Hospital nurses’ working conditions in relation to motivation and patient safety

Kristi Toode and colleagues examine whether nurses’ levels of satisfaction with their workplace influence how they perform their job and care for patients.

Abstract

There is a lack of empirical knowledge about nurses’ perceptions of their workplace characteristics and conditions, such as level of autonomy and decision authority, work climate, teamwork, skill exploitation and learning opportunities, and their work motivation in relation to practice outputs such as patient safety. Such knowledge is needed particularly in countries, such as Estonia, where hospital systems for preventing errors and improving patient safety are in the early stages of development. This article reports the findings from a cross-sectional survey of hospital nurses in Estonia that was aimed at determining their perceptions of workplace characteristics, working conditions, work motivation and patient safety, and at exploring the relationship between these. Results suggest that perceptions of personal control over their work can affect nurses’ motivation, and that perceptions of work satisfaction might be relevant to patient safety improvement work.

Keywords
workplace characteristics, working conditions, hospital nurse, work motivation, patient safety

Introduction

NURSES ARE motivated to work well when workplace characteristics such as level of autonomy and decision authority, work climate, teamwork, skill exploitation and learning opportunities are combined with a positive support structure, realistic workloads and manageable schedules (Toode et al 2011). Positive perceptions of workplace conditions have been linked with self-directed and intrinsic work motivation (Moran et al 2012), especially when work meets individuals’ psychological need for autonomy, psychological relatedness and feelings of competence (Ryan and Deci 2000).

Intrinsic work motivation is associated with professional nurses who are concerned about practice autonomy and better performance, while extrinsic work motivation is associated with workers more interested in wages than the work itself or improvement in services (Moody et al 2006, Gagné et al 2010).

In health sciences there is a lack of empirical knowledge about nurses’ perceptions of their workplace characteristics and conditions, and their work motivation in relation to practice outputs, which, in this study, are their perceptions of patient safety in their units. Such knowledge is needed particularly in countries, such as Estonia, where hospital systems for preventing errors and improving patient safety are in the early stages of development.

To address this gap in knowledge a cross-sectional survey of hospital nurses in Estonia was conducted to determine their perceptions of workplace characteristics, working conditions, work motivation and patient safety, and to explore the relationship between these perceptions.

Literature review

A search for reports on factors that affect nurses’ work motivation was conducted in the CINAHL, Medline, PsychINFO and PsycARTICLES databases, using the combination of keywords ‘nurs*’, work and motiva*’.
A recurrent finding was that nurses’ perceptions of their workplace characteristics and working conditions affect their work motivation, which in turn influences their performance.

**Workplace characteristics and nurses’ work motivation** The conditions under which nurses work are important to their sense of purpose, whether they are described as workplace or job characteristics (Toode et al 2011).

If nurses feel they have more control and greater individual influence on their own work - that is, more autonomy and decision authority - they are more likely to be intrinsically motivated (Tummers et al 2006, Van den Berg et al 2006, Germain and Cummings 2010, Cai et al 2011, Galletta et al 2011) and willing to perform better (Gaki et al 2013). For this they need either to feel consulted on changes or to have a direct leadership role (Öztürk et al 2006, Gaki et al 2013, Tummers and Den Dulk 2013).

Nurses want to feel respected (Ryan and Deci 2000, Öztürk et al 2006, De Cooman et al 2008) and look for social support in their healthcare teams (De Cooman et al 2008, Germain and Cummings 2010, Lambrou et al 2010, Peters et al 2010, Van Beek et al 2012, Gaki et al 2013). How managers provide feedback on performance, and offer development and support, is important when motivating nurses to work better (Fairchild 2010, Germain and Cummings 2010). However, while nurses’ motivation is important to improving practice, it is not the only influencing factor in change; systems must be in place to harness nurses’ enthusiasm (International Council of Nurses 2009).

Nurses’ work motivation and perceptions of work can vary according to the particular goals and tasks their work entails (Ryan and Deci 2000, Gagné et al 2010, Koch et al 2013). Each nursing task per se can be motivating if it allows nurses to use their skills and moderately challenges their reasoning abilities (Tummers et al 2006, Van den Berg et al 2006, Van den Berg et al 2008, Cai et al 2011). Challenges met within nurses’ coping range can empower them (Cai et al 2011), and provide a sense of personal accomplishment and continuous learning opportunities.

The opportunity to test and reaffirm skills helps nurses feel competent and up to date in their work, and supports their self-esteem and confidence (De Cooman et al 2008, Peters et al 2010, Rydenfält et al 2012, Hoonakker et al 2013). Therefore, staff appraisal and capacity review of individual nurses and the whole team could help to sustain work motivation and avoid ethical conflicts concerning nursing practice (Fairchild 2010).

**Working conditions, nurses’ confidence and motivation** Clinical practice throws up unforeseen challenges, so nurse confidence is important and support structures must be in place to sustain this confidence (Germain and Cummings 2010, Van Beek et al 2012). Nurse confidence is especially pertinent to patient safety and quality of care, making the right decisions with a clear rationale (Moody et al 2006, Germain and Cummings 2010, Trépanier et al 2013, Gaki et al 2013). Having well arranged support structures and staffing, and accessible equipment or other resources, are critical if nurses are to feel they can improve care (Germain and Cummings 2010, Cai et al 2011).

There is an optimum workload that affects nurses’ confidence; just the right amount of work, or ‘eustress’, motivates, while an excess or absence of work produces distress (Van den Berg et al 2006, 2008, Van Beek et al 2012). Working hours motivate nurses if they meet two conditions: first, that they are at times that suit them, for example during day or night shifts; and second, if they are flexible or can be self-planned (De Cooman et al 2008). Nurses who work to fixed schedules are reported to be more motivated than those who rotate day and night shifts (Camerino et al 2008, Yildiz et al 2009, Razee et al 2012).

**Nurses’ work motivation and patient safety** In the culture of safety, nurses are required to work together to recognise and report errors, and are trained to avoid them (Moody et al 2006). In this article, patient safety is considered a qualitative nursing work outcome and defined as the avoidance and prevention of patient injury or adverse event resulting from the processes of healthcare delivery (Agency for Healthcare Research and Quality 2004).

For nurses to engage successfully and consistently in patient safety work, they need to feel they can make a difference and should have high levels of awareness of risk factors that can arise in their clinical areas. Nurses’ confidence and work motivation are therefore highly important. There are few studies on nurses’ work motivation that connect it to care outcomes or that address its measurable consequences for nurses or patients. Research so far indicates that positive perceptions of workplace characteristics make nurses more motivated and so perform better (Moody et al 2006, Yildiz et al 2009, Germain and Cummings 2010, Cai et al 2011, Toode et al 2011, Van Beek et al 2012, Gaki et al 2013).

What is less clear is whether this motivation also means better outcomes; in other words, does good work, as perceived by nurses, translate into productive
work with high quality and safety levels as perceived by their organisations and managers? What seems clear, however, is that, while nurse motivation may not by itself determine care outcomes, it is a necessary contribution to care improvement. Nurses need to believe that they can succeed.

Only a few studies report findings that prove there is a relationship between nurses’ positive perception of their workplace characteristics, for example communication openness, supportive work climate and learning opportunities, and their belief that quality in nursing or patient safety can be improved (Moody et al 2006). Poor working conditions such as weak support structures and insufficient staffing, which result in work overload and emotional exhaustion, have been shown to reduce nurses’ work motivation (Van Beek et al 2012) and their confidence to perform better and improve the quality or safety of care (Moody et al 2006, Yildiz et al 2009, Germain and Cummings 2010).

**Study**

**Sample** Of the 6,235 registered nurses who work in hospitals across Estonia, 201 completed an online questionnaire that was available for one month on the Estonian Nurses Association website, to which all Estonian nurses have free access. Invitations to participate were distributed to nurses using national and specialty press, social media, regional contacts from the Estonian Nurses Association, and two national nursing conferences. The introduction to the survey briefed participants on its purpose, assured their anonymity and secured their informed and voluntary participation. The response rate was low (3.2%) but the sample was deemed sufficient to describe statistically significant differences in mean scores.

**Instruments** Together with background questions including age, gender, marital status, children, education, training, hospital, unit, position, tenure, type of care and patient contact, three validated instruments were used. Two of these instruments, the Healthcare Team Vitality Instrument (HTVI) (Upenieks et al 2010) and the Hospital Survey on Patient Safety Culture (HSPSC) (Agency for Healthcare Research and Quality 2004), included subscales for different workplace characteristics and working conditions, and the HSPSC also included subscales for patient safety outcomes. These subscales and sum of items are listed in Table 1. Unlike other questionnaires about work, the HTVI and HSPSC reflect precisely the specifics, namely team work, communication and responsibilities, and outcomes, such as patient wellbeing and safety, of professional nursing work (Moody and Pesut 2006). The third instrument, the Motivation at Work Scale (Gagné et al 2010), measured the amount and reasons of nurses’ work motivation.

**Workplace characteristics** Thirteen variables of nurses’ perceived workplace characteristics were measured. First, to characterise nurses’ autonomy about what to do, when and how at work, the individual influence on work was measured with three items developed based on a preparatory literature review (Toode et al 2011). A five-point scale was used ranging from 1 representing ‘none’ to 5 ‘total’. Second, within the HTVI, three subscales measured teamwork: engagement and empowerment in unit; team communication in unit; and patient care transition in unit, using a Likert-scale ranging from 1 ‘strongly disagree’ to 5 ‘strongly agree’.

Third, nine subscales in the HSPSC measured workplace characteristics: communication and openness in unit; teamwork within units; teamwork across units; hospital handover and transitions; feedback and communication about errors; non-punitive response to errors; organisational learning and continuous improvement; supervisor and manager expectations and actions promoting patient safety; and hospital management support for patient safety. All these subscales used a five-point Likert scale ranging from 1 ‘strongly disagree’ to 5 ‘strongly agree’, with two exceptions: the feedback and communication about errors, and communication and openness in unit, used a five-point scale ranging from 1 ‘never’ to 5 ‘always’.

**Working conditions** Six variables of nurses’ perceived working conditions were measured. In the HTVI, the subscale of support structures in unit was used, and in the HSPSC the subscale of staffing was used. Both used a five-point Likert scale ranging from 1 ‘strongly disagree’ to 5 ‘strongly agree’.

In addition, two open-ended and two multiple-choice questions featured in the questionnaire, aimed at measuring working conditions such as workload in the hospital, workload in other healthcare institutions, working schedule and possibility for flexible work time. These single items were selected based on the findings from a preparatory literature review (Toode et al 2011).

**Patient safety outcomes** Four outcomes of perceived patient safety were measured using the HSPSC subscales: frequency of reported events (scale ranging from 1 ‘never’ to 5 ‘always’); overall
perceptions of patient safety (scale ranging from 1 'strongly disagree' to 5 'strongly agree'); patient safety grade in unit (scale ranging from A 'excellent' to F 'failing'); and number of self-reported events within the past 12 months (open-ended question). What was measured here were nurses’ perceptions. Frequency of reported events was equated with awareness and understanding of safety as ‘an issue’. Overall perceptions of patient safety and patient safety grade in units were equated with level of satisfaction and assumed to imply a personal judgement of local performance. Low scores signal nurses' concern, high scores a sense of confidence. The number of self-reported events in the past 12 months signals something about nurses’ beliefs that they should report problems and that improvement might then be possible.

**Motivation at work** The Motivation at Work Scale (Gagné et al 2010) was used to measure two different types of work motivation based on respondents’ reasons for working. The first is the extrinsic work motivation, when a person works for reasons such as pay, reputation, career and so on: nine items (Cronbach’s alpha = .78), comprising subscales of (a) external regulation (three items, Cronbach’s alpha = .51); (b) introjected regulation (three items, Cronbach’s alpha = .77); and (c) identified regulation (three items, Cronbach’s alpha = .77) External regulation means actions aroused to obtain external reward; introjected regulation is actions aroused to avoid pressure or to attain reputation; identified regulation is actions aroused with personal importance. The second type of

<table>
<thead>
<tr>
<th>Variable</th>
<th>Sum of items</th>
<th>n</th>
<th>Mean or %</th>
<th>SD</th>
<th>Minimum</th>
<th>Maximum</th>
<th>α</th>
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<td>.61</td>
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<td>0.71</td>
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<td>3.86</td>
<td>0.70</td>
<td>2</td>
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<td>.82</td>
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<td>3.41</td>
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<td>.76</td>
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<td>201</td>
<td>3.72</td>
<td>0.72</td>
<td>1.33</td>
<td>5</td>
<td>.70</td>
</tr>
<tr>
<td>Staffing</td>
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<td>2.97</td>
<td>0.77</td>
<td>1.25</td>
<td>5</td>
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<td>Workload in this hospital:</td>
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<td>Between 12 and 40 hours a week</td>
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<td>71.1%</td>
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<tr>
<td>Between 41 and 80 hours a week</td>
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<td>28.9%</td>
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motivation is intrinsic work motivation (three items, Cronbach’s alpha=.84).

Among the sub areas of extrinsic work motivation, external and introjected regulation are fully externally controlled, which means the reasons for behaviour are controlled by someone else. Identified regulation is also external but more autonomous, while intrinsic motivation is defined as undertaking work for its own sake and interest (Ryan and Deci 2000, Gagné et al 2010). Participants indicated, using a seven-point scale from 1 ‘not at all’ to 7 ‘exactly’, how much each of the 12 statements corresponded to their personal reasons for working in their current job.

The cross-cultural adoption of all three instruments used in the study involved expert panel review and pilot testing (n=25). The Cronbach’s alpha values of the subscales, except those with only two items, were estimated and are presented in Table 1.

Data analysis

Stata 11.2 software was used for analysis, and frequencies and percentages were estimated for categorical data. For continuous data, the means (M) with standard deviations (SD) were estimated to describe nurses’ perceptions of workplace characteristics, working conditions and patient safety outcomes (Table 1). For exploring the relationships between workplace characteristics, working conditions, patient safety outcomes and work motivation, Spearman’s rank correlation coefficients rho (ρ) were estimated (Tables 2 to 5, pages 36 to 39). The relationships between categorical working conditions, patient safety

<table>
<thead>
<tr>
<th>Variable</th>
<th>Sum of items</th>
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<th>SD</th>
<th>Minimum</th>
<th>Maximum</th>
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<td>Yes</td>
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<td>No</td>
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<tr>
<td>Working schedule:</td>
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<td>34.8%</td>
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<tr>
<td>Fixed schedule</td>
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<tr>
<td>Rotating day and nights shifts</td>
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<tr>
<td>Possibility for flexible work time:</td>
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<td>201</td>
<td>88.1%</td>
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<tr>
<td>Flexible working hours</td>
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<tr>
<td>Sharing full-time job with someone else</td>
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<td>201</td>
<td>24.4%</td>
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<tr>
<td>Changing shift with someone else</td>
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<td>201</td>
<td>69.7%</td>
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<tr>
<td>Parental leave</td>
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<td>201</td>
<td>39.8%</td>
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<tr>
<td>Working at or from home</td>
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<td>201</td>
<td>3.5%</td>
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<tr>
<td>Own planning of work schedule</td>
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<td>201</td>
<td>49.3%</td>
<td></td>
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<tr>
<td>Patient safety outcomes</td>
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<td></td>
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<tr>
<td>Frequency of events reported in unit</td>
<td>3</td>
<td>200</td>
<td>2.89</td>
<td>1.09</td>
<td>1</td>
<td>5</td>
<td>.84</td>
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<td>Overall perceptions of patient safety</td>
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<td>3.39</td>
<td>0.70</td>
<td>1</td>
<td>4.75</td>
<td>.67</td>
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<td>Patient safety grade in unit:</td>
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<td></td>
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<tr>
<td>Excellent/very good</td>
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<tr>
<td>Acceptable/poor/failing</td>
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<td></td>
<td></td>
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<tr>
<td>Self-reported events during 12 months</td>
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<td>201</td>
<td>39.3%</td>
<td></td>
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</table>

α = Cronbach’s alpha
outcome variables, and the mean scores of work motivation were tested using a Mann-Whitney test (comparing two groups) or a Kruskal-Wallis test (comparing more than two groups) (Tables 3 to 5). Findings were statistically significant at the .05 level. All statistically significant results were considered to have importance for practice, including those with a low effect size.

Results

Sample description The sample comprised registered nurses with positions such as general nurse (67%), anaesthetic or intensive care nurse (19%), head nurse (15%) and operating room nurse (2%) (some respondents had more than one position in the same hospital). Respondents worked in regional (68%), central (11%), or other (that is general, special, local, nursing care or rehabilitation) institutions (20%). Most had direct contact with patients (94%). Specialties included surgery (19%), intensive care (17%), medicine (general) (16%), psychiatry (11%), emergency (9%), paediatrics (8%) and other units (19%). Of these, 59% provided inpatient care, 14% provided outpatient care and 26% provided both types of care.

Most of the respondents were female (98%) and lived with a partner (81%), and 61% had between one and five children. More than two thirds of respondents had vocational or applied higher education (76%) and had undertaken less than eight days professional training in the past 12 months (71%).

Workplace characteristics and working conditions

Hospital nurses perceived their workplace characteristics positively, and most had a moderate individual influence on what work they do, and when and how they do it (M=2.79, SD=0.78) (Table 1). They agreed that their team communication in unit (M=3.96, SD=0.62), teamwork within units (M=3.53, SD=0.75), and patient care transition in unit (M=3.86, SD=0.70) were good for working and providing safe patient care. The majority of nurses had, either sometimes or most of the time, received feedback and communication about errors (M=3.48, SD=0.90) and had experienced communication and openness in their units (M=3.32, SD=0.73). In regard

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### Table 2 Correlation between workplace characteristics and work motivation

<table>
<thead>
<tr>
<th>Workplace characteristics</th>
<th>1. Extrinsic work motivation</th>
<th>1a. External regulation</th>
<th>1b. Introjected regulation</th>
<th>1c. Identified regulation</th>
<th>2. Intrinsic work motivation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual influence on work</td>
<td>.08</td>
<td>.04</td>
<td>.01</td>
<td>.15*</td>
<td>.24***</td>
</tr>
<tr>
<td>Engagement and empowerment in unit</td>
<td>.13</td>
<td>.11</td>
<td>.00</td>
<td>.19**</td>
<td>.29***</td>
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<td>Team communication in unit</td>
<td>.15*</td>
<td>.10</td>
<td>.02</td>
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<td>.32***</td>
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<td>.05</td>
<td>-.17*</td>
<td>.08</td>
<td>.30***</td>
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<td>Communication and openness in unit</td>
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<td>.05</td>
<td>-.11</td>
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<td>.29***</td>
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<td>-.07</td>
<td>.10</td>
<td>.26***</td>
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<td>Teamwork across units</td>
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<td>.11</td>
<td>-.06</td>
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<td>.21**</td>
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<td>-.18**</td>
<td>.02</td>
<td>.04</td>
</tr>
<tr>
<td>Organisational learning and improvement</td>
<td>.11</td>
<td>.04</td>
<td>-.00</td>
<td>.21**</td>
<td>.27***</td>
</tr>
<tr>
<td>Supervisor and manager expectations and actions promoting patient safety</td>
<td>.08</td>
<td>.08</td>
<td>-.13</td>
<td>.25***</td>
<td>.27***</td>
</tr>
<tr>
<td>Hospital management support for patient safety</td>
<td>.08</td>
<td>.11</td>
<td>-.06</td>
<td>.15*</td>
<td>.24***</td>
</tr>
</tbody>
</table>

The coefficient rho of Spearman’s rank correlation is presented in the table. 
***p<.001, **p<.01, *p<.05
to other workplace characteristics, however, nurses were mainly in a quandary, neither agreeing nor disagreeing (Table 1).

In general, most of the nurses had good working conditions but different opportunities for engaging in flexible work time. They mainly agreed that the support structures in their units were good for working (M=3.72, SD=0.72), but were less sure, neither agreeing nor disagreeing about whether they had good staffing levels, for example, enough staff to handle workloads and to provide best patient care (M=2.97, SD=0.77). Of the respondents, 28.9% reported a workload of more than 41 hours a week in their current hospital, 20.9% also worked in other healthcare institutions, and 88.1% had one or more opportunities for flexible work time (Table 1).

**Characteristics, conditions and motivation** Between nurses’ perceptions of workplace characteristics and their work motivation (Table 2), and between their perceptions of their working conditions and work motivation (Table 3), the inferential statistics revealed several statistically significant relationships, most of which related to identified regulation, the most autonomous external motivation, and intrinsic motivation; that is, nurses’ perception of their workplace influences particularly their autonomous and intrinsic motivation. Of the workplace characteristics, the factors that correlated most with nurses’ intrinsic work motivation were team communication ($\rho=.32$, $p<.001$), patient care transitions ($\rho=.30$, $p<.001$), engagement and empowerment ($\rho=.29$, $p<.001$), and communication and openness ($\rho=.29$, $p<.001$) (Table 2).

Regarding working conditions, support structures and good staffing correlated weakly with nurses’ intrinsic work motivation ($p<.05$) and nurses who had an opportunity to share
workload with someone else were intrinsically more motivated (M=5.35, SD=0.96) than others (M=4.86, SD=1.03) (p=.004) (Table 3). Those nurses who had no possibility for changing shifts or parental leave had higher mean scores for the sub-area of external work motivation, introjected regulation (p<.01); that is, they were more interested in their reputation than in work per se. Although the p-value indicated no statistical significance (p=.06), nurses who worked nowhere other than their current hospital were more intrinsically motivated than those who also worked in other healthcare institutions (Table 3).

**Patient safety outcomes** Regarding patient safety outcomes, nurses’ overall perceptions of patient safety were mixed (M=3.39, SD=0.70). They gave an equal amount of high and low grades for patient safety in their unit and generally reported that patient safety events were only sometimes reported (M=2.89, SD=1.09) (Table 1). None of the four patient safety outcomes differed in relation to staff position or type of hospital or unit.

All the workplace characteristics and some of the working conditions such as support structures and staffing correlated with nurses’ overall perceptions of patient safety (p<.001) and patient safety grade (p<.01) (Tables 4 and 5). Nurses who experienced more engagement and empowerment in their unit had more self-reported events relating to patient safety a year (p<.001) (Table 4). More intrinsically motivated nurses were more confident that patients would be safe (p=.33, p<.001) and indicated a higher grade of patient safety in their unit (p=.006). Extrinsically motivated nurses may be more likely to report events during the past 12 months than those who were less externally motivated; however, this finding had no statistical significance (p=.06) (Table 5).

### Table 4 Relationships between workplace characteristics and patient safety outcomes

<table>
<thead>
<tr>
<th>Workplace characteristics</th>
<th>Frequency of events reported in unit, ρ</th>
<th>Overall perceptions of patient safety, ρ</th>
<th>Patient safety grade in unit</th>
<th>Self-reported events during 12 months</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Excellent/Very good</td>
<td>Acceptable/Poor/Failing</td>
</tr>
<tr>
<td>Individual influence on work</td>
<td>.10**</td>
<td>.37***</td>
<td>2.94 (0.75)**</td>
<td>2.65 (0.79)**</td>
</tr>
<tr>
<td>Engagement and empowerment in unit</td>
<td>.23**</td>
<td>.44***</td>
<td>3.42 (0.66)**</td>
<td>3.14 (0.74)**</td>
</tr>
<tr>
<td>Team communication in unit</td>
<td>.34***</td>
<td>.51***</td>
<td>4.15 (0.56)**</td>
<td>3.76 (0.61)**</td>
</tr>
<tr>
<td>Patient care transition in unit</td>
<td>.23**</td>
<td>.44***</td>
<td>4.05 (0.63)**</td>
<td>3.67 (0.71)**</td>
</tr>
<tr>
<td>Communication and openness in unit</td>
<td>.17*</td>
<td>.49***</td>
<td>3.55 (0.64)**</td>
<td>3.08 (0.75)**</td>
</tr>
<tr>
<td>Teamwork within units</td>
<td>.20**</td>
<td>.53***</td>
<td>3.75 (0.68)**</td>
<td>3.31 (0.76)**</td>
</tr>
<tr>
<td>Teamwork across units</td>
<td>.34***</td>
<td>.50***</td>
<td>3.60 (0.58)**</td>
<td>3.16 (0.58)**</td>
</tr>
<tr>
<td>Hospital handover and transitions</td>
<td>.31***</td>
<td>.51***</td>
<td>3.64 (0.68)**</td>
<td>3.21 (0.63)**</td>
</tr>
<tr>
<td>Feedback and communication about errors</td>
<td>.35***</td>
<td>.55***</td>
<td>3.81 (0.83)**</td>
<td>3.15 (0.85)**</td>
</tr>
<tr>
<td>Non-punitive response to errors</td>
<td>.15*</td>
<td>.45***</td>
<td>3.09 (0.78)**</td>
<td>2.81 (0.74)**</td>
</tr>
<tr>
<td>Organisational learning and improvement</td>
<td>.34***</td>
<td>.59***</td>
<td>3.75 (0.48)**</td>
<td>3.17 (0.68)**</td>
</tr>
<tr>
<td>Supervisor and manager expectations and actions promoting patient safety</td>
<td>.33***</td>
<td>.64***</td>
<td>3.74 (0.67)**</td>
<td>3.08 (0.80)**</td>
</tr>
<tr>
<td>Hospital management support for patient safety</td>
<td>.36***</td>
<td>.51***</td>
<td>3.55 (0.63)**</td>
<td>2.91 (0.71)**</td>
</tr>
</tbody>
</table>

ρ = for this variable the coefficient rho of Spearman’s rank correlation is presented in the table. For remaining variables, means and standard deviations (in brackets) for the workplace characteristics are presented.

***p<.001, **p<.01, *p<.05
Discussion

Participants’ perceptions of workplace characteristics, working conditions and patient safety outcomes indicated their satisfaction with these, although both ‘very good’ and ‘very bad’ judgements were evident, and the variation in perceptions suggests variations in individuals’ situations, units and institutions. In general, co-operation and information exchange seemed to be better in units than between units in all hospitals. Managers need to consider whether they can develop better support structures to improve co-ordination between units.

Various researchers describe autonomy and empowerment as the workplace characteristics that most affect nurses’ work motivation (Cai et al. 2011, Galletta et al. 2011, Gaki et al. 2013). The findings in this study indicate that nurses’ perceptions of workplace characteristics, such as individual influence on work, engagement and empowerment in unit, communication and openness, and team communication in unit, have little effect on intrinsic work motivation. The low mean scores for engagement and empowerment, and for communication and openness, suggest that care teams and strategies are organised hierarchically and that participants do not expect to have influence (Moody et al. 2006, Tummers and Den Dulk 2013). Nurses seem to see themselves more as workers than practitioners, where competence and control are crucial issues linked to self-esteem.

According to the findings, seeing themselves as workers with less competence and control decreases work motivation, which confirms much of the literature on nurses’ control in their work. However, by enabling more individual influence on working practice and by supporting nurses’ engagement and empowerment with management actions, nurses’ intrinsic motivation can be strengthened. Communication and openness in a team do not occur as a result of management directives, but they can be learned from examples set by management and by co-operation between different nursing teams. In this way, the meaning of communication and openness and the implications for the quality of nursing care can be understood.

Supportive working conditions such as having support structures and staffing correlated positively with nurses’ intrinsic work motivation. The support structures in unit were good for most nurses, although many had problems with insufficient staffing and therefore experienced work overload. This has been suggested as a reason for low motivation, poor performance and low quality care (Moody et al. 2006, Yildiz et al. 2009, Germain and Cummings 2010, Van Beek et al. 2012) so that, to reduce workload for the sake of nurses’ and patients’ wellbeing, more staff are required. Enabling nurses to share workload when required could be one solution, and participants

### Table 5

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency of events reported in unit, ρ</th>
<th>Overall perception of patient safety, ρ</th>
<th>Patient safety grade in unit</th>
<th>Self-reported events during 12 months</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
<tr>
<td>Working conditions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Support Structures in unit</td>
<td>.21**</td>
<td>.44***</td>
<td>3.96 (0.61)***</td>
<td>3.49 (0.74)***</td>
</tr>
<tr>
<td>Staffing</td>
<td>.15*</td>
<td>.49***</td>
<td>3.20 (0.79)***</td>
<td>2.73 (0.66)***</td>
</tr>
<tr>
<td>Work motivation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extrinsic work motivation</td>
<td>.05</td>
<td>.07</td>
<td>3.69 (0.83)</td>
<td>3.57 (0.94)</td>
</tr>
<tr>
<td>External regulation</td>
<td>.12</td>
<td>.04</td>
<td>3.28 (1.00)</td>
<td>3.1 (0.94)</td>
</tr>
<tr>
<td>Introjected regulation</td>
<td>-.02</td>
<td>-.08</td>
<td>3.46 (1.27)</td>
<td>3.56 (1.38)</td>
</tr>
<tr>
<td>Identified regulation</td>
<td>.01</td>
<td>.21**</td>
<td>4.34 (1.10)*</td>
<td>4.04 (1.29)*</td>
</tr>
<tr>
<td>Intrinsic work motivation</td>
<td>.10</td>
<td>.33***</td>
<td>5.17 (1.01)**</td>
<td>4.78 (1.02)**</td>
</tr>
</tbody>
</table>

ρ = for this variable the coefficient ρ of Spearman’s rank correlation is presented in the table.
For remaining variables, means and standard deviations (in brackets) for the working conditions or work motivation are presented.
***p < .001, **p < .01, *p < .05
who had this opportunity were more intrinsically motivated than those who did not.

Nurses’ perceptions of all workplace characteristics included in the study correlated positively with overall perceptions of patient safety and patient safety grade in unit (Table 4), especially feedback and communication about errors, organisational learning and improvement, and supervisor and manager expectations and actions promoting patient safety. Working conditions such as support structures and staffing also positively correlated with the overall perceptions of patient safety and patient safety grade in unit (Table 5).

Nurses who had better perceptions of their work and who were intrinsically more motivated offered more confident assessments of overall patient safety and indicated a higher patient safety grade, presumably because they were more concerned with autonomy and more confident in their ability to protect patients.

Conversely, participants who felt they could not or should not influence patient safety, that is, had lower scores of engagement and empowerment and other workplace characteristics, were intrinsically less motivated and felt patient safety on their units was worse. Therefore, managers need to help nurses become more intrinsically motivated if they are to engage them in better patient safety work. This in turn requires nurses to have more autonomy alongside sufficient support and clear communication, which will help increase nurses’ confidence and help them believe they have a stake in recognising and reporting risks.

Participants’ assessment of organisational learning and improvement, and hospital management support for patient safety, was relatively negative. This implies that strategies for supporting patient safety are not a priority in these participating hospitals, or that hospital managers have failed to engage nurses in such activities sufficiently. Moreover, there are many smaller hospitals in Estonia in which overall systems for preventing errors have yet to be established. This might explain the stark difference in patient safety outcomes, particularly with regard to patient safety grades and the number of self-reported events seen in this study.

Supervisor and manager expectations and actions to promote patient safety also need improvement, as these factors had the strongest effect on participants’ overall perceptions of patient safety in their units. Good leadership practice correlates positively with nurses’ intrinsic work motivation and better patient safety outcomes in this and previous studies (Moody et al 2006, Germain and Cummings 2010). However, the role of management to encourage, empower and support employees in building up a positive patient safety culture needs to be developed.

Intrinsic work motivation, and to a lesser degree the autonomous sub-area of extrinsic work

References
motivation, that is identified regulation, positively affected participants’ perceptions of patient safety outcomes, and vice versa. However, self-reporting of events seems to be externally rather than internally motivated, which indicates a certain external pressure. Non-punitive responses to errors correlated negatively with the introjected regulation of extrinsic work motivation, meaning that handling errors without punishment reduced the fear of failure. Positive feedback and communication about errors increased more autonomous and intrinsic work motivation, while using deprecation and punishment made the nurses’ work driven by anxiety and guilt. Working conditions, such as having no parental leave or no possibility of changing shifts with others, can be seen in this study to have a similar effect on nurses’ motivation.

Limitations
All instruments used in this study gathered self-reported data at a point in time, which means that results indicate only a small cross-section of nurses’ views based on their subjective work experiences; they may then be biased and time sensitive. According to the limitations of the self-reported cross-sectional study design and the low response rate, follow-up longitudinal studies should be undertaken. Also, nurses’ reasons for not completing the questionnaire should be determined, to avoid possible bias. Some items in the questionnaire need to be amended before it is used again. For example, the subscale of external regulation had a low level of reliability in this study (Cronbach’s alpha .51), which means that the questions may be unclear and should be rewritten.

Conclusion
To retain hospital nurses’ intrinsic motivation and improve patient safety outcomes, the ‘carrot and stick’ approach should be discarded in favour of the development of empowering workplaces and supportive working conditions, and improvements in inter- and intra-unit collaboration and communication. Furthermore, greater effort should be made to develop interprofessional respect and mutual support between healthcare team members, and in particular nurses’ freedom to raise concerns about patient care or safety must be encouraged.

Hospital and unit-level managers are therefore urged to find ways to engage and empower nurses in their work activities. It is a matter of enabling nurses to feel in control in their individual and multidisciplinary work, providing sufficient support and staffing, and valuing and searching together for better work outcomes. If managers can improve how nurses perceive the whole work process, from its characteristics and conditions to final patient outcomes, they may be able to improve work outcomes as well.


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