them could fine-tune the instrument even more. The missing pieces in the chosen method is a methodological weakness and should be rectified before the instrument can be considered completely complete.

In conclusion, a literature review of 33 articles to find significant reasons for the nurse's intention to quit resulted in a time-consuming construction of 50 questions and ten subscales. All 50 questions were then translated from Swedish to English. The massive work led to a survey to determine whether the NITQ as a measuring instrument would find reliability and validity, which it has. The subscales have also proven to be useful as predictors finding nurse's intention to quit. NITQ has fulfilled its purpose. It can measure nurses intention to quit and its underlying variables. Of course, there will always be individual specific factors that lead a nurse to quit, but based on what research has previously found, NITQ seems to manage the job. Also, with the fact that reliability and validity have been proven to be respectable in the statistical trials, NITQ can be considered a measuring instrument that finds generalisable data. The instrument can therefore be used advantageously as an attitude survey in organizations. Thereby preventing the process before it has happened.

Reference


Hochwälder, J. (2007). The psychosocial work environment and burnout among Swedish registered and assistant nurses: The main, mediating, and moderating role of empowerment. *Nursing & Health Sciences*, 9, 205-211.


Li, Galatsch, Siegrist, Müller, & Hasselhorn. (2011). Reward frustration at work and intention to leave the nursing profession—Prospective results from the European longitudinal NEXT study. *International Journal of Nursing Studies*, 48, 628-635.


**Appendix 1. (Swedish questionnaire)**

**NITQ**  
©Morgan Viklund  
Får ej användas utan tillåtelse. Kontakt: morgan.wiklund@gmail.com

### Demografiskt

1. **Kvinna □  Man □

2. **Födelseår?______________________

3. **Har du barn? Ja □  Nej □

4. **Antal hemmaboende barn?___________________________________st.

5. **Ensamstående □  I relation (sambo, gift, särbo) □


### Karriär

7. **Känner du att du valt fel karriär?**

   | Inte alls  | □ |
   | I ganska liten utsträckning | □ |
   | I viss mån   | □ |
   | I ganska hög grad | □ |
   | I mycket hög grad  | □ |

8. **Letar du aktivt efter jobb som bidrar till att nå karriärutveckling?**

   | Inte alls  | □ |
   | I ganska liten utsträckning | □ |
   | I viss mån   | □ |
   | I ganska hög grad | □ |
   | I mycket hög grad  | □ |
Lön

9. Är lönen riktig i relation till kraven din arbetsgivare ställer på dig som arbetstagare? (vänd)

Inte alls □
I ganska liten utsträckning □
I viss mån □
I ganska hög grad □
I mycket hög grad □

10. Hur pass bra stämmer detta påstående in? För att komma upp i lön behöver jag sicksacka mig upp genom byte av arbetsgivare/arbetsplats?

Inte alls □
Stämmer i ganska liten utsträckning □
Stämmer i viss mån □
Stämmer i ganska hög grad □
Stämmer i mycket hög grad □

Arbetstider

11. Är dina arbetstider ett hinder för ditt sociala liv?

Inte alls □
I ganska liten utsträckning □
I viss mån □
I ganska hög grad □
I mycket hög grad □

12. Är arbetstiderna svåra att kombinera med barn?

Har inga barn □
Inte alls □
I viss mån □
I ganska hög grad □
I mycket hög grad □
13. Mina nuvarande arbetstider har fått mig att leta alternativa karriärvägar?

- Inte alls
- I ganska liten utsträckning
- I viss mån
- I ganska hög grad
- I mycket hög grad

**Din organisation**

14. Upplever du bristande stöd av ledning?

- Inte alls
- I ganska liten utsträckning
- I viss mån
- I ganska hög grad
- I mycket hög grad

15. Upplever du delaktighet i beslut rörande organisationen? (vänd)

- I mycket liten utsträckning
- I ganska liten utsträckning
- I viss mån
- I ganska stor utsträckning
- I mycket stor utsträckning

16. Har ledning en transparent hållning mot sina arbetstagare? (vänd)

- I mycket liten utsträckning
- I ganska liten utsträckning
- I viss mån
- I ganska stor utsträckning
- I mycket stor utsträckning

**Din chef**

17. Finner du stöd hos din chef? (vänd)

- Inte alls
- I ganska liten utsträckning
- I viss mån
- I ganska hög grad
- I mycket hög grad
18. Upplever du tydlig kommunikation från din chef (instruktioner, uppgifter, mål och återkoppling) (vänd)

Inte alls □
I ganska liten utsträckning □
I viss mån □
I ganska hög grad □
I mycket hög grad □

19. Upplever du att din chef har en personlig plan för utveckling av din kompetens? (vänd)

Inte alls □
I ganska liten utsträckning □
I viss mån □
I ganska hög grad □
I mycket hög grad □

20. Upplever du osämja mellan medarbetare utan att chef tar itu med problematiken?

Inte alls □
I ganska liten utsträckning □
I viss mån □
I ganska hög grad □
I mycket hög grad □

21. Upplever du din chef närvarande? (vänd)

I mycket liten utsträckning □
I ganska liten utsträckning □
I viss mån □
I ganska stor utsträckning □
I mycket stor utsträckning □

22. Vid negativa händelser upplever du att chefens återkopplingen stärker dig för framtiden? (vänd)

Nej inte alls □
I mycket liten utsträckning □
I viss mån □
I ganska stor utsträckning □
Ja, utan tvekan □
Arbetsmiljö

23. Upplever du personalstyrkan tillräcklig i relation till vårdfynd? (vänd)

- Nej inte alls
- Nej knappast
- I viss mån
- Ja, i stort sett
- Ja, utan tvekan

24. Upplever du att din utbildning matchar arbetets praktiska karaktär? (Exempelvis hantering av teknisk apparatur? (vänd)

- Nej inte alls
- Nej knappast
- I viss mån
- Ja, i stort sett
- Ja, utan tvekan

25. Upplever du att du tillåts vara engagerad i beslut (vänd)

- I mycket liten utsträckning
- I ganska liten utsträckning
- I viss mån
- I ganska stor utsträckning
- I mycket stor utsträckning

26. Har du stöd av medarbetare? (vänd)

- I mycket liten utsträckning
- I ganska liten utsträckning
- I viss mån
- I ganska stor utsträckning
- I mycket stor utsträckning

27. Upplever du ditt jobb stressigt?

- I mycket liten utsträckning
- I ganska liten utsträckning
- I viss mån
- I ganska stor utsträckning
- I mycket stor utsträckning
28. Upplever du att du har kontroll över ställda krav? (vänd)

I mycket liten utsträckning □
I ganska liten utsträckning □
I viss mån □
I ganska stor utsträckning □
I mycket stor utsträckning □

29. Upplever du låg grad av självbestämmande? (vänd)

I mycket liten utsträckning □
I ganska liten utsträckning □
I viss mån □
I ganska stor utsträckning □
I mycket stor utsträckning □

30. Upplever du att den psykosociala arbetsmiljön generellt är dålig?

Nej inte alls □
I mycket liten utsträckning □
I viss mån □
I ganska stor utsträckning □
Ja, utan tvekan □

31. Upplever du den fysiska arbetsmiljön generellt dålig?

Nej inte alls □
I mycket liten utsträckning □
I viss mån □
I ganska stor utsträckning □
Ja, utan tvekan □

**Arbetsklimat**

32. Känner du att du utvecklas? (vänd)

I mycket liten utsträckning □
I ganska liten utsträckning □
I viss mån □
I ganska stor utsträckning □
I mycket stor utsträckning □
33. Upplever du arbetstillfredsställelse? (vänd)

I mycket liten utsträckning  
I ganska liten utsträckning  
I viss mån  
I ganska stor utsträckning  
I mycket stor utsträckning  

**Upplevd hälsa**

34. Känner du dig orkeslös när du slutar ditt arbetspass?

I mycket liten utsträckning  
I ganska liten utsträckning  
I viss mån  
I ganska stor utsträckning  
I mycket stor utsträckning  

35. Har du senaste tiden känt att arbetet gjort dig nedstämd?

Nej inte alls  
I mycket liten utsträckning  
I viss mån  
I ganska stor utsträckning  
Ja, utan tvekan  

36. Har du senaste tiden upplevt att arbetet har gjort dig deprimerad?

Nej inte alls  
I mycket liten utsträckning  
I viss mån  
I ganska stor utsträckning  
Ja, utan tvekan  

**Intention att sluta**

37. Har du tankar om att byta arbete?

Nej inte alls  
I mycket liten utsträckning  
I viss mån  
I ganska stor utsträckning  
Ja, utan tvekan  

38. Har du tankar om att lämna din organisation?

Nej inte alls  □
I mycket liten utsträckning  □
I viss mån  □
I ganska stor utsträckning  □
Ja, utan tvekan  □

39. Har du tankar om att lämna din profession?

Nej inte alls  □
I mycket liten utsträckning  □
I viss mån  □
I ganska stor utsträckning  □
Ja, utan tvekan  □

40. Har du sökt nytt arbete senaste året?

Nej inte alls  □
I mycket liten utsträckning  □
I viss mån  □
I ganska stor utsträckning  □
Ja, i mycket stor utsträckning  □

41. Är den fysiska arbetsmiljön ett skäl till att du tänker tankar om att byta jobb?

Har ingen tanke om att byta  □
I mycket liten utsträckning  □
I viss mån  □
I ganska stor utsträckning  □
Ja, i mycket stor utsträckning  □

42. Är den psykosociala arbetsmiljön ett skäl till att du tänker tankar om att byta jobb?

Har ingen tanke om att byta  □
I mycket liten utsträckning  □
I viss mån  □
I ganska stor utsträckning  □
Ja, i mycket stor utsträckning  □
43. Är lön ett skäl till att du har tankar om att byta arbetsplats? (sicksacka dig upp till bättre lön)

Har ingen tanke om att byta
I mycket liten utsträckning
I viss mån
I ganska stor utsträckning
Ja, i mycket stor utsträckning

44. Är arbetstider ett skäl till att du har tankar om att sluta på din nuvarande arbetsplats?

Har ingen tanke om att byta
I mycket liten utsträckning
I viss mån
I ganska stor utsträckning
Ja, i mycket stor utsträckning

45. Är chefskapet skäl till att du har tankar om att byta arbetsplats?

Har ingen tanke om att byta
I mycket liten utsträckning
I viss mån
I ganska stor utsträckning
Ja, i mycket stor utsträckning

46. Är organisatoriska faktorer skäl till att du har tankar om att sluta på din arbetsplats?

Har ingen tanke om att byta
I mycket liten utsträckning
I viss mån
I ganska stor utsträckning
Ja, i mycket stor utsträckning

47. Är organisatoriska faktorer skäl till att du har tankar om att sluta i din organisation?

Har ingen tanke om att byta
I mycket liten utsträckning
I viss mån
I ganska stor utsträckning
Ja, i mycket stor utsträckning
48. Är karriär en faktor till att du tänker tankar om att byta arbete?

- Har ingen tanke om att byta □
- I mycket liten utsträckning □
- I viss mån □
- I ganska stor utsträckning □
- Ja, i mycket stor utsträckning □

49. Är din hälsa ett skäl till att du har tankar om att byta arbete?

- Har ingen tanke om att byta □
- I mycket liten utsträckning □
- I viss mån □
- I ganska stor utsträckning □
- Ja, i mycket stor utsträckning □

50. Är brist på utveckling ett skäl till tankar om att byta arbete?

- Har ingen tanke om att byta □
- I mycket liten utsträckning □
- I viss mån □
- I ganska stor utsträckning □
- Ja, i mycket stor utsträckning □

Var god kontrollera att du har besvarat samtliga frågor.

Stort tack för din medverkan! :-)
Appendix 2. (English version, needs further development)

Demographic

1. Female □ Male □

2. Year of birth?______________________

3. Do you have children? Yes □ No □

4. Number of children living at home?__________________________________.

5. Single □ In a relationship (partner, married, living apart ) □

6. How long have you worked at your current workplace?________________________years.

Career

7. Do you feel that you have chosen the wrong career?
   Not at all □
   To a rather small extent □
   To some extent □
   In quite high degree □
   In a very high degree □

8. Are you actively looking for jobs that will help to better your career ?
   Not at all □
   To a rather small extent □
   To some extent □
   In quite high degree □
   In very high degree □
Wages

9. Is your salary in balance to the demands your employer places on you as an employee? (turn)

Not at all □
In a very small degree □
To some extent □
To quite a high degree □
To a very high degree □

10. How correct do you find this claim to be? To reach a higher salary, I need to zigzag my way up by changing my employer / workplace?

Not at all □
In a very small degree □
To some extent □
Correct to quite a high degree □
Correct to a very high degree □

Schedule/working hours

11. Are your working hours a hindrance for your social life?

Not at all □
In a very small degree □
To some extent □
To quite a high degree □
In a very high degree □

12. Is your schedule hard to combine with children?

Have no children □
Not at all □
To some extent □
In quite high degree □
In very high degree □
13. My current working hours have made me look for alternative career paths?

Not at all ☐
In a very small degree ☐
To some extent ☐
In quite high degree ☐
In very high degree ☐

Your organization

14. Do you experience a lack of support from management?

Not at all ☐
In a very small degree ☐
To some extent ☐
In quite high degree ☐
In very high degree ☐

15. Do you feel participation in decisions relating to the organization? (turn)

In a very small extent ☐
In a small degree ☐
To some extent ☐
Quite extensively ☐
To a very large extent ☐

16. Does management have a transparent attitude towards their workers? (turn)

In a very small extent ☐
In a small degree ☐
To some extent ☐
Quite extensively ☐
To a very large extent ☐
Your manager

17. Do you find support from your manager? (turn)

Not at all
In a very small degree
To some extent
In quite high degree
In very high degree

18. Is the communication from your manager clear? (instructions, tasks, goals and feedback) (turn)

Not at all
In a very small degree
To some extent
In quite high degree
In very high degree

19. Do you feel that your manager has a personal plan for developing your skills/competence/qualifications? (vänd)

Not at all
In a very small degree
To some extent
In quite high degree
In very high degree

20. Do you find there are conflicts between employees in the workplace that the manager does not deal with?

Not at all
In a very small degree
To some extent
In quite high degree
In very high degree

21. Is your manager often present? (vänd)

In a very small extent
In a small degree
To some extent
In quite high degree
To a very large extent
22. When negative incidents occur, do you experience that the managers feedback strengthens you for the future? (vänd)

No, not at all □
In a small degree □
To some extent □
In quite high degree □
Yes, without a doubt □

Work environment

23. Is staffing correct in ratio to the workload you are experiencing? (turn)

Not at all □
No, hardly □
To some extent □
Yes basically □
Yes, without a doubt □

24. Do you feel that your nursing education matches the practical work? (for instance, handling advanced technical equipment)? (turn)

Not at all □
No, hardly □
To some extent □
Yes basically □
Yes, without a doubt □

25. Do you feel that you are allowed to be involved in decisions? (turn)

In a very small extent □
In a small degree □
To some extent □
In quite high degree □
To a very large extent □

26. Do you have support from co-workers? (turn)

In a very small extent □
In a small degree □
To some extent □
In quite high degree □
To a very large extent □
27. Do you find your job stressful?
   - In a very small extent  □
   - In a small degree  □
   - To some extent  □
   - In quite high degree  □
   - To a very large extent  □

28. Do you feel that you have control over demands? (turn)
   - In a very small extent  □
   - In a small degree  □
   - To some extent  □
   - In quite high degree  □
   - To a very large extent  □

29. Do you experience a low degree of autonomy? (turn)
   - In a very small extent  □
   - In a small degree  □
   - To some extent  □
   - In quite high degree  □
   - To a very large extent  □

30. Do you feel that the psychosocial work environment in general is poor?
   - No, not at all  □
   - In a small degree  □
   - To some extent  □
   - In quite high degree  □
   - Yes, without a doubt  □

31. Is the physical environment generally poor?
   - No, not at all  □
   - In a small degree  □
   - To some extent  □
   - In quite high degree  □
   - Yes, without a doubt  □
Work climate

32. Do you feel you are developing? (turn)

In a very small extent

In a small degree

To some extent

In quite high degree

To a very large extent

33. Do you experience job satisfaction? (turn)

In a very small extent

In a small degree

To some extent

In quite high degree

To a very large extent

Perceived health

34. Do you feel exhausted when you get off your shift?

In a very small extent

In a small degree

To some extent

In quite high degree

To a very large extent

35. Have you recently felt that your job has caused you to feel low?

No, not at all

In a small degree

To some extent

In quite high degree

Yes, without a doubt

36. Have you recently experienced that your work has made you depressed?

No, not at all

In a small degree

To some extent

In quite high degree

Yes, without a doubt
Intention to quit

37. Do you have intentions to quit your job?
No, not at all □
In a small degree □
To some extent □
In quite high degree □
Yes, without a doubt □

38. Do you have thoughts about leaving your organization?
No, not at all □
In a small degree □
To some extent □
In quite high degree □
Yes, without a doubt □

39. Do you have thoughts about leaving your profession?
No, not at all □
In a small degree □
To some extent □
In quite high degree □
Yes, without a doubt □

40. Have you applied for a new job during the last year?
No, not at all □
In a very small extent □
To some extent □
In quite high degree □
Yes, to a large extent □

41. Is the physical work environment a reason for your thoughts about changing your job?
Have no thought of changing □
In a very small extent □
To some extent □
In quite high degree □
Yes, to a large extent □
42. Is the psychological work environment a reason for your thoughts about changing your job?

<table>
<thead>
<tr>
<th>Option</th>
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<tbody>
<tr>
<td>Have no thought of changing</td>
<td></td>
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<tr>
<td>In a very small extent</td>
<td></td>
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<tr>
<td>To some extent</td>
<td></td>
</tr>
<tr>
<td>In quite high degree</td>
<td></td>
</tr>
<tr>
<td>Yes, to a large extent</td>
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</table>

43. Is salary the reason you are thinking about changing your job? (Zigzag your way up to better wages)

<table>
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<th>Option</th>
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<tbody>
<tr>
<td>Have no thought of changing</td>
<td></td>
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<tr>
<td>In a very small extent</td>
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<td>To some extent</td>
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<tr>
<td>In quite high degree</td>
<td></td>
</tr>
<tr>
<td>Yes, to a large extent</td>
<td></td>
</tr>
</tbody>
</table>

44. Is your schedule/working hours a reason why you have thoughts about quitting your current job?

<table>
<thead>
<tr>
<th>Option</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Have no thought of changing</td>
<td></td>
</tr>
<tr>
<td>In a very small extent</td>
<td></td>
</tr>
<tr>
<td>To some extent</td>
<td></td>
</tr>
<tr>
<td>In quite high degree</td>
<td></td>
</tr>
<tr>
<td>Yes, to a large extent</td>
<td></td>
</tr>
</tbody>
</table>

45. Is your manager the reason for your thoughts about leaving your job?

<table>
<thead>
<tr>
<th>Option</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Have no thought of changing</td>
<td></td>
</tr>
<tr>
<td>In a very small extent</td>
<td></td>
</tr>
<tr>
<td>To some extent</td>
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<tr>
<td>In quite high degree</td>
<td></td>
</tr>
<tr>
<td>Yes, to a large extent</td>
<td></td>
</tr>
</tbody>
</table>

46. Are organizational factors a reason for you having thoughts about quitting your job?

<table>
<thead>
<tr>
<th>Option</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Have no thought of changing</td>
<td></td>
</tr>
<tr>
<td>In a very small extent</td>
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<tr>
<td>To some extent</td>
<td></td>
</tr>
<tr>
<td>In quite high degree</td>
<td></td>
</tr>
<tr>
<td>Yes, to a large extent</td>
<td></td>
</tr>
</tbody>
</table>
47. Are organizational factors reasons you have thoughts about quitting in your organization?

Have no thought of changing □
In a very small extent □
To some extent □
In quite high degree □
Yes, to a large extent □

48. Is career a factor for you thinking thoughts about changing your job?

Have no thought of changing □
In a very small extent □
To some extent □
In quite high degree □
Yes, to a large extent □

49. Is your health a reason for you having thoughts about changing your job?

Have no thought of changing □
In a very small extent □
To some extent □
In quite high degree □
Yes, to a large extent □

50. Is lack of development a reason for thinking thoughts about changing your job?

Have no thought of changing □
In a very small extent □
To some extent □
In quite high degree □
Yes, to a large extent □

Please check that you have answered all the questions.
Thank you for your participation! :-)