



KRISTI TOODE

Nurses' Work Motivation

Essence and associations



ACADEMIC DISSERTATION

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University of Tampere, School of Health Sciences
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Abstract

Hospital nurses' work motivation is widely important for providing high-quality health care. There is an internationally urgent need for evidence-based knowledge and studies on nurses' work motivation in order to establish the implications for effective motivation strategies in nursing.

The purpose of this study was to describe and explain hospital nurses' work motivation and the factors associated with it. The study was performed between 2009 and 2014. In phase 1, a literature review of the CINAHL, PsycINFO, PubMed, and SocINDEX databases was conducted aimed to define the work motivation concept, identify previous study approaches, and to gather empirical study findings on nurses' work motivation and the factors affecting it. Inductive content analysis was used to analyse the data from 24 empirical study reports. In phase 2, a descriptive empirical research was conducted aimed to investigate Estonian hospital nurses' work motivation, and how personal and organisational factors affected their motivation to work. Out of all registered nurses, 201 completed and returned the electronic questionnaire. The data was analysed by way of descriptive and inferential statistics.

Nurses both in general and in hospitals were more than moderately motivated to work. The majority of hospital nurses had a strong intrinsic work motivation, and/or a moderate identified regulation to work because they enjoyed the work and/or it was in accordance to their needs, values and goals. Personal factors such as being more trained, having strong higher order needs, sharing the same values as the organisation and society, and recognizing better experiences and knowledge about their work increased their motivation. Several organisational factors such as empowering work-place characteristics, supportive working conditions and good patient safety outcomes also increased their work motivation. Older nurses with a longer duration of service and/or a leading position had higher external motivation because they were worried about their reputation and also afraid to fail. Implications are presented for promoting and sustaining nurses' autonomous and intrinsic work motivation in nursing practice, management, education and research.

Key words: nurses, motivation, patient safety, review, surveys.

Tiivistelmä

Sairaaloissa työskentelevien sairaanhoitajien työmotivaatio on merkittävä tekijä, kun tuotetaan korkeatasoista terveydenhuoltoa. Kansainvälisesti on tärkeää tuottaa näyttöön perustuvaa ja tutkittua tietoa hoitajien työmotivaatiosta, jotta hoitotyössä osataan luoda tehokkaita strategioita hoitajien työmotivaation ylläpitämiseksi ja siten korkeatasoisen terveydenhuollon tuottamiseksi.

Tämän tutkimuksen tarkoituksena oli kuvata ja selittää sairaalassa työskentelevien sairaanhoitajien työmotivaatiota ja siihen yhteydessä olevia tekijöitä. Tutkimus tehtiin vuosina 2009–2014. Ensimmäisessä vaiheessa tehtiin kirjallisuuskatsaus, joka pohjautui CINAHL-, PsycINFO-, PubMed- ja SocINDEX-tietokantoihin. Sen tarkoituksena oli työmotivaatiokäsitteen määrittäminen ja aikaisempien tutkimusten lähtökohtien tunnistaminen sekä koota empiiriset tulokset hoitajien työmotivaatiosta ja siihen yhteydessä olevista tekijöistä. Aineisto, joka koostui 24 empiirisestä tutkimuksesta, analysoitiin induktiivisella sisällön analyysillä. Toisessa vaiheessa tehtiin elektroninen kyselytutkimus virolaisten sairaalassa toimivien sairaanhoitajien työmotivaatiosta ja miten henkilökohtaiset ja organisaatiotekijät olivat yhteydessä heidän motivaatioonsa. Kaikkiaan 201 hoitajaa täytti ja palautti sähköisen kyselylomakkeen. Aineisto analysoitiin kuvailevilla ja tilastollisen päättelyn menetelmillä.

Hoitajat yleensä ja sairaaloissa olivat vähintään kohtalaisesti motivoituneita tekemään työtään. Valtaosalla sairaalassa työskentelevistä hoitajista oli vahva ja/tai kohtalainen sisäinen työmotivaatio, koska he nauttivat työstään ja/tai se oli heidän tarpeidensa, arvojensa tai tavoitteidensa mukaista. Henkilökohtaiset tekijät, kuten korkea koulutus, vahvat tasokkaat tavoitteet, samat arvot organisaation ja yhteiskunnan kanssa sekä kokemus ja tieto työstä, lisäsivät motivaatiota. Myös useat organisaatiotekijät, kuten voimaantumista lisäävät työpaikan piirteet, tukea antavat työolosuhteet ja hyvä potilasturvallisuus, lisäsivät heidän työmotivaatiotaan. Niillä sairaanhoitajilla, jotka olivat muita iäkkäämpiä ja joilla oli muita pidempi työkokemus ja/tai korkeampi johtaja-asema, oli muita korkeampi ulkoinen motivaatio, koska he kantoivat huolta maineestaan ja pelkäsivät epäonnistumista. Kehittämisehdotukset liittyvät siihen, miten voidaan edistää ja ylläpitää sairaanhoitajien autonomiaa ja sisäistä työmotivaatiota hoitotyön käytännössä, hallinnossa, koulutuksessa ja tutkimuksessa.

Asiasanat: hoitajat, motivaatio, potilasturvallisuus, kirjallisuuskatsaus, kysely.

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List of original publications

The dissertation is based on the articles which are referred to in the text by their Roman numerals I – IV and listed as follows.

- I Toode, K., Routasalo, P., Suominen, T. (2011) Work motivation of nurses: A literature review. *International Journal of Nursing Studies*, 48(2), 246-257. DOI: 10.1016/j.ijnurstu.2010.09.013.
- II Toode, K., Routasalo, P., Helminen, M., Suominen, T. (2014) Hospital nurses' work motivation. *Scandinavian Journal of Caring Sciences*, Article first published online 9 June 2014, DOI:10111/scs.12155.
- III Toode, K., Routasalo, P., Helminen, M., Suominen, T. (2014) Hospital nurses' individual priorities, internal psychological states and work motivation. *International Nursing Review*, 61(3), 361-370. DOI:10.1111/inr.12122.
- IV Toode, K., Routasalo, P., Helminen, M., Suominen, T. (2015) Hospital nurses' working conditions in relation to motivation and patient safety. *Nursing Management*, 21(10), 31-41. DOI:10.7748/nm.21.10.31.e1293.

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1 Introduction

Every nation aims for higher standards in well-being and health care, which thus implies ongoing changes and health reforms around the world. In achieving the health-related Millennium Development Goals (World Health Organization [WHO], 2000) and reaching the highest sustainable level of health in the WHO European Region (WHO Regional Office for Europe [ROE], 2013), nurses and midwives have a unique and increasingly important key role in the delivery of high-quality health care services in both hospitals and community settings (WHO ROE, 2000). Yet, due to limited financial resources and inefficiencies in the existing organisation of both health and work systems, in many countries, nursing faces a series of problems. These stem from issues such as health professionals mobility and migration (Brüscher et al., 2010; Buchan et al., 2014; International Council of Nurses [ICN], 2010), a shortage and overloading of the nursing workforce, decreasing performance, nursing errors and the downgrading of the nursing profession (Brüscher et al., 2010; DeLucia et al., 2009; European Commission [EC], 2012; European Federation of Nurses Association [EFNA], 2012), disqualification, nurse dissatisfaction and demotivation, discrepancies and stagnation in provided care (Aiken et al., 2012; Brüscher et al., 2010; EC, 2012; ICN, 2009). Such problems are present in health care organisations across the Europe and have resulted in care that is neither safe or high-quality, nor patient-centred (EFNA, 2012; WHO ROE, 2013).

Responding to the above challenges, improving the delivery and development of public health and health care services which are more evidence-based, population-based and patient-centred, requires the forecasting of health workforce needs. This enables a higher quality of generation and planning of human resources for nursing (EC, 2012; ICN, 2009; WHO ROE, 2013), and enhances their working capacity (McPake et al., 2013). This can be achieved by creating and implementing incentives to attract, retain, motivate, satisfy and improve nursing performance (Global Health Workforce Alliance, 2008). In every country, adequate health and social policies require suitable measures and strategies to be adopted, in order to supply, equitably distribute and strengthen the productivity of a skilled and motivated health workforce which is responsive to the population's health needs (WHO, 2010; WHO ROE, 2013). To do this requires the effective implementation of evidence-based

solutions into health workforce policies and management. Regional and national observatories and research centres also need to be expanded, so as to improve the understanding of multiple factors affecting health service workforce (ICN, 2009; WHO, 2010; WHO, 2013). In relation to the deployment and utilization of the nursing workforce; along with other aspects, regional and national data of incentive systems (e.g. their motivation levels and the types and schemes of incentives) should be collected, analysed and translated to support the effective planning and management of the nursing workforce (ICN, 2009). In addition, the impact of working conditions and other work-related factors on health professionals' performance and morale needs to be evaluated, as it relates directly to their productivity and to the quality of care provided (McPake et al., 2013).

Regrettably, there are gaps of knowledge and research in the field of human resources for health at both national and international levels. As such, reliable data is either missing or scarce in many countries (ICN, 2009; MCPake et al., 2013). This has resulted in the current situation where we have internationally high standards and regulations based on the health needs of society (e.g. WHO, 2000; WHO ROE, 2013), however, the decisions we make in order to meet these standards are based on general hypothesis, rather than accurate research findings (Ayyash & Aljeesh, 2011; MCPake et al., 2013). This lack of reliable information for decision making in nursing is also characteristic of the situation in the Baltic States, including Estonia.

This study forms the first comprehensive research which has been undertaken to describe and explain hospital nurses' work motivation and the factors affecting it in an Estonian context. A systematic review of the main literature on existing knowledge and reliable research methodology in the field of nurses' work motivation has also been conducted. Therefore, based on the combination of both regional evidence and international knowledge, this study provides important additional information which fills the research gaps and contributes towards developing effective, evidence-informed motivation strategies for the nursing workforce.

The study also deepens the knowledge of nurses' work motivation and offers implications for the development of nursing management and research in this domain. Considering the history of motivation theories and research stretches back over half a century, the distinctive approach of this study towards extrinsic and intrinsic work motivation, together with consideration of the multiple factors which influence it, the inclusive design of this motivation study makes it quite innovative, particularly in the nursing discipline. Therefore this study may serve as a practical example for combining the contemporary theories of organisational psychology and evidence-informed knowledge into the nursing research corpus.

2 Literature review of nurses' work motivation

Three main literature searches were undertaken. The first was conducted in study phase 1, in May 2009 using the CINAHL, PsycINFO, PubMed and SocINDEX databases (Article I). The search were repeated using the same methods in October 2012 and December 2013, using the CINAHL, MEDLINE, ScienceDirect, PsycINFO and PsycARTICLES databases. As a result, newer publications of the updated literature reviews are inclusively cited and referred to in the summary text and articles II-IV. In addition, in June 2014 a manual search of public documents, proceedings and publications on the webpages of leading international nurses associations and health organisations (i.e. European Federation of Nurses Associations, International Council of Nurses, the World Health Organization and its Regional Office for Europe) were undertaken using combinations of the keywords: nurs*, health workforce, motiv*, incentive, performance, quality. Relevant literature describing the international situation and directions related to nursing workforce motivation is cited and referred to in the summary text.

2.1 Work motivation in nursing practice

Work motivation determines nurses' behaviour and performance when providing high-quality nursing practice (Moody & Pesut, 2006). In fact, hospital nurses comprise the largest employment group in the health workforce; a group on which the quality of delivered health care is very much dependent on. In the World Health Organization (WHO) European Region (comprising of 53 countries), there are an estimated 6 million nurses and midwives, most of which provide direct patient care in hospitals (WHO European Region, 2014). Registered Nurses (RN) are prepared and assigned to utilise their knowledge, judgement and skill in the provision and evaluation of care, advocating patient's rights, supervising and leading other health care workers, teaching, researching, as well as managing and developing health policy in nursing practice. Each function and task is expected to be provided with high levels of commitment, efficiency and quality, and also to be responsive to changes in health needs and developments in knowledge and technology. (ICN, 2013.)

Although nursing activities have an ultimate and novel aim – health (WHO, 2000; WHO ROE, 2000; WHO ROE, 2013) – it cannot be reached through forceful or domineering means (e.g. strict discipline, too many regulations, punishments). Thus it is essential to provide the right strategies and prerequisites to promote efficient and effective outcomes.

Because nurses' work motivation (together with their preferences and multiple work-related factors such as working conditions and incentive systems) affects their behaviour and performance, it has been widely recognized as one of the prerequisites for high-quality nursing practice. Therefore it needs to be given more attention than has been paid to date, and also be better managed (Global Health Workforce Alliance, 2008; ICN, 2009; McPake et al., 2013). Another prerequisite for high-quality nursing practice includes the implementation of professional standards and regulations (ICN, 2009), which are already more or less established in most Member States in the European Union (Brüscher et al., 2010). The third prerequisite to maximise nurses' higher capacity in nursing practice, is an ongoing effort to better educate and train more nurses to meet the growing needs of practice (Brüscher et al., 2010; ICN, 2009). Therefore, this study focuses on nurses' work motivation as an essential but less developed prerequisite of high-quality nursing practice.

Motivation is defined in this study as a “values-based, psycho-biologically stimulus-driven inner urge that activates and guides human behaviour in response to self, other, and environment, supporting intrinsic satisfaction and leading to the intentional fulfilment of basic human drives, perceived needs, and desired goals” (Moody & Pesut, 2006, p. 17). Based on self-determination theory (Ryan & Deci, 2000) and earlier studies on nurses' work motivation, this study focused on both **extrinsic** and **intrinsic motivation**, which gave the possibility to investigate not only the level of motivation (from low to high) but also the orientation from which it stemmed (intrinsic or extrinsic) (Ryan & Deci, 2000). When a person works for their own sake, she/he is considered to be intrinsically motivated to work. When a person works for instrumental reasons, she/he is considered to be externally motivated. In addition, three different regulation styles of external motivation have also been identified in this study, depending on whether the stimulus to work was external (i.e. *external regulation*), introjected (i.e. *introjected regulation*) or identified by self (i.e. *identified regulation*). (Gagné et al., 2010; Ryan & Deci, 2000.)

While motivation activates and guides all verbal and physical activities (Ryan & Deci 2000), at work, the level and orientation of motivation determines how and to what extent a nurse commits and performs in nursing practice (Moody & Pesut, 2006). There is an overall acknowledgment that highly motivated nurses perform

better and are more productive (Awosusi & Jegede, 2011; Ayyash & Aljeesh, 2011; Yldiz et al., 2009). What is not so well known and has gained less attention in nursing so far, is that the quality of a highly motivated worker's performance may still differ dependent on whether the motivation is extrinsic or intrinsic (Gagné et al., 2010; Moody & Pesut, 2006). External or internal motivation can both be effective, depending of the time and situation. In the long run, the prevalence of extrinsic motivation leads to mediocrity, however a prevalence of intrinsic motivation is seen to lead to a higher quality of performance (Gagné et al., 2010; Ryan & Deci, 2000) and therefore contributes to a higher quality of nursing.

Also, the happiness and well-being of workers' themselves depends a lot on their level and orientation of work motivation, and the personal and/or organisational sources of happiness they have at work (Warr, 2013). Highly externally motivated workers are not interested in the work itself, but more towards the fulfilment of basic human drives and basic (mainly lower order) needs. Therefore, they are likely to put the least amount of effort into their work to achieve these instrumental goals, without gaining any intrinsic satisfaction or happiness from doing their job. In addition, they appear more likely to be distressed and ill-disposed against everything which they see as relating to work. (Gagné et al., 2010; Ryan & Deci, 2000.) Thus, such constant dissatisfaction with work characteristics and conditions may lessen a nurse's level of commitment and motivation even more, and also increase their intention to leave (Battistelli et al., 2013; Galletta et al., 2011; Wieck et al., 2009). It is therefore important that before applying incentive systems for intrinsic work motivation (e.g. by fulfilling higher order needs like self-actualization and achievement), the presence and suitability of external motivators (e.g. those fulfilling lower order needs like physiological or safety needs) should be first provided for (Gaki et al., 2013; Lambrou et al., 2010; Peters et al., 2010).

Thus, in order to employ and retain a better nurse, both extrinsic and intrinsic motivators are needed. Regrettably (and particularly after the economic downturn of 2008), the decreased financial resources of the health systems in many countries cannot even afford fair salaries or the provision of sufficient equipment and facilities to support nurses externally (Brüscher et al., 2010; EFNA, 2012; Global Health Workforce Alliance, 2008). Many health organisations have evinced their inability to even satisfy and retain nurses, let alone to evoke and strengthen their internal motivation as well (Aiken et al., 2012; Brüscher et al., 2010; Buchan et al., 2014; DeLucia et al., 2009; EFNA, 2012; ICN, 2009). However, a lot of non-financial incentives also exist (e.g. a positive work environment, flexibility in employment arrangements, career support etc.), and these should be given more appreciation and

use in everyday work life (Global Health Workforce Alliance, 2008). Although many motivational strategies need additional money in order to be implemented (e.g. performance payments, allowances, professional training), the actual benefit of an intrinsically motivated workforce – the better health and well-being of both patients and nurses – outweighs such costs. Therefore, continuous effort is being made to find and implement incentive systems suitable for the planning and management of human resources for nursing (Global Health Workforce Alliance, 2008; ICN, 2009).

According to the definitions and different orientations of motivation (i.e. extrinsic and intrinsic) used in this study, both the level and the orientation of nurse's work motivation depends on her/his individual psychological response to various personal and organisational factors occurring in the situation and environment of her/his work domain. Earlier studies have indicated several different factors affecting nurses' work motivation, and these are described in section 2.2. The overall relationships of these factors with extrinsic and intrinsic motivation need to be further explored, so as to gain a more comprehensive insight into nurses' work motivation. Thereby, we can find evidence-based strategies for supporting and stimulating nurses not only to work but also to autonomously give their best efforts, and to reward their intrinsic motivation in return.

2.2 Factors associated with nurses' work motivation

2.2.1 Personal factors

Work motivation, as for any psychological work reaction, derives from within a person and is therefore affected by two groups of personal factors: (1) background factors (both demographic and work-related), and (2) the individual's way of thinking and their cognition about the experienced situation (Warr, 2013). As with a worker's happiness (Warr, 2013), the mental process of work motivation comprises of multiple judgements in a person's brain, including assessments of the situation, her/his place in the situation, and comparisons with other people and other situations. The internal judgements (conscious or subconscious) which evoke work motivation are based on individual preferences based upon personal needs and values (i.e. individual priorities) (Gagné & Deci, 2005). These priorities depend on various **background factors** including her/his traits of age and gender, social status

(e.g. being a wife and a mother), own knowledge, skill and experience (e.g. education, professional training, duration of service, prior work-places and positions) (Gagné & Deci, 2005; Warr, 2013).

A nurse's *age* has been associated with their work motivation in various ways and this has led to inconsistent findings. Although little explored, one explanation may be the generational differences in nurses' perceptions, needs and values which have resulted in differences in their work motives (De Cooman et al., 2008) and motivator preferences (particularly rewards) (Bonsdorff, 2011; Wieck et al., 2009). In the current nursing workforce, there are three generations who have been born in a similar time-frame and grown up with similar societal influences: Baby Boomers (born in 1946-1964), Generation X (born in 1965-1980) and Millennial (born in 1981-2000) (Wieck et al., 2009). Earlier studies conducted before the global economic crisis of 2008 have revealed that nurses' intrinsic work motivation grows with aging (Tummers et al., 2006b; Van den Berg et al., 2006; Van den Berg et al., 2008). Also, younger, less tenured nurses were more externally motivated by remuneration than older and more tenured colleagues (Lambrou et al., 2010). About ten years ago there were also nurses from the Veteran generation (born before 1945), who were seen as more solid and got things done without questioning. These are compared with Baby Boomers (seen as workaholics and self-centred, expect involvement, and demand attention to be given to their ideas and contribution) and Generation X (self-reliant, loyal to self rather than the job or institution, fun-seeking, focus on outcomes and hate process) (Wieck et al., 2009). Nowadays, older and more experienced nurses tend to prefer recognition and (financial) rewards more than younger and temporarily employed nurses (mostly less than 40 years old) (Ayyash & Aljeesh, 2011; Bonsdorff, 2011; Gaki et al., 2013). While the younger and less experienced nurses seek for more independent working, and having a status and authority (Kantek et al., 2013). However, income and rewards have been important motivators for all generations, because they enable us to satisfy various human needs (Bonsdorff, 2011; Kantek et al., 2013). Only the preferences of reward type may be different; for example, Generation X and the Millennials have ranked overtime and premium pay as most important, whilst the Baby Boomers have placed higher value on pensions and retirement (Wieck et al., 2009).

Older nurses (Baby Boomers) have been found to be more satisfied with the benefits of their work-place and have higher psychological empowerment, whilst younger nurses (Generation X) have been less satisfied with extrinsic rewards and working conditions (Sparks, 2012). Although the Baby Boomers and Generation X seem to be similar in self-determination (Sparks, 2012) and have reported similar

incentive scores, along with the Millennials, the scores representing disincentives have been higher in younger generations (Wieck et al., 2009). Younger nurses (Generation X and Millennial) have also reported higher levels of stress and greater intention to leave (Wieck et al., 2009).

In-line with increasing age, nurses also seem to place more value on achieved autonomy, self-direction and self-actualization (independent thoughts, decision authority, creativity) (Gaki et al., 2013; Koch et al., 2014). This is probably because of a longer *duration of service* (Lambrou et al., 2010), during which they gain a higher level of *education* and more *experience*. They also become more competent and self-confident, qualities which have been found to increase a nurse's psychological empowerment (Sparks, 2012) and motivation (Gaki et al., 2013; Gulzar et al., 2010; Hertting et al., 2004; Koch et al., 2014). In contrast, novice nurses appear to gain excitement and motivation simply through their connections with patients and their relatives, and have expressed that the safety of their patient and themselves as being the most important factor to them at work. Also, they have indicated feeling unconfident and suffering from stress because of their lack of experience in nursing, and also from a perceived underestimation by the experienced colleagues. (Maddalena et al., 2012.)

Longer duration of service, prior work-places and positions may be important prerequisites for greater experience. However, the *current work-place and position* may itself be motivating when it particularly well satisfies a nurse's work-related needs and is in line with her/his individual priorities and values (Gaki et al., 2013; Koch et al., 2014; Lambrou et al., 2010; Bonsdorff, 2011; Tummers & Den Dulk, 2013). This may provide an explanation as to why nurses who value more technical procedures have been more motivated by working in surgical units (Koch et al., 2014; Lambrou et al., 2010; Mackintosh, 2007), whilst nurses who value more decision making authority and high environmental uncertainty have been more motivated working in intensive care units (Tummers et al., 2006b). In addition, nurses working in lead positions have been seen to be more motivated by autonomy (Gaki et al., 2013; Lambrou et al., 2010; Tummers & Den Dulk, 2013), and communication, morale, recognition and rewards (Ayyash & Aljeesh, 2011).

Gender differences in social roles, needs and values may have an effect on nurses' preferences for motivators (Bonsdorff, 2011; Lambrou et al., 2010) and also their actual motivation (Engin & Cam, 2009; Razee et al., 2012; Tummers et al., 2006b; Van den Berg et al., 2006; Van den Berg et al., 2008). Some studies claim that male nurses are more motivated by communication and morale, supervision and management, and recognition and rewards (Ayyash & Aljeesh, 2011). Female nurses

seem to be more motivated by non-financial rewards (Bonsdorff, 2011), although another study claims that females are more motivated by remuneration than their male counterparts (Lambrou et al., 2010). Nevertheless, no significant differences between the performance of male and female nurse have been detected (Ayyash & Aljeesh, 2011). However, the associations between nurses' gender and motivation remain unclear because of these contradictory study findings and also because the groups of male respondents have usually been too small to make any reliable gender-based comparisons in the nursing studies which have so far been conducted.

While the orientation of nurses' work motivation depends on their **individual priorities**, the strength and sustainability of both extrinsic and intrinsic work motivation depends on the congruence between the nurses' personal value system and the work characteristics or conditions provided by the organisation (i.e. *shared values*) (Awosusi & Jegede, 2011; Battistelli et al., 2013; Galletta et al., 2011; Gulzar et al., 2010; Koch et al., 2014; Peters et al., 2010). In general, nurses are more likely to be autonomously self-directed and intrinsically motivated, if their work characteristics and working conditions enable them to attain satisfaction in their needs for autonomy (i.e. freedom of initiative and choices, decision authority), competence (i.e. knowledge and skill use, productivity, obtaining results,) and relatedness (i.e. good relationships, belonging to a team, feedback, respect and the reliance of co-workers) (Battistelli et al., 2013; De Cooman et al., 2008; Gaki et al., 2013; Koch et al., 2014; Lambrou et al., 2010; Peters et al., 2010). However, this applies only to those nurses with a *higher order needs strength* who value inner satisfaction, continuous learning and growth, and prefer intrinsic self-actualization and individual achievements instead of instrumental rewards and tangible outcomes (Brady, 2008; Oldham & Hackman, 2010; Ryan & Deci, 2000; Warr, 2013). Nurses who value a more certain standard of living, their own safety and well-being (i.e. having lower order needs as their main priority), and prefer material and social benefits are more externally motivated (Awosusi & Jegede, 2011; Ayyash & Aljeesh, 2011; Gaki et al., 2013; Hoonakker et al., 2013; Kamanzi & Nkosi, 2011; Lambrou et al., 2010; Negussie, 2012; Peters et al., 2010).

Based on the individual priorities of needs and values derived from personal background factors, the individual's ways of thinking about self in a work-related situation forms the **internal psychological states** which lead to work motivation (Ryan J. C., 2011; Warr, 2013). For intrinsic work motivation three internal psychological states are critical: *experienced meaningfulness of the work, experienced responsibility for work outcomes, and a knowledge of the actual results of the activities* (Hackman & Oldham, 1980).

Regrettably, the cognitive and affective process of workers has rarely been studied (Warr, 2013) and has been largely overlooked in studies on nurses' work motivation. Despite the fact that the Job Characteristics Model (Hackman & Oldham, 1980) and other theories of intrinsic process motivation (Ryan J. C., 2011) have been referred to in nursing literature with relative frequency, the findings about the actual relationships between nurses' work characteristics (i.e. skill variety, task identity, task significance, autonomy and feedback), the three critical psychological states listed above, and four work-related reactions (intrinsic motivation, high quality work performance, work satisfaction, and absenteeism/turnover) are fragmental and the last such publications were produced in the previous decade (e.g. Tummers et al., 2006; Van den Berg et al., 2006; Van den Berg et al., 2008). However, the feelings that their work is meaningful, feeling autonomously responsible for their work, and receiving respectful feedback about their performance have also been reported as motivating to nurses in more recent studies (Gaki et al., 2013; Lambrou et al., 2010; Tummers & Den Dulk, 2013).

2.2.2 Organisational factors

Nurses' work motivation and well-being has also been associated with organisational factors such as work-place characteristics and working conditions (Gagné & Deci, 2005; Warr, 2013). For an effective incentive system to be implemented, the health care organisation needs to provide a work-place which respects a health professional's needs and preferences. This includes those factors and conditions within the work environment that enable and motivate health professionals to work better and stay in their employment. (Global Health Workforce Alliance, 2008.)

With regard to motivating **work-place characteristics**, there is a widespread consensus that for increasing and sustaining a more powerful intrinsic work motivation, the work has to be moderately enriched by bringing the work-place up to the competence level of worker and enabling them to use the whole range of her/his abilities (Hackman & Oldham, 1980; Stacey, 2011). Therefore, work autonomy with a clarity of roles and responsibilities, recognition of work and achievement (by way of adequate feedback), effective open communication, an equal opportunity policy, support for career and development, membership of an effective team, and the respect of colleagues and the community are the main organisational factors which characterise a motivating work-place for health professionals (Global Health Workforce Alliance, 2008). These factors are all essential in order to satisfy

nurses' needs for autonomy, competence and relatedness (Ryan & Deci, 2000), to enable them to attain individual self-actualization and achievement (Oldham & Hackman, 2010), to provide an experience of a meaningfulness of their work, offer personal responsibility for their work outcomes, and to gain knowledge of the results of their own activities (Hackman & Oldham, 1980). Therefore, the hospitals where nurses are *supported by the management*, engaged in the highest decision-making (making their own decisions with regard to their staffing and nursing care), and with high-quality and open communications between nurses and physicians are considered to be a magnet class of hospital for attracting, motivating and retaining nurses and other health professionals (DeLucia et al., 2009).

Giving nurses the *autonomy* to determine for themselves what, when and how to do tasks within their own responsibilities has been associated with higher intrinsic motivation in many studies (Cai et al., 2011; Gaki et al., 2013; Galletta et al., 2011; Tummers et al., 2006a; Tummers et al., 2006b; Van den Berg et al., 2006). Requirements for nurses to have *respectful communication and relationships* with co-workers, management and the patient/community, that nurses' *engagement and empowerment* allows them to be both verbally (open communication) and physically (skill use, with management support for activities) active in multi professional and functional *teamwork* have been reported to increase nurses' motivation in several studies (Cai et al., 2011; De Cooman et al., 2008; Gaki et al., 2013; Germain & Cummings, 2010; Lambrou et al., 2010; Peters et al., 2010; Van Beek et al., 2012; Van den Berg et al., 2008).

In addition, *professional learning and training opportunities* have increased nurses' work motivation, as well as enabling them to develop their competence and self-confidence and thereby experience more individual achievements at work (Ayyash & Aljeesh, 2011; De Cooman et al., 2008; Hoonakker et al., 2013; Peters et al., 2010; Rydenfält et al., 2012). In fact, improved learning and practice opportunities is considered as one of the three main reasons for nurses to migrate in search of better working incentives (ICN, 2010).

With regard to **working conditions** - sufficient resources (human and material), supportive structures, effective workload management, flexible work hours, occupational health and safety, and salary and allowances are considered to be the main motivating working conditions in health organisations (Global Health Workforce Alliance, 2008). Moreover, a better salary and a better quality and security of personal life have also been cited as the most frequent reasons for nurses' professional migration from rural to urban areas, and from lower to higher income countries (ICN, 2010). According to basic human need, the safety and well-being of

one's own always comes before being able to care adequately for others (DeLucia et al., 2009). Therefore (and particularly in countries of lower income and with a discrepancy of social welfare), financial remuneration and job security have been seen as a relatively important motivator for nurses (Awosusi & Jegede, 2011; Ayyash & Aljeesh, 2011; Gaki et al., 2013; Hoonakker et al., 2013; Kamanzi & Nkosi, 2011; Lambrou et al., 2010; Negussie, 2012; Peters et al., 2010; Kantek et al., 2013).

Even best qualified and highly intrinsically motivated nurse needs *support structures* which provide proper tools and essential facilities for maintaining their motivation and their ability to carry out high-quality and safe nursing care (Awosusi & Jegede, 2011; DeLucia et al., 2009). Also, *staffing* has been frequently associated with nurses' work motivation, because it determines their *workload* and work intensity in terms of the number of tasks and patients, and the degree of psychological and physical overload (DeLucia et al., 2009; Van Beek et al., 2012; Van den Berg et al., 2006; Van den Berg et al., 2008). *Working in a fixed schedule* and having a *flexibility of working hours* have also been found to contribute to motivating working conditions in nursing (Ayyash & Aljeesh, 2011; Camerino et al., 2008; De Cooman et al., 2008; Razee et al., 2012; Yldiz et al., 2009).

2.3 Summary of the literature review

Nurses' work motivation has an impact on the quality of nursing practice, as well as on the well-being and retention of the nursing workforce. These effects can be different on the individual, depending on whether the orientation of their work motivation is external or internal. Both, extrinsic and intrinsic work motivations are important as they activate and guide individuals who are driven by different needs and goals at work. Extrinsic work motivation is related to the achievement of certain benefits for the individual, whilst intrinsic work motivation is related to the enjoyment of work per se which is likely to lead to better performance and better outcomes of nursing practice (Gagné et al., 2010; Moody & Pesut, 2006; Ryan & Deci, 2000). There is a gap in previous research about the role of different orientations (intrinsic or extrinsic) in nurses' work motivation. In particular, little is known about the role of extrinsic work motivation within the overall formation of a nurse's overall motivation to work.

Nurses' work motivation is associated with several personal and organisational factors. According to previous research (e.g. Awosusi & Jegede, 2011; Bonsdorff 2011; Battistelli et al., 2013; Gaki et al., 2013; Koch et al., 2014; Tummers & Den

Dulk, 2013), such personal factors comprise of background factors (i.e. age, duration of service, education, experiences, current work-place and position, gender roles), individual priorities (i.e. shared values with the organisation and society, higher order needs strength), and internal psychological states (i.e. experienced meaningfulness of the work, experienced responsibility for work outcomes, knowledge of the actual results of the activities). Based on earlier studies (e.g. Ayyash & Aljeesh, 2011; Galletta et al., 2011; Hoonakker et al., 2013; Van Beek et al., 2012), the organisational factors associated with nurses' work motivation comprise of work-place characteristics (i.e. support from the management, autonomy, respectful communication and relationships, engagement and empowerment, functional teamwork, and professional learning and training opportunities), and working conditions (i.e. support structures, staffing, workload, working in a fixed schedule, flexibility of working hours). The associations between these factors and a nurse's work motivation has never been investigated in the same study. Also the association of these factors with the different orientation (intrinsic or extrinsic) of a nurse's work motivation has not been revealed in previous research.

3 The purpose of the study and research questions

The purpose of the study was to describe and explain hospital nurses' work motivation and the factors associated with it. The aim of the study was to gain a more comprehensive understanding and deepen the knowledge surrounding nurses' work motivation and its incentives, in order to provide an evidence-informed base, from which to develop effective motivational strategies for the nursing workforce. It was driven by the need to promote and ensure nursing practice of the highest degrees of quality and safety.

The study was guided by the following research questions:

1. How motivated are nurses in general and in their hospital employment?
(Articles I and II)
2. How are personal factors associated with nurses' work motivation?
(Articles II and III)
3. How are organisational factors associated with nurses' work motivation?
(Article IV)

4 Material and methods

4.1 Design

The study process ran from 2009 to 2014 and was divided into two phases (Table 1):

In **Phase 1**, a qualitative descriptive literature review of the empirical studies on nurses' work motivation was carried out. It aimed to define the work motivation concept, identify previous study approaches, and to gather empirical study findings on nurses' work motivation and the factors affecting it. A thorough literature search was undertaken in May 2009. Inductive content analysis was used to analyse the data. The findings of the reviews formed a theoretical base from which to conduct further investigation while revealing the relevant variables which should be explored related to the topic area, and the instruments most suited to the research of nurses' work motivation. The result of the literature review is presented, discussed and published in Article I.

In **Phase 2**, a quantitative descriptive cross-sectional empirical research study among Estonian hospital nurses was conducted. This aimed to investigate Estonian hospital nurses' work motivation, and how personal and organisational factors affected their motivation to work. The data (n=201) was collected during May 2013 using an electronic self-reported questionnaire. This was developed by translating, adjusting and integrating six eligible instruments that had been used in earlier studies. Descriptive and inferential statistics were used for data analysis. The results are presented, discussed and published in Articles II-IV.

Table 1. Phases, time period, purposes and articles emanating from the study process.

Phases	Time period	Purposes	Articles
1, literature review	2009-2011	To describe nurses' work motivation from the perspective of staff nurses.	I
2, empirical research	2012-2014	To describe Estonian hospital nurses' work motivation and the relationships between background factors and work motivation.	II
		To describe the relationships between hospital nurses' individual priorities, internal psychological states and their work motivation.	III
		To determine Estonian hospital nurses' perceptions of workplace characteristics, working conditions, work motivation and patient safety, and to explore the relationships between these perceptions.	IV

4.2 Settings, sampling and participants

In **Phase 1**, the literature search in May 2009 gave 1988 hits (1564 CINAHL, 270 PsycINFO, 25 PubMed, 129 SocINDEX). Following the selection process (Article I, Fig. 1), 63 publications published in English between January 1990– May 2009 about the work motivation of working staff nurses were identified. After excluding 26 publications which did not report empirical studies and 13 due to a lack of relevant research results, 24 articles were included in the final review. The literature consisted of 17 quantitative and 7 qualitative studies on nurses' work motivation. Altogether, the articles reported study results based on data collected mainly by way of a self-reported questionnaire (21 studies), from 16 073 staff nurses working in hospitals, nursing homes and home healthcare services in 13 countries, mostly in Europe (Article I).

In **Phase 2**, the population comprised of 6235 nurses working in a total of 66 hospitals providing both inpatient and/or outpatient care. At the time there were seven different types of hospitals in Estonia (listed from largest to smallest): 3 regional hospitals, 4 central hospitals, 11 general hospitals, 5 local hospitals, 10

special hospitals, 3 rehabilitation hospitals, and 30 nursing care hospitals. The number of nurses working in each hospital varied between 2 (in one of the nursing care hospitals) to 1196 (in one of the regional hospitals).

During May 2013, all of the hospital nurses in Estonia were invited to participate in an electronic survey. The sampling criteria comprised of being registered nurse (RN), working in any nurse position in any type of hospital or unit, participating voluntarily, and being able to respond in Estonian. All of the main representative features of the Estonian hospital nurse population were present in the sample (Article II, Table 2).

Only 201 (3.2%) of RNs completed the electronic self-reporting questionnaire. Based on the power analysis, the sample size was deemed sufficient for identifying 0.5 statistically significant differences in the mean scores of the sub-groups compared. Although the sample comprised of nurses drawn from all kind of hospitals, in order to have a relatively sufficient amount of nurses for the comparison of different sub-groups, three groups of participants were formed by hospital type for statistical analysis: (1) nurses from regional hospitals, (2) nurses from central hospitals, and (3) nurses from other hospitals (Article II, Table 1). For the same reason, nurses working in different work area or unit were divided into seven groups: (1) surgery, (2) intensive care, (3) general medicine, (4) psychiatry, (5) emergency, (6) paediatrics, and (7) other units. The staff positions of participants were classified as follows: (1) regular nurse, (2) anaesthetic or intensive care nurse, (3) head nurse, and (4) operating room nurse. However, the latter group in the sample was too small ($n=3$) for comparative analysis with other nursing position groups. (Article II, Table 2.)

4.3 Instruments

In **Phase 1**, the STROBE (STrengthening the Reporting of OBservational studies in Epidemiology) (Institute für Sozial- und Präventivmedizin [ISPM] - University of Bern, 2009), and the COREQ (COnsolidated criteria for REporting Qualitative studies) (Tong et al., 2007) checklists of the obligatory items that should be included in the study reports was used for analysing the validity of the reviewed studies.

In **Phase 2**, six eligible and previously validated instruments were administered: the Motivation at Work Scale (Gagné et al., 2010), the Intrinsic Job Motivation Scale (Warr et al., 1979), three subscales of the Job Diagnostic Survey (Hackman & Oldham, 1974), the Higher Order Need Strength Scale (Warr et al., 1979), the

Healthcare Team Vitality Instrument (Upenieks et al., 2010), and the Hospital Survey on Patient Safety Culture (Agency for Healthcare Research and Quality, 2004) (Tables 2-5). In addition, four instruments for measuring nurses' background factors, shared values with the organisation and society, individual influence on work, and selected working conditions were specifically designed for this study by the researcher (Appendix 2), based on the literature reviews of earlier studies (Article I) and of work motivation (Summary text: section 2).

The concepts included in the survey components of the study are described in section 2 (marked in bold) and presented in tables 2-5 as dimensions of the instruments. These concepts has been measured using the variables which has been referred in earlier studies described in section 2 (marked in italic) and also presented in tables 2-5 together with other the details of measurement. Altogether, the electronic questionnaire comprised of 18 items about work motivation, 39 items about personal factors, 52 items about organisational factors, and 9 items about patient safety outcomes. The items were divided into 34 questions and 98 statements with scales addressing background factors, work motivation, internal psychological states, individual priorities, work-place characteristics and working conditions. All decisions concerning the dimensions and variables of what should be measured (i.e. the content and the choices of instruments used in the study) were made based on the literature review of earlier studies (Article I), and on the literature review about nurses' work motivation referred to earlier in section 2.

The instruments in English were translated by two translators: one translated from English to Estonian, and the other translated back to English in order to ensure that nothing was lost in translation (Beaton et al., 2000). The introductory accompanying letter for participants (Appendix 1) and the translated and the self-designed instruments and questions were composed and edited in the electronic application E-lomake 3. The questionnaire was reviewed and amended until an overall consensus was achieved (Beaton et al., 2000) by two experts of nursing management and research, an expert of the organisational psychology, a statistician and a philologist of the Estonian language.

All instruments were pre-tested (Beaton et al., 2000) among hospital nurses in a general hospital setting. Of 115 nurses, 25 responded (response rate 22%). The validity and reliability of the instruments were analysed using descriptive statistics and correlations (Polit & Beck, 2008). Most sub-scales had a reliability coefficient (Cronbach's alpha) >0.6. The validity of the three exceptional sub-scales was evaluated with the statistical and other expert panel. As a result, six items were reformulated in regard to language, as there might have been semantic problems in

the pilot study. The Cronbach's alphas and other features of the final instruments used in the study are reported in Tables 2-5.

The Intrinsic Work Motivation Scale (Warr et al., 1979) has been one of the most frequently used instruments in studies of nurses' work motivation (Article I) and was therefore administered as a concurrent instrument of the intrinsic work motivation sub-scale of the Motivation at Work Scale (Gagné et al., 2010) used in this study (Table 2). Previous studies on nurses' work motivation have predominantly measured only intrinsic work motivation, so no existing instrument of extrinsic work motivation was available at the time of this study.

Table 2. The dimensions, variables, number of items, Cronbach's alpha (α) and scales of the instruments used for measuring nurses' work motivation.

	Dimension	Variable	Items	α	Scale	Instrument
WORK MOTIVATION	Extrinsic work motivation	External regulation	3	0.51	Non-Likert: 1 "not at all" – 7 "exactly"	Motivation at Work Scale (Gagné, et al., 2010)
		Introjected regulation	3	0.77		
		Identified regulation	3	0.77		
	Intrinsic work motivation		3	0.84		
	Intrinsic work motivation (concurrent instrument)		6	0.82	Likert: 1 "strongly disagree" – 7 "strongly agree"	Intrinsic Job Motivation Scale (Warr, et al., 1979)

According to the personal factors, 14 items for measuring nurses' background factors which have been previously associated with their work motivation (section 2.2.1.) were included in the survey components of the study (Table 3). In addition, Hackman's and Oldham's (1974) instrument measuring three internal psychological states described in the main literature were included because this instrument has been also used in earlier studies of nurses' work motivation. Nurses' personal preferences about various needs and values have been also considered to be important for nurses' work motivation. However, the measurement of these concepts in relation to nurses' work motivation has been rather indirect while no particular instrument has been referred for this in nursing studies. For filling this gap, two instruments has been included in this study based on the common knowledge of work motivation: the scale measuring higher order need strength (Warr et al., 1979) and the scale about shared values (Appendix 2). The latter is designed for this study particularly while there were no such instrument available which combines all the values which nurses' has been expressed as important for their work motivation in earlier studies.

Table 3. The dimensions, variables, number of items, Cronbach's alpha (α) and scales of the instruments used for measuring hospital nurses' personal factors.

	Dimension	Variable	Items	α	Scale	Instrument
PERSONAL FACTORS	Background factors	Age in years	1	-	Open question	Appendix 2
		Gender	1	-	Two choices	
		Marital status	1	-	Two choices	
		Number of children in household	1	-	Open question	
		Highest level of education in nursing	1	-	Forced choice	
		Professional training during 12 months	1	-	Forced choice	
		Type of hospital	1	-	Forced choice	
		Work area or unit	1	-	Forced choice	
		Staff position	1	-	Forced choice	
		Years of service: - in current specialty,	1	-	Open question	
		- in current hospital,	1	-	Open question	
		- in current work unit	1	-	Open question	
		Type of care providing	1	-	Forced choice	
	Contact with patients	1	-	Two choices		
	Internal psychological states	Experienced meaningfulness of work	4	0.56	Likert: 1 "strongly disagree" – 7 "strongly agree"	Sub-scales of the Job Diagnostic Survey (Hackman & Oldham, 1974)
Experienced responsibility for work outcomes		6	0.42			
Knowledge of results		4	0.45			
Individual priorities	Higher order need strength	6	0.87	Non-Likert: 1 "not at all important" – 7 "extremely important"	Higher Order Need Strength Scale (Warr et al., 1979)	
	Shared values	5	0.80	Likert: 1 "strongly disagree" – 7 "strongly agree"	Appendix 2	

Selecting suitable instrument for combining and measuring all these organisational factors which has been associated with nurses' work motivation in the main literature (section 2.2.2.) was most challenging task in designing this study. As a result of thorough considerations and consultations with other researchers of this domain, two previously used instruments were administered and two instruments were designed for this study (Table 4). Unlike other instruments about work in general, these were considered to describe uniquely nurses' common work-place characteristics and working conditions in the actual context of their professional work.

Table 4. The dimensions, variables, number of items, Cronbach's alpha (α) and scales of the instruments used for measuring hospital nurses' organisational factors.

	Dimension	Variable	Items	α	Scale	Instrument
ORGANISATIONAL FACTORS	Work-place characteristics	Individual influence on work	3	0.61	Non-Likert: 1 "none" – 5 "total"	Appendix 2
		Engagement and empowerment in unit	3	0.69	Likert: 1 "strongly disagree" – 5 "strongly agree"	Sub-scales of Healthcare Team Vitality Instrument (HTVI) (Upenieks et al., 2010)
		Team communication in unit	2	-		
		Patient care transition in unit	2	-		
		Communication and openness in unit	3	0.61	Likert: 1 "strongly disagree" – 5 "strongly agree"	Hospital Survey on Patient Safety Culture (Agency for Healthcare Research and Quality, 2004)
		Teamwork within units	4	0.82		
		Teamwork across units	4	0.72		
		Hospital handover and transitions	4	0.76		
		Feedback and communication about errors	3	0.78		
		Non-punitive response to errors	3	0.69		
		Organisational learning and continuous improvement	3	0.62		
		Supervisor/manager expectations, actions promote patient safety	4	0.82		
	Hospital management support for patient safety	3	0.76			
	Working conditions	Staffing	4	0.62	Likert: 1 "strongly disagree" – 5 "strongly agree"	Sub-scale of the HTVI
		Support structures in unit	3	0.70		
Workload in the hospital		1	-	Open question	Appendix 2	
Workload in other healthcare institutions		1	-	Open question		
Working schedule		1	-	Forced choice		
Opportunities for flexible work time	1	-	Multiple choices			

The Hospital Survey on Patient Safety Culture instrument used in this study involved organisational factors and four sub-scales measuring the outcomes of patient safety (these are considered as one of the dimensions characterising patient safety culture in the organisation) (Agency for Healthcare Research and Quality, 2004). Whilst nursing work outcomes can be viewed as both the incentive and also effectual to nurses’ work motivation (Agency for Healthcare Research and Quality, 2004; Ayyash & Aljeesh, 2011; Moody & Pesut, 2006), these four safety variables (Table 5) are presented separately from other organisational factors in this study.

Table 5. The dimensions, variables, number of items, Cronbach’s alpha (α) and scales of the instruments used for measuring the patient safety outcomes.

Dimension	Variable	Items	α	Scale	Instrument
Patient safety outcomes	Overall perception of patient safety	4	0.67	Likert: 1 “strongly disagree” – 5 “strongly agree”	Sub-scales of the Hospital Survey on Patient Safety Culture (Agency for Healthcare Research and Quality, 2004)
	Frequency of events reported	3	0.84	Non-Likert: 1 “never” – 5 “always”	
	Patient safety grade in unit	1	-	A “excellent” – F “failing”	
	Number of self-reported events during 12 months	1	-	Open question	

4.4 Data collection

In **Phase 1**, literature was searched using the CINAHL, PubMed, PsycINFO and SocINDEX databases with the combination of keywords: nurs* AND work AND motiv* in May 2009. The selection process of the literature contained six stages of inclusion criteria: (1) published from January 1990 to May 2009 (n=1654), (2) in English (n=1484), (3) addressed work motivation (n=94), (4) concerned working staff nurses (n=63), (5) qualitative or quantitative empirical study (n=37), (6) relevant results clearly and explicitly reported (n=24) (Article I, Figure 1). In total, 24 articles met all of the selection criteria and were reviewed.

In **Phase 2**, Estonian hospital nurses’ opinions on their work motivation and several work-related factors were collected in May 2013, by way of an electronic self-reported questionnaire using the browser based application E-lomake 3. The link leading to the questionnaire was permanent during whole month on the main webpage of the Estonian Nurses Association (ENA) (www.ena.ee) and were shared

with the invitation to participate on Facebook via the account and contacts of the association (<https://www.facebook.com/pages/Eesti-%C3%95dede-Liit/369834993034299?fref=ts>) and the health care workers' group (<https://www.facebook.com/groups/284754938266837/>). The recruitment of the participants also comprised of an article with the invitation, published in the national nursing journal (*Eesti Õde*, 2013, 1, 22-23), together with advertisements published in the national newspaper of health care workers (*Meditsiiniuudised*, 2013, 10[245], 11) and also in one of the most widely circulated Estonian daily newspapers (*Postimees*, 2013 in May 9 and 10). Reminders were shared via the Facebook accounts, by contacts of the ENA and the health care workers' group, in a paper presented at the National Nurses' Day Conferences in Tartu and Tallinn, and also sent twice by e-mail via the ENA regional contact persons across the Estonia. (Articles II-IV.)

4.5 Data analysis

In **Phase 1**, inductive content analysis (White & Marsh, 2006) was used to analyse the data of the earlier studies on nurses' work motivation. During repeated reading of these articles, texts and numbers in-line with the review objectives were identified, listed in a table and summarized (Article I, Table 1). The substantives of factors affecting nurses' work motivation were classified into 20 sub-themes, which were then categorized by their similarity of content into five main categories. These categories were formed and named based on the content and theoretical background of the respective variables reported in the reviewed studies (Article I).

In **Phase 2**, the data from the electronic survey of Estonian hospital nurses was analysed using descriptive statistics (i.e. frequency distribution, mean, standard deviation, confidence interval, minimum, and maximum), and inferential statistics (i.e. two-sample Wilcoxon rank-sum test, Kruskal-Wallis equality-of-populations rank test, Spearman's rank correlation coefficient rho, and Cronbach's alpha). A *p*-value of less than 0.05 was deemed to be statistically significant in all the tests. (Polit & Beck, 2008.) All analyses were conducted using the statistical software Stata 11.2 (StataCorp LP, College Station, TX, USA). (Articles II-IV.)

4.6 Ethical considerations

The study was based and conducted on a multidisciplinary knowledge of ethics and research in health sciences. The design, methods, ethical considerations, funding, researcher's affiliations and other relevant aspects of both study phase are well-documented in the summary text and Articles I-IV. All authors and original publications of the literature and instruments used in this study are accurately reported and referred to (Articles I-IV).

The researcher obtained permission to translate and administer the Motivation at Work Scale (Gagné et al., 2010), and the Intrinsic Job Motivation Scale and the Higher Order Need Strength Scale (Warr et al., 1979) from the first authors of the original instruments. The subscales of the Job Diagnostic Survey (Hackman & Oldham, 1974), the Health Care Team Vitality Instrument (Lee & Upenieks, 2010; Upenieks et al., 2010), and the Hospital Survey on Patient Safety Culture (Agency for Healthcare Research and Quality, 2004) are available for free public use and can be administered without permission of the authors. However, the journals where most of these instruments are published hold the copyright for these and therefore the original instruments are not reproduced in this dissertation.

The empirical research study (Phase 2) was carried out in accordance with generally accepted scientific and ethical principles for medical research involving human subjects (World Medical Association, 1964). Therefore, the rights of each individual participating in this study (i.e. their right to self-determination, privacy, confidentiality of personal information, full disclosure and fear treatment) (Polit & Beck, 2008) have always been given precedence over the study purposes.

While the electronic survey was quantitative (the study process is known and controlled ahead), it included no medical interventions or risks to the participants' health, no identifiable human data, no vulnerable or compromised individuals: as such, written informed consent was not required (Polit & Beck, 2008; World Medical Association, 1964). However, participants' rights to full disclosure about the study (Polit & Beck, 2008; World Medical Association, 1964) was respected and fulfilled by way of a thorough introduction to the electronic survey. This included the title and aim of the study, the content of the questionnaire, criteria for participation, participant involvement, assurances of voluntariness and anonymity, and contact details of the researcher (mobile and email address) for any help or additional information (Appendix 1). Therefore, participants who completed and returned the questionnaire were considered to have done so with freely-given informed content (Polit & Beck, 2008). There were no additional questions or comments about either

the study process or participants rights received during the data collection. The researcher received only two questions by the email, both asking where and when the participant could access the results of the study, and both were informed accordingly.

The self-determination, privacy and fair treatment of respondents (Polit & Beck, 2008; World Medical Association, 1964) was guaranteed using the following measures (Appendix 1): In the questionnaire there were no questions that could identify either an individual or the hospital where the respondent was working. In addition, whilst the meta-data of the survey was not recorded, it was not possible to trace the computer or source from which the answers were sent. The confidentiality of (already anonymous) responses was also maintained as the answers could only be seen by the researcher and the statistical assistant, and not made available to any other person, organisation or institution. Also, the results have been reported and internationally published referring to the type of hospital (not by name), and generalised nursing specialties and positions of all respondents.

Only one predictable risk to the respondents was anticipated in this study. Work motivation and other work-related issues may be sensitive topics for the individual, and they may be afraid to express their own feelings and thoughts unless they are totally sure that their co-workers, managers and employers cannot identify them. If detected, honesty could cause sanctions to be taken against the employee, or if they have not responded honestly, the study results may be biased. To forestall this risk, the researcher informed all parties in the introduction to the survey and the study advertisements that the questionnaire was anonymous, and that the researcher and her supervisors were not involved with any of the hospitals being surveyed.

The researcher and co-authors of Articles I-IV remained objective during the whole study process and had no conflict of interest with regard to the study results (Polit & Beck, 2008; World Medical Association, 1964). Moreover, during 2013 neither researcher nor her supervisors were employed in any organisations or institutions related to the Estonian hospitals where the data was collected (in May 2013), thus assuring the objectivity of the study. The study funding has been received from Finnish foundations and institutions which have no interdependency with Estonian hospitals.

The project of the empirical research (Phase 2) was first approved by the supervising University of Tampere and the management of the pilot hospital. The Estonian Nurses Association allowed the link to the questionnaire to be placed on their webpage and also distributed the study alerts via association's media channels and their contact persons. After obtaining these written agreements, the research

project was subsequently guided and approved by the Estonian Research Ethics Committee of the University of Tartu (no. 223/T-10). The committee is comprised of independent external reviewers who objectively control the conformity of the study with Estonian law and regulations, and with international research standards. Despite it being noticed that response rates were low, within the established bounds of the study, it was not possible to increase exposure or participation.

5 Results

5.1 Nurses' work motivation in general and in hospitals

According to previous international studies, staff nurses in general appeared to be motivated to work (Article I). According to the respondents of the empirical study in Estonia, hospital nurses were more than moderately motivated to work (Article II). Combining the findings of the literature review in Phase 1 (Article I) and the empirical study in Phase 2 (Article II), it can be concluded that nurses' work motivation levels have changed little during the period that reports and studies have been published on the topic (during the last 24 years) (Articles I-II).

In Phase 1, the literature review revealed that staff nurses have been reported to be motivated to work. However, the empirical evidence has been rather limited and also indefinite because of the incompatibility of methods used and a lack of clear definitions and consensus about the concept of work motivation (Article I, Table 1). However, a recent update of the literature review shed more light on the topic, indicating that the level of nurses' work motivation has been somewhere in the middle between the average and highest in the European countries studied (Baltic States were not included) since the 1990s (Article II). Still, due to the lack of pertinent studies, it's hard to gain a more profound comprehension based on the literature.

The descriptive empirical research in **Phase 2** indicated that Estonian hospital nurses also self-reported to be more than moderately motivated to work (Article II, Table 3). As this is the first time that evidence regarding Estonian hospital nurses' work motivation has been reported, no comparative judgement can be offered.

Moreover, not only the level but also the orientation of hospital nurses' work motivation is reported in the study. According to this, the majority of hospital nurses' in Estonia appeared to have a strong **intrinsic work motivation** (Mean=4.98, SD=1.03) (Article II, Table 3); i.e. they work primarily for the joy, fun and pleasure that their job brings to them (Figure 1). To simplify the overall comprehension of the results, in Figures 1-4, the percentages of participants who responded "exactly", "very strongly" or "strongly" are summed up, likewise are those who responded "a little", "very little" or "not at all".

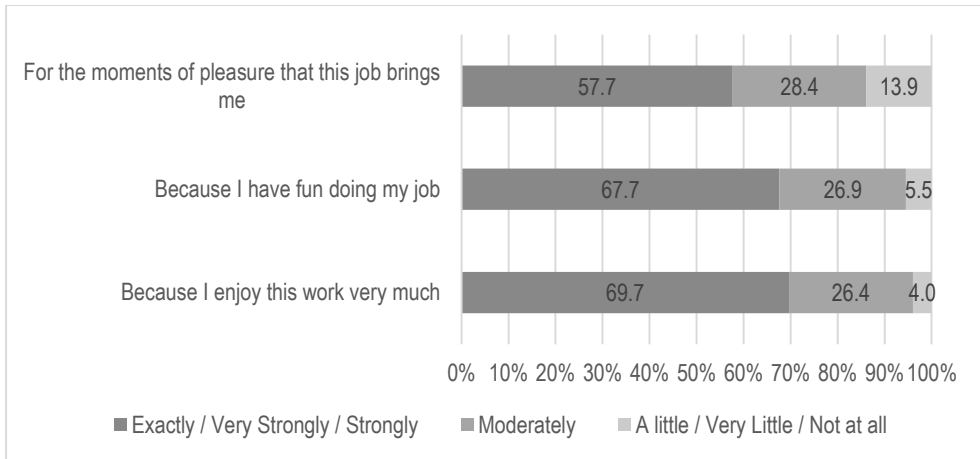


Figure 1. Hospital nurses' distribution (%) by the responses to items of intrinsic work motivation.

However, these are not their only reasons to work and they have also reported moderate **extrinsic motivation** (Mean=3.63, SD=0.89) (Article II, Table 3). When looking at the sub-areas of extrinsic work motivation, the moderate level of *identified regulation* (M=4.19, SD=1.20) (Article II, Table 3) indicates that many nurses also worked because their job fitted with their personal values, career plans and/or life goals (Figure 2). This made them moderately externally but still relatively autonomously motivated. The findings about nurses' external work motivation and its sub-areas provides new knowledge concerning nurses' work motivation.

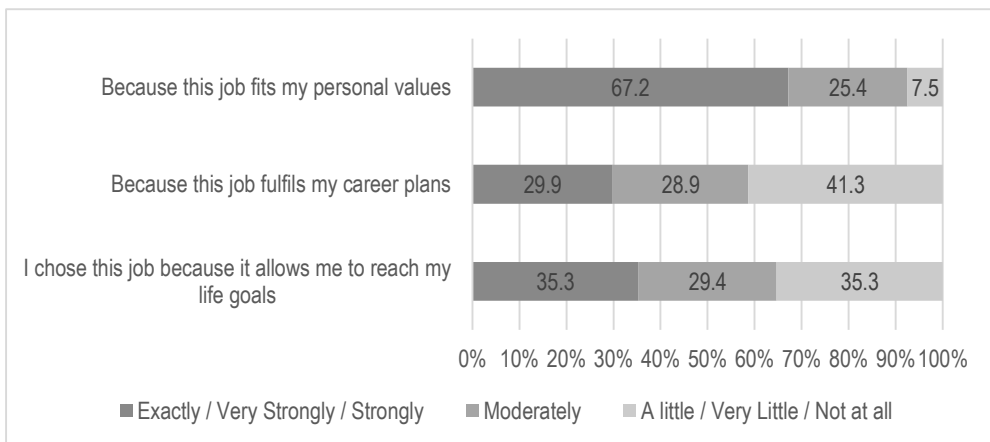


Figure 2. Hospital nurses' distribution (%) by the responses to items of identified regulation of extrinsic work motivation.

Out of the two less autonomous regulation sub-areas of extrinsic work motivation, the scores of *introjected regulation* (M=3.51, SD=1.32) and *external regulation* (M=3.19, SD=0.97) were lower but still about average (Article II, Table 3).

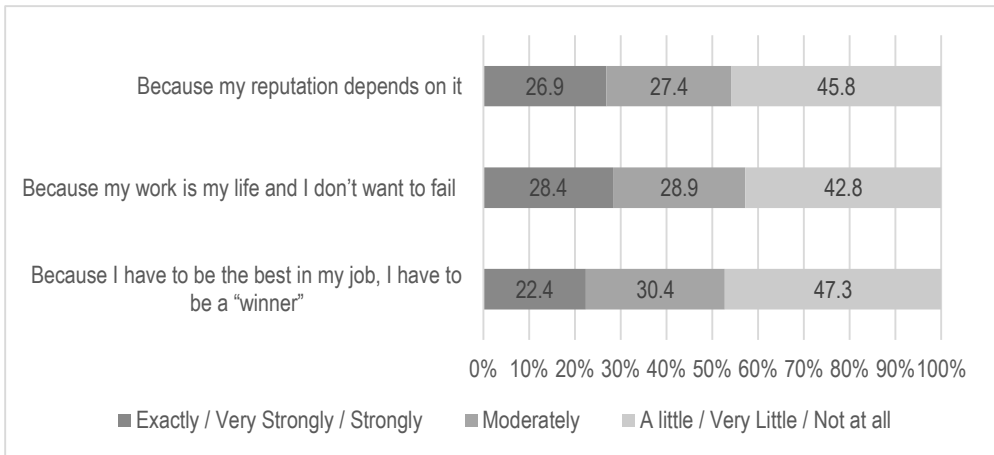


Figure 3. Hospital nurses' distribution (%) by the responses to items of introjected regulation of extrinsic work motivation.

This showed respectively that about half of the respondents also found the way in which their job supported their need for reputation and competitiveness (Figure 3), and/or the certain standard of living the job affords them (Figure 4), one of the reasons that, at least moderately, motivated them to do this specific job.

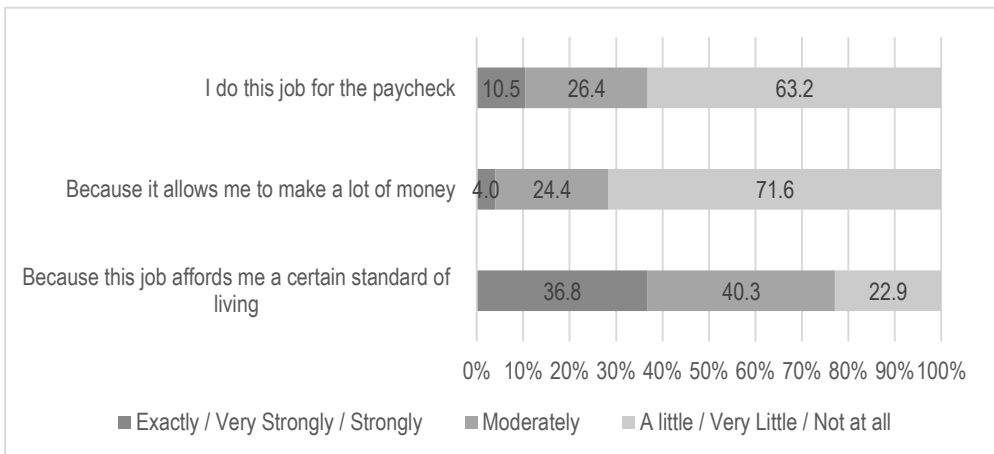


Figure 4. Hospital nurses' distribution (%) by the responses to items of external regulation of extrinsic work motivation.

5.2 Personal factors associated with nurses' work motivation

As a result of literature review in **Phase 1** three categories of the personal factors affecting staff nurses' work motivation were identified: (1) personal characteristics (i.e. background factors), (2) individual priorities (i.e. needs and values), (3) internal psychological states (i.e. experienced meaningfulness of the work, experienced responsibility for work outcome, knowledge of the results of their work) (Article I). In **Phase 2**, hospital nurses' personal factors appeared to have a slight but statistically significant association to their work motivation (Articles II-III).

The **background factors** such as *age*, *duration of service*, *type of hospital* and *staff position* were associated with nurses' work motivation, but only with their **external work motivation**, and particularly with one of its sub-areas – *introjected regulation* (Article II, Table 5). Based on these results, as nurses became more tenured in their current specialty and unit, the less she/he reported to be motivated because the job fits her/his personal values, career plans and life goals – rather they were more motivated by reputation, a desire to avoid failure and to be a winner. Along with the more tenured nurses, these latter motivators were also more prevalent among older nurses, head nurses and nurses from central hospitals (Article II). *More than eight days of professional training* per year was the only background factor associated with nurses' higher **intrinsic work motivation** and this was also associated with the most autonomous sub-area of **external work motivation**, namely *identified regulation* (Article II, Table 5).

The association of nurses' *age* with *introjected regulation* (Article II), as well as with their **individual priorities** like *higher order need strength* and *shared values* (Article III) were significant also when the respondents were divided into three different generation groups (Table 6). In the comparisons of these groups, the youngest generation (Millennial) had the lowest scores of *introjected regulation* (a sub-area of external work motivation), the highest score of strength of higher order need and also shared more of the same values with the organisation and society than older generations (Generation X and Baby Boomer) ($p \leq 0.001$). *Introjected regulation* also increased with age. (Table 6.)

Table 6. Differences in introjected regulation, higher order need strength and shared values between different generation groups of hospital nurses.

Generation (age range)	n	Introjected regulation			Higher order need strength			Shared values		
		M	SD	p	M	SD	p	M	SD	p
Millennial (22-32)	75	3.14	1.24	<0.001	5.95	0.64	<0.001	3.96	0.53	0.001
Generation X (33-48)	85	3.49	1.31		5.59	0.83		3.56	0.76	
Baby Boomer (49-65)	41	4.22	1.23		5.41	0.77		3.63	0.80	

With regard to **individual priorities**, nurses' *higher order need strength* (i.e. a stronger need for self-actualization and achievement) was associated with their higher work motivation. In fact, those nurses who had higher scores in both **intrinsic** and **extrinsic work motivation**, also had higher scores in all of the sub-areas of extrinsic work motivation. *Shared values* (i.e. sharing the same values as the organisation and society) were also associated with nurses' work motivation. Out of all the dimensions of work motivation, *shared values* was positively associated with **intrinsic work motivation** and with the *external regulation* and *identified regulation* sub-areas of **external work motivation**. (Article III, Table 3.)

All three **internal psychological states** were associated with nurses' work motivation. **Extrinsic** and **intrinsic work motivation** were both higher among those nurses who *experienced meaningfulness of work*, *experienced responsibility for work outcomes* and had *knowledge of the work results*. These associations were significant with **intrinsic work motivation** and also with *identified regulation* (the most autonomous sub-area of **extrinsic work motivation**). The *experienced responsibility for work outcome* was also associated with other sub-areas of **extrinsic work motivation** such as *introjected regulation*. (Article III, Table 3.)

When looking at the interconnections between all of the personal factors and their associations with work motivation, *shared values* appeared to be the fostering key factor between most of the associations of other personal factors with nurses' work motivation. Nurses who had *more professional training* and a *higher order needs strength*, also had more *shared values* (Article III, Tables 2-3), and all of these variables have been associated with nurses' higher work motivation; specifically with the higher *identified regulation* sub-area of **extrinsic work motivation** and with **intrinsic work motivation** (Article II, Table 5; Article III, Table 3). Sharing the same values with the organisation and society was also related to higher scores of all three **internal**

psychological states. The same factors were associated with higher **intrinsic work motivation** and the *identified regulation* sub-area of **extrinsic work motivation** (Article III, Table 3).

5.3 Organisational factors associated with nurses' work motivation

As a result of the literature review in **Phase 1**, two categories of organisational factors which affected staff nurses work motivation were identified: (1) job (work-place) characteristics, and (2) working conditions (Article I). In the empirical research in **Phase 2**, these organisational factors were found to have a slight but statistically significant association with nurses' work motivation. With one exception (*non-punitive response to errors* have lessened nurses' *introjected regulation* – the sub-area of **extrinsic work motivation**), nurses' positive perceptions of the investigated **work-place characteristics**, associated with their higher work motivation, particularly with higher **intrinsic work motivation**. These comprised factors describing nurses' higher autonomy (i.e. *individual influence on work*), engagement (i.e. *engagement and empowerment*), good communication (*communication and openness, team communication in unit*), functional teamwork (i.e. *teamwork within and across units, patient care transitions in unit, hospital handover and transitions*), organisational improvement (*feedback and communication about errors, non-punitive response to errors, organisational learning and improvement*), and support for patient safety (i.e. *supervisor/manager expectations and actions promoting patient safety, hospital management support for patient safety*). Most of these factors were also associated with a sub-area of **external work motivation**, namely *identified regulation*. The factors of the nurse's own working unit and the factors of the whole hospital management appeared to have a similar strength of effect on their work motivation, whilst the factors of (across) other working units appeared to have a relatively smaller effect on nurses' work motivation. (Article IV, Table 2.)

With regard to **working conditions**, *support structures in unit, staffing, opportunities for flexible work time, sharing job, changing shifts* and *parental leave* were associated with nurses' work motivation. Specifically, good *support structures* increased nurses' **intrinsic work motivation**, as well as adequate *staffing* and the possibility for *sharing the job* with colleagues (Article IV, Table 3). *Opportunities for flexible work time*, such as *changing shifts* and *parental leave* were only associated with nurses' increased **external work motivation**, and particularly with its less autonomous sub-area – *introjected regulation* (Article IV, Table 3).

Nurses' perceptions of **patient safety outcomes** such as a better *overall perception of patient safety* and *patient safety grade in unit* were associated with nurses' higher work motivation – specifically with their higher **intrinsic work motivation** and higher *identified regulation of extrinsic work motivation* (Article IV, Table 4). When looking at the interconnections between all of the organisational factors and work motivation, the outcomes of patient safety appeared to be a fostering key factor (Article IV, Tables 2-5 between the associations of other organisational factors and nurses' work motivation. In fact, *overall perception of patient safety* and *patient safety grade in unit* were positively associated with **working conditions** such as *support structures* and *staffing* (Article IV, Table 5), and most strongly with all of the **work-place characteristics** studied (Article IV, Table 4). The same factors were also associated with nurses' higher **intrinsic work motivation** and the higher *identified regulation of extrinsic work motivation*. (Article IV, Tables 4-5.)

5.4 Summary of nurses' work motivation and associated factors

Nurses are more than moderately motivated to work, both in general and in their hospital employment (Articles I-II), both intrinsically and extrinsically (Article II). A number of different personal factors (background factors, individual priorities, and internal psychological states) (Articles I-III) and organisational factors (work-place characteristics, working conditions, and patient safety outcomes) (Articles I and IV) are slightly and mostly positively associated with nurses' higher work motivation. The empirical research among Estonian hospital nurses (Articles II-IV) generally confirmed previous findings on the factors which affect nurses' work motivation (Article I) and deepens the knowledge about the association between personal and organisational factors, and nurses' work motivation (Articles II-IV). Along with other results, new information about the state and factors related to nurses' extrinsic motivation is revealed. (Articles II-IV.)

Based on the results of the empirical research in study phase 2 (Articles II-IV), a summary of results of hospital nurses' work motivation and the personal and organisational factors increasing work motivation among hospital nurses is presented in Figure 5. All of the listed factors in the figure had a statistically significant positive association with nurses' intrinsic work motivation and also up to three sub-areas of their extrinsic work motivation. Bold text denotes the name of the dimension under which the particular factor is categorized in this study. Different arrows represent the specific area(s) of work motivation with what each associated

factor in the study. For example, *shared values* is reported to increase two sub-areas of **extrinsic work motivation** (*external regulation* and *identified regulation*) and **intrinsic work motivation**, whilst *teamwork* and *adequate staffing* increases only **intrinsic work motivation** (Figure 5).

Figure 5 is a visual description of the empirical results which when taken together, provide a conceptual model of hospital nurses' work motivation and the factors which increase it. In answering the research questions of the study, Figure 5 presents only those associations that describe the factors affecting nurses' work motivation. Whilst all these associations were positive (i.e. each factor increased work motivation), the integrated arrows are all directed from factors directly to the type of work motivation and not in the opposite way or between other factors. However, within the data, many of these associations can be also seen as mutual and many interconnections between different factors have also been established (reported in the tables of Articles II-IV).

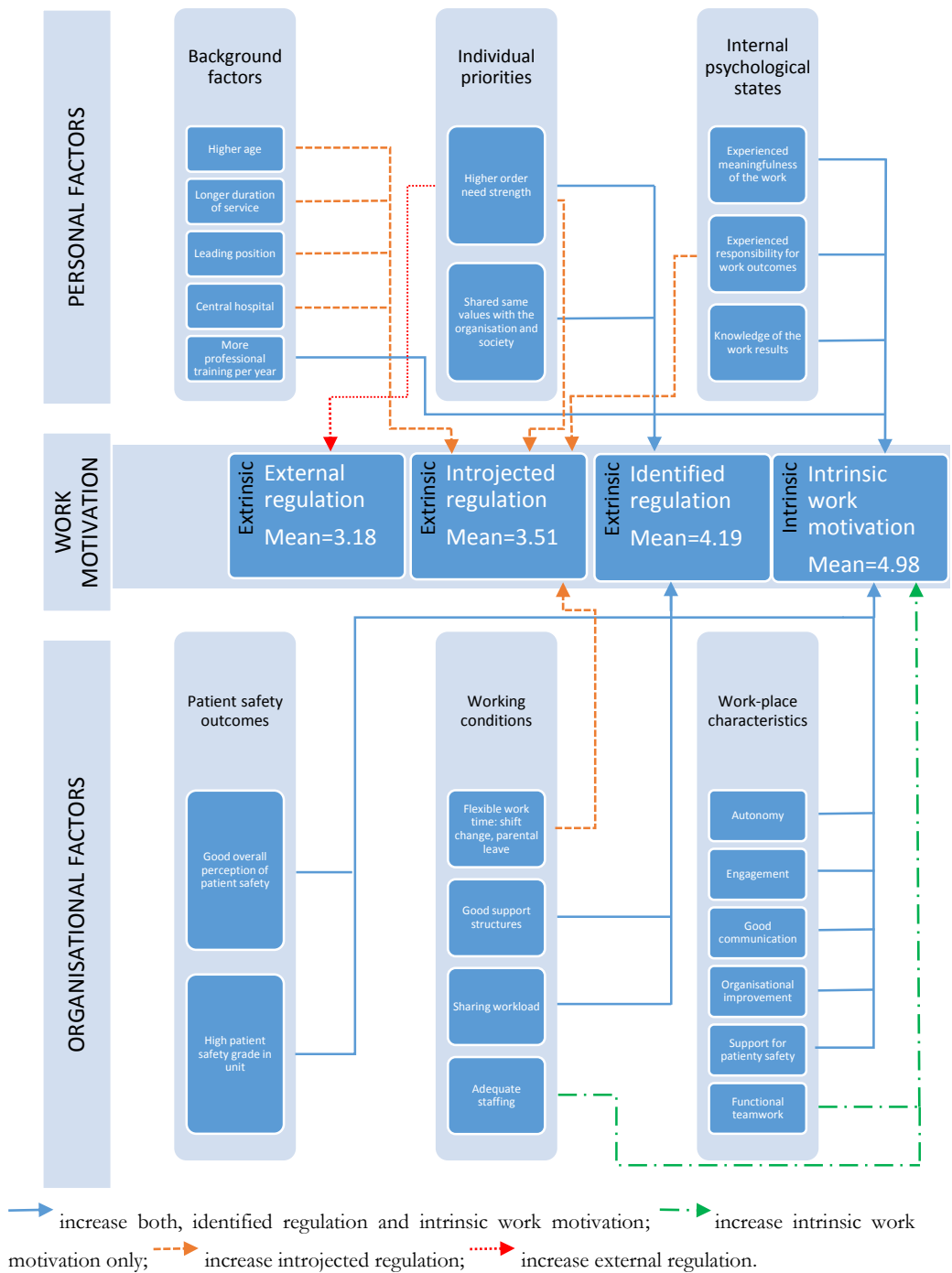


Figure 5. Description of hospital nurses' work motivation and the factors increasing it.

6 Discussion

6.1 Validity of the study

In **Phase 1**, the validity of the literature review was strengthened by following and reporting the precise strategy for searching, selecting, evaluating and analysing the literature according to the strict criteria of the qualitative study (Polit & Beck, 2008). The validity of the reviewed literature was evaluated using the checklists of study reports (STROBE and COREQ) as described in section 4.3. According to this evaluation, the articles included in the review were considered to be valid enough to report earlier study findings on nurses' work motivation. However, of all the reviewed studies, only half provided evidence about the validity and/or reliability of the measurement. In addition, combining and categorising the findings of these earlier studies was challenging because of the variability of the measurements used. To increase the process validity, the quotations of the original texts and statistics are listed and presented in the Article I, Table 1.

In **Phase 2**, a quantitative measurement using several instruments (mostly with precise scales) enabled the study to objectively obtain relatively precise information (Polit & Beck, 2008) about hospital nurses' work motivation and the factors affecting it in Estonia. All of the statistics are presented and/or cited within the text relate directly to the results of the research undertaken (Articles II-IV). For estimating the sample size requirements of the study, a power analysis was conducted, which ensured that the sample size was sufficient to obtain significant results (Polit & Beck, 2008). The relatively small sample size and low response rate limit the direct transferability of these results to the wider population before further empirical evidence can be obtained. Thus, the results may not be generalizable to all hospital nurses. However, this study serves to increase the evidence base from which we may understand hospital nurses' work motivation, and provides comprehensive information on what factors merit support and further investigation in order to develop effective motivational strategies for the nursing workforce.

Despite extensive recruitment across the country, a surprisingly small amount of nurses participated in the study. The reasons for non-participation were not investigated, and it is not known whether the level and/or the orientation of work

motivation of those nurses who did not answer could be different when compared with those nurses who participated. Thus, further studies are needed among the same population to gain information as to whether the hospital nurses' demotivation to participate in the work motivation study may also be related to a (de)motivation to work. Article II has provided some potential explanations for the low response rate, such as the large amount of specific questions and the relatively long questionnaire. Also, Estonian nurses are generally unused to participating in studies which require them to express their individual opinions and complete electronic questionnaires. Other authors have argued that people are not so responsive to online surveys, compared with paper-based surveys (Nulty, 2008; Shih & Fan, 2008). Therefore, for the future research, using paper-based survey instead may probably result with higher response rate. In addition, employing certain contact persons (e.g. head nurses of certain work unit) who personally hand out the questionnaires in smaller sampling groups may be more effective for recruiting nurses to participate.

The variability and reliability of the instruments used in the study serves to strengthen its outcomes. Obviously, no instruments can be error free, particularly those which use a self-reporting method and measure such psychological phenomena such as work motivation, internal psychological states and perceptions. To minimize possible errors of measurement, several strategies were undertaken to ascertain the greater extent of the validity of the study.

The validity of instruments was determined to a satisfactory extent (Polit & Beck, 2008) by: (1) administering instruments which had been previously psychometrically tested, (2) face-validity was established through the consultations with experts and hospital nurses, (3) content validity was established through comprehensive literature review, concept analysis of work motivation, and the expert panel, (4) criterion-related validity was established through the concurrent instrument of the intrinsic work motivation subscale.

All previously used instruments had evidence that supported their validity for use in different situations, and among different samples. However, concrete data about psychometric properties of these instruments has been insufficiently presented in the reviewed literature. Also, none of these had been used in the Estonian environment before, and one instrument (the Higher Order Need Strength Scale) had no available evidence to support its validity for nurses or health care workers in general. Therefore, a cross-cultural adaptation process met the rigorous set of requirements (Beaton et al., 2000) described in section 4.3. Cultural differences however, have to be taken into account when comparing the final results from Estonia with previous studies from other countries; particularly with regard to

concepts which may not currently be so deep-rooted in Estonian hospitals, such as patient safety or the systems for reporting adverse events.

For the content validity of the instruments, a literature review and analysis of the definitions and measurements of work motivation used in earlier studies was undertaken (Article I). In addition, a panel of five experts reviewed and amended the whole questionnaire, including all of the adapted and self-designed instruments until an overall agreement of satisfactory internal content validity was reached (Polit & Beck, 2008).

For evaluating the criterion-related validity of the instrument measuring intrinsic work motivation, the correlation between the scores of the concurrent instrument (the Intrinsic Work Motivation Scale) and the intrinsic work motivation subscale of the Motivation at Work Scale were calculated. The correlation coefficient rho was 0.45 ($p < 0.001$) which indicated that the instrument of intrinsic work motivation used in the study could be considered as a moderately valid predictor of this phenomena (Polit & Beck, 2008).

While the items in self-reported questionnaires may be differently understood by different persons (Polit & Beck, 2008), the questionnaire was pre-tested among general hospital nurses. Following this, changes were made in the wording of some questions and response instructions, so as to improve the clarity of the instruments. Also preliminary feedback was sought from those who participated in pilot study related to the domains and measurements of the study. According to their comments and the statistical and inferential analysis of their responses, some semantic changes were made. An external expert review made the following conclusions: Firstly, the scales used (Likert and non-Likert) from 1-5 or 1-7 and the choices of responses to the questions corresponded to the range of functions and variations of the variables. Secondly, the format and order of the questions had as minimal influence on responses as possible. Thirdly, the introductory accompanying letter for the participants and the anonymity of the questionnaire minimized the risk that situational contaminants could affect responses and cause any bias. The data collected during pretesting period were not included in the data of the study, in order to avoid any alteration in method or variation in the data collection process.

As most of the instruments involved summing item scores, the internal consistency of these subscales were evaluated using Cronbach's alpha as an index of their reliability (Polit & Beck, 2008). All instruments used in the study included both, subscales with higher reliability but also subscales with lower reliability. Based on these reliability coefficients (Tables 2-5), the evaluated subscales were deemed to be reliable enough to measure the true scores of the critical variables, with four

exceptions. Namely, the scales of *external regulation* (Table 2), *experienced meaningfulness of work*, *experienced responsibility for work outcomes*, and *knowledge of results* (Table 3), which had lower than 0.60 reliability, i.e. over 40% of the variability in their scores represented extraneous fluctuation rather than true individual difference (Polit & Beck, 2008). This have challenged the validity of the findings based on the data collected from these subscales with low reliability. When evaluating the items of these subscales, two most likely explanations for a low reliability coefficient emerged. With regard to the *external regulation* scale, the participants gave too similar responses to the question about their job allowing them to make **a lot** of money. While the salaries of most Estonian nurses are in-line with the national average wage (Brüscher et al., 2010), this is nowhere near to being considered as **a lot** of money in this country, therefore answers to this question could only have been strikingly similar and had no connection with the other items on the scale. Therefore an alteration of the highlighted expression should be carefully considered before further use of this scale. With regard to the remaining free subscales, an explanation of their low reliability coefficient may be that the same subscale comprised of questions from two different perspectives. In fact, all these three subscales asked both the individuals' opinions about themselves and also about others. While these items may not measure the same trait, the low interconnections between the items may have led to the lower Cronbach's alpha (Polit & Beck, 2008).

6.2 Discussion of findings

In this study, the majority of hospital nurses appeared to be motivated to work. Most of them were intrinsically motivated, whereas about half the respondents also reported external work motivation (Article II). Thus, there were nurses who had either intrinsic or extrinsic, and nurses who had both intrinsic and extrinsic reasons to be motivated to work. This is a logical finding. According to self-determination theory (Ryan & Deci, 2000), intrinsic work motivation occurs only for activities that are individually intrinsically interesting, challenging, and/or have aesthetic value. While qualitative and safe nursing practice in hospitals comprises of various tasks, it is unlikely that all of these can be found to be enjoyable to the same extent. In fact, it would go against human nature (Gagné & Deci, 2005; Ryan & Deci, 2000). Therefore, in everyday nursing practice, nurses have to deal with many tasks that are either highly or moderately interesting/enjoyable to them. Whereas, to complete some other tasks, they need to find and accept one or more external reasons that will

motivate them to do it. Thus, the findings of this study support the knowledge that both extrinsic and intrinsic work motivation should be taken into consideration, if the employer wants to know how to persistently motivate her/his employees (Gagné et al., 2010; Ryan & Deci, 2000). Regrettably, as revealed by the literature review (Article I), the studies of nurses' work motivation are prevalently focused on intrinsic motivation, and only a few studies (e.g. Battistelli et al., 2013; Engin & Cam, 2009; Van Beek et al., 2012) have also measured extrinsic work motivation. As a result, very little is known about the different orientations (extrinsic or intrinsic) of nurses' work motivation, or how more autonomous forms of extrinsic work motivation may be promoted in the management of the nursing workforce. The findings of this study provide a wider perspective on this and emphasize the importance of considering both the level (from low to high) and the orientation (intrinsic and extrinsic) of work motivation in the research and management of nursing practice (Article II).

According to findings about nurses' work motivation in terms of level (Figures 1-4), there were a relatively small amount of nurses who registered as either little, very little or not at all motivated by one or more reasons to work. Still, both the literature (Article I; Ryan & Deci, 2000) and the evidence-based knowledge of this study indicate that each nurse had to have some intention to work, i.e. they are all supposed to have been sufficiently motivated by at least one of the factors studied. The fact that only 4% of respondents had lower scores in at least one internal reason to work (Figure 1), and the minimum recorded score for intrinsic work motivation was 2 on a scale range of 1-7 (Article II, Table 3), minimizes the possibility that any nurses reported no work motivation at all. Therefore, even if there were nurses who answered that they were not at all intrinsically motivated to work, then they would most likely have reported to be more motivated by external reasons, and vice versa. In addition, the correlation coefficients indicated that the scores of intrinsic and extrinsic work motivation are slightly related, however these scores tend to move in the same direction (Article II, Table 4). This implies that there is a small possibility that the more a nurse was internally (or externally) motivated, the more likely they found also other reasons to be motivating.

Based on the study findings (Article II, Table 3), it can be concluded that within the study; whilst high intrinsic work motivation was the pervasive form of hospital nurses' work motivation, it was not the only one, as every second nurse was also moderately motivated by external reasons. Particularly, those external reasons which were more volitional (i.e. autonomous) and identified with the nurse themselves (e.g. the job fits to their personal values) were noted. According to self-determination theory (Ryan & Deci, 2000), the level of intrinsic and extrinsic work motivation, as

well as the levels of different types (or sub-areas) of external motivation depended on whether the individual is oriented to the work activity per se (i.e. intrinsic work motivation), or to the outcome of this activity (i.e. external motivation). The latter aspect can be totally controlled by someone else (e.g. via remuneration), be introjected (e.g. contribute to a perceived reputation), or be identified by the nurse themselves as having personal importance (e.g. it allows them to reach their own goals) (Gagné & Deci, 2005; Ryan & Deci, 2000). Thus, the overall high intrinsic and moderate extrinsic scores of nurses' work motivation revealed in this study (Article II, Table 3) demonstrate that the majority of hospital nurses enjoyed most of the work activities they did, and half of them found the individual outcomes of their activity to be a motivation for working. These findings are similar with those of earlier studies which used the same instrument for measuring hospital nurses' work motivation (Battistelli et al., 2013; Galletta et al., 2011). Van Beek et al. (2012) reported that their respondents had only a moderate intrinsic motivation and also had higher scores in one sub-area of extrinsic motivation (identified regulation), however, these results presented nurses' motivation together with that of physicians.

In accordance with previous research on nurses' work motivation (e.g. Battistelli et al., 2013; Galletta et al., 2011; Tummers et al., 2006a; Van den Berg et al., 2008), such positive findings about nurses' relatively high levels of intrinsic motivation was not a surprise. Less known however, was that a highly intrinsically motivated nurse may also have a relatively high level of extrinsic work motivation as well. The few earlier studies which reported the level of nurses' external work motivation also support the finding that external work motivation forms a considerable part of nurses' work motivation (Battistelli et al., 2013; Engin & Cam, 2009; Van Beek et al., 2012). Moreover, the findings also provided new knowledge that nurses' extrinsic work motivation is quite often associated with the same personal and organisational factors that influence their intrinsic work motivation (Articles II-IV).

Of the factors referred to in this and earlier studies: half of the background factors; all of the individual priorities, internal psychological states and work-place characteristics; most of the working conditions; and two of the patient safety outcomes were associated with hospital nurses' work motivation in Estonia (Articles II-IV). Thus, the results provide a depth of empirical evidence which supports the findings of previous research on the factors associated with nurses' work motivation (Article I). Gender and direct contact with the patient were not found to be associated with work motivation, which runs contrary to earlier research (e.g. Agency for Healthcare Research and Quality, 2004; Tummers et al., 2006b; Van den Berg et al., 2008). This is assumed to come from the fact that the respondents of this study

were too homogenous in these background features (Article II, Table 2). It was surprising that neither the level nor the orientation of female nurses' work motivation were affected by their gender difference in social roles, such as being a wife (i.e. marital status) and mother (i.e. number of children in the household) (Article II), which have been found to affect nurses' work motivation in previous studies (e.g. Engin & Cam, 2009; Bonsdorff, 2011; Lambrou et al., 2010; Razee et al., 2012).

Also, it was surprising to note that previous findings that a nurse's education (acquired in educational institution) affects their work motivation (Gaki et al., 2013; Hertting et al., 2004) were not supported by the study results. Rather, the professional learning and training obtained during hospital nurses' service appeared to increase their level of autonomous extrinsic and intrinsic motivation (Article II, Table 5). Other studies have also noted such an association, reporting that working experiences and learning opportunities in the work-place develop a nurse's competence, which in turn helps them to be more productive and experience more achievements at work (Ayyash & Aljeesh, 2011; De Cooman et al., 2008; Gulzar et al., 2010; Hoonakker et al., 2013; Peters et al., 2010; Rydenfält et al., 2012). While the preliminary preparation of nurse professionals had no effect on their motivation in this study (Article II), it can be concluded that either the education provided in nursing schools and universities does not sufficiently support nurses' work motivation and actual performance in nursing practice, or nurses who were already autonomously and intrinsically motivated were also more interested and active in the area of professional training. Therefore, further studies should investigate whether nurses' professional training predicts their work motivation or vice versa, and whether the association between these issues is mutual (as reported in the Article II, Table 5).

Hospital nurses who had a stronger need for achievements, growth and self-actualization (i.e. higher order need strength) had not only higher intrinsic work motivation but also significantly higher extrinsic motivation (Article III, Table 3). Based on the literature (Brady, 2008; Oldham & Hackman, 2010; Ryan & Deci, 2000; Warr, 2013), the findings regarding the intrinsic and autonomously self-directed form of extrinsic work motivation (i.e. identified regulation) are perhaps understandable, although higher order needs are considered to be more intrinsically influential. The results showing higher order need strength to be associated with all the forms of external work motivation (Article III, Table 3) was not expected, as nurses' extrinsic work motivation has been mainly associated with lower order needs for material and social benefits, as well as for their own well-being (Awosusi &

Jegade, 2011; Ayyash & Aljeesh, 2011; Gaki et al., 2013; Hoonakker et al., 2013; Kamanzi & Nkosi, 2011; Lambrou et al., 2010; Negussie, 2012). One possible explanation why Estonian nurses' high external and introjected regulation was associated with their higher order need strength may be the cultural distinctiveness of respondents. Many of them grew up when Estonia was one of the soviet countries, where higher autonomy and individual achievement was directly linked with higher material and social welfare. Also, the results which indicate older, more tenured nurses and those in the leading positions as being more externally motivated than their younger colleagues (Article II, Table 5), supports the assumption that older and more experienced nurses expect better benefits in return for their long duration of loyal service and hard-acquired achievements (Ayyash & Aljeesh, 2011; Bonsdorff, 2011; Gaki et al., 2013).

Although hospitals employ three different generations of nurses, it was reassuring to find out that a nurses' age probably has nothing to do with their interest in nursing work itself, as the internal motivation to work was as common among older hospital nurses as it was in their younger counterparts (Article II). However, the oldest generation of hospital nurses (Baby Boomers, 49 or more years old) were more motivated by external factors such as reputation and fear of failure, whilst their younger colleagues indicated only a little degree of such motivation (i.e. introjected regulation) (Table 6). Wieck et al. (2009) noticed that Baby Boomers demand more attention to be given to their ideas and contribution than does the Generation X group (33-48 years old), who are more self-reliant and enjoyment-seeking. Particularly less externally motivated were the youngest generation (Millennials, up to 32 years old) who had significantly stronger higher order needs and who shared more of the same values with their organisation and society (Table 6). Thus, compared with previous generations, it was logical that each newer generation of hospital nurses valued their individual growth and achievements more and more often found the organisation and society to support the same values as themselves. However, the study revealed that the longer a nurse worked in nursing and in their current unit, the less likely she/he felt that their job fitted with their personal values, career and life goals (Article II).

While the younger generation is the future of nursing, providing work-place characteristics which support the satisfaction of nurses' higher order needs becomes more and more essential, in order to attract and retain intrinsically motivated nurses in modern nursing practice. In addition, according to the study findings, all hospital nurses (regardless of age or duration of service) need sufficient levels of autonomy, engagement and open communication, in order to be more self-directed and

intrinsically motivated to work. This conclusion is based on the findings of this study as well as a number of earlier studies (e.g. Cai et al., 2011; Gaki et al., 2013; Galletta et al., 2011; Van Beek et al., 2012) – moreover, Galletta et al. (2011) found that those nurses' who had higher degrees of autonomy and were intrinsically motivated, felt a higher commitment with their organisation which in turn also lessened their intention to leave.

The higher external needs of older and more tenured nurses for public acknowledgement and respect should be continuously satisfied, considering that there are many such nurses working in the hospital setting. Also, we do not know what happens with those young and novice nurses who are intrinsically interested by work per se. It is always possible that some activities which start with intrinsic motivations, end up with extrinsic work motivation and vice versa, depending on personal experiences and performance outcomes (Ryan & Deci, 2000). As seen with the older and more tenured nurses in this study (Article II), in the future, the young nurses may also find themselves questioning whether their work is in keeping with their life goals, or perhaps feeling that they cannot allow themselves any mistakes when they become either middle-aged and highly experienced, or employed in a higher position. To avoid such 'fall-backs' in nurses' work motivation, according to self-determination theory (Ryan & Deci, 2000), it requires a permanent internalization that the work nurses do and the position they hold are valued by patients, colleagues and management. This would enable them to perceive themselves as being efficacious at work, and thus promote their work motivation to become more autonomous and intrinsic. As revealed in many international studies and also in the empirical research of this study, public acknowledgements are not enough, and such a perception can be only achieved through implementing several work-place characteristics and working conditions which support nurses' work activities and performance (Global Health Workforce Alliance, 2008; ICN, 2009; McPake et al., 2013). Also, prioritizing shared values with nurses and promoting their positive internal psychological states throughout the entire health care organisation is essential (Hackman & Oldham, 1980; Ryan J. C., 2011; Warr, 2013).

Whilst every third nurse in the study worked more than 40 hour per week in another healthcare institution (which is relatively common among the Estonian nurse population) (Article IV, Table 1), it was expected that these nurses worked a higher workload because they are more motivated by increased pay, i.e. they have a higher extrinsic work motivation than others. Although those nurses who worked at one hospital indicated a rather higher intrinsic motivation compared with those who worked at more than one healthcare institution (Article IV, Table 3), hospital nurses'

work motivation was not statistically significantly associated with their workload either in their current or other institution. In any future study in Estonia, the scale of extrinsic regulation of the work motivation instrument should be amended according to the suggestion made in section 6.1., in order to be more reliable for measuring the levels of extrinsic work motivation among Estonian nurses.

The findings that nurses who had better opportunities for flexible work and who experienced higher responsibility for their work outcomes had higher levels of introjected regulation (Article IV, Table 3) is an indication that there are a number of hospital nurses who work hard not because they have an internal interest, but rather because they are afraid to fail and lose the respect of those who have placed a lot of expectations on them. The same association was found with older and more experienced nurses, and with nurses working in the leading positions and/or in central hospitals (Article II). This is an indicator of too high a degree of external pressure being perceived from patients, colleagues, management, organisation and/or society (e.g. unrealistic expectations, demands without respective resources, deadlines, the use of rewards and punishments etc.), particularly when related to those hospital nurses with above listed background. Such a situation may lead to nurses' negativity, distress and their overall dissatisfaction (Gagné et al., 2010; Ryan & Deci, 2000), and as such, the hospital may lose a valuable workforce (Battistelli et al., 2013; Galletta et al., 2011; Wieck et al., 2009) because of having unrealistic standards and over-constraining regulations for nurses.

Only the most autonomous type of external work motivation (i.e. identified regulation) and intrinsic work motivation were associated with outcomes of nursing practice such as better perceptions of patient safety (Article IV, Table 5). In other words, a hospital nurse who recognized that her/his work fitted with personal values, career and life goals and who also did the work with joy, was more confident in her/his ability to achieve the best work outcomes. This finding supports the knowledge that nurses with solely autonomous and intrinsic work motivation are more likely to give the high-quality of performance expected by the employer, whilst nurses with more externally controlled work motivation may be considered to be oriented only by the individual outcomes (benefits) of the activities (Gagné et al., 2010; Ryan & Deci, 2000).

6.3 Conclusions

Firstly, the study provides a comprehensive summary of the international knowledge surrounding nurses' work motivation and the factors associated with it. Secondly, in a regional context, the study presents new information about the level and orientation of hospital nurses' work motivation, and about the personal and organisational factors affecting it. The empirical evidence of both the intrinsic and extrinsic work motivation of nurses and associated factors can be considered as the most enlightening contribution of this study to the knowledge base on nurses' work motivation.

According to the study results, nurses appeared to be more than moderately motivated to work. Their work motivation varied by level and orientation, and hospital nurses prevalently had strong intrinsic and/or moderate extrinsic reasons to work. The majority of hospital nurses were motivated to work because they enjoyed most of the work activities they undertook, and their work fitted with their higher order needs, individual values and goals. These nurses also had better experiences regarding their own work and achieved the best work outcomes in terms of patient safety and derived satisfaction. Their motivation was increased by several work-place characteristics and working conditions which supported nurses' autonomy, engagement and empowerment, and enabled them to gain self-actualization, individual achievements and better work outcomes.

Many hospital nurses also felt that external benefits like their reputation, the avoidance of failure, and maintaining a certain standard of living to be motivating reasons to work. Nurses from the older generation, who had a longer duration of service and/or a leading position were more likely to adopt this position.

6.4 Implications for nursing practice, management, education and research

To provide high-quality health care in nursing practice, nurses' work motivation needs to be systematically assessed, intentionally promoted and continuously supported during the duration of their service.

In nursing practice, it is essential for each nurse to personally understand that their own work motivation depends on their individual thoughts and cognitions about themselves, in the context of different work situations and environments. Thus, without defining one's own work-related expectations and priorities, it is not

possible to find the motivation to make a sustained effort to achieve desired outcomes. Even actions such as filling in a questionnaire such as that used in this study can per se be helpful to nurses' work motivation, because they have to take time for self-reflection and make multiple conscious judgements about what they have personally felt and experienced while working as a nurse in their current workplace. Also reading, listening and discussing the topic of nurses' work motivation (for example through the publications and public presentations of this study), can stimulate nurses to identify and evoke their own motivations to work. As a result, better nursing outcomes may be achieved which, in turn, give further motivation to practice in a more efficient way.

This study describes several helpful factors which should be implemented in the motivation strategies of nursing management in order to increase hospital nurses' work motivation. However, first and foremost, the management structure of the organisation and overall policy makers have to understand that only with nurses who are autonomously and intrinsically motivated, is it possible to attain the high standards of nursing which have been internationally adopted. Therefore, for achieving the goal of providing high-quality health care services in hospitals, it is essential for the management to know how to promote more autonomous forms of extrinsic motivation and how to support and sustain the intrinsic work motivation of hospital nurses. Unfortunately there is still too little evidence concerning the associations between nurses' work motivation and their performance (e.g. Awosusi & Jegede, 2011; Ayyash & Aljeesh, 2011; Moody & Pesut, 2006; Yldiz et al., 2009), and even less evidence about the associations between nurses' intrinsic work motivation and their perceptions of any particular outcomes of nursing practice (Moody & Pesut, 2006). Because of this, many policy makers and health organisations have failed to fully recognize how important nurses' work motivation is for the actual outcomes of the health care service they provide (Global Health Workforce Alliance, 2008; McPake et al., 2013).

By way of this thesis and the inclusive articles, it can be demonstrated to the decision makers in nursing, the information-based descriptions and explanations which may increase the understanding of the core of nurses' work motivation and the importance of adequate working incentives in nursing management. Stemming from the study findings, motivation strategies should be upgraded so that they offer increased support for nurses' autonomy and engagement, self-actualization, competence, professional development and individual achievements. Nurses and their profession must be publicly respected and clearly valued at all levels of the organisation. In addition, this study also revealed the direct associations of all of the

work-place characteristics investigated and some of the working conditions, with the perceptions of more than one outcome of patient safety (Article IV, Tables 4 and 5). This implies that the characteristics and conditions of the work-place also have an important impact on the outcomes of nursing practice.

In the field of nursing education, the knowledge deriving from this study can be instructive in two ways: Firstly, along with professional competence, aspects of nursing students' self-esteem and self-respect as a nurse and their ability for self-reflection and self-direction should be developed within the basic education programme of nurses. With these skills, a future nurse will be more confident, autonomous and self-directed in their nursing practice. Secondly, the comprehensive summary of the theoretical and empirical knowledge about nurses' work motivation provided in this thesis can be used as contemporary learning material in the graduate education programmes of nurse managers.

This study also provides suggestions for further research in the field of nurses' work motivation. More studies in the same population (preferably with a longitudinal design) are needed to enable generalisations of the study findings to wider populations. This is especially important, given that it was a first such study in nursing research which was designed to inclusively measure both extrinsic and intrinsic work motivation, along with several associated factors. The validation and reliability analysis of used instruments proved both helpful and valid for the research and evaluation of hospital nurses' work motivation, however alterations in the sampling and data collection should be considered for future studies. Paper-based survey in smaller groups using more personal recruitment strategies may thought be more effective to access Estonian nurses than electronic survey across the whole country. With regard to the associations found between nurses' work motivation and factors such as participating in professional training, patient safety outcomes, etc., additional analysis may be helpful in order to define the possible causes and effects in these relationships. In addition, the views of the managers and decision makers in hospitals and health care policy should also be investigated, in order to broaden the perspective of nurses' work motivation and its incentive systems. Interviewing and focus groups could provide suitable data collection methods, and follow the themes raised in the results of this study.

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Appendices

Appendix 1. Introductory accompanying letter for participants

Hospital nurses' work motivation and the factors affecting it

Dear Nurse,

The aim of this survey is to describe Estonian hospital nurses' work motivation and explain the associations between nurses' work motivation and the factors affecting it. This study is the part of a doctoral dissertation and is approved by the Estonian Research Ethics Committee of the University of Tartu.

All hospital nurses are invited to complete the questionnaire so we may gain as multifaceted range of information as possible – from different types of hospitals and units, and from nurses with different work experiences and views. If you have a nurse vocation (you are registered as a nurse in the health care workers register of the Health Board) and you are working in a hospital as a nurse, please answer the next 34 questions and express your views to about 98 statements on work motivation, internal psychological states, individual priorities, work-place characteristics and working conditions.

Answering is voluntary and takes about 25 minutes. Your answers help us to acquire valuable knowledge of a subject which has not been studied in Estonia. The results will be published internationally and the respondents' anonymity is guaranteed. In the questionnaire there are no questions that can identify either an individual or the hospital where the respondent works. The link to the survey is arranged so that no information can be obtained about the computer from where the answers were sent. Everything that you say will be available only to the researcher and the statistical assistant of this study, and not be made available to any other persons, institutions or organisations. The study results will be reported so that all nurses across Estonia are grouped together by their types of hospitals (not by institution), nursing specialties and positions.

The last day to answer is **May 31 2013**. If you need help or additional information write to my e-mail address uurimus@email.ee or call my mobile 56 333 765.

Doctoral student in health sciences Kristi Toode (MSc, University of Tampere). The study is supervised by professor Tarja Suominen (PhD, University of Tampere) and adjunct professor Pirkko Routasalo (PhD, University of Helsinki).

Appendix 2. Instruments designed for this study

Appendix 2 (1/4)

Instrument of background factors

1. What is your age in years?
2. What is your gender?
 - Female
 - Male
3. Which of the following best describes your status?
 - Living alone
 - Living with another
4. How many children live in your household? (number of children)
5. What is your highest level of education in your specialty or profession?

<input type="checkbox"/> Vocational diploma from medical school	<input type="checkbox"/> Bachelor's degree from university
<input type="checkbox"/> Applied higher education from health care college	<input type="checkbox"/> Master's degree from university
<input type="checkbox"/> Specialized Nursing Education from health care college	<input type="checkbox"/> Not in the list (Specify here)
6. During the last 12 months, how much professional training have you had?

<input type="checkbox"/> None	<input type="checkbox"/> 5 to 7 days
<input type="checkbox"/> 1 day	<input type="checkbox"/> 8 to 10 days
<input type="checkbox"/> 2 to 4 days	<input type="checkbox"/> 11 days or more
7. What type of hospital are you working in? If you are working in two hospitals please choose ONE of those and answer the following questions based on that work-place only. In case of hospitals with two separate licenses (Fertilitas, Tartu and Tallinna Vangla) please choose "Special hospital".
 - Regional hospital (Tallinna Lastehaigla, Tartu Ülikooli Kliinikum, Põhja-Eesti Regionaalhaigla)
 - Central hospital (Ida-Tallinna Keskhaigla, Ida-Viru Keskhaigla, Lääne-Tallinna Keskhaigla, Pärnu Haigla)
 - General hospital (Hiiumaa Haigla, Järvamaa Haigla, Kuressaare Haigla, Lõuna-Eesti Haigla, Läänemaa Haigla, Narva Haigla, Põlva Haigla, Rakvere Haigla, Rapla Maakonna Haigla, Valga Haigla, Viljandi Haigla)
 - Local hospital (Elva Haigla, Jõgeva Haigla, Kallavere Haigla, Kirde Kohalik Haigla, Tapa Haigla)
 - Special hospital (Ahtme Haigla, Clinica, Elite Kliinik, Fertilitas, Kõrva-Nina-Kurguhaiguste Kliinik, Ortopeedia Arstid, Taastava Kirurgia Kliinik, Tallinna Vangla, Tartu Vangla, Vismari Haigla)
 - Rehabilitation hospital (Haapsalu Neuroloogilise Rehabilitatsiooni Keskus, Keila Taastusravikeskus, Mustvee Tervis)

Appendix 2 (2/4)

- Nursing care hospital (Abja Haigla, Almeda Hooldushaigla, Alutaguse Hoolekeskus, EELK Tallinna Diakooniahaigla, Harku ja Murru Vangla, Hiiu Ravikeskus, Jõhvi Haigla, Jõhvi Hooldekeskus, Kilingi- Nõmme Tervise- ja Hoolduskeskus, Kiviõli Tervisekeskus, Koeru Hooldekeskus, Kärü Hooldusravikeskus, Lõhavere Ravi- ja Hooldekeskus, Lõuna-Läänemaa Tervishoiu ja Sotsiaalhoolekande Keskus, Mustvee Tervis, Märjamaa Haigla, Otepää Tervisekeskus, Peipsiveere Hooldusravikeskus, Pjv Hooldusravi, Põltsamaa Tervis, Pärnu-Jaagupi Hoolduskodu, Rõngu Hooldusravikeskus, Rāpina Haigla, Sillamäe Haigla, Sillamäe Hooldushaigla, Tõrva Haigla, Villa Benita, Viru Vangla, Võnnu Haigla, Väandra Tervisekeskus)
8. What is your primary work area or unit in this hospital? Choose ONE of those and answer to the next questions based on that unit/work-place only.
- | | |
|---|---|
| <input type="checkbox"/> Many different hospital units/No specific unit | <input type="checkbox"/> Psychiatry/mental health |
| <input type="checkbox"/> Medicine (general) | <input type="checkbox"/> Rehabilitation |
| <input type="checkbox"/> Surgery | <input type="checkbox"/> Nursing care |
| <input type="checkbox"/> Obstetrics | <input type="checkbox"/> Laboratory |
| <input type="checkbox"/> Pediatrics | <input type="checkbox"/> Radiology |
| <input type="checkbox"/> Emergency department | <input type="checkbox"/> Anesthesiology |
| <input type="checkbox"/> Intensive care unit (any type) | <input type="checkbox"/> Other (Specify here) |
9. What is your staff position in this hospital? You can select MANY answers, however, you should answer the next questions based on one/ main position in this hospital only.
- Anesthetic or Intensive care nurse
 - Operating room nurse
 - Head nurse (in the level of organisation, clinic/center or unit)
 - Nurse (including all nurse positions not listed above)
10. How many years have you been working in your current specialty?
11. How many years have you been working in current hospital?
12. How many years have you been working in your current work area/unit?
13. What type of care are you providing in your work unit?
- Inpatient care
 - Outpatient care
 - Both inpatient and outpatient care
14. In your position, do you typically have direct interaction/ contact with patients?
- YES, I typically have direct interaction or contact with patients.
 - NO, I typically do NOT have direct interaction or contact with patients.

Instrument of shared values

Please indicate your agreement or disagreement with the following statements about your current work?

	Strongly Disagree ▼	Disagree ▼	Slightly Disagree ▼	Neither Agree nor Disagree ▼	Slightly Agree ▼	Agree ▼	Strongly Agree ▼
I share the values and beliefs of this hospital	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Managers here are understanding about employees having to meet family responsibilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
People working here are encouraged to develop themselves	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am proud to tell people what specialty or profession I'm working in	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am proud to tell people what institution I'm working at	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Instrument of individual influence on work

In general, how much influence do you have on the following at your work unit?

	None ▼	A Little ▼	Moderate ▼	Considerable ▼	Total ▼
Influence what tasks you do	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Influence the intensity (pace) at which you work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Influence on how to do your work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Working conditions instrument

- Typically, how many HOURS PER WEEK do you work in this hospital? If you work different hours each week, think about how much it is on average.
.....
- Typically, how many hours per week do you work in other institutions of healthcare? If you have no second job in healthcare then please mark "0" here..... (hours per week)
- What kind of working schedule do you have in your staff position? If you work in many positions and/or hospitals, answer based on the one you chose at the beginning of this questionnaire.
 - Day work with regular working hours (fixed schedule)
 - Shift work without nights
 - Rotating day and nights shifts
 - Only night shifts
- If you personally needed any of these opportunities, which would be available at this work-place? You can select MANY answers.

<ul style="list-style-type: none"> <input type="checkbox"/> Flexible working hours <input type="checkbox"/> Share the workload or shift to some-one else <input type="checkbox"/> Change your shift with some-one else <input type="checkbox"/> Parental leave 	<ul style="list-style-type: none"> <input type="checkbox"/> Nursery at work-place or the compensation of it <input type="checkbox"/> Work at or from home in normal working hours <input type="checkbox"/> Plan your working schedule on your own (pick suitable date, time etc.) <input type="checkbox"/> None of these
--	--

Original publications



Review

Work motivation of nurses: A literature review

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ABSTRACT

Objectives: The aim of this review is to describe nurses' work motivation from the perspective of staff nurses. This information would be useful for the development of motivation strategies and further research into nurses' work motivation.

Design: A thorough review of the research literature.

Data sources: The literature search was performed using four databases: CINAHL, PubMed, PsychINFO, and SocINDEX. Only studies that met the following criteria were selected for review: (1) were published between 1990 and 2009, (2) were written in English, (3) dealt with work motivation, (4) concerned working staff nurses, (5) involved empirical research, (6) clearly and explicitly provided the research results about the factors affecting nurses' work motivation. Altogether 24 studies met these criteria and were included in this review.

Review methods: Inductive content analysis was carried out to analyse and categorise the data.

Results: Nursing research has neither clear understanding nor consensus about the concept of work motivation; nor has a universal definition been adopted. Despite limited empirical evidence it may be concluded that staff nurses appear to be motivated. Five categories of factors affecting their work motivation were identified: (1) work-place characteristics, (2) working conditions, (3) personal characteristics, (4) individual priorities, and (5) internal psychological states.

Conclusions: Further research is needed to gain a more comprehensive insight into nurses' work motivation and the factors affecting it. This can be achieved by defining the concept of work motivation as precisely as possible, working out a pertinent research methodology, and subsequently developing and testing a theoretical model of nurses' work motivation.

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What is already known about the topic?

- Work motivation is an extremely relevant factor which influences the quality and content of work-related outcomes in healthcare. However, a comprehensive understanding of nurses' work motivation as a response

to the increasing demands and challenges in healthcare is still missing.

What this paper adds

- This article shows that empirical evidence of nurses' work motivation is fragmented and insufficient.
- The review identifies five categories in describing the factors affecting nurses' work motivation.
- This article also questions the theoretical and methodological approaches to work motivation found within

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the literature on nursing and outlines where researchers should proceed from here.

1. Introduction

The question about employee motivation has played a central role in management practice and theory since 20th century. The “golden age” of work motivation theories and researches began in the mid-1960s (Steers et al., 2004). Nevertheless, before the 1990s, this topic got little coverage in nursing literature. The question about nurses’ motivation rose to prominence in the 1970s by Meir (1972) and McCloskey (1974) with their interest in predicting nurses’ persistence at work and remaining on the job. The two abovementioned studies were based on the assumption first developed in the 1950s by Maslow (1970) and developed further by many theorists (Hackman and Oldham, 1975; Herzberg et al., 1967; etc.) that people have certain needs and their goal is to satisfy those needs. While taking into account a person’s needs, further studies on nurses’ work motivation concentrated mainly on the importance of creating a job environment that would facilitate self-motivation (based on Herzberg’s job enrichment theory, and Hackman and Oldham’s job characteristics theory), and devising motivational strategies that would directly increase or decrease a nurse’s productivity (e.g. Baird, 1987; Burke et al., 1982).

At the beginning of the 21st century, the framework of contemporary work motivation research integrates all the theories addressing the needs, personality, values, cognition, affect, the environment, and behaviour (Latham and Ernst, 2006). In the pertaining literature, motivation has been variously defined. Using Hind’s criteria for concept clarity, Moody and Pesut (2006, p. 17) proposed the following successful definition for motivation, to which the authors of this article also subscribe: “Motivation is a values-based, psycho-biologically stimulus-driven inner urge that activates and guides human behaviour in response to self, other, and environment, supporting intrinsic satisfaction and leading to the intentional fulfilment of basic human drives, perceived needs, and desired goals”. While nurses’ work motivation has proven to be important for their intent to work (Brewer et al., 2009) and job satisfaction (e.g. Blegen, 1993; De Loach and Monroe, 2004; Freeman and O’Brien-Pallas, 1998), detection of the factors that increase and decrease the motivation levels of nurses is considered to be useful as a means of preventing their dissatisfaction and burnout (Engin and Cam, 2009), or intention to quit nursing (Yildiz et al., 2009). Moreover, a motivated and satisfied nurse has probably greater readiness to take care of patients and collaborate, and thereby provide a better healthcare service. Motivated nurses have reported stronger behavioural, verbal and outcome empowerment than unmotivated nurses (Suominen et al., 2001), whereas low work motivation and job satisfaction, on the contrary, have led to a decrease in both service quality and patients’ intention to return for future care as well as to an increase in the cost of patient care (Yildiz et al., 2009).

Improvement of personnel performance forms the core of high quality healthcare. However, the rate of recent

changes has tested the motivation of all healthcare workers who would rather spend their energy on supporting the *status quo* (Melia, 2006) or on looking for another job (Yildiz et al., 2009). In order to ensure evidence-based continuity, content and quality of practice, several nurse managers and researchers have been looking for a comprehensive model or theory of work motivation for instant use (e.g. Benson and Dundis, 2003; Cubbon, 2000; Moody and Pesut, 2006). However, comprehensive guidelines for developing and sustaining a motivated workforce are still missing. By identifying current empirical evidence and using the information about work motivation as well as the driving and restraining forces that either promote or impede nurses’ work motivation, it may be easier to develop motivation strategies and to identify areas for future research.

2. Aim and objectives

The current literature review aims to describe nurses’ work motivation from the perspective of staff nurses. The authors seek to provide comprehensive information about available empirical evidence in order to facilitate the development of motivation strategies and conduct of future research into nurses’ work motivation.

The review focused on the following questions:

- How has the concept of work motivation been defined in the studies researching staff nurses’ work motivation?
- How motivated are staff nurses?
- What factors affect staff nurses’ work motivation?

3. Methods

3.1. Criteria for inclusion

A thorough search was conducted, selecting articles for inclusion on the basis of the following criteria: (1) published between January 1990 and May 2009, (2) written in English, (3) the topic related to work motivation, (4) the study concerning working staff nurses, (5) the study involving empirical research, (6) the study clearly and explicitly providing the research results about the factors affecting nurses’ work motivation.

3.2. Search methods

A literature search was undertaken using the CINAHL, PubMed, Psych INFO and SocINDEX databases. The search was conducted in May 2009 in all the aforementioned databases simultaneously, using the combined keywords *nurs* AND work AND motiv** together. Due to the complexity of the relevant topic (earlier tests have shown that many relevant sources were not retrieved in searches narrowing the search criteria); no limitations were set while conducting the search in the electronic databases.

3.3. Retrieval of the studies for analysis

The search gave 1988 hits: 1564 from CINAHL, 25 from PubMed, 270 from PsychINFO, and 129 from SocINDEX.

After excluding duplicates, a total of 1783 citations were identified and retrieved for a more detailed evaluation. Following a thorough selection process (Fig. 1), altogether 24 publications of the studies were accepted. These 24 studies are summarised in Table 1.

3.4. Analysis of the studies retrieved

Inductive content analysis (White and Marsh, 2006) was used to analyse the data. Firstly, the full texts of the final eligible studies were read to identify the data in line with the objectives of the review. Secondly, the identified data were listed in the working sheet. Thirdly, a list of factors affecting nurses' work motivation was coded and categorised. The categories were formed by grouping together similar topics and content areas. The categories were formed and named on the basis of the content of listed factors as well as the researchers' explanations or definitions of the variables used in the studies reviewed. As a result, five categories of factors affecting work motivation were identified: (1) work-place characteristics, (2) working conditions, (3) personal characteristics, (4) individual priorities, and (5) internal psychological states (Section 4.3).

3.5. Characteristics of the studies reviewed

3.5.1. Methods used by the studies reviewed

The majority of studies had a quantitative cross-sectional design ($N = 17$, 71%). To explore the relationship between different variables and work motivation, or to test the theoretical model, most commonly a self-administered questionnaire was employed ($N = 21$, 88%). Three qualitative studies explored job motives via semi-structured interviews with thematic interview schedules (Hertting et al., 2004; Mackintosh, 2007; Reutter and Northcott, 1993) (Table 1).

Nineteen studies measured the level of nurses' work motivation by means of various instruments (Table 1). Some researchers merely asked the respondents to report whether they were motivated or not (Camerino et al., 2008; Leino-Kilpi et al., 2002), or describe how interesting, stimulating, and challenging their work was (De Jonge et al., 1999). In nine studies, work motivation was measured by means of a six-item Intrinsic Work Motivation Scale (ranging from 1 = totally disagree to 5 = totally agree) developed by Warr et al. (1979) in which the items expressed personal feelings about one's job. In three studies (Edgar, 1999; Jamal and Baba, 1997; McCloskey, 1990), the intrinsic work motivation was measured by means of an expanded or shortened version of the Job Diagnostic Survey (JDS), which measures the variables in the Job Characteristics Model (JCM) (Hackman and Oldham, 1974). The questions were answered on a 7-point scale (1 indicating low and 7 high work motivation). The instrument consists of six items, four of which express personal feelings about one's job and two the feelings of other people holding the same job (Hackman and Oldham, 1974).

The findings about work motivation and the factors affecting it are mainly based on the results of descriptive

statistics (i.e. frequency, mean, standard deviation) and correlation. Also, to test the proposed relationships between the variables, regression analysis (e.g. Tummers et al., 2002a, 2003, 2006b) and structural equations modelling (e.g. Tummers et al., 2002b, 2006a; Van den Berg et al., 2006) were used. In qualitative studies, content analysis was used (Hertting et al., 2004; Mackintosh, 2007; Reutter and Northcott, 1993).

3.5.2. Context of and participants in the studies reviewed

As some researchers have used the same data in several studies (e.g. Tummers et al., 2006a,b; Van den Berg et al., 2008), the original sample size was taken into account only once when calculating the total sample size of nurses who's work motivation has been studied. According to this, the results of the reviewed studies are based on the data of 16,073 staff nurses employed either by different hospitals (i.e. general hospitals, acute care hospitals, and psychiatric hospitals), or by nursing homes and home healthcare services in 13 countries. Among this, the data are available on about 14,577 staff nurses' work motivation level. The majority of studies involved ($N = 19$, 79%) represented nurses from the European countries, particularly from the Netherlands ($N = 10$) and Finland ($N = 4$) (Table 1).

3.5.3. Validity of the studies reviewed

Many questionnaire surveys used internal consistency reliability (Cronbach's alpha) ($N = 14$, 67%) (e.g. Berkhout et al., 2004; De Cooman et al., 2008; De Jonge et al., 1999). Also, factor analyses (De Cooman et al., 2008; Leino-Kilpi et al., 2002; McCloskey, 1990), test-retest (Tummers et al., 2006a) and content validity (pilot study) (Edgar, 1999; Koivula et al., 1998; Leino-Kilpi et al., 2002) were reported. Half of the reviewed studies ($N = 12$) reported the reliability (Cronbach's alpha) of the work motivation instrument used, while others reported the validity and reliability of the instrument measuring other variables related to motivation, or used qualitative methods (Hertting et al., 2004; Mackintosh, 2007; Reutter and Northcott, 1993). The qualitative studies, in order to verify previously obtained information, used continuous short summaries made by the interviewer (Hertting et al., 2004), or additional interviews (Reutter and Northcott, 1993). The analysis of data was confirmed by an independent co-examiner in one qualitative study (Hertting et al., 2004). The majority of the studies included a discussion about study limitations or methodological considerations in general. However, none of the reviewed studies viewed the validity of the measurement of work motivation as a limitation.

4. Findings

4.1. Defining work motivation

As a theoretical background of work motivation, Hackman and Oldham's (1975) Job Characteristics Model and "the job modification framework", often combined with Karasek's Demand-Control-Support Model dominated 11 studies (e.g. De Jonge et al., 1999; Tummers et al., 2002b; Van den Berg et al., 2008). Most of the

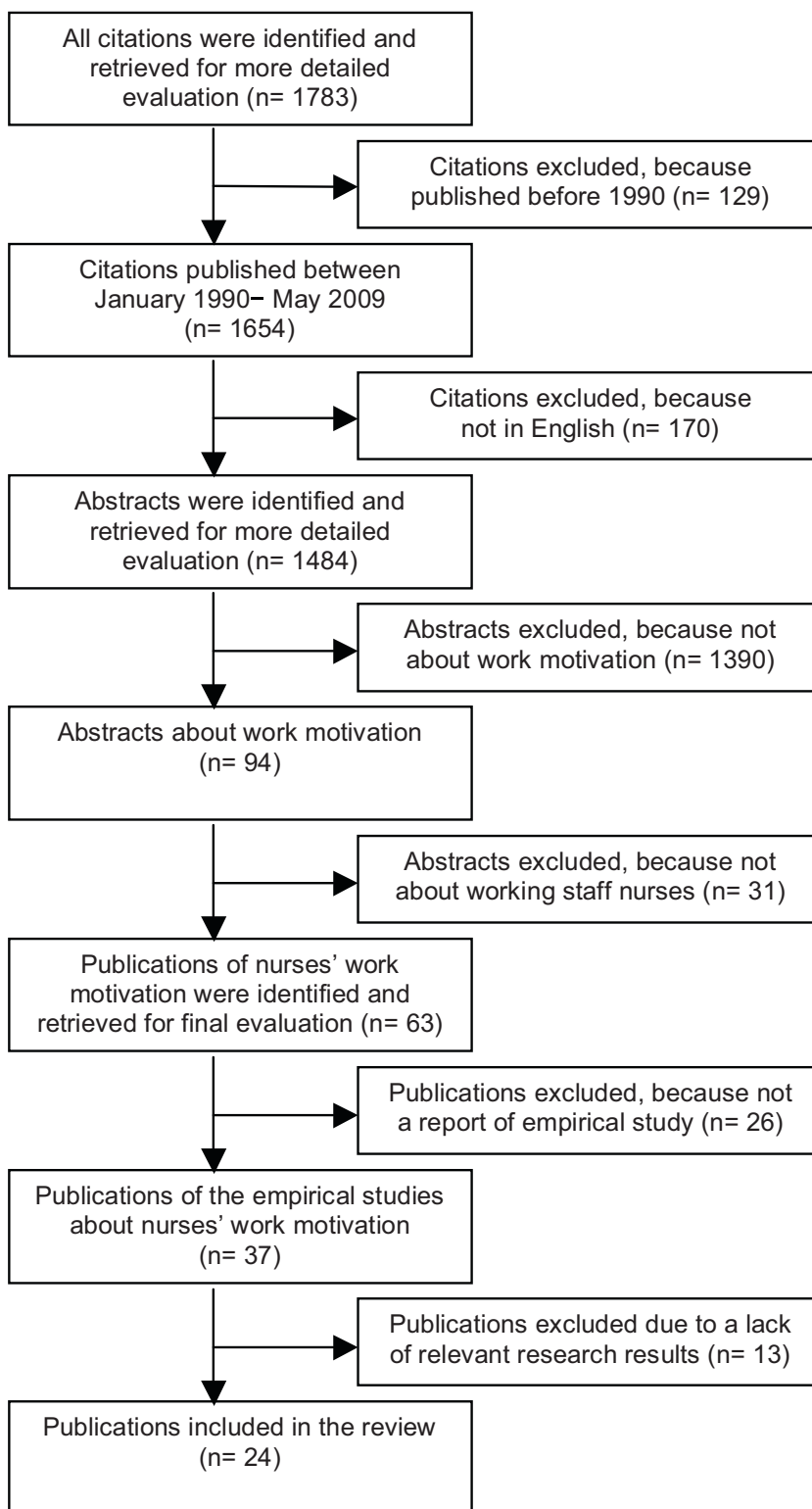


Fig. 1. The flow diagram illustrating the selection of publications.

Table 1
Summary of studies researching staff nurses' work motivation.

Author(s), country	Sample	Study design, method	Definition of work motivation	Level of work motivation	Factors affecting work motivation
McCloskey (1990), U.S.A.	N = 189 (at 6 months), N = 138 (at 12 months) hospital nurses (different units)	Quantitative, longitudinal, using short version of the Job Diagnostic Survey	Not defined	Scale range 1–7: at 6 months mean = 5.82–6.28, at 12 months mean = 6.01–6.47	Nurses with <i>low autonomy</i> and <i>low social integration</i> had less work motivation (mean = 5.82) as compared with those who had <i>high autonomy</i> and <i>high social integration</i> (mean = 6.28) ($F = 4.48, p = .005$)
Reutter and Northcott (1993), Canada	N = 13 hospital nurses	Qualitative, using thematic interview schedules	Not defined	Not measured	<i>Attaining a sense of meaning</i> led to reappraisal of the risk as worthy of investment and provided the motivation to care for patient in spite of risk
Kivimäki et al. (1995), Finland	N = 113 hospital nurses (surgical units)	Quantitative, cross- sectional, using three- item questionnaire	Not defined	Scale range 1–5: mean = 4.42, SD = .62	Work motivation at the primary nursing wards (with <i>higher task variety</i>) was higher than at the functional nursing wards ($F = 6.16; p < .01$). The <i>age</i> and <i>task tenure</i> had no significant correlations with work motivation (Pearson's $r = .01, r = .08$, respectively)
Jamal and Baba (1997), Canada	N = 175 hospital nurses	Quantitative, cross- sectional, using short version of the Job Diagnostic Survey	Not defined	Scale range 7–49: mean = 35.3, SD = 6.5	Means of intrinsic work motivation by <i>shift type</i> : fixed day shift mean = 37.36; rotating shift mean = 33.72; fixed evening shift mean = 33.24; fixed night shifts mean = 30.82. Differences between the day and evening shifts ($t = 3.12; p < .05$), day and night shift ($t = 3.99; p < .05$), day and rotational shift ($t = 2.75; p < .05$). Correlation between motivation and skill use ($r = -.52; p < .05$)
Raatikainen (1997), Finland	N = 179 hospital nurses	Quantitative, cross- sectional, using questionnaire	Not defined	Not reported	A greater proportion (%) of the nurses who <i>experienced a calling</i> , as compared with those who did not, agreed with the motivation statements ($\chi^2 = 5.73-20.23, p < .05$)
Koivula et al. (1998), Finland	N = 723 hospital nurses (different units)	Quantitative, initial measurement of a 2- year follow-up study, using questionnaire	Performance motivation is a desire to do one's work well, desire to succeed in work and desire to help the team in reaching goals	Scale range 12–30: mean = 27.4–28.2, SD = 1.6–2.1	Nurses <i>under 30 years of age</i> had higher motivation than older nurses ($p = .01$). Nurses with <i>higher college level qualification</i> had higher motivation than nurses with school level education ($p = .01$). <i>Day workers</i> had higher motivation than <i>shift workers</i> ($p = .02$). Relations between work motivation and <i>exhaustion</i> ($r = -.47; p = .00$), <i>team spirit on the ward</i> ($r = .34; p = .00$); <i>functional prerequisites</i> ($r = .27; p = .00$)
De Jonge et al. (1999), The Netherlands	N = 895 hospital and nursing home nurses (different units)	Quantitative, cross- sectional, using questionnaire	Intrinsic work motivation occurs in situations where both job demand and worker's control are high	Scale range 1–5: mean = 3.80, SD = .68	<i>Aggregated job demands</i> have negative relationship with work motivation ($\beta = -.31, p < .05$). Job demands and work motivation are positively related at high levels of autonomy; demands and motivation are negatively associated in the case of <i>low levels of autonomy</i> (graphical representation of the regression equations)
Edgar (1999), U.S.A.	N = 159 hospital nurses (medical and surgical units)	Quantitative, cross- sectional, using the Job Diagnostic Survey	Internal work motivation is the degree to which an individual experiences positive internal feelings when performing effectively on the job	Scale range 1–7: mean = 5.7, SD = .1	Correlations between work motivation and the internal psychological states: <i>experienced meaningfulness of the work</i> ($r = .264; p < .05$), <i>experienced responsibility for outcomes of the work</i> ($r = .328; p < .01$), <i>knowledge of the actual results of the work</i> ($r = .333; p < .01$). No significant correlations between work motivation and <i>nursing model</i> (primary or functional) ($r = .05$), <i>feedback from agents</i> ($r = .02$), <i>actual time on non-patient tasks</i> ($r = .1$), <i>actual time on patient tasks</i> ($r = .01$), <i>satisfaction with support of autonomy</i> ($r = -.2$), <i>satisfaction with exchanging information</i> ($r = .06$), <i>satisfaction with interpersonal relationships</i> ($r = -.01$)

Janssen et al. (1999), The Netherlands	N = 156 hospital nurses	Quantitative, cross-sectional, using the Intrinsic Work Motivation Scale	Intrinsic work motivation is the degree to which a person wants to work well in his or her job, in order to achieve intrinsic satisfaction	Scale range 1–5: mean = 4.02, SD = .47	Work motivation is determined by the elements of job, such as: <i>skill variety, autonomy, social contacts and opportunities to learn</i> . Hypothesized relationship between job content and work motivation is significant and in the predicted direction ($\gamma = .28$)
Leino-Kilpi et al. (2002), Finland	N = 806 hospital nurses (IC units)	Quantitative, cross-sectional, using single-item question	Not defined	Out of 806 nurses 753 answered 'Yes', 53 'No' to the motivation question	Statistically significant associations between <i>Ethics Environment Questionnaire (EEQ) scores</i> and work motivation: mean EEQ score of motivated respondents = 2.86 (SD = .50) and mean EEQ score of not motivated respondents = 2.68 (SD = .47) ($p = .012$)
Tummers et al. (2002a), The Netherlands	N = 1204 hospital nurses	Quantitative, cross-sectional, using the Intrinsic Work Motivation Scale	Intrinsic work motivation exist when esteem, feelings of growth, and competence are tied to performance	Scale range 1–5: mean = 3.98, SD = .47	High intrinsic motivation was predicted by <i>decision authority</i> ($\beta = .12$; $p < .05$); <i>high social support</i> ($\beta = .11$; $p < .05$) and <i>high workload</i> ($\beta = .07$; $p < .05$). Relations between work motivation and <i>age</i> ($\beta = .08$; $p < .05$)
Tummers et al. (2002b), The Netherlands	N = 384 hospital nurses (IC and non-IC units)	Quantitative, cross-sectional, using the Intrinsic Work Motivation Scale	Not defined	Scale range 1–5: in ICU mean = 3.87, SD = .43; in non-ICU mean = 4.0, SD = .51	<i>Decision authority</i> predicted intrinsic work motivation in both samples. ($\beta = .18$). <i>ICU nurses and non-ICU nurses</i> did not differ significantly as to intrinsic work motivation ($F = 3.80$)
Tummers et al. (2003), The Netherlands	N = 1111 hospital nurses	Quantitative, cross-sectional, multilevel study, using the Intrinsic Work Motivation Scale	Not defined	Not reported	High intrinsic work motivation was predicted by <i>high individual-level decision authority</i> ($\beta = .12$; SE = .03); <i>high environmental uncertainty</i> ($\beta = .06$; SE = .03), <i>high individual-level social support</i> ($\beta = .15$; SE = .05)
Berkhout et al. (2004), The Netherlands	N = 145 nursing home nurses	Quasi-experimental, pre- and post-tests control group design, using the Intrinsic Work Motivation Scale	Intrinsic work motivation is the degree to which a person wants to work well in his or her job in order to achieve intrinsic satisfaction	Scale range 1–5: pre-test mean = 3.98, SD = .44; mean = 4.04, SD = .44; post-test 2 mean = 3.95, SD = .48, mean = 4.01, SD = .51	Post-test 2 differences on intrinsic work motivation between experimental group (with <i>resident oriented care intervention</i>) and control group were not significant ($\beta = -.030$, $t = -.433$; $p = .333$)
Hertting et al. (2004), Sweden	N = 14 hospital nurses	Qualitative, using thematic interview schedules	Not defined	Not measured	Main dimensions of motivators: <i>a meaningful and varying patient- and team-oriented job; being an equally valued health professional in a comprehensive work team; professional growth through knowledge-sharing between nurses and doctors, and through supervision; a sensitive leadership that promotes collaboration; potential job promotion, and rewards; individualized considerations because of psychosocial health conditions; having a consciously formulated care philosophy; professional assertiveness based on nursing practice; meeting one's own need, and having control over use of time; readiness to reflect, discuss and work things through; faith in the future of nursing as a valued career in healthcare</i>
Bhattacharya and Neogi (2006), India	N = 28 hospital nurses	Quantitative, cross-sectional, using the Motivation Feedback Questionnaire	Not defined	Scale range +12 to -12: mean = 7.10–9.21, SD = 1.54–3.25	No significant difference between two groups whose <i>duration of service</i> is above and below one year in terms of five needs under work motivation ($t = .34$ –1.98)
Öztürk et al. (2006), Turkey	N = 250 hospital nurses	Quantitative, cross-sectional, using questionnaire based on Hackman and Oldham	Not defined	Not measured	The motivators: <i>finding their work meaningful</i> (50.4% of nurses), <i>promotions that reflect performance</i> (50%), <i>appropriate pay raises and rewards</i> (46.8%), <i>feeling a sense of achievement at work</i> (41.6%), <i>subjective elements of nursing, workplace culture</i>
Tummers et al. (2006a), The Netherlands	N = 211 hospital nurses	Quantitative, longitudinal, using the Intrinsic Work Motivation Scale	Not defined	Scale range 1–5: mean = 3.97, SD = .41	Intrinsic work motivation was predicted by <i>decision authority</i> (at Time 1 $\beta = .12$; at Time 2 $\beta = .10$) and <i>environmental uncertainty</i> at Time 1 ($\beta = .12$)

Table 1 (Continued)

Author(s), country	Sample	Study design, method	Definition of work motivation	Level of work motivation	Factors affecting work motivation
Tummers et al. (2006b), The Netherlands	N = 1111 hospital nurses (IC and non-IC units)	Quantitative, cross-sectional, using the Intrinsic Work Motivation Scale	Intrinsic work motivation is an individual's willingness to exert effort to achieve the organization's goals, conditioned by this effect's ability to satisfy individual needs	Scale range 1–5: in ICU mean = 3.87, SD = .43; in non-ICU mean = 3.99, SD = .47	Intrinsic work motivation was predicted by <i>decision authority</i> (in ICUs $\beta = .14$; $p < .05$, non-ICUs $\beta = .12$; $p < .001$) and <i>high environmental uncertainty</i> (only in non-ICUs $\beta = .09$; $p < .01$). High environmental uncertainty enhances the positive effect of decision authority on work motivation in ICUs ($\beta = .19$; $p < .01$). Relation between work motivation and <i>age</i> in non-ICUs ($\beta = .11$; $p < .001$)
Van den Berg et al. (2006), The Netherlands	N = 2262 hospital and nursing home nurses	Quantitative, cross-sectional, using the Intrinsic Work Motivation Scale	Not defined	Scale range 1–5: in hospital mean = 3.98, SD = .47; in nursing home mean = 3.99, SD = .49	Intrinsic motivation did not significantly differ between both settings ($F = .17$). Intrinsic motivation was predicted by <i>high decision authority</i> in hospitals ($\beta = .11$; $p \leq .001$), <i>high environmental uncertainty</i> in nursing home ($\beta = .11$; $p \leq .001$) and <i>high workload</i> in both samples (hospital $\beta = .12$; $p \leq .001$, nursing home $\beta = .11$; $p \leq .001$). Relations between work motivation and <i>age</i> (hospital $\beta = .10$; $p \leq .001$, nursing home $\beta = .15$; $p \leq .001$)
Mackintosh (2007), U.K.	N = 16 hospital nurses (IC and surgical units)	Qualitative, using thematic interview schedules	Not defined	Not measured	<i>The faster pace, more technical procedures and quicker patient turnover</i> in surgical environment were identified as key motivating factors
Camerino et al. (2008), Italy	N = 7425 hospital nurses	Quantitative, international, longitudinal, using single-item question	Not defined	Scale range 1–5: mean = 3.9, SD = 1.1	Work motivation were the highest in <i>permanent night shift workers</i> and the lowest in <i>rotating shift, that included night shifts</i> : day work mean = 4.0 (SD = 1.04); shift work without nights mean = 4.0 (SD = 1.03); shift work with nights mean = 3.8 (SD = 1.07); only night shifts mean = 4.2 (SD = .87), $F_{(3,7082)} = 94.44$ ($p < .001$)
De Cooman et al. (2008), Belgium	N = 303 hospital, home healthcare and nursing home nurses	Quantitative, cross-sectional, using the Job Motives Questionnaire	Not defined	Not measured	The job motives (scale range 1–5): ' <i>altruistic & interpersonal</i> ' (mean = 4.21; SD = .55), ' <i>job content</i> ' (mean = 4.16; SD = .56), ' <i>professional contact</i> ' (mean = 4.12; SD = .73), ' <i>interesting</i> ' (mean = 3.96; SD = .76), ' <i>job security</i> ' (mean = 3.93; SD = 1.06) and ' <i>manual work</i> ' (mean = 3.58; SD = 1.01), ' <i>working conditions</i> ' (mean = 3.02; SD = .98). No significant differences between the job motives for <i>men and women</i>
Van den Berg et al. (2008), The Netherlands	N = 2262 hospital and nursing home nurses	Quantitative, cross-sectional, using the Intrinsic Work Motivation Scale	Not defined	Scale range 1–5: in hospital mean = 4, SD = .5; in nursing home mean = 4, SD = .5	<i>Environmental uncertainty</i> had positive influence on intrinsic motivation (hospital $\beta = .09$; $p \leq .01$, nursing home $\beta = .12$; $p \leq .001$). <i>High workload</i> had negative influence on hospital nurses' motivation ($\beta = -.08$; $p \leq .05$) and positive influence on nursing home nurses' motivation ($\beta = .08$; $p \leq .05$). Relations between work motivation and <i>age</i> (hospital $\beta = .07$; $p \leq .05$, nursing home $\beta = .13$; $p \leq .001$)

reviewed studies included no specified theoretical assumption in regard to defining work motivation ($N=17, 71\%$) (Table 1).

Nevertheless, a definition of work motivation can be found in seven articles (e.g. Berkhout et al., 2004; Janssen et al., 1999; Edgar, 1999). In these it is defined as the willingness (Berkhout et al., 2004; Janssen et al., 1999; Tummers et al., 2006b) or desire (Koivula et al., 1998) to work well (Berkhout et al., 2004; Janssen et al., 1999; Koivula et al., 1998), exert effort (Tummers et al., 2006b) and perform effectively on the job (Edgar, 1999). It is driven by the stimulus to experience positive internal feelings (Edgar, 1999) or intrinsic satisfaction (Berkhout et al., 2004; Janssen et al., 1999), to succeed at work (Koivula et al., 1998), to achieve the organization's goals (Tummers et al., 2006b) or to help the team reach its goals (Koivula et al., 1998). Additionally, work motivation is conditioned to satisfy individual needs (Tummers et al., 2006b), occurs in situations where a job's demand and a person's control are high (De Jonge et al., 1999), or when esteem, feelings of growth, and competence are tied to performance (Tummers et al., 2002a) (Table 1).

4.2. *The level of work motivation*

Nineteen studies measured nurses' work motivation, but two of them provide no statistics (Raatikainen, 1997; Tummers et al., 2003). According to the studies reviewed, nurses generally seem to be motivated to work (e.g. Berkhout et al., 2004; Camerino et al., 2008; De Jonge et al., 1999). No significant differences in the levels of work motivation were detected between those nurses who work in non-intensive care units and those who work in intensive care units (Tummers et al., 2002b), or those who work in hospital settings and those who work in nursing homes (Van den Berg et al., 2006) (Table 1).

4.3. *Factors affecting work motivation*

The factors affecting nurses' work motivation (Table 1) can be divided into five categories: (1) work-place characteristics, (2) working conditions, (3) personal characteristics, (4) individual priorities, and (5) internal psychological states.

4.3.1. *Work-place characteristics*

Nurses have been motivated by good collaboration between the nurse and the healthcare team (Hertting et al., 2004), by social support inside the team (Tummers et al., 2002a, 2003) and by positive team spirit on the ward (Koivula et al., 1998). As regards working culture, professional contacts and the nurse's status as an equally valued health professional in a team appeared to be important motivators for nurses (De Cooman et al., 2008; Hertting et al., 2004; Öztürk et al., 2006). According to Janssen et al. (1999), social contacts tend to motivate nurses, making their work challenging and worthwhile. In addition, McCloskey (1990) found that nurses with low social integration had less work motivation than those with high social integration. Edgar (1999), on the contrary, found no significant correlation between nurses' work

motivation and their satisfaction with information exchange, feedback from agents and interpersonal relationships.

Another important motivating factor is high autonomy (Janssen et al., 1999; McCloskey, 1990), especially with regard to decision-making (e.g. Tummers et al., 2002a, 2006a; Van den Berg et al., 2006). The latter appeared to be extremely important in such situations where the job demands were high (De Jonge et al., 1999) and there was insufficient information for planning new or ongoing activities (so-called environmental uncertainty), intensive care units being a case in point (Tummers et al., 2006b). However, according to Edgar (1999), there was no significant correlation between nurses' work motivation and their satisfaction from support for their autonomy.

The particular features of nursing tasks, such as uncertainty, multifarious nature and requirement for specific skills seem to enhance nurses' work motivation, provided that they are manageable. Uncertainty of tasks generally motivates nurses (e.g. Tummers et al., 2006a; Van den Berg et al., 2006, 2008), but this is not always the case in intensive care units where the frequency of unanticipated events and tasks is high (Tummers et al., 2006b). Nurses are also motivated by such tasks that require a variety of different activities and involve the use and combination of a number of different skills and talents (Janssen et al., 1999; Kivimäki et al., 1995). According to Kivimäki et al. (1995), this is the reason why nurses who can perform all kinds of nursing activities in individual care are more motivated than those who perform only part of the total care. However, Edgar (1999) argues that the nursing model and the division of time and tasks between non-patient or patient-centred work does not affect nurses' motivation. Jamal and Baba (1997) in their study ascertained that a high degree of skills involved may even have a negative effect on nurses' work motivation. Specific skills can stimulate nurses to choose a specific nursing area in line with their preferences. According to De Cooman et al. (2008), manual work was a job motive for nurses in all kinds of units. Mackintosh (2007) revealed that surgical nurses were highly motivated because of a faster pace of work, more technical procedures, and quicker patient turnover, because it offered them greater variety in both the individuals they met and the procedures they worked with.

Furthermore, nurses are motivated by opportunities to learn (Janssen et al., 1999), such as sharing their knowledge with physicians and getting supervision (Hertting et al., 2004). De Cooman et al. (2008) even argue that nurses associate specific patient populations with possibilities to get extra training, seeing them as job motives that make their work more interesting.

High workload has a positive influence on nurses' work motivation both in general hospitals and in nursing homes (Tummers et al., 2002a; Van den Berg et al., 2006, 2008), Van den Berg et al. (2008) also point out its negative effect on hospital nurses' motivation. While nurses' workload depends a lot on their job demands, De Jonge et al. (1999) report that aggregated job demands have a negative influence on work motivation. Berkhout et al. (2004) found that attempts to enlarge and enrich nurses' job demands

with resident-oriented care intervention did not affect nurses' motivation.

4.3.2. Working conditions

According to De Cooman et al. (2008), working conditions, such as suitable working hours, a possibility to combine work and private matters, remuneration and job security are not regarded by nurses as paramount motivational factors. However, there is significant evidence to believe that nurses' work motivation was affected by ward sisters' ability to create functional prerequisites (e.g. managing the ward's whole action in changing situations) and by working time (Koivula et al., 1998). Daytime workers tend to have higher motivation than others (Jamal and Baba, 1997; Koivula et al., 1998), whereas working in shifts has a negative influence on nurses' motivation (Koivula et al., 1998), particularly work in rotating shifts that includes nights (Camerino et al., 2008). According to Koivula et al. (1998), this is so because of the exhaustion which significantly decreases motivation. Regarding remuneration, Öztürk et al. (2006) report that appropriate pay rises, rewards and promotions that reflect performance are important motivators to nurses in Turkey. Likewise, Hertting et al. (2004) ascertained that Swedish nurses, too, see potential promotions and rewards as important motivators.

4.3.3. Personal characteristics

Several authors have detected significant positive relations between nurses' age and work motivation (e.g. Tummers et al., 2002a; Van den Berg et al., 2006, 2008). Koivula et al. (1998), on the contrary, discovered that nurses under 30 years of age were significantly more motivated than older nurses. In the study of Tummers et al. (2006b) it was noticed that age was positively related to motivation only in non-intensive care units, having no influence whatsoever on the work motivation of nurses employed at intensive care units. Unlike age, duration of service has been found to have no effect on work motivation (Bhattacharya and Neogi, 2006; Kivimäki et al., 1995). According to De Cooman et al. (2008), male and female nurses are motivated by the same characteristics of nursing. In addition, Koivula et al. (1998) reported that a higher college-level qualification was significantly related with nurses' better motivation. Nurses perceive their awareness of nursing philosophy, professional knowledge and abilities as internally motivating (Hertting et al., 2004).

4.3.4. Individual priorities

Nurses appear to be motivated if their work meets certain individual needs and values which are important to them. According to Hertting et al. (2004), the ability to meet one's own needs and have control over the use of time motivate nurses, as well as individualized considerations, because psychosocial health conditions are seen as motives for working as a nurse. Nurses are mainly motivated by the opportunity to help other people, while the subjective elements of nursing that make the job altruistic and interpersonal are viewed as the most important job motives (De Cooman et al., 2008; Öztürk

et al., 2006 Raatikainen (1997) found that those nurses who experienced a calling in the sense of a deep internal desire to choose a profession that a person holds as valuable and considers to be his or her own were more motivated to work than those nurses who did not share the same feelings. Positive opinions on ethical factors in work environment appeared to have significant associations with nurses' work motivation as well (Leino-Kilpi et al., 2002).

4.3.5. Internal psychological states

The nursing attributes exert their effects on nurses' work motivation through their internal psychological states: experienced meaningfulness of the work (e.g. Hertting et al., 2004; Reutter and Northcott, 1993; Öztürk et al., 2006), knowledge of the actual results of the work and experienced responsibility for outcomes of the work (Edgar, 1999; Öztürk et al., 2006). Perceiving their work as meaningful will motivate nurses to care for patients even if there is high risk to their own health and security (Reutter and Northcott, 1993).

5. Discussion

5.1. Discussion of the findings

Despite the paucity and diversity of formulations used in the theoretical frameworks of the studies reviewed, it can be concluded that work motivation is not merely confined to situations in which a person acts according to the assigned work tasks. Indeed, it is essential that the employee should want to do the work as well (Berkhout et al., 2004; Edgar, 1999; Tummers et al., 2006b). According to Tummers et al. (2006b), intrinsic work motivation is a major determinant of performance in the workplace. In addition, Camerino et al. (2008) found that high work motivation significantly increased nurses' work ability. Hence, if we knew the factors that stimulate nurses so that they are motivated to do their best at work this would increase our possibilities to develop a better healthcare service. An essential characteristic of professional nursing practice is caring (Moody and Pesut, 2006). Applying the definitions of an individual's motivation on the nature of the human caring work done by nurses, it can be concluded that motivated nurse must have willingness to care. According to Smith (2004, p. 15), "caring is a way of being in which the nurse attends to the person in those ways necessary to support health, healing, and quality of life". It does not merely mean being polite or nice and doing your duty. Thus, even if we see nurses completing their tasks competently and claiming to be motivated when doing so, we cannot be sure that they also do care and are motivated to care about the patient. That brings us to the question: Do the instruments used in the studies reviewed above actually measure the motivation of nurses comprehensively in the context of the nursing speciality?

Little research or theory development can be found that specifically addresses the motivation to care (Moody and Pesut, 2006), and the work motivation of nurses has been considered and described on the basis of the same assumptions as those used in relation to any other

employee's motivation in organizational and human psychology. Therefore the evidence related to the nurses' work motivation is mainly based on six items that measure the respondents' agreement with the internal psychological statements characterising work motivation in general (e.g. Berkhout et al., 2004; Janssen et al., 1999; Tummers et al., 2002a). No specifications of nursing or caring aspects have been included. Perhaps in further research the instrument measuring nurses' work motivation should also include such items which measure their internal feelings about caring. With this extension of the instrument, further research can highlight not only those factors that motivate nurses to work but also those factors that motivate them to care about the patient.

The studies reviewed in the current article identify several motivating factors from a staff nurses' point of view. Combining this with the fact that nurses appear to be quite motivated, let us conclude that managers' efforts in developing and sustaining nurses' work motivation have been adequate and helpful so far. Considering possible interconnections between the five categories of the factors and their possible influence on the formation of nurses' work motivation found in the studies reviewed, the following conclusions can be drawn. Firstly, a nurse assesses if the *work-place characteristics and the working conditions* match his/her *individual priorities*. If the work-place characteristics and working conditions meet his/her views, s/he *experiences meaningfulness of the work and personal responsibility for the outcomes*. The work becomes purposeful for her/him because the outcome is important for him/her personally. Secondly, the nurse assesses if the *work-place characteristics and working conditions* correspond to her/his *personal characteristics*. That will determine the extent of efforts needed to reach her/his goals, or the probability of reaching them. If s/he sees the actual results of her/his work and *experiences her/his own responsibility for these outcomes*, s/he will consider the outcomes worth the efforts and will be motivated to work. Thus, if the internal resources of work motivation, i.e. the nurse's personal characteristics and individual priorities, correspond to the external resources, i.e. work-place characteristics and working conditions, the nurse will be motivated to make every effort in order to achieve the outcome.

The findings of this review make us conclude that motivation to work is created through the process of individual cognition and consciousness, while the correspondence between both internal and external factors must be taken into account. The more clearly a nurse can formulate her/his own priorities and evaluate her/his work-related capabilities, the more easily s/he can find and strengthen the motivating factors for her/himself. This information can greatly benefit managers who must employ and sustain nursing workforce. Helping nurses to find and support their inner urge and potential to do their best in work starts with realising what their priorities are and how their own perspectives and capabilities should be evaluated. A nurse manager can sustain and enhance a nurse's inner motivation by organizing working activities or working time in accordance with her/his individual priorities and personal characteristics, as much as it is

possible in teamwork. They can also make work better suited to particular nurses' priorities and characteristics by assuring all prerequisites they need for getting their work well done. Furthermore, nurse managers can encourage nurses to develop their capabilities by empowering them to meet the demands of work, set up personal goals and see positive outcomes by reaching the latter. Because work motivation depends on employees' positive emotions in workplace (e.g. Edgar, 1999; Reutter and Northcott, 1993; Öztürk et al., 2006), it can be concluded that if something makes a nurse feel good at work, s/he will probably try to work even better.

In seven studies reviewed above, work motivation has been assessed together with other different work reactions, such as job satisfaction, emotional exhaustion (burnout), psychosomatic health complaints (e.g. Tummers et al., 2002b, 2006a; Van den Berg et al., 2008), job-related anxiety and turnover intention (De Jonge et al., 1999; Janssen et al., 1999). According to those studies, nurses' work motivation was positively related to their work satisfaction (e.g. De Jonge et al., 1999; Kivimäki et al., 1995; Tummers et al., 2002a) and negatively related to emotional exhaustion and burnout (Jamal and Baba, 1997; Tummers et al., 2002b). Thus, higher work motivation can increase job satisfaction and vice versa. This has been proved also in other studies of this field (e.g. Blegen, 1993; De Loach and Monroe, 2004; Freeman and O'Brien-Pallas, 1998). On the other hand, lack of motivation may lead to burnout. Yet, no direct connections between nurses' work motivation and psychosomatic health complaints, job-related anxiety or turnover intentions were reported in the reviewed studies. Nevertheless, on the basis of current knowledge it can be concluded that, when studying nurses' work motivation, it is also essential to take into account their job satisfaction and emotional exhaustion.

5.2. Methodological considerations and limitations of this review

Despite the fact that nurses' work motivation has been one of the most frequently discussed topics in nursing management literature, limited empirical evidence is available. Only 24 papers met our selection criteria, although all data published since 1990 were collected. The analysis of relevant literature revealed some weaknesses. Since most of the reviewed articles provide no definition of work motivation, and some articles include definitions whose formulation and content varies, different authors interpret the concept of work motivation differently. The same conclusion has been drawn by other authors in this field (Engin and Cam, 2009; Moody and Pesut, 2006). Those of the reviewed studies which had defined work motivation similarly; apparently used the same techniques for measuring work motivation (e.g. Berkhout et al., 2004; Janssen et al., 1999; Tummers et al., 2006b), whereas those studies that failed to define the concept of work motivation frequently used different techniques of measurement. Thus, because of different interpretations of, or lack of consensus about the concept of work motivation, also the validity of describing the actual phenomena can be questionable. Moreover, due to

the variety of theoretical and methodological approaches, it has been quite hard to compare and categorise the findings presented by different articles. In order to minimise the risk of twisted knowledge, the studies which used other terms instead of motivation, such as work involvement, commitment, attitudes to work, and so on, were excluded from the review during the literature selection process if the authors had not defined these concepts as being synonymous with work motivation. In the light of these terminological and theoretical confusions in the relevant literature, it can be concluded that, in order to increase the validity of studies, they must use a more concrete, unambiguous, universally acceptable and applicable operational definition of work motivation as a concept. In addition, it is essential that future researchers should base their studies on modern, expanded theories of work motivation which, unlike the studies reviewed above, emphasise not only the role of individual needs (e.g. Herzberg et al., 1967) and job characteristics (e.g. Hackman and Oldham, 1975) but also the roles played by personality, cognition, goal setting, outcome expectancies and self-efficacy (Latham and Ernst, 2006; Steers et al., 2004).

While the definition of work motivation is apparently universal, the factors affecting work motivation may vary in different cultures and contexts of the nursing practice. We should emphasise that this review is mainly based on the data about European countries.

Out of 19 studies which measured the level of nurses' work motivation; only 12 (50%) reported the validity of the instrument used for this (e.g. Koivula et al., 1998; McCloskey, 1990; Tummers et al., 2006a). Thus, only half of the reviewed studies used a validated and reliable method for measuring the work motivation. The most frequently used instrument developed by Warr et al. (1979) has been validated and has proven its reliability for measuring the intrinsic work motivation among nurses in nine relevant studies (e.g. Berkhout et al., 2004; Janssen et al., 1999; Tummers et al., 2002a). It is essential that for supporting the validity and reliability of further research only validated measuring instruments of work motivation (e.g. Warr et al., 1979) should be used.

Because half of the quantitative studies reviewed in this paper used descriptive statistics and correlations for analysis, it is not possible to say which factors are the causes or effects of work motivation. Further research will be needed to clarify the listed factors' relevance and influence on nurses' work motivation. For example, regression analysis of variables (e.g. Tummers et al., 2002a, 2003, 2006b) and testing of the model with proposed relationships (e.g. Tummers et al., 2002b, 2006a; Van den Berg et al., 2006) would be reliable for analysing empirical evidence. Together with quantitative studies, it is essential to continue also with qualitative studies in order to find new information and thereby disclose factors that may have been overlooked.

6. Conclusions

Most of the studies reviewed by the current paper have not defined the concept of work motivation. Therefore there is neither clear understanding nor consensus about

the concept of work motivation, and its universal definition is missing in nursing research. Despite limited empirical evidence, it may be concluded that staff nurses appear to be motivated. Five categories of factors were identified that affect their work motivation: (1) work-place characteristics, (2) working conditions, (3) personal characteristics, (4) individual priorities, and (5) internal psychological states. These categories describe the factors that may be determinants for bringing a motivated workforce into nursing and sustaining it.

This review presents comprehensive information about current empirical evidence that may be useful for the development of motivating strategies and future research into nurses' work motivation. The findings are based on the perspectives of 16,073 staff nurses employed by different hospitals, nursing homes and home healthcare services in 13 countries. The majority of the reviewed studies used a cross-sectional self-administered questionnaire. Three qualitative studies used semi-structured interviews.

This article also identified some theoretical and methodological weaknesses of the research literature about nurses' work motivation. Therefore further studies are needed to clarify the level of nurses' work motivation and comprehensively explore the relevance and influence of various factors on it. This can be achieved by precisely defining the concept of work motivation, by developing proper research methodology for exploring nurses' motivation, and by working out and testing a theoretical model of nurses' work motivation.

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Hospital nurses' work motivation

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Hospital nurses' work motivation

Background: The knowledge surrounding nurses' work motivation is currently insufficient, and previous studies have rarely taken into account the role of many influential background factors.

Aim: This study investigates the motivation of Estonian nurses in hospitals, and how individual and organisational background factors influence their motivation to work.

Methods: The study is quantitative and cross-sectional. An electronically self-reported questionnaire was used for data collection. The sample comprised of 201 Registered Nurses working in various hospital settings in Estonia. Data were analysed using descriptive statistics, two-sample Wilcoxon rank-sum (Mann–Whitney) test, Kruskal–Wallis equality-of-populations rank test and Spearman's correlation.

Results: Both extrinsic and intrinsic motivations were noted among hospital nurses. Nurses were moderately externally motivated ($M = 3.63$, $SD = 0.89$) and intrinsically strongly motivated ($M = 4.98$, $SD = 1.03$). A nurses' age and the duration of service were positively correlated

with one particular area of extrinsic work motivation, namely introjected regulation ($p < 0.001$). Nurses who had professional training over 7 days per year had both a higher extrinsic motivation ($p = 0.016$) and intrinsic work motivation ($p = 0.004$).

Conclusions: The findings expand current knowledge of nurses' work motivation by describing the amount and orientation of work motivation among hospital nurses and highlighting background factors which should be taken into account in order to sustain and increase their intrinsic work motivation. The instrument used in the study can be an effective tool for nurse managers to determine a nurse's reasons to work and to choose a proper motivational strategy. Further research and testing of the instrument in different countries and in different contexts of nursing is however required.

Keywords: work motivation, self-determination theory, electronic survey, hospital nurse.

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Introduction

Finding, developing and retaining qualified staff nurses are the prevailing global challenges of nursing management (1–3). Of all healthcare workers, hospital nurses form the biggest group of carers who have close daily personal contact with patients and their relatives. Hospital nurses directly influence the quality and safety of health care. However, in so doing, they become vulnerable to work stress and decreased work motivation which includes a risk of poor work performance and quitting the job (1). Due to the economic differences of European countries, there is concern over a rapidly increasing

nurse exodus from Baltic countries, especially from Estonia. This has raised the importance of nurses' work motivation and how to best retain them in their current positions in units and hospitals. To motivate nurses requires both upgraded knowledge and skills in performance management (4). Many studies of nurses' work motivation indicate several individual and organisational background factors, that if considered together could be useful when studying nurses' work motivation (5). In addition, recent studies have implied that different dimensions of work motivation should also be measured in order to have a better understanding of nurses' work behaviour (6–9). Thus, while knowledge of nurses' work motivation (particularly in relation to background factors) is at present fragmented and insufficient (5), this article adds contemporary empirical information which may benefit this topic.

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Conceptual framework

Work motivation and its appearance among nurses

Despite 60 years of development in the theory of work motivation, researchers and practitioners in the field still face difficulties due to the lack of reliable, accurate and user-friendly key elements and posited relationships such studies often raise (10). Most theorists and researchers consider work motivation as a phenomenon that varies only in its amount (level of motivation) and have focused mainly on intrinsic work motivation and its enhancing factors (5, 11). Although intrinsic work motivation is described as a natural and spontaneous human tendency, not everyone has only an intrinsic motivation for any particular task or activity (11). This is especially seen in the work situation where strict regulations and individual responsibilities are involved (11, 12). Therefore, this study is based on the more contemporary theory of self-determination (11) that takes into consideration both extrinsic motivation (defined as doing something for instrumental reasons) and intrinsic motivation (defined as doing something for its own sake). This theory emphasises the clear distinction of intrinsic motivation and the different subareas of extrinsic motivation that may be seen in the continuum of regulation styles: amotivation (no intention to act); external regulation (actions aroused to satisfy an external demand or obtain external reward); introjected regulation (actions aroused to avoid guilt, anxiety or pressure, or to attain reputation and pride); identified regulation (actions aroused with personal importance and personal ownership [e.g. values, life and career plans]); integrated regulation (identified regulations that have been fully assimilated to the self [typically very difficult to psychometrically distinguish from identification]); intrinsic motivation (actions aroused by internal interest and preference) (11).

Thus, an employee's performance depends on whether the reasons for behaviour are extrinsic and controlled by someone else (i.e. external and introjected regulation), autonomous (i.e. identification and integrated regulation) or totally intrinsic (11, 12). The more someone is externally regulated, the less they show interest, value or effort. Additionally, they are more likely to blame others for negative outcomes (11) and experience psychological distress (12). More autonomous extrinsic and self-determined intrinsic motivations, however, are positively associated with job satisfaction, affective commitment, well-being and self-reported health (11–13).

There are a small but increasing number of studies in health care where in addition to intrinsic work motivation, extrinsic motivation has also been measured (6–9, 13, 14). However, based on a comprehensive literature review (5), in nursing studies, the most frequently used instrument to measure motivation has been the *Intrinsic*

Job Motivation Scale (15). This only measures intrinsic motivation and has been found to be reliable in more than ten international studies of nurses' work motivation (e.g. 16–18).

In the main literature, only a few authors have reported results of nurses' extrinsic work motivation (e.g. 13), but it is often either presented together with intrinsic work motivation or combined with the results of other healthcare workers (e.g. 8, 9, 14). Even so, this limited data demonstrate that extrinsic motivation has to be considered as being important as intrinsic motivation in the research of nurses' working behaviour. Because most individuals work to earn living, their work always has some instrumental (i.e. external) value. Additionally, work can not always be considered as interesting, enjoyable and satisfying – markers which are appropriate for intrinsic work motivation (9, 12). As revealed in a recent study among Chinese nurses (9), several forms of extrinsic and intrinsic work motivation were seen as rather equal, when measured by their mean score level. Therefore, nurses differ in their motivation type and can be motivated in several ways, either extrinsically or intrinsically. Confirming Ryan and Deci's theory (11), the differences in nurses' work motivation have manifested in the prevalence of their reasons to work, which accordingly, have also resulted in different associations being made with work-related behaviour and well-being. Indeed, the high levels of nurses' autonomous motivation (i.e. identified regulation and intrinsic motivation) have been mainly associated with high work engagement (9). This, however, can be diminished with the accumulation of work-related negative aspects such as work overload, exhaustion and burnout (9) and work-place psychological harassment (8) and therefore a more controlled motivation (i.e. external and introjected regulation) takes place. Also, nurses with high levels of workaholism have demonstrated mainly high levels of extrinsic motivation (i.e. introjected and identified regulation) but low intrinsic motivation. This means that workaholic nurses are predominantly extrinsically motivated and are engaged in job activities by their instrumental values and not by any enjoyment of working (9).

Despite methodological limitations, however, there are relatively similar findings in previous studies to conclude that in European countries (not including the Baltic countries), the level of nurses' (intrinsic) work motivation has remained between average and highest levels since the 1990s (statistics corresponding to about 80% of the maximum values of the scales used) (5). However, according to a recent example from China (9), these findings may differ by continent, although too little is known to make any meaningful comparisons. Since 2000, the most represented countries in studies of work motivation are nurses from the Netherlands (e.g. 16–19), Italy (13, 20, 21), Belgium (20, 22) and Poland (20).

Background factors relating to nurses' work motivation

Based on earlier studies, individual background factors such as age, education, gender, having children, and organisational background factors such as hospital type, work unit and staff position have been reported to be connected with nurses' work motivation. In line with the nurses' age, the level of their work motivation seems to grow (e.g. 17–19) and reaches the highest level at the middle of their career (23). The same progression is noted with improving professional competence (24) and with higher self-rated professional expertise (23). Nurses have perceived learning and training opportunities as important motivators (25, 26), and nurses who have received efficient clinical supervision have been seen to be more intrinsically motivated than those who have not (27). In addition, nurses over 35 years and those with a postgraduate education have been more motivated for certain job attributes (e.g. authority, decision-making and skill exploitation) than younger and less educated colleagues (28).

Male and female nurses have been reported to have the same job motives (22), although female nurses have been more motivated by remuneration than their male colleagues (29). They might also differ in their levels of motivation and gender appeared to be correlated with the mean scores for intrinsic work motivation in some study groups (17–19). Razei et al. (30) interviewed both genders of health workers, and only female respondents indicated that their gender roles and family obligations (i.e. being a wife and mother) had weakened their motivation and work performance. However, Tummers and Den Dulk (31) found that involvement in work helped midwives to be better family members. Additionally, nurses with children have been reported to be more motivated than colleagues without children, irrespective of their marital status (14). Since men comprise a much lower proportion of the nursing workforce, a comparison between sexes has only been possible in a few studies.

According to organisational background factors, some work-place characteristics and working conditions have had a different effect on motivation among nurses from different units and hospitals (14, 17, 19, 32). Nurses working in surgery are reported to be more motivated than nurses from general wards or internal medicine (23), and particularly more motivated by professional relationships with supervisors and co-workers, pride, appreciation, respect and social acceptance than other nurses (29). Staff position also seems to be important for motivation, and ward nurses have been shown to have a higher level of motivation when compared with charge nurses and head nurses (14). Still, head nurses have been reported as being particularly more motivated for job attributes such as decision-making, creativity and skill exploitation than other nurses (29), and a management

position has also been positively associated with midwives' discretionary work effort (31).

Work motivation may have different orientations which can be associated with different individual and organisational factors (11, 12); therefore, it is important to extend our knowledge on the topic. The purpose of this study was to describe Estonian hospital nurses' work motivation and the relationships between background factors and work motivation. The following two research questions were addressed: (a) how motivated are hospital nurses? (b) what are the relationships between hospital nurses' background factors and their work motivation?

Methods

Sample and data collection

The research sample comprised of 201 Registered Nurses working in several hospital settings in Estonia. According to power analysis, this sample size had enough power to identify 0.5 differences in the means between groups as being statistically significant. The sample characteristics are described in Table 2.

Data were collected by an electronic self-reporting questionnaire in May 2013. At that time, there were a total of 6235 Registered Nurses working in 66 licensed hospitals in Estonia, including regional, central, general, special, local, rehabilitation and nursing care hospitals. The distribution of hospital type among the sample and among the population is presented in Table 1. The percentage of respondents from general hospitals was higher than the respective percentage in the whole population, and lower from central and other hospitals. The total response rate was very low (3.2%) reaching slightly over 5% with regional hospital nurses (see Table 1). As there are no general statistics of Estonian hospital nurses' education, age or gender available, it is not possible to estimate the homogeneity between the sample and the population. However, the variance in respondent characteristics (see Table 2) shows that all kinds of subgroups of the hospital nurse population were involved in the sample.

Prior to the study, a pilot test of 115 nurses working in one general hospital was conducted. 25 responded and the response rate was 22%. After some linguistic changes were made to the questionnaire, an invitation to all hospital nurses to participate was published in the national nurses' journal, in the healthcare workers' national newspaper, and twice in the country's most circulated daily newspaper. A link leading to a questionnaire located on the webpage of the Estonian Nurses' Association was open for 1 month. The study was also shared via the Nurses' Association and via a healthcare workers' group on Facebook. Paper reminders were issued to participants of the National Nurses' Day conferences in

Table 1 Hospital type of the nurse sample and of the population

Type of hospitals	Hospital nurse sample n (%)	Hospital nurse population n (%)	Response rate (%)
Regional hospitals	137 (68.2)	2575 (41.3)	5.3
Central hospitals	23 (11.4)	1890 (30.3)	1.2
Others	41 (20.4)	1770 (28.4)	2.3
Total	201 (100)	6235 (100)	3.2

Table 2 Nurses' background factors (N = 201)

Background variable	Mean	SD	Min	Max	95% CI	
					LL	UL
Age in years	38.27	10.63	22	65	36.80	39.75
Duration of service in years						
In current specialty	15.62	11.55	1	46	14.02	17.23
In current hospital	11.74	9.51	0	45	10.41	13.05
In current work unit	8.97	8.01	0	45	7.85	10.08
			n	%		
Gender: female			197	98.0		
Living with partner			162	80.6		
Has 1–5 children in household			123	61.2		
Education						
Vocational/applied higher			152	75.6		
Specialised or degree			49	24.4		
Prof. training per year						
0–7 days			143	71.1		
8 days or more			58	28.9		
Type of hospital						
Regional			137	68.2		
Central			23	11.4		
Other			41	20.4		
Work area or unit						
Surgery			39	19.4		
Intensive care			35	17.4		
Medicine (general)			33	16.4		
Psychiatry			21	10.5		
Emergency			18	9.0		
Paediatrics			16	8.0		
Other units			39	19.4		
Staff position						
Anaesthetic/ICU nurse			38	19.0		
Head nurse			30	15.0		
Operating room nurse			3	1.5		
Regular nurse			134	66.7		
Type of care						
Inpatient			119	59.2		
Outpatient			29	14.4		
Both, in- and outpatient			53	26.4		
Direct contact with patients			188	93.5		

North and South Estonia, and sent twice by e-mail to the regional contact persons of the Nurses' Association. The participants' rights regarding the use of information, voluntariness of participation and anonymity were explained in a letter accompanying the questionnaire and verified by the researchers. The research project was approved by the Research Ethics Committee of the University of Tartu.

Measure

Background questions were formed based on earlier research findings on the relationships between nurses' work motivation and their personal or work-related characteristics (5). Of 14 questions, five items investigated individual background factors of age, gender, marital status, number of children and education. The remaining nine items characterised organisational background factors: duration of service in current specialty, current hospital and current work area/unit; professional training; type of hospital; work area or unit; staff position; type of nursing care nurse provided; and whether the participant had direct patient interaction.

Work motivation was measured using the 12-item *Motivation at Work Scale* (MAWS) developed by Gagné et al. (12). Participants were asked to indicate to what degree (1 'not at all', 2 'very little', 3 'a little', 4 'moderately', 5 'strongly', 6 'very strongly', 7 'exactly') they presently corresponded to certain statements which described why they performed their specific job. This instrument was created, based on Ryan and Deci's self-determination theory (11) and measures two overarching types of motivation (12): extrinsic work motivation (including the subscales of external, introjected and identified regulation) and intrinsic work motivation. Example statements of each subscale of extrinsic motivation are: 'I do this job for the pay check', 'because my reputation depends on it', and 'I chose this job because it allows me to reach my life goals'. One example of an intrinsic work motivation statement is: 'Because I enjoy this work very much'. The Cronbach's alphas of the scales are presented in Table 3.

As a concurrent instrument in the validation of intrinsic work motivation subscale of the MAWS, the *Intrinsic Job Motivation Scale* (IJMS) (15) was used (Cronbach's alpha 0.82). The scale (6 items) ranged from 1 'strongly disagree' to 7 'strongly agree'. An item example is: 'My opinion of myself goes down when I do this job badly'. The measures of intrinsic work motivation with MASW and IJMS were moderately correlated ($\rho = 0.45$, $p < 0.001$). Due to lack of pertinent studies, there was no concurrent instrument available for the extrinsic work motivation. The cross-cultural adoption of the instruments, however, met a rigorous set of requirements, including two translators, back

Table 3 Nurses' work motivation (N = 201)

Variable	Items	Mean	SD	Min	Max	95% CI		α
						LL	UL	
Extrinsic work motivation	9	3.63	0.89	1.22	6	3.51	3.71	0.78
External regulation	3	3.19	0.97	1	6	3.05	3.32	0.51
Introjected regulation	3	3.51	1.32	1	7	3.33	3.69	0.77
Identified regulation	3	4.19	1.20	1	7	4.02	4.36	0.77
Intrinsic work motivation	3	4.98	1.03	2	7	4.83	5.12	0.84

CI, confidence interval; LL, lower limit; UL, upper limit.

α = Cronbach's alpha.

translation, an expert committee and testing of the prefinal versions (33).

Statistical analysis

All statistical analyses were performed using STATA software, version 11.2 (StataCorp LP, College Station, TX, USA). Firstly, the data were analysed using descriptive statistics. Frequencies and percentages were used to describe the categorical data, whilst mean values and standard deviations were used to describe the continuous data. Secondly, the differences between the mean scores of nurses' extrinsic and intrinsic work motivation according to categorical data were tested by using a two-sample Wilcoxon rank-sum (Mann–Whitney) test and a Kruskal–Wallis equality-of-populations rank test. Only those relationships which were deemed statistically significant ($p < 0.05$) and considered as being important for practice are presented in this article. Thirdly, the continuous variables were examined for measures of central tendency, distribution and outliers. The relationships between continuous variables were calculated using Spearman's rank correlation.

Results

Respondents were mainly 37–40 years old and had worked in their current specialty for about 16 years. The variation among length of service in the specialty, hospital and unit demonstrated the respondents' relatively high tendency to stay at the same hospital, but half as much tendency to stay in the same unit (see Table 2). Most were female, lived with a partner and had either a vocational or applied higher education. More than a half of the respondents had between 1 and 5 children. More than two-thirds of respondents worked in regional hospitals which are the biggest type of hospital in Estonia. 11% of respondents worked in the second biggest category of hospitals. The remainder worked in general, special, local, nursing care or rehabilitation hospitals. The most prominent work areas were surgery, intensive care and (general) medicine. Nurses from psychiatry,

emergency and paediatrics were also represented. The remaining 19% of respondents worked in rarely mentioned units, in a number of units, or had no specific work unit. Of the respondents, almost 19% worked as an anaesthetic or intensive care nurse (ICU), and 15% were head nurses. Four of the respondents who held a head nurse's position also held other positions as a regular nurse (see Table 2).

While the majority of respondents (95% confidence interval) registered slightly above the average score for extrinsic work motivation, the mean score for intrinsic work motivation lay between the average and highest (see Table 3). When looking at the subareas of extrinsic work motivation, lower scores were noticed for external and introjected regulation, whilst higher scores were noticed for identified regulation.

A nurses' age positively correlated with one particular area of extrinsic work motivation, namely introjected regulation ($\rho = 0.31$, $p < 0.001$). Furthermore, the duration of service in current specialty also positively correlated with introjected regulation ($\rho = 0.30$, $p < 0.001$), but negatively with identified regulation ($\rho = -0.15$, $p = 0.033$). Service duration in the unit was negatively correlated with identified regulation ($\rho = -0.20$, $p = 0.005$). In addition, low to moderate intercorrelations were determined between intrinsic work motivation and the subareas of extrinsic work motivation, except for that of external regulation (see Table 4). The subareas of extrinsic work motivation strongly correlated with the overall extrinsic work motivation ($p < 0.001$), but the correlation between intrinsic and extrinsic work motivation was low ($p < 0.001$).

The two-sample Wilcoxon rank-sum (Mann–Whitney) test demonstrated that nurses who had had professional training of 8 days or more during the last 12 months had higher extrinsic ($p = 0.016$) and intrinsic work motivation ($p = 0.004$) (see Table 5). When looking at the subareas of extrinsic motivation, this training particularly related to higher identified regulation ($p < 0.001$). The hospital type also showed some connection to nurses' motivation. In the subareas of extrinsic

Table 4 Correlations between nurses' extrinsic and intrinsic motivation (N = 201)

Variable	1	1a	1b	1c	2
1. Extrinsic work motivation	–				
1a. External regulation	0.66**	–			
1b. Introjected regulation	0.78**	0.25**	–		
1c. Identified regulation	0.76**	0.30**	0.42**	–	
2. Intrinsic work motivation	0.28**	0.00	0.17*	0.49**	–

*p < 0.05.

**p < 0.001.

motivation, introjected regulation was highest in central hospitals and lowest in regular hospitals ($p = 0.045$). Connections according to staff position were also found. Head nurses had a higher extrinsic work motivation than other grades ($p = 0.037$), and particularly a higher level of introjected regulation ($p = 0.006$).

Discussion

Previous studies on nurses' work motivation have predominantly measured the presence or level of intrinsic work motivation, mainly by asking respondents about their personal feelings towards their job (5). In the present study, not only the amount but also the orientation of work motivation was measured. Thus, the self-reported actual motives of respondents can be described and their regulation style can be identified according to the taxonomy of motivation described in self-determination theory (11). This provides a wider perspective by which to understand

nurses' motivations in working life. It is important to note that in this study, both extrinsic (particularly identified regulation) and intrinsic motivations are above average, whilst more autonomous and self-determined motivation is seen as having a positive effect on job satisfaction, commitment, well-being and health.

The mean scores for the subareas of extrinsic work motivation demonstrate that hospital nurses in Estonia were low or moderately motivated by instrumental factors such as pay check, reputation, pride, personal values or career and life plans. Corresponding minimum and maximum scores show that some of the nurses did not care about external motives, and notably, none of the respondents were externally regulated in maximum terms. The level of extrinsic work motivation was lower than expected, based on previous findings from both Turkey (14) and China (9).

Although statistically significant, the correlation between intrinsic and extrinsic work motivation was low. This finding, together with other intercorrelations between the subscales of work motivation, supports the distinction of two types of motivation (extrinsic and intrinsic), yet confirms that these variables tend to correlate positively. The mean score for intrinsic work motivation demonstrates that hospital nurses were strongly motivated by the enjoyment of doing their specific job. Corresponding minimum and maximum scores show that all of them were intrinsically motivated (to a certain extent) and that a proportion of the respondents were totally self-determined to work. In general, the intrinsic work motivation of Estonian hospital nurses was relatively similar to findings in other European countries (e.g. 19, 21, 27). However,

Table 5 Relationships between nurses' background factors and work motivation (N = 201)

Background variable	n	1. Extrinsic work motivation			1a. External regulation			1b. Introjected regulation			1c. Identified regulation			2. Intrinsic work motivation			
		Mean	SD	p	Mean	SD	p	Mean	SD	p	Mean	SD	p	Mean	SD	p	
Training per year																	
0–7 days	143	3.53	0.91		3.15	0.96		3.44	1.34		4.01	1.28		4.84	1.03		
8 days or more	58	3.87	0.77	0.016	3.29	1.01	0.435	3.70	1.25	0.183	4.64	0.86	<0.001	5.31	0.93	0.004	
Type of hospital																	
Regional	137	3.56	0.92		3.11	1.00		3.38	1.36		4.18	1.22		5.03	1.00		
Central	23	3.87	0.89		3.23	0.97		4.14	1.32		4.23	1.36		4.68	1.22		
Other	41	3.74	0.75	0.144	3.43	0.84	0.157	3.58	1.09	0.045	4.20	1.10	0.939	4.98	1.01	0.368	
Staff position ^a																	
Anaesthetic/ICU nurse	38	3.45	0.84	0.300	3.10	0.975	0.642	3.17	1.35	0.051	4.10	1.20	0.769	4.87	1.19	0.657	
Head nurse	30	3.95	0.84	0.037	3.27	0.97	0.492	4.07	1.18	0.006	4.52	0.99	0.161	4.87	0.90	0.523	
Operating room nurse	3	3.00	0.80	0.193	2.67	0.67	0.305	3.33	1.15	0.837	3	1.76	0.197	4.78	0.38	0.680	
Regular nurse	134	3.64	0.90	0.895	3.23	0.99	0.529	3.52	1.33	0.978	4.18	1.22	0.796	5.04	1.00	0.246	

^aFor each staff position, the comparisons were made between two groups: 1) holding this particular position and 2) not holding this position. The scores for those who held this position are presented in table.

The statistically significant p -values are in bold ($p < 0.05$).

the differences in research methodology prevent us from making more valid international comparisons.

The study provided new evidence about the connections between nurses' work motivation and background factors such as age, duration of service, staff position and professional training. It was known that there were relationships between these factors and intrinsic motivation, but according to the results of this study, these relationships can also be described by the different orientation of work motivation. The correlation between nurses' age, duration of service in current specialty and introjected regulation indicated that older and more tenured nurses were more likely (as they reported to be) motivated by external reasons. These findings highlight an existing risk, however, that without good motivational strategies, hospital nurses' intrinsic work motivation may turn to be extrinsic motivation over time. Such a tendency may also explain the connection between the head nurse position and higher extrinsic work motivation as head nurses are mainly older and more tenured than younger colleagues. For managers, this is an especially important result to underline and raises the question of how to support and maintain intrinsic motivation when staff get older and have worked longer in health care. It is important that managers notice and understand when their nurses who have been self-directed and intrinsically motivated for a long time need extra support or a change in their work to keep them as vital and autonomous as when they started in their current position, unit or hospital.

Additionally, the present study showed that the duration of service in both the current specialty and current unit was found to lessen a hospital nurses' identified regulation, showing that regulations and their effects on motivation are worth discussing from time to time, especially in a unit with stable staff. This finding is contrary to the findings of earlier studies, where age was positively related to a higher intrinsic work motivation (e.g. 17–19) and longer work experience increased nurses' work motivation (23). However, these previous studies did not measure extrinsic work motivation at the same time. Therefore, future studies should continue to study the relationships between nurses' age, length of tenure and both types of work motivation. Gender issues still remain unanswered due to the lack of male respondents. Regarding family life, having children and whether the nurse lived alone or with a partner were factors that showed no relation to their work motivation. This implies that the differences in respondents' economic situation at home probably had no further effect on their work.

Comparisons of groups with different background factors revealed that nurses who have had at least 8-day professional training during the last 12 months were more motivated than colleagues who had received less training. Yet, only a third of respondents had the

opportunity for longer training. The development of professional competence has been related to higher work motivation in earlier studies (23, 24, 27). According to self-determination theory (11), lending support for nurses' perceived competence facilitated the internalisation of the work goal (as they understood it) and led to the acquisition of relevant skills for success. As a result, efficient professional training promoted autonomous regulation of hospital nurses' work behaviours and thereby enhanced their motivation. Therefore, in spite of limited financial resources, professional training should be supported where possible.

Although more than ten different work areas or units were represented in the sample, no significant differences in nurses' extrinsic and intrinsic work motivation were found according to the type of unit or care provided. However, nurses from a central hospital were more externally motivated than nurses from other hospitals. With regard to staff position, head nurses were found to have higher extrinsic work motivation than other nurses. Engin and Cam (14) also found ward nurses to be more intrinsically motivated than head nurses. According to Van Beek et al. (9), this finding could characterise head nurses as workaholics who are highly extrinsically motivated to work, not because they enjoy it, but because they want to prove themselves. This was also supported in the present study where of the subareas of extrinsic work motivation, introjected regulation was found to be particularly higher among head nurses.

One limitation of the current study is related to the online data collection. While the respondents filled the questionnaires electronically and because of ethical considerations which assured the respondents' anonymity and confidentiality, no metadata of the survey were collected, so leaving the technical possibility that someone could complete the questionnaire repeatedly. However, analysing the answers and comments of respondents, it seems likely that only hospital nurses filled out the questionnaire (nine items of organisational background factors) and did so only once. Firstly, the introduction to the questionnaire included written elements which enabled readers to estimate their compatibility with the sample before starting the questionnaire. Secondly, the questions were so specifically formulated that respondents who were not working as a nurse in a hospital were unlikely to answer the whole questionnaire. The probability that someone had about 30 minutes free time or any particular motive to complete the questionnaire twice is negligible.

The amount of specific questions and the length of the questionnaire may be the reasons why so many hospital nurses did not complete the questionnaire. The filled questionnaire was only saved to the database when all the questions were answered, so it is not known how many nurses quit before reaching the end of the questionnaire. In order to obtain representative data for this

study, several national promotion approaches were used, but the response rate remained low. In the Baltic countries, nursing research is only recently emerging, so a limited spread of knowledge may have deterred nurses who were not so familiar with participating in this kind of study (e.g. Estonia does not currently offer a PhD-level education in nursing). Furthermore, the data were collected with an electronic self-reporting questionnaire, which yielded a relatively small response rate, and the same issue has been previously noted in electronic questionnaire studies (34). Another reason for the low response rate is related to the cultural distinctiveness of the respondents. Estonians may be careful in expressing their individual opinions, particularly nurses in hospitals because these institutions remain quite hierarchical and operate a somewhat autocratic management style. Therefore, it may be that nurses who did not participate in this study do not identify themselves as part of the nurse population who has an individual obligation and right to speak up. They may be less motivated to participate in studies, but nothing can be said about their work motivation, or how many actually noticed the national advertisement. This raises the question as to whether the nurses who had no willingness to participate in the survey, in fact, had a lower intrinsic motivation than those who responded? More studies among the same population are needed to either confirm or dispel this assumption. The opinions of nonrespondents may change the description about Estonian nurses' work motivation in general; however, these do not change the validity of the results about the relationships between motivation and background factors which are revealed in this study.

Conclusions

Whilst in mainstream literature, intrinsic work motivation is considered essential in the workplace (e.g. 11–13), the healthcare system mainly appraises external motivational factors such as salary, or praise or blame. These factors are often considered to be sufficient to motivate hospital nurses (1–4). This study, however, reveals that hospital nurses have more autonomous and intrinsic motivations than extrinsic work motivations, although both are present. Additionally, the indicated changes in nature of the nurses' motivation categories during their career reinforce the view that external motivators are not sufficient to capitalise on a hospital nurses' full potential in the contemporary healthcare environment. These findings should be considered by healthcare managers and policymakers in order to upgrade current motivation strategies to retain nurses' engagement with their profession and keep them internally motivated throughout their career. This is important not only from a standpoint of nurses' individual development, but also that self-determination and higher levels of intrinsic

motivation contribute directly to patient safety and best nursing practice in general.

The study provides some practical applicability to identify nurses' work motivation characteristics. The questionnaire used in the study can be used as a basis to develop interview methods and highlight specific individual interventions that can support motivational objectives in a particular position or work unit.

As the study reveals, most of the nurses were motivated more intrinsically than extrinsically. Therefore, it is important to maintain and solidify their current state of motivation, so they feel continuously valued and that their autonomy is respected. In the area of extrinsic work motivation, from a practice perspective, it is important to discuss how to decrease the amount of work overload and how to develop the practice environment to meet both the needs of the service and those who provide it.

According to findings, an efficient means to reach higher levels of motivation is occasional professional training, which along with the revision of tasks, endorses a more autonomous regulation at work. This approach may be hard to fulfil in a limited financial situation; however, some improvements can be made, based on changes in organisational and leadership culture. In line with the findings of the present study which show older, more tenured and head nurses to have more external motivation than other groups (and particularly more introjected regulation), it is suggested that these groups need more support to overcome any fear of failure and to attain pride through their actual work.

If these measures are not applicable, then rotational changes in staff positions and responsibilities could be considered as alternative solutions to excite nurses' interest for work and achieve a more self-determined work motivation. However, in cases, when a nurse's intrinsic motivation is not sustainable and has not been active for a prolonged period of time, then there may be negative individual and organisational outcomes. According to the findings of previous studies on self-determination (11–13), the lack of extrinsically motivated personal interest in nurses' work causes reduced commitments in carrying out nursing activities. This is fatal, particularly in aspects of quality and safety which demand the full commitment of each member of the healthcare team. Additionally, such nurses are more likely to experience psychological distress if they concentrate only on external factors and the consequences of their activities, without deriving any satisfaction of their (higher) psychological needs through their work (11–13).

This study has not aimed to make any generalisations of its findings or draw profound conclusions, and further research is required in order to transfer this knowledge to the wider nurse population and national-level decision-makers. However, as a prominent research into nurses' work motivation in the Baltic States, this study offers important findings by which to understand and

support hospital nurses' work motivation in the region. In addition, emergent motivational strategies may also prove useful to attract and support nurses with intrinsic motivations, and to promote empowerment in those with extrinsic motivations.

The study also provides new information about the usefulness of a relatively innovative methodology for measuring the level and the orientation of nurses' work motivation. Previous knowledge (particularly in the area of nurses' extrinsic work motivation) is limited and provides very fragmented information about the combination of external and intrinsic work motivations within the same study sample. This study, however, expands this domain and offers new additional information about the importance of combined work motivation research and its relevance to achieve a comprehensive understanding of nurses' work motivation. However, further studies are needed to test and develop the validity of this methodology in different nursing cultures.

The findings of this study also raise some constructive issues about the connections between nurses' background factors and their motivation, which need to be included in further studies on nurses' work motivation. The sampling for such studies may though be better suited to smaller groups (e.g. in individual hospitals or units) in order to better stimulate nurses to respond. This study used a structured questionnaire, although qualitative methods may also be useful in gaining a broader perspective of nurses' work motivation. Additionally, head nurses' and management views on supporting nurses' work motivation could be also examined in future studies. Combined with the knowledge provided by this study, it may prove helpful in recruiting and retaining nurses in the hospital setting.

Reflecting the Baltic States recent common historical background, it would be valuable to compare nurses' work motivation in these countries. The low importance given to intrinsic motivation in the healthcare strategies

of these countries is likely to prove one reason for the work-related exodus outside the region, in order to gain better material reward or other extrinsic benefits. Therefore, an understanding of the motivational background, and an improvement of domestic professional knowledge and skills would increase nurses' intrinsic motivation and most likely reduce the levels of work-related migration recently seen in the region.

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Author contributions

All authors made a substantive intellectual contribution to the study. Kristi Toode, Pirkko Routasalo and Tarja Suominen worked on the conception and design of the study and prepared the manuscript. Kristi Toode was responsible for data collection, statistical analysis, drafting the manuscript and submission. Mika Helminen consulted on the study process and critically reviewed the manuscript as a statistical expert.

Ethical approval

The research project was approved (nr 223/T-10) by the Research Ethics Committee of the University of Tartu, Estonia.

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Hospital nurses' individual priorities, internal psychological states and work motivation

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Aim: This study looks to describe the relationships between hospital nurses' individual priorities, internal psychological states and their work motivation.

Background: Connections between hospital nurses' work-related needs, values and work motivation are essential for providing safe and high quality health care. However, there is insufficient empirical knowledge concerning these connections for the practice development.

Methods: A cross-sectional empirical research study was undertaken. A total of 201 registered nurses from all types of Estonian hospitals filled out an electronic self-reported questionnaire. Descriptive statistics, Mann–Whitney, Kruskal–Wallis and Spearman's correlation were used for data analysis.

Results: In individual priorities, higher order needs strength were negatively correlated with age and duration of service. Regarding nurses' internal psychological states, central hospital nurses had less sense of meaningfulness of work. Nurses' individual priorities (i.e. their higher order needs strength and shared values with the organization) correlated with their work motivation. Their internal psychological states (i.e. their experienced meaningfulness of work, experienced responsibility for work outcomes and their knowledge of results) correlated with intrinsic work motivation.

Discussion: Nurses who prioritize their higher order needs are more motivated to work. The more their own values are compatible with those of the organization, the more intrinsically motivated they are likely to be.

Conclusion: Nurses' individual achievements, autonomy and training are key factors which influence their motivation to work.

Limitations: The small sample size and low response rate of the study limit the direct transferability of the findings to the wider nurse population, so further research is needed.

Implications for Nursing and Health Policy: This study highlights the need and importance to support nurses' professional development and self-determination, in order to develop and retain motivated nurses. It also indicates a need to value both nurses and nursing in healthcare policy and management.

Keywords: Hospital Nurse, Individual Priorities, Internal Psychological States, Work Motivation

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Introduction

According to the self-determination theory (Ryan & Deci 2000), the more work activities provide satisfaction to innate psychological needs, the more an employee is intrinsically motivated to work without any external pressure (Gagné et al. 2010; Ryan & Deci 2000). The ideally motivated nurse is one who is self-determined, because he/she identifies with the work goals, and thus the work outcome becomes personally valuable, important and worth the effort (Toode et al. 2011). However, while many work tasks are not designed to be intrinsically interesting, factors related to both intrinsic and extrinsic work motivation must be considered when motivating the work force (Gagné et al. 2010; Ryan & Deci 2000). Many studies on nurses' work motivation have described the level of (mainly intrinsic) motivation and indicated several nurse motivators, including individual priorities (e.g. needs and values) and internal psychological states (i.e. their experienced meaningfulness of work, experienced responsibility for work outcomes and a knowledge of the results of their work) (Toode et al. 2011). Still, little is known about the relationships between these variables and work motivation, and these have not been currently measured within the same study. This study describes the relationships between hospital nurses' individual priorities, internal psychological states and their work motivation.

Background

Nurses' individual priorities relating to work motivation

According to a literature review on factors affecting nurses' work motivation (Toode et al. 2011), certain individual needs and values appear to affect nurses' work motivation. Although there are very few research findings on the topic, it is evident from the literature that only needs and values which are of high priority to nurses can motivate them to work better (Toode et al. 2011). Based on current knowledge, nurses' appear to be more motivated if they attach importance to the attainment of higher order needs (higher order needs strength) and appreciate the same values as held by the organization (shared values).

The priorities of nurses' needs relating to work motivation

Work is motivating in itself, if it meets a person's needs, especially as more individually important needs are met (Toode et al. 2011). To fully achieve an autonomous regulation of work motivation, a person must appreciate that their work supports the satisfaction of three psychological needs: relatedness (i.e. belongingness to a group, mutual respect and reliance), compe-

tence (i.e. feeling productive and obtaining desired results) and autonomy (i.e. having freedom of choice and initiative) (Ryan & Deci 2000). Meeting these needs depends on working conditions and work-place characteristics, such as work climate, learning opportunities, skill use, decision authority and autonomy, workload and demands. Addressing these factors has frequently been found to increase nurses' work motivation (Cai et al. 2011; Toode et al. 2011). Moreover, many nurses have reported that these characteristics form their top priorities as reasons to work (Gaki et al. 2013; Lambrou et al. 2010; Peters et al. 2010).

The consideration of needs for relatedness, competence and autonomy as the most prevailing motivators at work is supported by the findings of recent studies where interpersonal relationships, job meaningfulness and earned respect have been considered as 'work achievements' which satisfy an individual's higher needs. Nurses have rated these characteristics as the most important factors for motivating them to work better (Gaki et al. 2013; Lambrou et al. 2010). Thus, nurses are able to achieve high levels of motivation if they feel related and can act effectively with personal initiative (Battistelli et al. 2013). Those who have the knowledge and skill to perform work well and who value individual achievement, growth and learning will be internally motivated (Oldham & Hackman 2010). Based on this, it can be concluded that enabling nurses to particularly meet their higher order needs (i.e. their needs for self-actualization and achievement) through skilled and autonomous work can be the most efficient means within the range of needs-based motivators to maintain and increase their work motivation.

Nurses have also rated work climate, good working relationships and teamwork as more than moderately important motivators (Gaki et al. 2013; Peters et al. 2010). This implies that their need for relatedness (Ryan & Deci 2000) is placed secondary to the needs for competence and autonomy.

Individual needs-based motives may differ and depend on the context of the situation, and lower order needs (i.e. physiological needs or the need for safety) regarding working conditions, such as remuneration and the physical work environment, have also been recorded as nurses' motivators to work (Gaki et al. 2013; Hoonakker et al. 2013; Peters et al. 2010). Although usually ranked with lower scores than other motivators (Gaki et al. 2013; Hoonakker et al. 2013), in countries with lower levels of social welfare, these extrinsic benefits have been seen as very important motivators (Gaki et al. 2013; Lambrou et al. 2010; Peters et al. 2010). However, even in such situations, a good income has been ranked as one of the least important motivators, when compared with other external reasons to work (Peters et al. 2010).

The priorities of nurses' values relating to work motivation

Usually, individuals choose to work in an organization with which they share the same values (Peters et al. 2010), and nurses whose work is compatible with their personal values appear to be motivated to work (Toode et al. 2011). Generally, nurses have placed a high value on intrinsic motives (based on higher order needs), rather than extrinsic motives (based on lower order needs) (Gaki et al. 2013; Koch et al. 2013). According to Brady's (2008) theory, such nurses have a mission orientation and are therefore also motivated by the highest level need: self-actualization.

However, not all nurses are motivated by professional values. Koch et al. (2013) determined the three most frequent dominant values among nurses as: 'benevolence' (maintaining and developing the welfare of a person in close contact), 'self-direction' (independent thought and decision authority, creativity), and 'hedonism' (pleasure and sensuous gratification for oneself). Additionally, Kudo et al. (2010) reported that more nurses were dedicated to their hospital than were dedicated to the patients it served. A central question is therefore how these personal values are compatible with the values of the organization and society because this will determine the nurse's attitude and behaviour at work (Battistelli et al. 2013; Galletta et al. 2011; Koch et al. 2013; Peters et al. 2010).

The variability of nurses' individual priorities relating to work motivation

Nurses' individual priorities of the needs and values relating to their work motivation seem to vary according to background factors, yet knowledge about this area is still fragmented and sometimes contradictory. In a comparison with staff positions and education, work characteristics that enable more authority and skill exploitation (i.e. meeting higher order needs) appeared to have the biggest motivating effect on head nurses (Gaki et al. 2013; Lambrou et al. 2010) and nurses with a postgraduate education (Gaki et al. 2013). According to the duration of service, less tenured nurses were more motivated by remuneration (i.e. lower order needs) than their tenured colleagues (Lambrou et al. 2010). However, Gaki et al. (2013) found that nurses aged over 35 years placed a higher value on remuneration than younger nurses. Also, female and head nurses have been reported to be more motivated by remuneration than other working groups (Lambrou et al. 2010). Regarding nurses' values, Koch et al. (2013) noted that the prevalence of 'benevolence' is high in all age groups. 'Hedonism' decreases with age and the prevalence of 'self-direction' increases with age, particularly after 36 years.

Nurses' internal psychological states relating to work motivation

Three internal psychological states are needed for intrinsic work motivation: *experienced meaningfulness of the work* (a person experiences their work as generally meaningful, valuable and worthwhile), *experienced responsibility for work outcomes* (a person feels personally accountable and responsible for the result of their work) and a *knowledge of results* (a person knows and understands on a continuous basis, if he/she has performed well) (Hackman & Oldham 1980).

According to Tummers & Den Dulk (2013), the sense of meaningfulness of work had a more positive effect on a midwives' commitment to the organization and work effort than did a sense of power, although the latter also had a significant effect. They describe a sense of power as including the concept of autonomy, and in the context of this article, it can be also understood as the 'experienced responsibility for work outcomes'. As noted previously, job meaningfulness, interpersonal relationships and earned respect signify as 'work achievements' and have been seen as the most important motivators for nurses (Gaki et al. 2013; Lambrou et al. 2010). Internal relationships and earned respect refer to a nurse's knowledge of results gained through the feedback and respect of others, and has increased the work motivation of nurses (Toode et al. 2011) and healthcare workers (Razee et al. 2012).

The experienced meaningfulness of work, power (or experienced responsibility for work outcomes), interpersonal relationships and earned respect (or knowledge of results) as important motivators have been particularly related to management positions (Gaki et al. 2013; Tummers & Den Dulk 2013). This implies that people in a lead position have better access to the work characteristics needed for the motivating internal psychological states and achieving higher work motivation (Gaki et al. 2013; Lambrou et al. 2010; Tummers & Den Dulk 2013). Moreover, head nurses are responsible for developing work characteristics, such as fostering autonomy, and establishing good relationships and working conditions, in order to motivate other nurses (Germain & Cummings 2010).

To summarize, nurses are able to reach high levels of motivation if they meet the higher order needs for self-actualization and achievement, share the same values with the organization, inwardly comprehend their own work to be meaningful within their priorities, feel responsible for outcomes and are aware that they have performed well. To deepen our knowledge of this, this study looks to describe the relationships between hospital nurses' individual priorities, internal psychological states and their work motivation.

Methods

Design and sample

A descriptive quantitative research approach was used. All 6235 nurses working in Estonian hospitals were invited to participate in the study. Inclusion criteria required participants to be a registered nurse, working as a nurse in any kind of hospital or unit, able to respond in the Estonian language and willing to participate in the survey. Although the call for participation was spread through several national publications and communication channels, only 201 nurses responded (response rate 3.2%). Still, a power analysis ensured the sufficient sample size to identify 0.5 statistically significant differences in the means. The sample included all of the main subgroups of the research population. However, the distribution homogeneity of these groups between the sample and the research population is not known because the general national statistics of Estonian hospital nurses' background factors were missing.

Data collection

Data were collected by means of an electronic self-report questionnaire in May 2013. The link to the questionnaire was placed on the Estonian Nurses' Association webpage for the whole month. The tools used in the study were back-translated and validated by experts. A pilot study with 25 nurses was undertaken, following which, some linguistic amendments were made to the questionnaire. Thereafter, all Estonian hospital nurses were invited to participate via invitations placed in the national nursing journal, healthcare workers' national newspaper, a daily newspaper and Facebook. Reminders were circulated via the regional contact persons of the Nurses' Association, both electronically (e-post and Facebook) and in hard format. The questionnaire gave information about the study, participant involvement, voluntary nature of participation and anonymity of respondents. From this, the submission of a fully completed questionnaire was taken as a sign of the participant's informed consent.

Tools

Background questions

The questionnaire included 14 items asking for respondent's background information such as: age; gender; marital status; number of children; education; professional training; type of hospital and work area/unit; staff position; duration of service in current speciality, in current hospital and current work area/unit; type of care; and whether the nurse had direct patient interaction.

Individual priorities

Individual priorities were measured with two scales. Firstly, a 6-item *Higher Order Need Strength Scale* (Warr et al. 1979) was used to measure which higher order needs were more or less important for nurses on a 7-point scale (1 = *not at all important* – 7 = *extremely important*). The Cronbach's alpha was 0.87. Despite the date of inception, this tool is still adequate given the fact that opportunities for personal control, skill use and acquisition (which refer to the workers' preference of higher order needs) are important sources of job-related well-being, and have remained broadly the same in any domain (Warr 2013). Secondly, a five-item tool with a 7-point Likert scale was developed based on both higher and lower order needs to measure to what extent nurses have the same values as the organization and society. Available responses ranged from 1 = *strongly disagree* to 7 = *strongly agree*. The Cronbach's alpha for this tool was 0.80.

Internal psychological states

Three internal psychological states were measured with the corresponding subscales of the Hackman & Oldham's (1974) *Job Diagnostic Survey*: experienced meaningfulness of the work (four items – Cronbach's alpha 0.56), experienced responsibility for work outcomes (six items – Cronbach's alpha 0.42) and knowledge of results (four items – Cronbach's alpha 0.45). All 14 items used the 7-point Likert scale with choices as previously described. Despite the changes in contemporary work design, workers' thoughts and feelings about their work are still relevant and the phenomena stay the same because the human brain operates in the same way in their perception (Oldham & Hackman 2010).

Work motivation

Two overarching types of motivation were measured using the *Motivation at Work Scale* (Gagné et al. 2010). Extrinsic motivation merged the subscales of external, introjected and identified regulation (Cronbach's alpha 0.78, subscale ranges 0.51 to 0.77). Intrinsic work motivation was also measured (Cronbach's alpha 0.84). External and introjected regulation indicated that the reasons to work were extrinsic and totally controlled by others. Identification regulation showed a more autonomous but still external motivation, while intrinsic motivation indicated an individual interest and preference to work (Gagné et al. 2010; Ryan & Deci 2000). Using a scale from 1 = *not at all* to 7 = *exactly*, the participants indicated to what degree each of the 12 statements corresponded to the reasons for which they undertook their particular work.

Validity and reliability of the tools

The tools used have been validated in a number of earlier studies (e.g. Meyer et al. 2012; Moran et al. 2012; Van Beek et al.

2012). In this study, the content validity of the tools was strengthened with a cross-cultural adaptation process including two translators, back translation, an expert committee and pilot testing. The reliability was also assessed by the calculation of Cronbach's alphas (Polit & Beck 2013).

Data analysis

Mean values (M) and standard deviations (SD) were calculated to describe the data. The differences between variables according to background factors were tested with a two-sample Wilcoxon rank-sum (Mann–Whitney) test or a Kruskal–Wallis equality-of-populations rank test. The relationships between continuous background variables, individual priorities, internal psychological states and work motivation were calculated using Spearman's rank correlation (coefficient $Rho = \rho$). Statistical analyses were performed using *Stata* software, version 11.2 (Stata Corp LP, College Station, TX, USA). All results were considered to be statistically significant and also important for practice if the *P*-values were under 0.05.

Results

Sample description

A total of 201 hospital nurses working in several hospital settings in Estonia participated in the study. The mean age of predominantly female respondents (98.0%) was 38.3 years (SD 10.6). Of the respondents, 80.6% lived with a partner and 61.2% had between one and five children. The mean duration of service in current speciality was 15.6 years (SD 11.6). Most of

nurses (75.6%) had vocational or applied higher education in nursing, 24.4% had a university degree at Bachelor or Master's level. Of the sample, 71.1% had undertaken less than 8 days professional training in the last year. There were respondents from all types of hospitals: 68.2% regional, 11.4% central and 20.4% from general, special, local, nursing care or rehabilitation institutions. Many units were represented: surgery (19.4%), intensive care (17.4%), (general) medicine (16.4%), psychiatry (10.5%), emergency (9.0%), paediatrics (8.0%) and others (19.4%). The majority of respondents provided inpatient care (59.2%), 26.4% provided both inpatient and outpatient care and 14.4% provided only outpatient care. About 93.5% of nurses had direct patient contact. The respondents' staff positions were classified as 66.7% regular nurse, 18.9% anaesthetic or intensive care nurse, 15.0% as head nurse and 1.5% as operating room nurse.

Nurses' individual priorities and internal psychological states

In nurses' individual priorities, their *higher order needs* were very important (Table 1). Although some of the respondents were not so sure about the level of importance, for others, these needs were seen to be extremely important. To a small extent, nurses *shared the same values* with their organization and society, however, their opinions varied from 'strongly disagree' to 'strongly agree'. Regarding internal psychological states, nurses have *experienced a meaningfulness of work*, a *responsibility for work outcomes*, and to a small extent, have *knowledge of the results* of their work (Table 1).

Table 1 Descriptive statistics for nurses' individual priorities and internal psychological states

Variable	Items	n	In the scale range 1–7			
			Mean	SD	Minimum	Maximum
Individual priorities						
Higher order needs strength	6	199	5.69	0.78	2.83	7
Shared values	5	199	5.18	1.16	1.4	7
Internal psychological states						
Experienced meaningfulness of work	4	200	5.31	0.93	2.5	7
Experienced responsibility for work outcomes	6	200	5.49	0.66	2.67	6.83
Knowledge of results	4	200	5.12	0.89	2.5	6.75
Work motivation						
Extrinsic work motivation:	3	201	3.63	0.89	1.22	6
External regulation	3	201	3.19	0.97	1	6
Introjected regulation	3	201	3.51	1.32	1	7
Identified regulation	3	201	4.19	1.20	1	7
Intrinsic work motivation	3	201	4.98	1.03	2	7

Relationships between nurses' background, individual priorities and internal psychological states

Correlations between nurses' background factors and other variables

In individual priorities, *higher order needs strength* was negatively correlated with *age* ($\rho = -0.23$, $P = 0.001$); *duration of service in current specialty* ($\rho = -0.22$, $P = 0.002$), *time in current hospital* ($\rho = -0.17$, $P = 0.018$) and *time in current unit* ($\rho = -0.16$, $P = 0.021$).

Associations between nurses' background factors and other variables

Nurses with *specialized or degree education* considered *higher order needs* as being more important than nurses with *vocational or applied higher education*, although the P -values were only slightly above the borderline of statistical significance ($P = 0.054$) (Table 2). Nurses who had *professional training during the last 12 months of at least 8 days* reported having more *shared values* with the organization and society than those who had *less training*. Nurses from *paediatrics* were seen as those with the most claims to have *shared values* with their organization and society, while nurses from the areas of *emergency and medicine* shared the least values and also had the highest variance of opinion. *Operating room nurses* rated *higher order needs* much lower than other nurses; however, there was an insufficient sample to compare with other groups. Regarding staff position, the mean score of *shared values* were lowest among *anaesthetic and intensive care nurses* and highest among *regular nurses* (Table 2).

Looking at nurses' internal psychological states, it was found that nurses from *central hospitals* indicated less *experienced meaningfulness of work* than others. They also experienced less *responsibility for work outcomes*, however, this result was not statistically significant ($P = 0.053$) (Table 2).

Correlations between nurses' priorities, internal psychological states and work motivation

Correlations were found between nurses' individual priorities (such as *higher order need strength* and *shared values*) and their internal psychological states (such as *experienced meaningfulness of the work*, *experienced responsibility for work outcome* and *knowledge of the results*), with their *extrinsic* (including *external regulation*, *introjected regulation* and *identified regulation*) and *intrinsic work motivation* (Table 3).

In individual priorities, *higher order need strength* was correlated with both *intrinsic and extrinsic motivation*. The correlations were higher with *extrinsic work motivation*, particularly with subareas such as *introjected regulation* and *identified regulation*. *Shared values* were almost equally positively correlated

with *intrinsic work motivation* and with one subarea of *extrinsic work motivation*, namely *identified regulation* (Table 3).

In the area of internal psychological states, the *experienced meaningfulness of the work* also had a low positive correlation with *intrinsic work motivation* and *identified regulation* in the area of *extrinsic motivation*. The *experienced responsibility for work outcomes* was most correlated with *intrinsic work motivation* and had very low correlations with two *extrinsic work motivation* subareas, that is *introjected and identified regulation*. The *knowledge of results* correlated with *intrinsic work motivation* and with *identified regulation* in the area of *extrinsic work motivation* (Table 3).

When looking at the correlations between nurses' individual priorities and internal psychological states, it was found that *shared values* were correlated with all three internal psychological states, and particularly with the *experienced meaningfulness of work*. Furthermore, according to the intercorrelations between all three internal psychological states, the *experienced meaningfulness of work* had the highest positive effect on other states and vice versa (Table 3).

Discussion

Individual priorities and internal psychological states

The findings about Estonian hospital nurses supported the theoretical framework about nurses in general as having prevalently higher order needs as their top priorities. Nurses who had higher order needs within their individual priorities were more motivated to work. However, the older and more experienced the nurse was, the less important higher order needs were. Surprisingly, nurses who valued higher order needs appeared to be rather more extrinsically motivated. According to the self-determination theory (Ryan & Deci 2000), this finding implies that the nurses who most inwardly valued skill exploitation, personal achievements, opportunities for decision authority, learning, etc., were already internally interested work, yet were overtly externally controlled by someone else. This would suggest that more support for nurses' individual achievements, autonomy and development of their competence is needed.

Individual priorities, internal psychological states and work motivation

The findings demonstrated that managers should consider how nurses' needs could be respected and met in order to sustain and increase nurses' work motivation. According to earlier literature, this can be achieved through work characteristics which support their competence, autonomy, individual achievements, growth and learning (Gaki et al. 2013; Peters et al. 2010; Ryan & Deci 2000).

Table 2 Associations between nurses' background, individual priorities and internal psychological states (n = 201)

Background	n	%	Higher order need strengths			Shared values			Meaningfulness of work			Responsibility for work outcomes			Knowledge of results		
			Mean	SD	P	Mean	SD	P	Mean	SD	P	Mean	SD	P	Mean	SD	P
Education																	
Vocational/applied higher	152	75.6	5.64	0.80	0.054	5.14	1.19	0.534	5.26	0.94	0.189	5.51	0.66	0.825	5.11	0.90	0.915
Specialized/degree	49	24.4	5.86	0.67	0.238	5.31	1.08	0.004	5.48	0.87	0.116	5.43	0.67	0.200	5.15	0.85	0.477
Professional training during 12 months																	
0-7 days	143	71.1	5.64	0.82	0.975	5.04	1.16	0.193	5.24	0.93	0.025	5.45	0.67	0.100	5.09	0.89	0.320
8 days or more	58	28.9	5.82	0.64	0.487	5.54	1.09	0.041	5.48	0.92	0.015	5.58	0.62	0.100	5.18	0.89	0.216
Type of hospital																	
Regional	137	68.1	5.69	0.81		5.28	1.13		5.36	0.92		5.53	0.68		5.15	0.90	
Central	23	11.4	5.68	0.75		4.92	0.99		4.87	0.93		5.24	0.57		4.90	0.74	
Other	41	20.4	5.70	0.70		5.02	1.34		5.41	0.90		5.50	0.62		5.14	0.93	
Work area/unit																	
Surgery	39	19.4	5.56	0.87		5.18	1.30		5.45	1.02		5.45	0.56		5.31	0.86	
Intensive care	35	17.4	5.60	0.99		4.88	1.36		5.22	1.24		5.62	0.79		5.2	0.95	
Medicine	33	16.4	5.65	0.68		4.97	1.12		5.05	0.66		5.37	0.65		4.92	0.92	
Psychiatry	21	10.5	5.60	0.74		5.30	0.80		4.95	0.74		5.25	0.58		4.76	0.96	
Emergency	18	9.0	5.91	0.60		4.89	1.21		5.42	0.76		5.51	0.62		5.22	0.84	
Paediatrics	16	8.0	5.84	0.62		5.96	0.66		5.66	0.71		5.76	0.39		5.14	0.85	
Other units	39	19.4	5.85	0.68		5.39	1.03		5.5	0.88		5.52	0.74		5.18	0.79	
Staff position*																	
Anaesthetic/intensive care unit nurse	38	19.0	5.61	0.90	0.791	4.64	1.34	0.004	5.16	1.13	0.393	5.60	0.64	0.315	5.27	0.86	0.223
Head nurse	30	15.0	5.82	0.54	0.537	5.09	1.24	0.649	5.4	0.87	0.558	5.38	0.51	0.243	5.05	0.83	0.576
Operating room nurse	3	1.5	4.44	1.13	0.031	5.8	0.2	0.344	6	0	0.227	5.5	0.24	0.912	5.63	0.53	0.405
Regular nurse	134	66.7	5.73	0.75	0.583	5.33	1.08	0.020	5.34	0.88	0.640	5.48	0.69	0.916	5.11	0.91	0.784

*For each staff position the comparisons were made between two groups: (1) holding this particular position and (2) not holding this position. Only the scores for those who held this position are presented in the table. Statistically significant P-values are in bold.

Table 3 Correlations between the variables in the study ($n = 197$)†

Variable	1	2	3	4	5	6	6a	6b	6c	7
Individual priorities										
1. Higher order needs strength	1									
2. Shared values	0.21*	1								
Internal psychological states										
3. Experienced meaningfulness of work	0.23**	0.46**	1							
4. Experienced responsibility for work outcomes	0.17*	0.28**	0.40**	1						
5. Knowledge of results	0.14	0.22*	0.48**	0.22*	1					
Work motivation										
6. Extrinsic work motivation	0.40**	0.22*	0.14	0.21*	0.06	1				
6a. External regulation	0.16*	0.15*	0.05	0.06	-0.05	0.66**	1			
6b. Introjected regulation	0.34**	0.00	-0.02	0.18*	-0.05	0.78**	0.24**	1		
6c. Identified regulation	0.39**	0.36**	0.29**	0.18*	0.22*	0.76**	0.30**	0.42**	1	
7. Intrinsic work motivation	0.27**	0.44**	0.33**	0.27**	0.24**	0.28**	0.00	0.17*	0.49**	1

* $P < 0.05$; ** $P < 0.001$.

†The coefficient Rho of Spearman's correlation is presented in the table.

Nurses who had more shared values with their organization found their work to be more meaningful and were more autonomously and intrinsically motivated. This finding indicates that if nurses' own values are compatible with those of the organization, their work will become personally important and meaningful, and therefore the nurse will be more self-directed in their work. This local finding and conclusion is also supported in previous international studies (Battistelli et al. 2013; Galletta et al. 2011; Koch et al. 2013; Peters et al. 2010). The data concerning shared values in this study differed greatly in individual responses and are thus likely to differ in organizations as well. This leads to the conclusion that either Estonian hospitals prioritize different values, or the hospital's values have not been considered or familiarized by nurses at all. This could be one explanation why nurses working in central hospitals seldom felt their work to be meaningful, when compared with nurses from other types of hospitals.

According to the findings about the relationships between the study variables and work motivation, the type of motivation depends on the needs of the individual nurse and how these are valued and met by the organization. The relatively high degree of variation in mean scores for all the variables in this study confirms the existing findings that individuals have different needs (Gaki et al. 2013; Lambrou et al. 2010), values (Koch et al. 2013) and internal psychological states (Gaki et al. 2013; Tummers & Den Dulk 2013) relating to their work. Therefore, nurse managers should focus their attention not primarily on

an individual nurse, but rather to the work climate, good working relationships, teamwork, learning opportunities, skill use and decision authority and autonomy, which have all been reported to increase nurses' work motivation (Cai et al. 2011; Gaki et al. 2013; Toode et al. 2011).

The problems with shared values and the many correlations of extrinsic work motivation revealed in this study raise the consideration that the high migration rate of Estonian nurses to work in higher-income countries may also be related to the lack of intrinsic motivation and the perception of fewer shared values with home organizations. According to Battistelli et al. (2013), the identification and internalization of hospital values can lessen professional turnover among nurses. Additionally, Peters et al. (2010) have argued that nurses who did not answer their questionnaire were probably so interested in extrinsic benefits that they were too busy earning a living, instead of participating. The nurses' participation in the present study was also low despite extensive advertising, and the lack of shared values with the organization/society, and having (unmet) external needs can pose possible explanations for the low response rate. However, as reasons for non-participation were not sought, then this cannot be further explored.

Implications for nursing and health policy

The findings emphasize and extend the knowledge about the connections between hospital nurses' work-related needs, values and feelings, with their work motivation. While there is a depth

of organizational theory and international empirical evidence supporting this knowledge, the hospitals and national healthcare system have not succeeded in implementing this in Estonian nursing practice. As a primary study in the Baltic States which describes the relationships between nurses' individual priorities, internal psychological states and motivation, this study provides contemporary evidence about the real situation and gives some practical advice with which to develop and retain motivated nurses in these countries. This may also be of benefit to other countries, as it provides a view of the current situation in a European country, where the healthcare system and economy is still in a developing phase.

Healthcare managers and policymakers should consider upgrading their motivation strategies. Especially, more nationwide support for nurses' professional development and autonomous self-determination is needed, in order to increase their motivation and keep them internally motivated. It is also suggested that healthcare system policy should take further steps towards becoming a holistic healthcare system which places more value on nurses and the nursing profession.

Limitations

The relatively small sample size and response rate of the study leads to caution in generalizing any conclusions to all Estonian nurses before further research has been carried out. However, according to the power analysis of the study design, this size was sufficient to provide reliable findings and for testing the tools in this context. Therefore, this study forms a good basis from which to continue related research in Estonia and other countries.

The Cronbach's alphas of three subscales of internal psychological states were between 0.42 and 0.56. Each of these subscales included two different types of questions: the respondent's opinions about themselves and their opinions about other people. An opinion about oneself may not relate to an opinion about others, and therefore this might offer a reason for such a low level of reliability for these scales. The Cronbach's alphas of the other tools and subscales used in this study were good (see Tools section), with the exception of one subscale of extrinsic work motivation (external regulation – 0.51). These issues need amendment for future studies.

Conclusion

The study highlighted several factors which may prove beneficial to nurse motivation, but also revealed some problems relating to the actual situation in hospitals today. Based on these findings, some practical advice for motivating nurses may be offered to head nurses and hospital management:

- Nurses and their profession should be valued by the whole organization, and this should be clearly stated and transparent at all management levels and actions.
- The nurses' work climate and working relationships require particular attention.
- More effort should be given to support nurses' individual achievements, competence, autonomy and professional training in their everyday work.
- More effective strategies are needed for helping nurses to inwardly comprehend that their work is meaningful and autonomous, and that they are good at it.
- Nurses' individual priorities and reasons to work should be periodically reviewed for throughout their employment, so as to identify possible changes.

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Conflict of interest

No conflicts of interests are declared.

Author contributions

KT, PR and TS contributed in the conception and design of the study and in the preparation of the manuscript. KT collected and analysed the data. MH offered critical revision for the study methods and statistics of the manuscript.

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