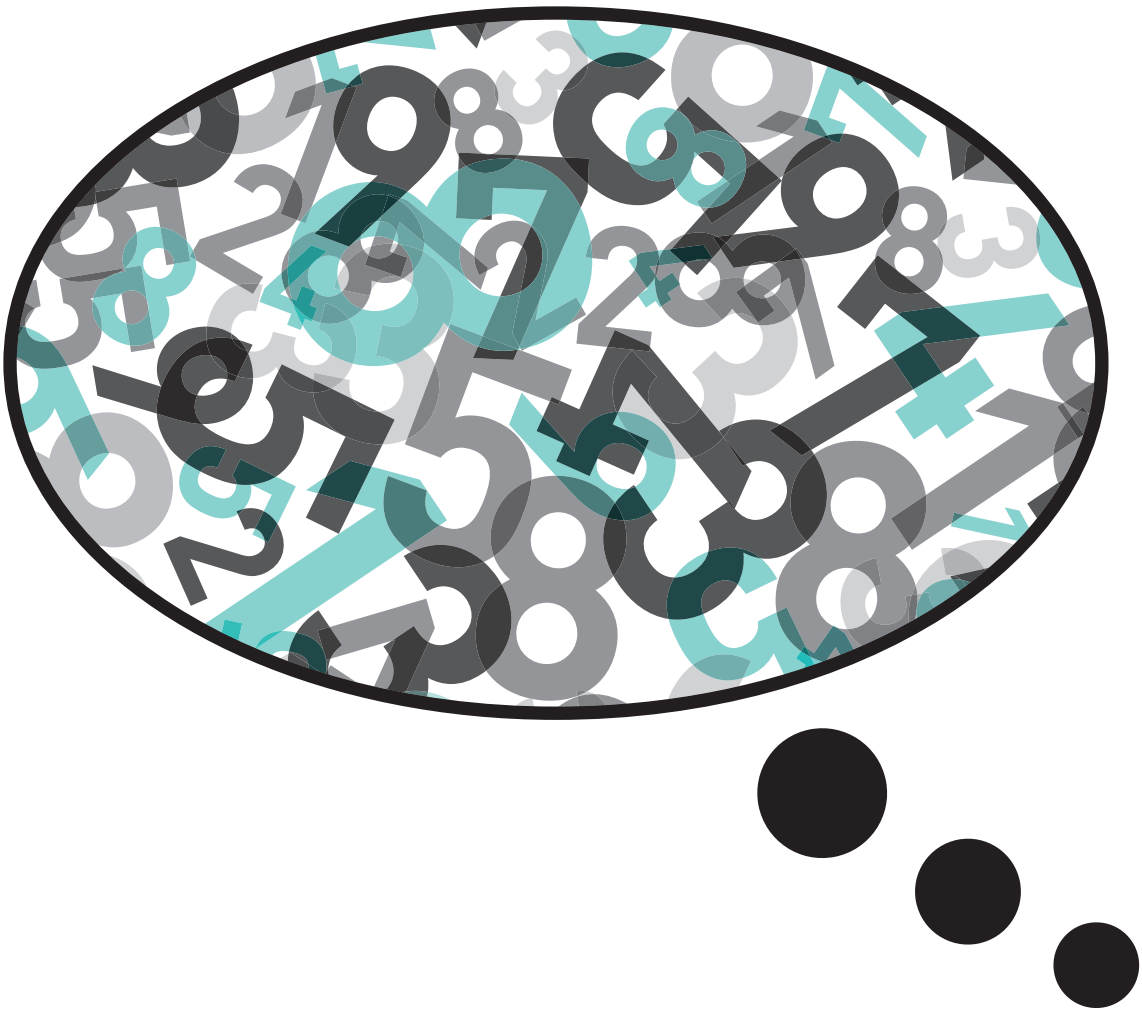

Feedback, the way forward?

How feedback on quality measurements affects nurses' well-being and quality improvement

A.P.M. (Suzanne) Giesbers

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CONTENT

1

Introduction

Continuous quality improvement is an essential part of healthcare management. Each year, scholarly research results in an enormous number of valuable insights and procedures about good nursing care. Only a small proportion of these insights and procedures are adopted into the daily care for individual patients (Grol, 2013; Van Achterberg, Schoonhoven, & Grol, 2008). There are many examples, world-wide, of problematic implementation of empirical research results and insights into nursing practice that directly threaten the quality of patient care. For instance, implementation difficulties are reported by studies on hand-hygiene practices, on effective measures for pressure-ulcer prevention and on nurse-delivered smoking-cessation interventions (Van Achterberg et al., 2008). Based on these studies, a high level of agreement between all parties involved in healthcare exists that patient care should be improved. However, when it comes to *how* research results and insights should be implemented into nursing practice, numerous quality improvement strategies exist, such as providing care providers with information (the cognitive approach), creating the correct organizational conditions (the management approach) or developing and disseminating an attractive message (the marketing approach) (Grol & Wensing, 2013). This thesis elaborates on one very specific, but frequently used strategy for quality improvement in the cognitive approach: providing nursing teams with feedback on quality measurements. Is feedback on quality measurements the way forward to encourage quality improvement among nurses?

MEASURING THE QUALITY OF NURSING CARE

"To understand God's thoughts, we must study statistics, for these are the measure of His purpose" (Florence Nightingale, 1820-1910)

Quality measurements seek to objectively monitor, evaluate and communicate the extent to which various aspects of the health system meet their key objectives (Smith, Mossialos, & Papanicolas, 2008). Over the last decades, we have seen an explosion of quality measurement activity in healthcare. Worldwide, various organizations have undertaken large exercises to develop, apply, and report the results of quality measurements (Groene, Skau, & Frølich, 2008; Sheldon, 2005). Examples of these organizations include the National Quality Forum in the US, the Healthcare Commission in the UK and Zichtbare Zorg in the Netherlands. Although, nowadays, quality measurements are widespread in healthcare worldwide, quality measurement is not a new endeavor. Records of the first quality measurement efforts can be traced back at least 250 years (Loeb, 2004). In the 19th century, legendary people like Florence Nightingale – the architect of professional nursing - and Ernest Codman –the founder of outcome management -, campaigned for a widespread use of quality measurements in healthcare (Loeb, 2004). However, Nightingale's and Codman's efforts were frustrated by professional resistance. Also in today's use of quality measurements many problems are reported; more specifically, there

is little agreement on the philosophy of measurement (the approach taken to determine what to measure), on what to measure, on whether or how to adjust for patient factors, on how data should be analyzed, or on how to report the data (Loeb, 2004). Additionally, although nurses represent the largest segment of the healthcare workforce, and despite the evidence linking nursing to the quality of healthcare (Clarke & Aiken, 2006), they have not been given as much attention in quality measurement research and practice as for example physicians (Kurtzman, Dawson, & Johnson, 2008; Kurtzman & Jennings, 2008).

Despite these problems, it is expected that major advances in information technology in combination with a growing demand for healthcare system accountability, and patient choice will drive the use of quality measurements even further in the future (Smith et al., 2008), also within nursing care (Kurtzman et al., 2008). As healthcare records move to electronic systems, large volumes of relevant longitudinal data from a variety of sources, including the nursing record, become available. New technologies enable turning this vast amount of data into useful information for different stakeholders such as patients, healthcare providers, policy makers, and health insurers.

Feedback as a key strategy for improvement

"In the pursuit of health care quality improvement, measurement is necessary but is no more sufficient than measuring a golf score makes for better golf." (Berwick, James, & Coye, 2003, p. I-30)

Merely measuring the quality of care is not sufficient for quality improvement. Berwick et al. (2003) described two 'pathways' through which quality measurements can lead to quality improvement. The first pathway implies that, based on publicly released quality measurements, consumers of healthcare (e.g., the patient or health insurer) become better informed and will select the healthcare provider with the best performance. This process of 'selection' can improve the outcomes of care by shifting business to healthcare providers with better outcomes. In the second pathway, quality measurements are used by healthcare providers themselves to identify the areas of underperformance and stimulate quality improvement. This second pathway through which quality measurements can lead to quality improvement, is also referred to as the process of 'change' and it encompasses many different quality improvement strategies. For example, within hospitals quality measurements are used directly in educational meetings, to develop a quality improvement plan, or to reward individual healthcare professionals when they improve performance (De Vos et al., 2009). However, the most frequently used strategy for using quality measurements is feedback provision to healthcare professionals, also referred to as 'audit and feedback' (De Vos et al., 2009). This strategy is defined by Jamtvedt, Young, Kristoffersen, O'Brien, and Oxman (2006) as "any summary of clinical performance of healthcare over a specified period of time" (p.2), provided to healthcare professionals. In a more general sense, feedback can be described as "actions taken by (an) external agent(s) to

provide information regarding some aspect(s) of one's task performance" (Kluger & DeNisi, 1996, p. 255). Building on these definitions, this thesis goes into *actions taken by healthcare providers to provide nursing teams with information regarding the quality of nursing care, based on quality measurements over a specified period of time*. This definition has several implications for the boundaries of this thesis. First, the definition excludes feedback that is not part of an intentional intervention by healthcare providers, such as hospital rankings by the media that are based on publicly reported hospital quality data. Second, the definition focuses on team feedback and excludes individual feedback to nurses. Third, the definition includes feedback based on quantitative data that are systematically collected and formally reported, and excludes more direct feedback on task performance, for example from colleagues.

The quality improvement strategy of giving feedback is based on the belief that healthcare professionals are prompted to adjust their practice when given feedback on quality measurements, showing that their practice is inconsistent with a desirable target (Ivers et al. 2012). However, in spite of its prevalent use in practice, uncertainty remains regarding the effectiveness of feedback on quality measurements to improve the quality of care. Previous reviews showed that the effect of feedback varies from a very small or no effect to a substantial effect and that little is known about the underlying mechanisms (Ivers et al., 2012; Jamtvedt et al., 2006; Van de Veer, De Keizer, Ravelli, Tenkink, & Jager, 2010). Foy et al. (2005) summarized the problem in the following way: "Audit and feedback will continue to be an unreliable approach to quality improvement until we learn how and when it works best. (p.50)"

Especially little is known about how feedback on quality measurements to *nursing teams* works. Nurses have been given relatively little attention in research on feedback on quality measurement. For instance, in the extensive review by Ivers et al. (2012) on the effects of feedback on professional practice and healthcare outcomes, 121 out of the in total 140 studies included targeted physicians, while only 16 studies explicitly targeted nurses. Caution should be taken when generalizing findings from research on feedback on quality measurements from the domain of physicians, to the nursing profession. For example, a study on barriers to and facilitators for implementing quality measurements in intensive care units showed different strategies are needed for physicians and nurses (De Vos et al., 2010).

FEEDBACK AS A HUMAN RESOURCE MANAGEMENT PRACTICE

To better understand how feedback on quality measurements to nursing teams works, this thesis builds upon strategic human resource management (HRM) literature. Broadly speaking, HRM refers to 'all those activities associated with the management of people in firms' (Boxall & Purcell, 2008, p. 1). From an HRM perspective, providing nursing teams with feedback on quality measurements is one out of many practices a hospital can use to manage her 'human resources' and improve the quality of care. Although no single agreed upon list of HRM

practices exists (Boselie, Dietz, & Boon, 2005; Heavy et al., 2013; Paauwe, 2009), other well-known HRM practices in healthcare concern staffing levels, training and employee development plans. Research on strategic HRM exploded over the past 20 years seeking to show that HRM practices are related to performance. This tradition in research started with Huselid's (1995) groundbreaking study of more than 800 corporations, which showed that a specific set of HRM practices, were related to turnover, productivity and financial performance. Since this early study, the empirical research has continued and showed that HRM practices seem to be consistently related to performance (Paauwe, Wright, & Guest, 2013). However, different levels of confidence about the strength of the relationship are revealed, and, moreover, little is known about the processes through which HRM practices impact performance (Paauwe et al., 2013). The majority of empirical research into HRM practices and performance has been conducted in large multinational companies (Keegan & Boselie, 2006). Until recently, there have been relatively few attempts to assess the impact of HRM practices within the healthcare sector (Buchan, 2004; Harris, Cortvriend, & Hyde, 2007). Only since the past decade or so, researchers in the HRM field (e.g. Baluch, Salge, & Piening, 2013; Cooke & Bartram, 2015; Leggat, Bartram, & Stanton, 2011) as well as practitioners in healthcare, increasingly recognize the necessity to adopt effective HRM practices to manage healthcare professionals. This need to effectively manage the workforce is the result of universal pressures within healthcare for cost reduction and quality improvement. The importance to better understand the impact of HRM practices in healthcare can also be explained by the highly labor-intensive nature of the industry. For example, within the Netherlands more than 1.4 million people are employed in the healthcare sector out of a total workforce of 8.7 million (Statistics Netherlands, 2014). The nursing profession constitutes the largest group within the health workforce in the Netherlands (Gijsen & Poos, 2012). Despite the increased attention for HRM, previous research until now adds little to our understanding on *how* HRM practices can enhance healthcare performance (Baluch et al., 2013). This issue is reflective of the challenge that strategic HRM research faces as a whole.

INSIGHTS FROM STRATEGIC HRM: INCORPORATING NURSES' WELL-BEING

To better understand the processes through which HRM practices impact performance, several HRM scholars have made the case for 'building the worker into HRM' (Guest, 2002, p. 335) and pay more attention to the effect that HRM practices have on employee outcomes (Appelbaum, Bailey, Berg, & Kalleberg, 2000; Guest, 2002; Paauwe, 2009; Peccei, Van de Voorde, & Van Veldhoven, 2013), such as employee well-being (defined as 'the overall quality of an employee's experience and functioning at work' by Grant, Christianson, & Price, 2007). The underlying idea is that the effect of HRM practices on performance mainly goes through people. Additionally, understanding the impact of HRM practices on employee well-being is important in its own right. Regarding the latter, a review on HRM research showed it seems difficult to draw any

definitive conclusions about the effects of HRM practices on employee well-being (Appelbaum, 2002). Despite a growing body of work on the relationship between HRM practices, employee well-being and performance, there is still considerable debate about the precise nature of the relationship (Peccei et al., 2013). Additionally, little empirical research has been conducted on the effect of HRM practices on employee well-being and performance simultaneously (Peccei et al., 2013). Arguably, the most sustainable HRM practices positively affect performance while also serving employees.

Implementing sustainable HRM practices is important in particular with regard to nursing professionals among who low recruitment and high turnover rates are a continuous problem in many countries (World Health Organization, 2006). Implementing HRM practices that also serve nurses, is also important given the research evidence from around the world that suggests that reform programs in the healthcare sector have had negative consequences particularly to the nursing staff (Cooke & Bartram, 2015). In response to these problems, in the past years many healthcare organizations have begun to adopt a variety of HRM practices that positively affect the quality of care, while also serving nurses. For example, great international success was achieved within hospitals by the Magnet Recognition Movement (Rondeau & Wagar, 2006). Magnet status is a recognition given to hospitals that satisfy a set of criteria that measure the strength and quality of their nursing. Magnet hospitals are known by their ability to attract and retain nurses by creating a professional working environment in which, for example, giving and receiving feedback about job performance is encouraged (Rondeau & Wagar, 2006). Professionalized working environments in Magnet hospitals are associated with lower nurse job dissatisfaction and burnout (Kelly, McHugh, & Aiken, 2011). Many Magnet hospitals expect that the professionalized working environments will lead to a better quality of care, although the evidence on the latter remains scarce (Goode, Blegen, Park, Vaughn, & Spetz, 2011).

Regarding the effect of feedback on quality measurements, on nurses' well-being, the jury is still out. Although it is often expected that feedback on quality measurements will positively motivate nurses to improve the quality of nursing care, feedback on quality measurements may also provoke considerable anxiety, frustration, and worry among those being measured (Loeb, 2004). A report of the Dutch Centre for ethics and health (Struijs & Vathorst, 2009) showed that the focus on quality measurements can have alienating effects on nurses. To nurses, it may seem that what is not measurable is not considered important any more by the management. This does not match with the reasons why they chose to be a nurse and leads to erosion of their intrinsic motivation (Struijs & Vathorst, 2009). More recently, the research by McCann, Granter, Hassard, and Hyde (2015), within four UK National Health Service organizations, highlighted that professional discretion has been increasingly sundered by a narrow focus on "making the numbers", resulting in dysfunctional outcomes for workforce morale.

AIM OF THE THESIS

The aim of this thesis is to explore the mechanisms underlying the effect of feedback on quality measurements to nursing teams on both nurses' well-being and quality improvement. In this way, this thesis first contributes to the body of knowledge in quality improvement. As described before, continuous quality improvement is an essential part of healthcare management. Hospitals have been unsuccessful in implementing empirical research results and insights into nursing practice (Grol, 2013; Van Achterberg et al., 2008). Although, feedback on quality measurements may be an effective strategy for quality improvement, little is known about *how* feedback on quality measurements works. Insight in the mechanisms underlying feedback on quality measurements, will also be valuable to our understanding of how other quality improvement strategies work.

Second, this thesis contributes to scholarly literature on the relationship between HRM practices, employee well-being and performance. By focusing on a very specific HRM practice - feedback on quality measurements to nursing teams -, this thesis adds detail and refinement to our understanding of the relationship between HRM practices, employee well-being and performance.

Third, this thesis contributes to informing hospital management on how to use feedback on quality measurements to nursing teams as a quality improvement strategy while taking into account nurses' well-being. This is important because, in spite of its prevalent use in practice, uncertainty remains regarding the effectiveness of feedback on quality measurements to improve the quality of care and little is known about the possible alienating effect it has on nurses.

RESEARCH QUESTIONS AND METHODOLOGY

The main thesis question is: "*How* does feedback on quality measurements to nursing teams affect nurses' well-being and quality improvement?". To provide a satisfactory answer to this question, both theoretical and empirical work is required. Two research questions are involved in answering the main question:

1) How can the relationship between feedback on quality measurements to nursing teams, nurses' well-being and quality improvement be conceptualized based on existing scholarly literature, and what is known about the variables that influence this relationship?
2) How does feedback on quality measurements to nursing teams, affect nurses' well-being and quality improvement within Dutch general teaching hospitals and which variables influence the relationship between feedback on quality measurements to nursing teams, nurses' well-being and quality improvement?

The approach taken to answer the research questions is illustrated in our research model (see Figure 1). To answer the first research question a thorough literature study was conducted that uniquely integrates scholarly literature on feedback provision and strategic HRM. By taking this approach, this thesis advances our understanding of the theoretical mechanisms underlying feedback on quality measurements to nursing teams. This is important since the use of theory in earlier studies about feedback to healthcare professionals is sparse and several scholars suggested, among other things, that future research should more explicitly build upon relevant theory (Colquhoun et al., 2013; Foy et al., 2005; Ivers et al., 2012). Based on the findings from our literature study we have developed a conceptual framework as a starting point for our empirical research.
To answer the second research question, an empirical study within Dutch general teaching hospitals was conducted. First, based on the insights from the literature study, we have developed an instrument to measure nurses' perceptions of feedback on quality measurements. This measure was discussed with several experts and practitioners, and pilot-tested among 55 nurses. Second, following this pilot-study and based on the conceptual framework we have developed, an embedded case study was conducted. A case study design was chosen because it enables to investigate a contemporary phenomenon within its real-life context (Yin, 2003). The case study was about feedback on quality measurements to nursing teams within an acute teaching-hospital setting in the Netherlands, and involves the nursing teams within four different hospital wards as the embedded units of analysis. During a four months' period, the nurses on each ward were, regularly provided with oral and written feedback on quality measurements. To provide us with a complete understanding of how feedback works, both quantitative and qualitative data were gathered using surveys, interviews, observations and quality measurements:

- *Surveys:* An on-line survey was distributed to all nurses on the four participating wards, at two moments in time: before regular feedback on quality measurements was provided to the nurses, and after the four months' period during which regular feedback on quality measurements was provided to the nurses. On both moments in time nurses were asked about their well-being (burnout and work engagement) and the perceived quality of nursing care at their ward. Additionally, at the second moment in time, nurses were asked about their perception of feedback on quality measurements (based on our newly developed measure) and the feedback environment.

- *Interviews*. After the four months' period, during which regular feedback on quality measurements was provided to the nurses, individual, semi-structured face-to-face interviews were conducted with eight nurses and their ward managers on each of the participating wards. The interviews focused on (1) how the participants perceived the feedback on quality measurements, (2) what was the effect of the feedback on their well-being and performance, and (3) the participants' descriptions of the feedback as implemented on their wards.

- *Observations:* Observational data were collected from three oral feedback moments on each of the participating wards. The first round of observations took place at the beginning of the four-month feedback period, the second round of observations was conducted when the feedback period was halfway and the third round of observations took place at the end of the feedback period.

- *Quality measurements:* The data from the quality measurements that were collected to provide feedback to the nursing team on the different wards, were also collected as research data. The ward manager determined which quality measurements were selected and how the quality measurements were carried out (e.g. source and frequency).

A core assumption of mixed methods research is that when quantitative data are combined with qualitative data, this collective strength provides a better understanding of the research problem than either form of data alone (Creswell, 2015). This is true for this thesis in several ways. First, the mixed methods design enabled us to cross-check data from different sources, enhancing our confidence in the validity and reliability of the outcomes. Second, the design revealed the complexity of feedback on quality measurements to nursing teams as a quality improvement strategy and enabled a deeper understanding. Third, the design enabled us to establish whether relationships between different variables were statistically significant, while at the same time, helped to find a qualitative explanation of why such relationships occurred.

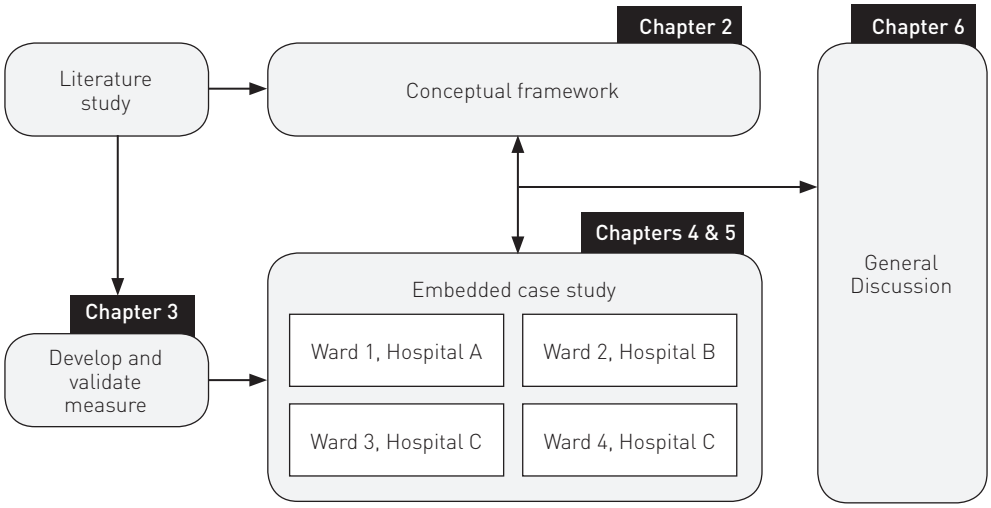

Figure 1 Research Model

STRUCTURE OF THE THESIS

In this thesis four articles will be presented in Chapters 2 through 5 which elaborate and investigate, each in their own way, aspects of our research questions. The next sections introduce and summarize the different articles in order to make clear how they relate to and build on each other. The relationship between the different chapters is also illustrated in the research model (see Figure 1).

Chapter 2: Feedback provision, nurses' well-being and quality improvement: Towards a conceptual framework

The first research question is addressed in Chapter 2 where we present the results from our literature study and develop a conceptual framework as a starting point for our empirical research. Three perspectives on the relationship between feedback on quality measurements to nursing teams, nurses' well-being and quality improvement are discussed that illustrate that feedback provision can result in quality improvement at the expense of or for the benefit of nurses' well-being. It is argued that to better understand these contradictory effects, future research should examine nurses' perceptions of feedback as mediating variables, while incorporating context factors as moderating variables. More specifically, the importance of the following variables is addressed in this chapter: (1) nurses' attributions about management's purpose in providing feedback on quality measurements, (2) nurses' perceptions of feedback on quality measurements as a burdening job demand or as a motivating job resource and (3) the strength of the feedback environment, or the overall supportiveness for feedback in the workplace.

Chapter 3: Nurses' perception of feedback on quality measurements: Development and validation of a measure

Based on the results from our literature study that are presented in Chapter 2, we expect (1) nurses' attributions about management's purpose in providing feedback, and (2) nurses' perceptions of feedback as a job demand or as a job resource, to be important mediating variables within the relationship between feedback on quality measurements, nurses' well-being and quality improvement. The development and validation of an instrument to measure these constructs, based on the model on HR attributions (Nishii, Lepak, & Schneider, 2008) and the Job Demands-Resources model (Bakker & Demerouti, 2007) is central in Chapter 3. The results regarding the content, construct and predictive validity of the instrument are discussed.

Chapter 4: Towards a better understanding of HR attributions: The case of feedback on quality measurements in hospital nursing teams

Building on the conceptual framework that is presented in Chapter 2, Chapter 4 reports on the findings from our embedded case study research. More specifically, this chapter

empirically explores (1) the attributions that nurses make about management's purpose in providing feedback, (2) the effects of these attributions on nurses' well-being, and (3) the role of the feedback environment. Our findings shed some light on how feedback on quality measurements to nursing teams is experienced by the nurses. Additionally, our findings enhance our understanding of HR attributions, defined as causal explanations that employees make regarding management's purposes in using particular HR practices (Nishii et al., 2008). Although many scholars have underlined the importance of HR attributions to better understand the impact of HR practices on employee outcomes and consequently performance (e.g., Peccei et al., 2013; Woodrow & Guest, 2014; Wright & Nishii, 2013), so far, little empirical research has been undertaken in the direction (see Koys 1988, 1991; Nishii et al., 2008; Van de Voorde & Beijer, 2015 for exceptions).

Chapter 5: Nurses' perceptions of feedback to nursing teams on quality measurements: An embedded case study design

Similar to the previous chapter, Chapter 5 reports on the findings from our embedded case study research, building on the conceptual framework that is presented in Chapter 2. More specifically, this chapter empirically explores (1) how feedback on quality measurements to nursing teams is perceived by individual nurses (as a burdening job demand or rather as an intrinsically or extrinsically motivating job resource), (2) how this consequently affects nurses' well-being and quality improvement, and (3) the influence of team reflection on nurses' perceptions. Our findings enhance our understanding of how individual nurses may respond differently to the same feedback on quality measurements and how this affects nurses' well-being and quality improvement. Additionally, our findings shed light on how team reflection after feedback may help in eliciting positive perceptions among nurses of feedback on quality measurements.

Because Chapters 2 through 5 of this thesis are written as separate articles for publication in international journals, they can be read independently. The final chapter of this thesis concludes with a general discussion of the outcomes of this PhD research. Additionally, the final chapter reflects on the methodology, and theoretical and practical relevance of the thesis study. Finally, challenges for future research are discussed.

2

Feedback provision, nurses' well-being and quality improvement: Towards a conceptual framework

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ABSTRACT

Aim: This contribution develops a conceptual framework that illustrates how feedback on quality measurements to nursing teams can be related to nurses' well-being and quality improvement.

Background: It is assumed that providing nursing teams with feedback on quality measurements will lead to quality improvement. Research does not fully support this assumption. Additionally, previous empirical work shows that feedback on quality measurements may have alienating and demotivating effects on nurses.

Evaluation: This article uniquely integrates scholarly literature on feedback provision and strategic human resource management.

Key issue: The relationship between feedback provision, nurses' well-being and quality improvement remains unclear from research until now.

Conclusion: Three perspectives are discussed that illustrate that feedback provision can result in quality improvement at the expense of or for the benefit of nurses' well-being. To better understand these contradictory effects, research should examine nurses' perceptions of feedback as mediating variables, while incorporating context factors as moderating variables.

Implications for nursing management: Nursing management can use feedback on quality measurements to nursing teams, as a tool for enhanced quality and as a motivating tool. However, nurses' perceptions and contextual variables are important for the actual success of feedback.

Keywords: feedback, nurses' well-being, quality improvement, quality measurement

INTRODUCTION

Understanding the quality of hospital care through quality measurements has become increasingly important. Patients, insurers, politicians and the media demand an ever-increasing amount of transparency on the results of health care. This has led to a proliferation of quality measurement and reporting activities within health care organisations (Ketelaar et al. 2011). One of the primary purposes for measuring and reporting health care performance is to stimulate quality improvement within health care organisations (Berwick et al. 2003, Ikkersheim & Koolman 2012). There are several ways in which quality measurements can be used for quality improvement. A thorough review of the literature shows that, within hospitals, feedback is one of the most frequently used instruments (De Vos et al. 2009). In the present article, we focus on feedback provided to nursing teams on a regular basis, that is based on measurable aspects of nursing care that indicate potential problems or a good quality of care. Examples of such quality measurements are the incidence of pressure ulcers and the rates of falls (Needleman et al. 2007).

The underlying idea of providing nursing teams with feedback on quality measurements is that the quality of care will be improved if nurses are – regularly – informed about their performance, thereby allowing them to assess and adjust their performance (Flottorp et al. 2010). Feedback, in this sense, has a developmental purpose (Aguinis 2013). However, although it seems logical that feedback will lead to quality improvement, worldwide research does not empirically support this assumption fully (Jamtvedt et al. 2006). Recent studies have also indicated that feedback on quality measurements can have alienating and demotivating effects on nurses and thereby decrease nurses' well-being at work. To nurses, it may seem that what is not measurable is not considered to be of importance by the nursing management (Doherty 2009, Struijs & Vathorst 2009). This is worrisome, since nurses' well-being at work is crucial for effective, efficient and high-quality care (Franco et al. 2002). In addition, a decrease in nurses' well-being may boost nurses' intention to leave their profession (Hasselhorn et al. 2008).

Research until now has mostly studied the effect of feedback provision on nurses' well-being and the effect of feedback provision on quality improvement separately and not in relation to each other (Struijs & Vathorst 2009, Jamtvedt et al. 2006). However, quality improvement in nursing care through feedback provision, can only be achieved by the nurses themselves. Hence, a better understanding of the role of nurses in linking feedback to quality improvement is needed. In this article, we focus on nurses' well-being, since it may mediate the effect of feedback provision on quality improvement, and because it is an important outcome in its own right (Franco et al. 2002).

We argue that a better understanding of the inter-relationships between feedback provision, nurses' well- being and quality improvement is important to create insight in how feedback provision on quality measurements to nursing teams works most effectively. In this contribution, we develop a conceptual framework that illustrates these inter-relationships. With this, we

contribute to the literature in three ways. First, based on new insights from strategic human resource management (HRM) literature we argue that well-being can mediate the relationship between feedback provision and quality improvement. Second, based on job demands–resource theory and attribution theory, we argue that the effect of feedback provision on nurses' well-being and quality improvement is mediated by nurses' perceptions of feedback. Third, we argue that the context, i.e. the feedback environment, influences nurses' perceptions of feedback. Nursing management can use these new insights to refine feedback on quality measurements to nursing teams, as a tool for enhanced quality and as a motivating tool.

THE CURRENT LITERATURE ON FEEDBACK PROVISION

Research about feedback provision on quality measurements in health care is relatively new. Historically, the individual health care professional was considered to be the only person who could evaluate his or her own performance (Flottorp et al. 2010). This view is no longer tenable since empirical research has shown that health care professionals, with nurses being no exception, are not always in the best position to assess their own performance accurately (Gunningberg & Idvall 2007, Flottorp et al. 2010). Therefore, in the past two decades, measuring the quality of (nursing) care and providing feedback on this has become increasingly important. However, feedback defined more generally as all actions taken by (an) external agent(s) to provide information regarding some aspect(s) of one's performance, has for a long time been one of the most widely applied psychological interventions inside and outside health care organisations (Kluger & DeNisi 1998, Kluger & Van Dijk 2010). Not surprisingly, research about feedback in general dates back almost 100 years (Kluger & DeNisi 1998). Both research about feedback on quality measurements in health care, as well as research about feedback in general, will be discussed here in order to conceptualise the inter-relationships between feedback provision, nurses' well-being and quality improvement.

Feedback provision and well-being

The relationship between feedback provision and well- being has generally been ignored in research until now. This applies to both research about feedback on quality measurements in health care, as well as to research about feedback in general. However, recently, a qualitative (grounded theory) study has been published on the impact, from a nurses' perspective, of a quality register that provides nurses with feedback on the quality of end-of-life care (Lindblom et al. 2012). In the focus group interviews in this study, nurses described feedback from the quality register as an opportunity to become aware of and to reflect upon the care provided. Moreover, the nurses described how they became motivated for quality improvement (Lindblom et al. 2012). However, other studies show less positive reactions from nurses. For example, qualitative research in the Netherlands about nurses' perspective on, among other things, the

use of quality measurements, shows quality measurements can undermine the value of work that is non-measurable and non-visible, like 'comforting patients' or 'showing empathy', thus leading to alienation and demotivation among nurses (Struijs & Vathorst 2009).

Feedback provision and quality improvement

Most studies about feedback published to date, focused on the relationship between feedback provision and organisational outcomes, such as quality improvement or performance in general. The results are heterogeneous. From a literature review of 53 papers, Van der Veer et al. (2010) concluded that the effect of feedback on the quality of care remains unclear. Van der Veer et al. (2010) focused on feedback provided to health care professionals based on medical registries; a systematic and continuous collection of a defined data set for patients with specific health characteristics. Without distinguishing between different types of health care professionals, such as nurses or physicians, they found that some studies in the review indicated a positive effect on the quality of care, while some studies indicated a mix of positive and no effects, and some studies did not indicate any significant effects at all. Similarly, in an extensive meta-analysis of 118 randomised trials, Jamtvedt et al. (2006) have shown that the effects of feedback in health care vary greatly across the different studies: ranging from a negative effect to a positive effect. In only three studies in this review were the providers under study nurses, and they appeared to differ regarding the effects of feedback; one study found a significantly positive effect of feedback on the quality of care (Jones et al. 1996), one study only found temporary positive effects (Moongtui et al. 2000) and in one study no significant effects were found at all (Rantz et al. 2001). Research about feedback in general, also shows heterogeneous results. Kluger and DeNisi (1996) presented a meta-analysis on the results of feedback research that has been performed over the last century, which showed the widely shared assumption that feedback consistently improves performance to be false. On the contrary, in more than one-third of the interventions included in their meta-analysis, feedback appeared to actually lead to a reduction in performance.

The underlying mechanisms and inter-relationships

Little is known about the mechanisms underlying the effectiveness of feedback. Van der Veer et al. (2010) found that the following factors may influence the effectiveness of feedback on quality measurements in health care: (trust in) quality of the data, motivation of the recipients, organisational factors (e.g. support by the management and availability of resources) and outcome expectancy of the feedback recipients. From the review by Jamtvedt et al. (2006), no conclusions can be drawn about the dynamics underlying feedback, since they only reported on effects without considering the underlying mechanisms. A problematic issue in both reviews comprises the heterogeneity of the feedback interventions included, which makes straightforward comparisons between feedback interventions complicated, and makes it hard to draw definite conclusions on the effects of feedback. For example, feedback can be an

important intervention tool by itself, or it can be linked to other activities, such as training (De Vos et al. 2009, Van der Veer et al. 2010). Besides the variation in the way feedback provision is shaped, variation also exists in the way it is implemented. For example, some hospitals may take a top-down approach, while other hospitals take a more bottom-up approach by involving the nurses in the design phase (Van der Most 2010).

To better understand the mechanisms underlying the effectiveness of feedback in relation to performance, Kluger and DeNisi (1996) developed the preliminary 'feedback intervention theory' (FIT). The central explanatory theme of this FIT is not how feedback affects one's learning or motivation to perform a task, but rather how the feedback focuses one's attention. A key insight from Kluger and DeNisi (1996) is that the effectiveness of feedback decreases when it shifts attention toward meta-task processes (e.g. implications of the feedback for the self) and away from the task at hand. For example, instead of motivating nurses to improve the quality of care, feedback may raise concern among nurses about their own competencies. How feedback affects the attention depends on: (1) the cues of the feedback message; (2) the nature of the task performed; and (3) situational and personality variables. In recent years, steps have been taken in empirical work to provide insight in these variables, for example: feedback framing (positively or negatively), feedback type (comparative or task-referenced), amount of procedural information and information specificity, contract type (performance-contingent or fixed wage), task type (promotion or prevention tasks) and performer level (high or low performer) (Anseel et al. 2010, Feys et al. 2011, Murthy & Schafer 2011, Van Dijk & Kluger 2011). The FIT and affiliated studies certainly provide clues for effectively using feedback provision to stimulate quality improvement. However, the relationship between feedback provision and employee well-being seems to be neglected.

As presented, the current literature on feedback does not sufficiently provide us with insight to conceptualise the inter-relationships between feedback provision, nurses' well-being and quality improvement. Research that links the effect of feedback on employee or nurses' well-being, to the effect of feedback on organisational outcomes, such as quality improvement or performance, is missing. Therefore, in this article, we build upon the literature on strategic HRM to conceptualise the relationship between feedback provision, nurses' well-being and quality improvement.

Three perspectives from strategic HRM

Within the literature on strategic HRM, a lively debate exists on the relationship between HRM practices – all employee management activities –, employee well- being and organisational performance (Guest 2002, Peccei 2004, Boselie et al. 2005, Paauwe 2009, Van de Voorde 2009). Examples of important HRM practices in hospitals are aimed at performance management, training, decentralisation, participation, team working and employment security (West et al. 2006). Given the variability in HRM practices (in terms of content, but also in terms of implementation) and context, the impact of HRM practices on performance will always be

heterogeneous (Wright & Nishii 2007, Boxall & Macky 2009). Therefore, research about the 'black box' of HRM is aimed at understanding how HRM practices affect performance, by identifying the processes and mediating variables that link HRM practices to performance. Several HRM scholars argue that bringing employees into the equation between HRM practices and performance, is a 'conditio sine qua non' when studying the 'black box' of HRM (Guest 2002, Paauwe 2009). More specifically, the integration of employee well-being is an important issue, as employee well-being is an essential outcome in its own right (Peccei 2004, Van de Voorde 2009). Moreover, competing perspectives stand out with respect to the position of employee well-being in the equation between HRM practices and performance (Peccei 2004, Van de Voorde 2009). Within the HRM literature, three competing perspectives can be distinguished on the relationship between HRM practices, employee well-being and performance: a mutual gains perspective, a conflicting outcomes perspective and a parallel effects perspective. These perspectives can be used to describe the relationship between feedback provision, nurses' well-being, and quality improvement (see Figure 1).

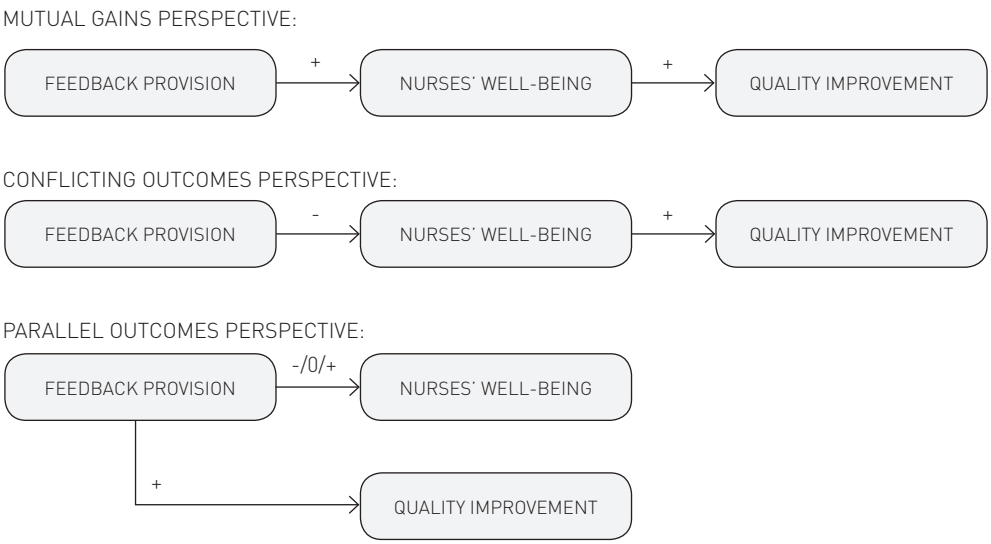

Figure 1 Schematic representation of the mutual gains, conflicting outcomes and parallel outcomes perspective on the relationship between feedback provision on quality measurements to nursing teams, nurses' well-being and quality improvement (-, negative effect; +, positive effect; -/0/+, negative, no, or positive effect).

Mutual gains: positive well-being as a mediator between feedback provision and quality improvement

From a mutual gains perspective, employee well- being is a mediating variable between HRM and performance; that is to say, HRM practices can foster employee well-being resulting in improved performance. It is assumed that HRM practices can lead to employee empowerment and more interesting, rewarding and supportive work environments, and this, in turn, will result in higher employee well-being (Peccei 2004). In return to an increased well-being, employees are assumed to 'repay' the organisation by working harder and by engaging in various forms of citizenship behaviour, which, over a certain period of time, are expected to enhance organisational performance (Peccei 2004, Boxall & Macky 2009, Van de Voorde 2009, Wood et al. 2012). Hence, from the mutual gains perspective both employees and employers can benefit from HRM practices. This optimistic perspective (Peccei 2004) is described by Boxall and Macky (2009) as the motivational path by which performance is 'indirectly' – by affecting employee well-being – influenced by HRM practices.

From the mutual gains perspective, feedback provision on quality measurements to nursing teams can improve the quality of care through an increase in nurses' well-being, which may take place through several routes. First, feedback provision can lead to a greater understanding amongst nurses of the hospital's objectives, and their role in the achievement of these goals. This may give nurses more control over their work and may reduce their uncertainty, because they know what their supervisors expect from them resulting in more intrinsically enjoyable and less stressful work (Harley et al. 2010, Wood & De Menezes 2011, Wood et al. 2012). Second, being informed about the quality of care, and its improvements, may increase nurses' pride in their work and in their contribution to the success of the hospital, reinforcing feelings of contentment and enthusiasm (Wood & De Menezes 2011). Third, feedback provision may increase the meaningfulness of the work for the nurses themselves, which, in turn, may increase the perceived social value of the work (Wood & De Menezes 2011). Finally, the feedback provision may increase satisfaction and contentment through its impact on the nurses' ability to learn (Wood & De Menezes 2011). Indeed, nurses' might welcome the chance, provided by the feedback information, to develop themselves. When feedback provision leads to an increase in nurses' well-being, this will, from a mutual gains perspective, automatically result in quality improvement. Nurses will, in return for an increased well-being, 'repay' the hospital by putting more effort in quality improvement.

Conflicting outcomes: negative well-being as a mediator between feedback provision and quality improvement

The conflicting outcomes perspective follows the idea that HRM practices can intensify work demands, resulting in stress. This stress contributes to an increased effort by employees which will lead to improved performance. Or, as Parker and Slaughter (1988) formulated it: HRM practices are based on 'management by stress'. Stress in this sense forms a modern type

of coercion and this may generate conflicting outcomes for employers and employees (Peccei 2004, Wood et al. 2012). Employers benefit in terms of performance, while employees have less control, have to work harder and are under greater pressure at work. Employers, from this perspective, use HRM practices to efficiently exploit their human resources, who are, according to some critics, mostly unaware of this exploitative nature of HRM practices (Guest 2002).

Following this pessimistic perspective (Peccei 2004), feedback provision on quality measurements to nursing teams could improve the quality of nursing care through a decrease of nurses' well-being. First, feedback may have a negative effect on well-being because it may imply or be accompanied by pressures to improve the quality of care. When quality measurements show that the quality of nursing care is below the desired level, this forces nurses to initiate quality improvement actions. The pressure to improve the quality of care may raise concern among nurses about their own competencies. Such questioning may reduce nurses' self-efficacy and psychological and economic security, as they perceive that jobs are threatened if performance does not improve (Wood & De Menezes 2011). Especially in recent times of cost-cutting in health care, and an overall decrease in job security, this may be relevant. Second, pressures to improve the quality of care, based on the feedback that is provided, may also enhance nurses' perceived obligations or job demands. This increase in job demands, can lead to job strain (Karasek 1979, Bakker & Demerouti 2007). Third, nurses may perceive feedback as an instrument for management to closely supervise and judge them and therewith increase the nurses' subordination, which may decrease nurses' trust in the nursing management. When feedback provision leads to a decrease of nurses' well-being, this will, from a conflicting outcomes perspective, result in quality improvement, since a decrease in nurses' well-being, contributes to an increased effort by nurses to improve the quality of care.

Parallel outcomes: the direct effect of feedback on well-being and quality improvement

From the parallel outcomes perspective, employee well-being is an outcome of HRM practices parallel to performance-related outcomes. From the parallel outcomes perspective organisational performance is 'directly' influenced by HRM, by enhancing knowledge and skills (Batt 2002). This is what Boxall and Macky (2009) call the cognitive path. Thus, from this perspective feedback can improve the quality of care through an increase in nurses' knowledge, by which nurses simply know better what to do, and how to improve the quality of nursing care. From the parallel outcomes perspective, the effect of HRM practices on well-being is analogous to the side effect of the treatment (Wood et al. 2012). Following this perspective, feedback on quality measurements to nursing teams may have a positive or a negative effect on nurses' well-being, but this is secondary to the direct positive effect that feedback has on quality improvement. For example, a possible negative effect of feedback on well-being, parallel to the direct effect of feedback on quality improvement, may be a reduction in role clarity. As described earlier, to nurses, it may seem that the value of work that is non-measurable and

non-visible, yet also more intrinsically motivating, is undermined (Doherty 2009, Struijs & Vathorst 2009), which may result in uncertainty about what nursing care is all about.
Also, from this perspective, feedback on quality measurements to nursing teams may have no effect, whatsoever, on nurses' well-being. This possible limited effect of feedback on well-being can be explained by the multi-dimensional character of well-being (Peccei 2004). Employee well-being can be categorised in psychological, physical and social well-being (Grant et al. 2007, Van de Voorde 2009). Psychological well-being focuses on the subjective experiences of individual employees, such as job satisfaction and commitment to the organisation. Physical well-being is about the health of employees (Grant et al. 2007, Van de Voorde 2009). Social well-being refers to the quality of interactions between employees, or between employees and their supervisor or the organisation they are working for (Grant et al. 2007, Van de Voorde 2009). The diversity of dimensions within the concept of employee well-being makes it difficult to study well-being as a whole (Grant et al. 2007, Van de Voorde 2009). Feedback might have multiple effects on various aspects of employee well-being. The effects may be mutually contradictory, so that, in practice, they may end up crowding each other out. For example, feedback might be motivating, but at the same time, it may lead to stress.
Knowing that the relationship between feedback provision, nurses' well-being, and quality improvement can be described from a mutual gains, a conflicting outcomes and a parallel outcomes perspective, the next question to be asked is: 'What determines which perspective is followed in practice?'. Important here is how nurses perceive the feedback provision.

NURSES' PERCEPTION OF FEEDBACK

Do nurses perceive the feedback provision on quality measurements to nursing teams as a burdening job demand or as a job resource that helps them to improve the quality of nursing care? Do they perceive the feedback provision as an act by management to exploit them or as an act of support? These perceptions may influence nurses' reactions in attitude and behaviour. Indeed, HRM literature indicates that HRM practices exist objectively, yet must be perceived and interpreted subjectively by each employee him or herself, and it is based on these perceptions that employees will react (Bakker & Demerouti 2007, Wright & Nishii 2007, Boxall & Macky 2009). The differentiation between 'objective' and 'perceived' feedback provision is very important, yet is generally not explicitly made in research on feedback provision.

Job demand or job resource

In general, feedback is 'objectively' described as a job resource; something that is functional in achieving work goals, reduces the effect of job demands, or stimulates personal growth, learning and development (Demerouti et al. 2001, Bakker & Demerouti 2007). Indeed, it is often assumed that feedback provision on quality measurements to nursing teams helps nurses to

understand the larger context of their performance better, so that they can think of better ways of doing their jobs, make more effective decisions and take more appropriate actions. However, this assumption is not based on how nurses perceive feedback provision. Feedback provision can be perceived by nurses as a job resource, but it can also be perceived as a job demand; something that requires sustained effort or skills and are therefore associated with certain costs (Demerouti et al. 2001, Bakker & Demerouti 2007).

From a mutual gains perspective, nurses will perceive feedback as a job resource. Feedback is interpreted here as a means to decrease uncertainty and ambiguity and is assumed to increase the meaningfulness of work and nurses' pride in their work. From the conflicting outcomes perspective, nurses will perceive feedback as a job demand, since feedback may increase nurses' perceived obligations and may raise concerns about nurses' own competencies. From the parallel outcomes perspectives, nurses will perceive feedback first and foremost as a job resource, since feedback may increase nurses' knowledge about the quality of nursing care. However, from this perspective, feedback may, at the same time, also be perceived as a job demand, since it may for example raise concerns about what nursing care is all about.

Attribution of the 'why' of feedback

An important factor that might influence nurses' perception of feedback provision on quality measurements to nursing teams as a job demand or a job resource, is the attribution the nurses make about management's purpose in implementing feedback. In other words, what are the nurses' causal explanations regarding management's motivation for providing feedback on quality measurements? Nishii et al. (2008) have shown that this attribution matters when studying the relationship between HRM, employee well-being and organisational performance. Nishii et al. (2008) distinguish between internal and external attributions. Attributing feedback provision to external factors implies that management is perceived as a passive recipient of external, environmental forces. In relation to feedback on quality measurements, the societal pressure for transparency could be a particular relevant external attribution; nurses might believe that management's purpose in implementing feedback is only to adhere to societal norms on transparency. Nurses that make such types of attributions will probably perceive feedback as a job demand, requiring extra effort.

Attributing feedback provision to internal factors can be either commitment- or control-focused (Arthur 1994, Nishii et al. 2008). Commitment-focused attributions connote positive consequences for employees. For example, nurses may believe that management's purpose is to support nursing teams in their quality improvement endeavour. As a result, nurses may perceive feedback as a job resource. Control-focused attributions connote negative consequences for employees. For example, nurses may believe that management's purpose with implementing feedback provision is to closely supervise and judge the quality of care delivered by the nursing team. Nurses that make such types of attributions will probably perceive feedback as a job demand.

From the above it can be assumed that nurses' attribution about management's purpose in implementing feedback, followed by nurses' perception of feedback as a job demand or job resource, determines if the relationship between feedback provision, nurses' well- being and quality improvement can best be described from a mutual gains, a conflicting outcomes or a parallel outcomes perspective. Additionally, we advocate a more contextual approach in studying feedback provision on quality measurements to nursing teams.

THE IMPORTANCE OF CONTEXT

Several studies on the interrelations between HRM practices, well-being and performance, have pleaded for a more contextual approach (Boselie et al. 2003, Boxall & Macky 2009, Paauwe 2009). The concept of 'fit' is often used in the HRM literature to come to a better understanding of the impact of the context on the success of HRM practices (Wood 1999, Paauwe 2009). For example, the 'organisational fit' between HRM practices and the cultural heritage (e.g. existing norms and values amongst employees) within the organisation is of great importance when studying the effectivity of HRM practices. Also within the field of quality improvement methods in health care, the particular context is becoming more important (Fixsen et al. 2005, Kaplan et al. 2012).

The tendency in the literature on feedback has largely been to neglect the impact of the context. Differences in the context, such as features of the nurses and the hospital, matter when studying the relationship between feedback provision, nurses' well-being and quality improvement. For example, research in the field of feedback provision shows that an organisation's 'feedback environment' is important in relation to the impact of feedback provision on performance (Dahling et al. 2012). A strong feedback environment, also called a feedback culture (London & Smither 2002), can generally be described as an organisational environment that is supportive of feedback interaction and processes in an organisation (Steelman et al. 2004, Anseel & Lievens 2007). Here employees continuously receive, solicit and use formal and informal feedback to improve their job performance. Dahling et al. (2012) provided evidence that a supportive feedback environment contributes to higher feedback orientation (receptivity to feedback) among employees. Feedback orientation directly shapes the way that employees perceive and use feedback information, and indirectly improves their performance (London & Smither 2002). Thus, it can be assumed that when feedback on quality measurements is provided to nursing teams with a strong feedback environment, where nurses will more likely have strong feedback orientations, the nurses will more likely perceive feedback as a job resource and use the feedback provided to them for quality improvement.

CONCLUSIONS

The core argument in this article is that in order for research on feedback provision on quality measurements to nursing teams and quality improvement to reach a higher level of sophistication, more attention should go to nurses' well-being. Nurses' well-being can mediate the relationship between feedback provision and quality improvement, but it is also an important outcome in itself. Additionally, more attention should be paid to nurses' perceptions of the feedback provision, since the latter influences how they will react. Finally, we strongly recommend, based on the literature review, a more contextual approach when studying feedback provision as an instrument for quality improvement. An attempt has been made in this article to justify this new approach to research on feedback.

The conclusions in this article are summarised in the conceptual framework that is shown in Figure 2. Figure 2 indicates that the relationship between feedback provision, nurses' well-being and quality improvement can be described from three different perspectives: (1) the mutual gains, (2) the conflicting outcomes and (3) the parallel outcomes perspective. From the mutual gains perspective, feedback provision on quality measurements to nursing teams can improve the quality of care through an increase of nurses' well-being. For example, by creating a greater understanding amongst nurses of the hospital's objectives, feedback may make work more intrinsically enjoyable and less stressful, and nurses may 'repay' the hospital for this by putting more effort in quality improvement. From the conflicting outcomes perspective, feedback provision can improve the quality of care through a decrease of nurses' well-being. For example, providing feedback on quality measurements to nursing teams may increase nurses' perceived obligations at work, which will pressure them to improve the quality of care. The parallel outcomes perspective places nurses' well-being as an outcome of feedback provision on quality measurements to nursing teams, parallel to quality improvement. From the latter perspective feedback may directly lead to quality improvement and may, secondary to this direct effect, have a positive, a negative or no impact on nurses' well-being. For example, feedback can improve the quality of care through an increase in nurses' knowledge, but at the same time feedback may have alienating effects on nurses, because to nurses it may seem that the value of work that is non-measurable is undermined. Which perspective is the most appropriate, depends on nurses' attribution about management's purpose in implementing feedback, followed by nurses' perception of feedback as a job demand or job resource. Indeed, feedback provision exists objectively, yet must be perceived and interpreted subjectively by each nurse. For example, when nurses truly believe that management's purpose in providing feedback on quality measurements is to support nursing teams in their quality improvement endeavour, they will more likely perceive feedback as a job resource; something that is functional in achieving work goals. This is expected positively to mediate the relationship between feedback provision, nurses' well-being and quality improvement. Nurses' perception of feedback is influenced by variables in the context in which the feedback is provided, such

as the feedback environment. Within a strong feedback environment, nurses will more likely perceive feedback as a job resource.

Our conceptual framework illustrates that nursing management can use feedback provision based on quality measurements for nursing teams as a tool for enhanced quality and as a motivating tool as well. However, both nurses' perceptions and contextual variables are important in the light of the actual success of the feedback provided. Future empirical research that examines the relationship between feedback provision, nurses' well-being and quality improvement is necessary. Our conceptual framework provides a starting point for this research.

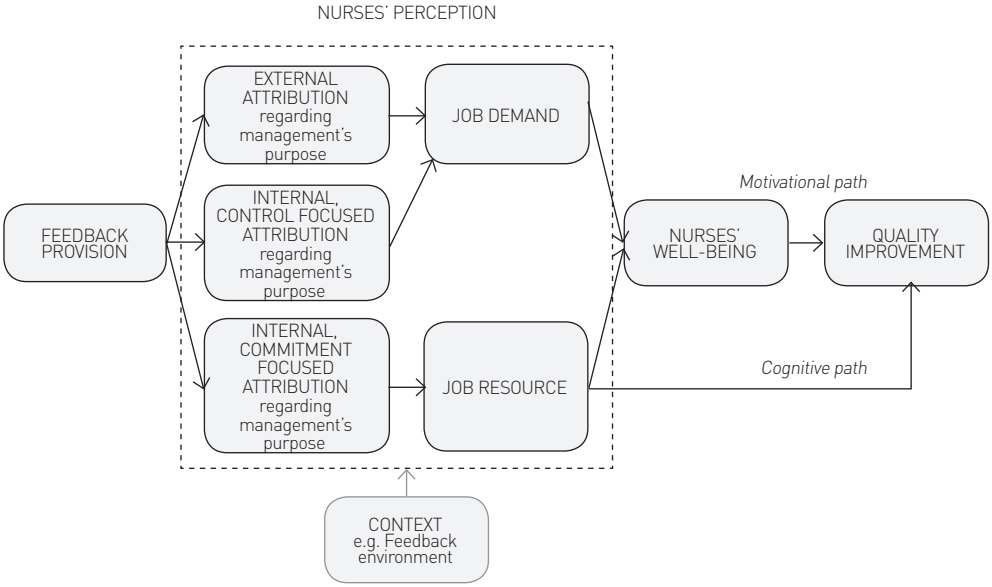

Figure 2 Feedback provision on quality measurements to nursing teams: a conceptual framework.

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ETHICAL APPROVAL

Ethical approval is not required for this study.

3

Nurses' perception of feedback on quality measurements: Development and validation of a measure

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ABSTRACT

Increasingly, hospitals use the data from their quality measurement activities, as feedback information for their nurses. It is argued that feedback on quality measurements can result in quality improvement at the expense of or for the benefit of nurses' well-being. The proposed relationship is assumed to be mediated by (1) nurses' attribution about management's purpose in providing feedback, and (2) nurses' perception of feedback as a job demand versus a job resource. This contribution describes the development and validation of an instrument to measure these constructs, based on research on HR attributions (Nishii et al., 2008) and the Job Demands-Resources model (Bakker & Demerouti, 2007). The measure has been discussed with several experts and practitioners, and pilot-tested among 55 nurses. Our pilot study reveals promising results regarding the content, construct and predictive validity of our measure.

Key words: feedback, quality measurements, attribution, job demands-resources model, measurement instrument

INTRODUCTION/BACKGROUND OF THE PROJECT

This article focuses on the HRM instrument of feedback that is based on measurable aspects of nursing care that may indicate potential problems or rather refers to good quality of care, and that is provided to nursing teams, on a regular basis. The underlying idea of providing feedback on quality measurements to nursing teams is that this allows nurses to assess and to adjust their performance, which will positively affect the quality of nursing care (Flottorp, Jamtvedt, Gibis, & McKee, 2010). However, although it seems logical that feedback will lead to quality improvement, worldwide empirical research does not fully support this assumption (Ivers, Jamtvedt, Flottorp, Young, Odgaard-Jensen, O'Brien, Johansen, Grimshaw, & Oxman, 2012). This corresponds with the findings from previous research on the relationship between HRM and organizational performance (Guest, 2011). Building upon literature on the 'black box' of HRM, Giesbers, Schouteten, Poutsma, Van der Heijden and Van Achterberg (2015) argued that a better understanding of the role of nurses' well-being in linking feedback to quality improvement is needed, since feedback on quality measurements can result in quality improvement at the expense of or for the benefit of nurses' well-being. The latter may, at least partly, explain the heterogeneous results from previous research about the quality improvement effects of feedback on quality measurements.

Nurses' perception of feedback is an important mediating variable in the relationship between feedback on quality measurements on the one hand, and nurses' well-being and quality improvement on the other (Giesbers et al., 2015). More specifically, it can be assumed that when nurses perceive the feedback provision as a burdening job demand (Bakker & Demerouti, 2007), feedback may only result in quality improvement at the expense of nurses' well-being. On the other hand, when nurses perceive the feedback provision as a job resource that helps them to improve the quality of nursing care (Bakker & Demerouti, 2007), feedback can result in quality improvement for the benefit of nurses' well-being. The attribution nurses make about management's purpose in providing feedback comprises an important factor that might influence nurses' perception of feedback provision as a job demand versus a job resource (Giesbers et al., 2015).

AIM, THEORETICAL BACKGROUND AND PROPOSITIONS

This contribution describes the development and validation of an instrument to measure (1) the attribution nurses make about management's purpose in providing feedback on quality measurements, and (2) nurses' perception of feedback on quality measurements as a job demand versus a job resource.

Based on a thorough literature study and the typology of HR attributions by Nishii, Lepak and Schneider (2008), we developed 15 items to measure nurses' different attributions about

management's purpose in providing feedback on quality measurements. An example item was "I believe I am provided with feedback on quality measurements, because my supervisor aims to improve the quality of patient care". Additionally, building upon previous literature in the scholarly field of feedback and the Job Demands- Resources model (Bakker & Demerouti, 2007), we developed 10 items to measure nurses' perception of feedback on quality measurements as a job demand versus a job resource. An example item was "Because I am provided with feedback on quality measurements, I am motivated to improve the quality of patient care at my ward".

As regards the measure on the attribution nurses make about management's purpose in providing feedback on quality measurements, a differentiation is made between external and internal attributions. External attributions reflect the perception that feedback is provided in response to situational pressures that are external to management (Nishii et al., 2008). Internal attributions reflect the perception that feedback is provided due to factors over which the management has control (Nishii et al., 2008). The latter can be either commitment- or control-focused (Arthur, 1994; Nishii et al., 2008). Commitment-focused internal attributions connote positive consequences for employees, while control-focused internal attributions connote negative consequences for employees. Initially, Nishii et al. (2008) distinguished between two commitment-focused internal HR attributions [i.e., the attributions that HRM practices are designed from management's intent to: (i) enhance service quality, and (ii) employee well-being] and two control- focused internal HR attributions [i.e., the attributions that HRM practices are designed from management's interest in: (i) cost reduction, and (ii) exploiting employees]. As this distinction was not supported by empirical data (Nishii et al., 2008), we did not include this in our typology. However, our measure did include items related to both management's intent to enhance service quality, and to their intent to enhance nurses' well- being. An important addition to the typology by Nishii et al. (2008), is the distinction we made between nurses' internal attributions that are focused on factors for which the nurses' supervisor (operational management) is responsible and factors for which the (strategic) hospital management is responsible.

We expect that the attribution nurses make about management's purpose in providing feedback on quality measurements influences nurses' perception of feedback as a job demand versus a job resource. For example, when nurses believe that management's purpose is to support nursing teams in their quality improvement endeavor (a commitment-focused internal attribution), they will more likely perceive feedback as a job resource. In contrast, when they believe that management's purpose is to closely supervise the quality of care (a control-focused internal attribution), nurses will more likely perceive feedback as a job demand. External attributions are thought to be non-influential for nurses' perception of feedback as a job demand versus a job resource, since it is possible for nurses to have either an optimistic or cynical view of management's response to situational pressures (Nishii et al., 2008).

To test the predictive validity of nurses' attributions on nurses' perception of feedback as a job demand versus a job resource, we formulated the following propositions:

1) External attributions will not be significantly related to nurses' perception of feedback as a job demand versus a job resource.

2) Internal commitment-focused attributions, focused at the supervisor or the hospital management, will be positively related to nurses' perception of feedback as a job resource.

3) Internal control-focused attributions, focused at the supervisor or the hospital management, will be positively related to nurses' perception of feedback as a job demand.

FIRST FINDINGS

Content validity

We pilot-tested our measure with three nurses and a quality manager from a general, teaching hospital in the Netherlands and with four organizational scholars. This pilot-study resulted in several minor changes to the wording of the measure, and one extra item. Subsequently, a paper-and-pencil survey was distributed among 116 nurses working at four different wards, from two different hospitals in the Netherlands. The survey included the measures and some additional questions to check whether the instructions were comprehensible, the questions were clear and no important items have been omitted. Data were collected from 55 nurses, resulting in a response rate of 47.41%. 77.78 % of the nurses were of the opinion that the instructions were comprehensible, 75.93% thought the questions were clear and 64.81% thought no important items had been omitted. No significant differences between nurses working across the different hospitals or wards were found. Some nurses wrote down a remark, which indicated that they had little experience with feedback provision based on quality measurements. Other nurses wrote down a remark about 'quality measurements' being a very generic term, and recommended a further specification for sake of clarity.

Construct validity

A principal axis factoring, using varimax (orthogonal) rotation was conducted on the 16 items related to nurses' attribution about management's purpose in providing feedback. The item about management's purpose to make a better appearance in the media appeared to cross-load on three factors and was therefore removed from the analysis. We expected this item to load on the factor related to external attributions, yet, it did not appear so. It might be that although hospitals are confronted with newspapers and magazines that publish information

about quality measurements, 'making a better appearance in the media' does not make management a passive recipient of external, environmental forces.
Subsequently, a principal axis factoring was conducted on the remaining 15 items, using direct oblimin (oblique). Table 1 shows the factor loadings, which do not seem to fit the proposed five-dimensional structure of nurses' attribution about management's purpose in providing feedback. Factor one refers to management's purpose in providing feedback to involve nurses more in the pursuit of the hospital's quality objectives. Factor two refers to management's intention to make nurses' work more attractive and challenging. When factor one and two are combined in one dimension (α = .74), the factor can be characterized to reflect the dimension on 'employee enhancement HR attribution' within the initial typology by Nishii et al. (2008). Factor three reflects the external attribution nurses may make about management's purpose in providing feedback. Factor four is about management's intention to improve and supervise the quality of care, and fits the dimension on 'quality enhancement HR attribution' within the initial typology by Nishii et al. (2008). Factor five refers to management's purpose to make nurses work harder or to give them extra work, and may be characterized to reflect the internal control-focused attribution. Table 1 shows that the items in the measure that are focused on the supervisor or the hospital's management, do not cross-load on different factors. These items appear to be significantly and very strongly correlated with one another (see Table 2 for more specific outcomes).
Based upon our empirical outcomes, a new typology was designed existing of four dimensions, and making no distinction between nurses' attribution focused on the supervisor and the hospital management:

External attributions (1)

Internal attributions
- Commitment-focused internal attributions
    - Quality enhancement attributions (2)
    - Nurse enhancement attributions (3)
- Control-focused internal attributions (4)

Table 1: Summary of factor analysis results for items related to nurses' attribution about management's purpose in providing feedback (N = 55)

Items	**Factor**				
I believe I am provided with feedback on quality measurements, because…	*1*	*2*	*3*	*4*	*5*
my supervisor wants to improve the quality of patient care.		-.15	-.15	**-.62**	
the hospital management wants to improve the quality of patient care.	.26		.12	**-.64**	
my supervisor wants to closely supervise the quality of care delivered.a		.19		**-.80**	
the hospital management wants to closely supervise the quality of care delivered.		.18	.17	**-.78**	
the hospital needs to adhere to the quality standards by the healthcare inspectorate.	-.22		**.66**		
my supervisor wants to make nurses' work more attracting and challenging.		**.89**			
the hospital management wants to make nurses' work more attracting and challenging.		**.90**			
the hospital needs to adhere to societal norms on transparency.	.23		**.71**	.11	
my supervisor wants to make the nurses work harder.	.13	.15			**.90**
the hospital management wants to make the nurses work harder.	.16				**.94**
my supervisor wants to involve nurses more in the pursuit of the hospital's quality objectives.	**.70**	.10		-.12	-.14
the hospital management wants to involve nurses more in the pursuit of the hospital's quality objectives.	**.79**				
the hospital needs to adhere to the quality standards by the health insurers			**.56**	-.19	
my supervisor wants to give the nurses extra work.	-.23	-.15	.12		**.75**
the hospital management wants to give the nurses extra work.	-.35				**.70**
Eigenvalues	3.88	3.35	1.84	1.55	1.06
% of variance	25.85	22.31	12.24	10.34	7.07
α	.82	.93	.69	.81	.90
α (when items on factors 1 and 2 are combined)		.74	.69	.81	.90

Note. Factor loadings above .40 appear in bold and factor loadings below .10 are not shown (Field, 2009).

Table 2: Partial correlations between the items related to the supervisor and the hospital management (N = 55), controlling for hospital

I believe I am provided with feedback on quality measurements, because…

			the hospital management wants to:			
my supervisor wants to:	1	2	3	4	5	6
1. improve the quality of patient care.	**.61****	.38**	-.09	-.10	.16	-.10
2. closely supervise the quality of care delivered.	.50**	**.83****	.30*	.04	.27*	-.04
3. make nurses' work more attracting and challenging.	.15	.32*	**.86****	.33*	.20	.12
4. make the nurses work harder.	.03	.04	.44**	**.93****	-.06	.60**
5. involve nurses more in the pursuit of the hospital's quality objectives.	.41*	.29*	.14	-.16	**.71****	-.49**
6. give the nurses extra work.	-.14	-.16	.10	.60**	-.32*	**.82****

Note. Correlations between the same items related to the supervisor and the hospital management appear in bold.

** Correlation is significant at the 0.01 level (two-tailed). * Correlation is significant at the 0.05 level (two-tailed).

A principal axis factoring with a fixed number of 2 factors was conducted using the 10 items related to nurses' perception of feedback on quality measurements as a job demand versus a job resource (no rotation). Table 3 shows the resulting factor loadings. The factor loadings suggest an instrument comprising a first factor that represents job demand and a second factor that represents job resource.

Table 3: Summary of factor analysis (fixed on two factors) results for the job demand versus job resource items (N = 55)

Items	**Factor**	
Because I am provided with feedback on quality measurements ...	*1*	*2*
I get the feeling that those aspects of patient care that are not measureable, are considered less important.	**.60**	
I know better what the hospital objectives are.	.12	**.42**
I can spend less time on direct patient care, at the patients' bedside.	**.89**	-.11
I know better what the hospital and my supervisor expect from me.	.15	**.59**
I am confronted with extra work.	**.81**	
I am motivated to improve the quality of patient care at my ward.	-.21	**.59**
I am pressured to meet the standards of the quality measurements.	**.56**	.25
I am more aware of the level of quality of patient care at my ward.	-.25	**.55**
I get insecure about my skills / abilities as a nurse.	**.51**	.22
I know better how to improve the quality of patient care.		**.63**
Eigenvalues	2.96	2.33
% of variance	29.61	23.32
a	.80	.68

Note: Factor loadings over .40 appear in bold and factor loadings below .10 are not shown (Field, 2009).

Predictive validity

Due to the fact that the commitment-focused internal attribution was divided into a "Quality enhancement attribution" and a "Nurse enhancement attribution", our second proposition was divided into:

2a: Quality enhancement attributions will be positively related to nurses' perception of feedback as a job resource.
2b: Nurse enhancement attributions will be positively related to nurses' perception of feedback as a job resource.

Since the items about nurses' attributions which were focused on the supervisor and on the hospital's management did not cross-load on different factors, this distinction was not taken into account in our test of the predictive validity of our measure. All propositions were tested using multiple linear regression analysis, controlling for hospital only (no significant

differences between wards were found). The outcomes of this analysis (see Figure 1) indicated that propositions 1, 2b and 3 were confirmed with our data.

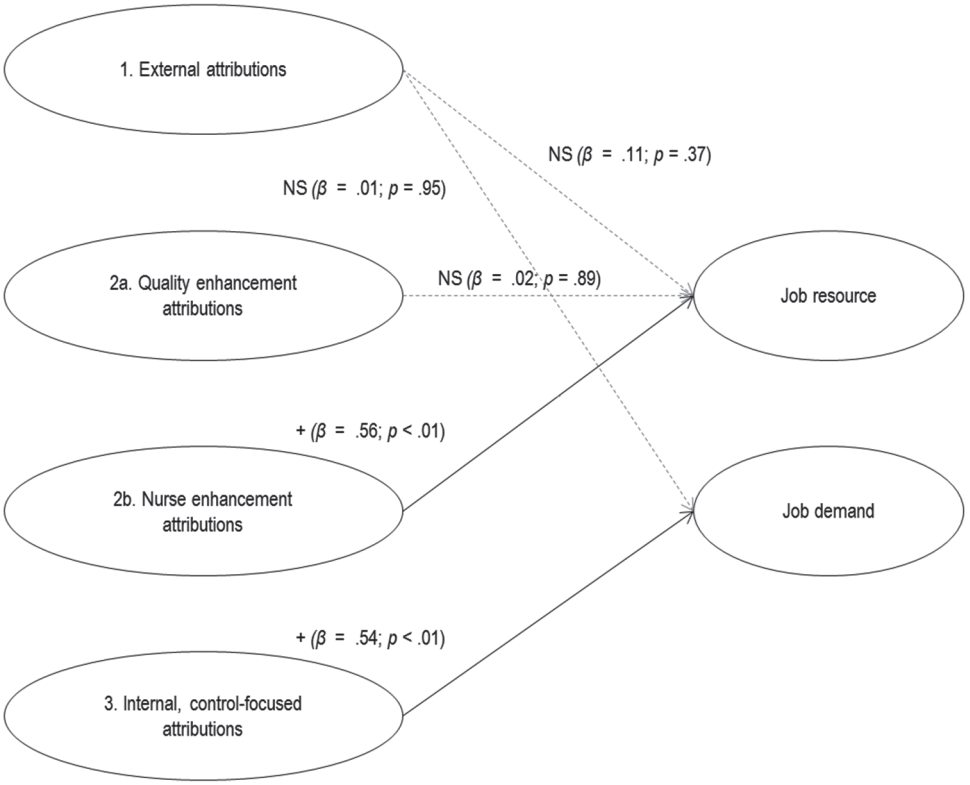

Figure 1: Regression coefficients (N = 55)

FURTHER RESEARCH STEPS

Although our findings are encouraging, an important limitation of the present study concerns the sample size which makes it difficult to draw definite conclusions about the validity of the measurement instrument. On the other hand, the results of our pilot study reveal promising results and call for more research using larger samples in order to cross-validate our outcomes, and to investigate how nurses' perception of feedback mediates the relationship between feedback on quality measurements, nurses' well-being and quality improvement. Additionally, our study shows that the typology on HR attributions (Nishii et al., 2008) and the

Job Demands-Resources model (Bakker & Demerouti, 2007) are good starting-points for the development of measures about specific HR practices, like feedback provision.

Several opportunities for improvement, that emerged from this pilot study, should be taken into account in future research. The content validity may be improved by specifying the term 'quality measurements'. Moreover, the construct validity of the instrument may be improved by further large-scale empirical research on the distinction between supervisor and hospital management related to the attribution that nurses make of management's purpose in providing feedback. The findings of our pilot study indicated that this distinction is not made by the nurses. Possibly, these outcomes can be explained by the so-called 'cascading effect' (Yang, Zhang, & Tsui, 2010); nurses perceive that feedback on quality measurements is designed due to factors for which the hospital management is responsible, and this responsibility is 'cascaded' down to the supervisor. It could also be desirable to reword the items in order to refer specifically to 'the direct supervisor' and 'the Board of Directors', which makes the distinction between these levels of management more explicit. Finally, the construct validity may be enhanced by distinguishing the quality of nursing care and nurses' well-being as separate factors related to the attribution that nurses make of management's purpose in providing feedback.

4

Towards a better understanding of HR attributions: The case of feedback on quality measurements in hospital nursing teams

Giesbers, A.P.M., Schouteten, R.L.J., Poutsma, E., Van der Heijden, B.I.J.M., Van Achterberg T. (*submitted*) Towards a better understanding of HR attributions: The case of feedback on quality measurements in hospital nursing teams. *Human Relations*

ABSTRACT

This article aims to enhance our understanding of HR attributions. An in-depth study of nurses' attributions about the 'why' of feedback on quality measurements, being a relatively new HR practice in healthcare, was performed. Results from a convergent, mixed methods study, combining survey data (n = 91) and interviews (n = 36) following a feedback intervention in four hospital wards, show that nurses - both as a group and individually - make varying attributions about their managers' purpose in providing feedback on quality measurements. We found that internal, commitment-focused attributions are negatively related to burnout. External attributions appeared to be positively related to burnout. Additionally, our results indicated that the feedback environment influences nurses' attributions. Implications for theory, practice and future research at the general level of HR attributions and in the specific context of feedback on quality measurements are discussed.

INTRODUCTION

Over the past 20 years, academic research has exploded seeking to show that HRM is related to performance. At the beginning, this research concentrated on the two endpoints of the relationship at the organizational level; the HR practices on the one hand and organizational performance on the other hand (e.g., Huselid, 1995; MacDuffie, 1995). Starting in the late 1990s, researchers began to focus at the effect of HR practices on employee-centered outcomes, such as employee well-being, attitudes and behavior at work. Based upon the scholarly work in this field, they agreed that HR practices influence organizational performance through its influence on employees (e.g., Appelbaum, Bailey, Berg, & Kalleberg, 2000). At the start of the new century, attention shifted from an HRM content (i.e. HR practices) towards an HRM process perspective on the relationship between HRM and employee and organizational outcomes (Sanders, Shipton, & Gomes, 2014). Several scientists argued that it is not the HR practices per se that influence employees, and consequently their performance, but rather the way these HR practices are perceived by employees (e.g., Bowen & Ostroff, 2004; Wright & Nishii, 2013). Nishii, Lepak, and Schneider (2008) have built upon this idea, and showed that employees respond attitudinally and behaviorally to HR practices based on the attributions they make about their manager's purpose in implementing the actual HR practices. Although many scholars have underlined the importance of HR attributions to better understand the impact of HR practices on employee outcomes and consequently performance (e.g., Peccei, Van de Voorde, & Van Veldhoven, 2013; Woodrow & Guest, 2014; Wright & Nishii, 2013), so far, little empirical research has been undertaken in the direction of the *why* of HR practices (see Koys 1988, 1991; Nishii et al., 2008; Van de Voorde & Beijer, 2015 for exceptions).

In order to gain a more in-depth understanding of HR attributions, this article focuses on the HR attributions related to a very specific HR practice: feedback on quality measurements to nursing teams. Providing feedback on quality measurements, like the rates of falls and the incidence of pressure ulcers, to nursing teams is a relatively new phenomenon in healthcare (Flottorp, Jamtvedt, Gibis, & McKee, 2010). We focus our study on this specific HR practice because feedback is the most important strategy for implementing quality measurements in hospital care (De Vos et al., 2009). Regarding the effect of feedback on nurses' outcomes, previous research indicated contradictory results. For instance, Lindblom, Bäck-Pettersson, and Berggren (2012) described how nurses became motivated for quality improvement when they received feedback on the quality of the end-of-life care they provided. In contrast, Struijs and Vathorst (2009) showed how quality measurements can undermine the value of work that is non-measurable and less visible, like 'comforting patients' or 'showing empathy', thus leading to alienation and demotivation among nurses. More recently, the research by McCann, Granter, Hassard, and Hyde (2015), within four UK National Health Service organizations, highlighted that professional discretion has been increasingly sundered by a narrow focus on "making the numbers", resulting in dysfunctional outcomes for workforce morale. Up to now,

little is known about the processes underlying the possible heterogeneous effects of feedback on quality measurements on nurses' well-being (Giesbers, Schouteten, Poutsma, Van der Heijden, & Van Achterberg, 2015). We argue that a better understanding of nurses' attributions about the 'why' of feedback on quality measurements is important in order to gain insight in the proverbial 'black box' between feedback and nurses' outcomes (Giesbers et al., 2015). Moreover, we include the feedback environment in our analyses. The feedback environment, also called feedback culture (London & Smither, 2002), refers to the contextual aspects of day-to-day feedback processes, or the overall supportiveness for feedback in the workplace (Steelman, Levy, & Snell, 2004). Previous research showed that the feedback environment influences how employees perceive feedback interventions (Dahling, Chau, & O'Malley, 2012).
This article aims to enhance our understanding of HR attributions, by reporting on a mixed methods, embedded case study on: (1) nurses' attributions regarding why they are provided with feedback on quality measurements; (2) the effect of these attributions on nurses' well-being; and (3) the influence of the feedback environment on nurses' attributions. By focusing on a specific HR practice - feedback on quality measurements to hospital-based nursing teams - our study allows for a more fine-grained analysis of the HRM process (Sumelius, Björkman, Ehrnrooth, Mäkelä, & Smale, 2014). Additionally, this study contributes to the scholarly field of feedback studies by not choosing the common focus on the effects of feedback on performance outcomes, but by focusing on effects on workers and determinants of these effects instead.
In the next section, the theoretical framework is explored, followed by an explanation of our methodology and a presentation of our findings. Finally, we will discuss the theoretical and practical implications of our study, its limitations, and recommendations for future research.

THEORETICAL BACKGROUND

Nurses' attributions about the 'why' of feedback

In times of change, employees will engage in explicit efforts of sensemaking (Weick, Sutcliffe, & Obstfeld, 2005). Since providing nursing teams with feedback on quality measurements comprises a relatively new phenomenon in healthcare (Flottorp et al., 2010), we expect nurses to attempt to make sense of why this feedback is provided to them. This process of sensemaking is not about the truth and getting it right, but about the development of plausible 'stories' (Weick et al., 2005). We expect that nurses may have different 'stories' or explanations regarding the 'why' of feedback on quality measurements, depending upon their interpretations of the purpose of the manager who provided the feedback. To better understand nurses' different explanations, this article builds on attribution theory and, more specifically, on a model of HR attributions (Nishii et al., 2008).
Attribution theory deals with how people answer questions regarding the "why" of something. Research on attributions, dating back for more than 50 years, examines the causal explanations

people make for their own and others' behaviors (Kelley, 1973). Inspired by the principles of attribution theory, Nishii et al. (2008) introduced their theoretical model of HR attributions. HR attributions are defined as causal explanations that employees make regarding management's purposes in using particular HR practices. Building on Koys' (1988, 1991) work, the model of HR attributions by Nishii et al. (2008) distinguishes between internal and external HR attributions. *Internal HR attributions* refer to the perception that HR practices are adopted due to factors for which management is responsible, or factors over which management has control. *External HR attributions* refer to the perception that HR practices are adopted because management *has* to, due to external constraints. Additionally, Nishii et al. (2008) drew a distinction between *internal commitment-focused* HR attributions that connote positive consequences for employees and *internal control-focused* HR attributions that connote negative consequences for employees.

The question that follows from the work by Nishii et al. (2008) is: Which different internal commitment-focused, internal control-focused and external attributions can nurses make about their ward manager's purpose in providing feedback on quality measurements? First, nurses may believe that their manager's purpose is to support the nursing team in its quality improvement endeavor, to monitor the quality of care on the ward, and/or to improve quality-related outcomes for patients. This attribution is consistent with the broadly based idea that feedback allows professionals to become aware of their - potentially suboptimal - performance, which may encourage them to adjust their behavior and, as a result, improve the quality of nursing care (Flottorp et al., 2010). Second, nurses may believe that it is their manager's purpose to make nurses' work more attractive and challenging. By informing nursing teams on the results from quality measurements, the nurses may become more involved in quality improvement possibly resulting into a more professional work environment.

Nurses can also attribute feedback provision on quality measurements to different internal, control-focused factors. For instance, nurses may believe that their manager's purpose is to make the nurses work harder or to give them extra work, herewith pushing them towards quality improvement objectives and/or cost reduction.

Finally, nurses may attribute feedback provision on quality measurements to different external factors (e.g. healthcare inspectorates, pay for performance schemes etc.) because the introduction of feedback on quality measurements within hospitals is often driven by healthcare reform programs, based on New Public Management ideology - a range of emerging social policy ideas that generally sought to combine the dynamism and customer orientation of the private sector with the service ethic that is traditionally inherent in the public sector (Hood, 1991). First, nurses may believe that their manager's purpose in providing feedback is to adhere to societal norms on transparency. Indeed, patients, insurers, politicians and the media call for an ever-increasing amount of transparency on the results of healthcare (Ketelaar et al., 2011). Second, nurses may believe that their manager's purpose is to better adhere to the quality standards imposed on the hospital by organizations like the healthcare inspectorate or health insurers.

Nurses' attributions and their effects on nurses' well-being

Research on HR attributions has demonstrated that employees may make varying attributions for the same HR practices, and that these attributions are differentially associated with employee well-being (Koys 1988, 1991; Nishii et al., 2008, Van de Voorde & Beijer, 2015). To illustrate, both Nishii et al. (2008) and Van de Voorde and Beijer (2015) found empirical support for a positive relationship between internal, commitment-focused attributions and employee well-being, and for a negative relationship between internal, control-focused attributions and employee well-being. Previous research by Koys (1988, 1991) and Nishii et al. (2008) on the effect of external HR attributions on employee well-being reported no significant results. According to Nishii et al. (2008), external attributions are unrelated to employee well-being because employees do not attribute meaningful dispositional explanations (*i.e.* explanations in terms of internal factors which are specific to the management, such as the manager's personality) to management's effort to comply to external constraints. After all, complying to external constraints is something managers *have* to do. Even if employees were to attribute meaningful dispositional explanations in this regard, both positive and negative explanations are possible, resulting the net effect to be non-significant (Nishii et al., 2008).

Relying on the above, we expect to find: (1) a positive relationship between internal, commitment-focused attributions and nurses' well-being, on the one hand; and (2) a negative relationship between internal, control-focused attributions and nurses' well-being, on the other hand. Additionally, we do not expect to find: (3) a significant relationship between external attributions and nurses' well-being.

The influence of the feedback environment on nurses' attributions

Several scholars have underlined the importance of the organizational context to better understand differences in HR attributions (Nishii et al., 2008; Van de Voorde & Beijer, 2015). Accordingly, research about sensemaking has indicated that 'stories' tend to be seen as plausible when they tap into an existing organizational context (Weick et al., 2005). For this reason, in this article we investigate how the feedback environment set by the ward manager (the supervisor feedback environment, hereafter referred to as 'feedback environment') influences nurses' attributions about the 'why' of feedback on quality measurements. The feedback environment is characterized by the perceived credibility of the supervisor as feedback source, the quality of the feedback, the tactfulness with which the feedback is provided, the extent to which favorable and unfavorable feedback is provided, the availability of feedback, and the extent to which feedback-seeking behavior is promoted (Steelman et al., 2004). A supportive feedback environment is one in which high-quality feedback is provided by the supervisor in a tactful and constructive manner. Consistent with London and Smither's (2002) theoretical model, Dahling et al. (2012) found empirical support for the proposition that within a supportive feedback environment, employees will develop, among other things, a positive view of feedback, a lack of

apprehension toward feedback, a belief that feedback is valuable, and a sense of accountability to act on the feedback that is provided.

Relying on the above, we expect to find: (1) a positive relationship between a supportive feedback environment and attributions that connote positive consequences for nurses, being internal, commitment-focused attributions. Additionally, we expect to find: (2) a negative relationship between a supportive feedback environment and attributions that connote negative consequences for nurses, being internal, control-focused attributions.

METHOD

Our study employed a convergent mixed methods, embedded case study design (Creswell, 2015). This design provided us with a more complete understanding than using either a quantitative or a qualitative design (Anderson, 2009; Creswell, 2015) and is increasingly recognized to provide rich opportunities for improving our understanding of the HRM process (Woodrow & Guest, 2014). First, the design enabled us to cross-check our data about nurses' attributions about the 'why' of feedback on quality measurements, enhancing our confidence in the validity and reliability of the outcomes. Second, the design revealed the complexity of nurses' attributions and enabled a deeper understanding of them. Third, the design provided us with the opportunity to establish whether relationships between nurses' attributions, their well-being and the feedback environment were statistically significant, and helped us to find an explanation of why such relationships occurred.

Our study draws on evidence from four comparable hospital wards as embedded units of analysis. The nurses on each ward were, regularly provided with feedback on quality measurements during a four months' period. In the following paragraphs, we will address the steps taken with regard to the ward selection, the feedback intervention, the quantitative and qualitative data collection and the data analyses.

Ward selection

For reasons of comparability, we included only surgical wards from one type of hospital, i.e. acute teaching-hospitals in the Netherlands. Moreover, to be able to properly study our feedback intervention, we included only wards where nurses were not provided with regular feedback on quality measurements before. Based on convenience sampling, we found four wards within three different hospitals that volunteered to participate in this study. The hospitals in our study were institutions with the number of beds ranging from 643 to 1,070 and with the number of staff (fte) ranging from 2,640 to 2,915. The number of nurses working on the participating wards ranged from 29 to 69. The participating wards housed patients from different surgical, medical specialties. The first ward housed patients from neurosurgery and orthopedics, the

second ward housed patients from lung surgery, the third ward housed patients from general surgery, and the fourth ward housed patients from urology, plastic surgery and gynecology.

Feedback intervention

During a four months' period, the nurses on each ward were regularly (at least once every two weeks) provided with oral and written feedback on quality measurements, linked to a clear target. The ward manager determined which quality measurements were selected, which target was set, how the quality measurements were carried out and exactly when and how feedback was provided to the nurses. Examples of the selected quality measurements are the percentage of patients screened for the risk or existence of pressure ulcers at admission and the percentage of patients with self-reported pain scores greater than 7 (on a scale of 0 to 10), during their stay on the hospital ward. The feedback on quality measurements, as intended by the ward managers at the beginning of the four months' period, was comparable for the different wards. To ensure that the feedback on quality measurements as intended matched the feedback as implemented (Woodrow & Guest, 2014; Wright & Nishii, 2013), the first author conducted several on-site observations during the four months' period of feedback provision. With respect to the frequency of oral feedback, inconsistencies with the feedback as intended were found on two of the wards. Feedback to the nurses on these wards was mostly in writing.

Quantitative data collection and analysis

After the four months' period during which regular feedback on quality measurements was provided to the nurses, an online *survey* was distributed to all the nurses (n = 184) on the four participating wards. The ward managers together with the first author informed the nurses about the purpose of the study and motivated them to fill out the survey. Data were collected from 91 nurses, resulting in a response rate of 49.46%. The average age in our sample was 37.86 years (SD = 11.30) and 89.25 per cent were females. The average tenure in the organization was 12.59 years, and the average tenure as a nurse was 14.35 years.

Measures

For all measures, seven-point Likert scales were used, ranging from strongly disagree/never (1) to strongly agree/always (7).

Nurses' attributions about their ward manager's purpose in providing feedback. Building on the model of HR attributions (Nishii et al., 2008), we developed a measure on nurses' attributions about their ward manager's purpose in providing feedback on quality measurements. We pilot-tested our measure in two rounds. In a first round, several practitioners and scholars were asked to provide feedback on the content and wording of the items. In a second round, data on the feedback measure was collected from 55 nurses who did not work on the wards included for this article. In the second round, some questions regarding the comprehensibility

and completeness of our measure were added. This resulted in a valid and reliable measure (Giesbers, Schouteten, Poutsma, Van der Heijden, & Van Achterberg, 2014) that was used for this study. An example item was: "I believe I am provided with feedback on quality measurements, because my ward manager aims to improve the quality of patient care".
For this study, we checked the above-mentioned pilot measure and conducted an exploratory factor analysis using varimax rotation for the items related to nurses' attribution about their ward manager's purpose in providing feedback. Three factors had Eigenvalues above 1 (with a total explained variance 61 per cent) and appeared to correspond with the typology of three attribution dimensions. The reliability for all dimensions was above the acceptable limit of .60 for exploratory research (Hair, Anderson, Tatham, & Black, 1998); (1) internal, commitment-focused attributions (α = .72); (2) internal, control-focused attributions (α = .72); and (3) external attributions (α = .69).

Nurses' well-being at work. This study focuses on nurses' psychological well-being (Grant, Christianson, & Price, 2007), more specifically, as operationalized in terms of burnout and work engagement. *Burnout* can be described as a state of mental weariness that is characterized by cynicism, exhaustion and low professional efficacy (Schaufeli & Bakker, 2004). Burnout was measured with the Utrecht Burnout Scale (UBOS); the Dutch version of the Maslach Burnout Inventory-General Survey. An example item was: "I feel mentally exhausted by my work". Cronbach's alpha for the UBOS was .84 in our study. Work engagement can be described as a positive, fulfilling work-related state of mind that is characterized by vigour, dedication, and absorption (Schaufeli & Bakker, 2003). Work engagement was measured with the short version of the Utrecht Work Engagement Scale (UWES-9; Schaufeli & Bakker, 2003). An example item was: "I am enthusiastic about my work". Since its introduction in 1999, a large number of validity studies have been carried out that indicate that the UWES comprises a valid and reliable indicator of work engagement (Schaufeli & Bakker, 2003). Cronbach's alpha for the UWES data in our study was .87.

Supervisor feedback environment. Steelman et al. (2004) developed a measure for the feedback environment set by the supervisor: the Supervisor Feedback Environment Scale (SFES). We used the short version of the SFES by Rosen, Levy and Hall (2006). This short version was translated into Dutch using the validated Dutch full version of the SFES of Anseel and Lievens (2007). The 21-item short version of the SFES characterizes the feedback environment by source credibility, feedback quality, feedback delivery, providing favorable feedback, providing unfavorable feedback, source availability, and promoting feedback seeking.[1] An example item was: "I regularly receive positive feedback from my ward manager". Cronbach's alpha for the SFES was .90 in our study.

1 Due to a coding error three items that represent 'promoting feedback seeking' have been omitted in the data collection. For this reason, the analysis are based on 18 items that represent source credibility, feedback quality, feedback delivery, providing favorable feedback, providing unfavorable feedback and source availability.

Quantitative Analyses

To examine the differences between the different wards with regard to nurses' attributions about their ward manager's purpose in providing feedback, nurses' well-being and the feedback environment, a Oneway ANOVA test was conducted on all study variables, followed by a Scheffé post-hoc comparison, having the advantage of being conservative. The Scheffé post-hoc comparison between the means of all study variables on the different wards showed that none of the means were significantly different ($p > .05$). For this reason, we did not control for wards in further analyses. The relationship between nurses' attributions and nurses' well-being was examined using linear regression analysis. Linear regression analysis was also used to examine the relationship between the feedback environment and nurses' attributions.

Qualitative data collection and analysis

After the four months' period during which regular feedback on quality measurements was provided to the nurses, individual, semi-structured face-to-face *interviews* were conducted by the first author with eight nurses and their ward manager in each ward. This resulted in a total of 32 nurses and four ward managers being interviewed. Out of the 32 nurses, 27 were females and 5 were males, and their average age was 32.93 years (SD = 11.66). Out of the four ward managers, three were females and one was male. The interviews were conducted at the workplace and covered three key areas: how respondents experienced the feedback on quality measurements; what they believed to be the effect of feedback; and the causal explanations regarding the ward manager's purpose in using feedback. Interviews lasted between 10 and 40 minutes, with 20 minutes, on average. All participants consented to the interviews being recorded, and all full interviews were transcribed verbatim. Participant data was anonymised using 2-digit codes. To analyze the data for this article, the first author undertook three cycles of coding, using Atlas.ti software package. Phase 1 comprised open coding and focused on identifying attributions within the data. Phase 2 consisted of axial coding and focused on categorizing all codes via a deductive approach. This implied that attributions were categorized as 'Internal, commitment-focused attributions', 'Internal, control-focused attributions' or 'External attributions'. Phase 3 consisted of identifying relationships between the different attributions and explanations for the findings from the quantitative data. Additionally, we formulated a grid to compare the data from the different wards and hospitals. To check for inter-rater reliability, two interviews were coded independently by the first three authors followed by a thorough discussion of its outcomes.

RESULTS

Nurses' attributions about the 'why' of feedback

We used both the survey and interview data to explore the attributions nurses make about their ward manager's purpose in providing feedback on quality measurements. First, we examined the descriptive statistics and correlations displayed in Table 1. These results revealed that nurses as a group make varying attributions about their ward manager's purpose in providing feedback on quality measurements. The external attributions, appeared to be most prevalent. Simultaneously, but to a lesser degree, internal, commitment-focused attributions came forward from the survey data. The survey data showed a significant correlation between the external attributions and internal, commitment-focused attributions (see Table 1). The internal, control-focused attributions did not come forward strongly from the survey data. In general, nurses appeared not to believe that they were provided with feedback on quality measurements because their ward manager wanted to reduce costs and/or to make the nurses work harder.

Table 1 Pearson's r correlations based on the survey data (N = 91)

		α	Mean	SD	1	2	3	4	5
1	Internal, commitment-focused attributions	0.72	4.85	0.88					
2	Internal, control-focused attributions	0.72	3.11	1.21	-0.03				
3	External attributions	0.69	5.79	0.79	0.24*	0.13			
4	Feedback environment[#]	0.90	5.15	0.83	0.49**	-0.22*	0.13		
5	Work engagement	0.87	5.53	0.75	0.19*	0.01	0.00	0.15	
6	Burnout	0.84	2.61	0.67	-0.15	0.18*	0.25**	-0.24**	-0.59**

* $p < 0.05$, ** $p < 0.01$ (1-tailed)

[#] higher scores indicate a more supportive feedback environment

Second, we examined the interview data to explore nurses' attributions about the 'why' of feedback. Comparable to the survey results, the interview data revealed that nurses make both external attributions and internal, commitment-focused attributions. However, in contrast to the survey results, internal, commitment-focused attributions came forward most strongly during the interviews. When looking more closely at nurses' internal, commitment-focused attributions, it seems that these nurses emphasized quality improvement, and not nurse enhancement. Actually, during none of the interviews, the nurses attributed feedback on quality measurements to their manager's purpose to make nurses' work more attractive and

challenging. Only a few nurses expressed attributions that could be categorized as internal, control-focused attributions. The interview excerpts below (including a reference to the participant's code, job and ward) capture the above-mentioned types of different attributions. Besides illustrating the different attributions among the nurses, these excerpts also illustrate how one nurse can make a diversity of attributions covering multiple attribution dimensions. For example, participant 23 described how she believed that feedback on quality measurements is aimed at both quality improvement – an internal, commitment-focused attribution - and cost control – an internal, control-focused attribution.

> *Internal, commitment-focused attribution:* "I believe the aim was to bring these things [quality measurements] to the team's attention. Like 'guys, pay attention to this and that'. To prevent things. To provide better care." (participant 33, nurse, ward 2)

> *Internal, control-focused attribution:* "The aim is mainly to improve the quality of care. [...] It [feedback on quality measurements] is also a way to control your costs. Patients with pressure ulcers or bad malnutrition will cost much more than a patient who walks out the hospital whistling." (participant 23, nurse, ward 1)

> *External attribution:* "These [quality measurements] are important items a hospital is assessed on, so to say. I think that when they looked at how we were performing, it became clear that there is much room for improvement." (participant 02, nurse, ward 3)

During the interviews the majority of the nurses appeared to simultaneously make external attributions and internal, commitment-focused attributions, which explains the significant correlation from the survey data between these different attributions (see Table 1). The nurses had different explanations of how external attributions and internal, commitment-focused attributions are linked. For example, the following nurse explained that she believed that compliance with external requirements is also in the interest of the quality of patient care:

> "I believe it is related to each other: it [performing well on quality measurements] is an obligation from the government, but in the end you wouldn't do it if the patient has no interest in the matter." (participant 17, nurse, ward 4)

Another nurse described that the motives for providing feedback on quality measurements are different for hospital level and ward level:

> "The aim is to make us aware of how we are performing on these quality measurements and what can be improved. [...] This is important for the patients welfare, but it is also important because hospital-wide we need to meet legal requirements. [...] The higher

management, who obviously do not work in direct patient care, [...] they focus on what the figures are. While for us, it is more important how the patient is doing." (participant 08, nurse, ward 3)

Nurses' attributions and their effects on nurses' well-being

We mainly used the survey data to examine the relationship between nurses attributions and their well-being. The outcomes of the regression analysis (see Table 2) indicated that only the first expected relationship was partly confirmed with our data: a positive relationship between internal, commitment-focused attributions and nurses' well-being. Specifically, we found that internal, commitment-focused attributions were negatively associated with one nurses' outcome measure, i.e. cynicism of burnout, being an indicator of a serious lack of well-being (β = -.26, p < .05; adjusted R^2 = .13). This means that nurses who experience internal, commitment-focused attributions in feedback on quality measurements from their managers are less cynical or indifferent to their work. Regarding the internal, control-focused attributions, the results showed no significant relation with nurses' well-being.

Additionally, in contrast to what we expected, the outcomes of the regression analysis indicated that external attributions were positively related to burnout. In other words, when nurses believed they were provided with feedback on quality measurements because the ward manager *had* to, due to external constraints (e.g., quality standards imposed on the hospital by the inspectorate), this had a negative effect on their well-being at work. More specifically, we found a significant positive relationship between external attributions and cynicism (β = .38, p < .01; adjusted R^2 = .13), and between external attributions and exhaustion (β = .30; p < .05; adjusted R^2 = .06). This means that nurses who experience external attributions in feedback on quality measurements from their managers have a more distant attitude towards their work and are more fatigue.

Table 2 Outcomes of multiple regression analysis based on the survey data (N = 91)

Independent variable	**Dependent variable**	
	Burnout	Work engagement
	β	β
Internal, commitment-focused attributions	-0.16*	0.17
Internal, control-focused attributions	0.08	0.01
External attributions	0.24**	-0.05
R^2	0.13	0.04
Adjusted R^2	0.10	0.00
F	4.31**	1.11

* p < 0.05, ** p < 0.01, *** p < 0.001

The interview data was used to find an explanation for the unexpected positive relationship between external attributions and burnout (cynicism and exhaustion). It seems that nurses felt that external requirements put a heavy demand on their jobs. From this, it seems logical that when nurses believed they were provided with feedback on quality measurements due to external constraints, this led to cynicism and exhaustion. For instance, the following nurse described how she felt pressured by governmental requirements, without having any influence on them.

> "The requirements of the inspectorate are obviously increasing. It's too bad that we have little influence on that. They insist on making it demonstrable, hence the quality measurements. The requirements are often too high, in my opinion. However, that is something from the government, you cannot change that. [...] Sometimes I believe they [the inspectorate] are going too far in what they want us to do." (participant 06, nurse, ward 3)

Another nurse reported on how governmental requirements are in conflict with her job satisfaction:

> "I believe it [performing well on quality measurements] is partly obligatory by law. It is obligatory, so we have to pay attention to it. The hospital would be crazy to say "the minister can come up with anything, but we are not doing that." So, I believe providing feedback on these quality measurements comes from that direction. I guess it will also improve quality. However, when you look at my work situation, what has to be done on the job, it does not improve my job satisfaction. It is in conflict with that." (participant 24, nurse, ward 1)

The influence of the feedback environment on nurses' attributions

Moreover, we used the survey data to examine the influence of the feedback environment on nurses' attributions about the 'why' of feedback. The outcomes of the regression analysis (see Table 3), indicated that the expected relationships between the feedback environment and attributions were confirmed with our data. A supportive feedback environment set by the ward manager was positively related to internal, commitment-focused attributions ($\beta = .53$, $p < .001$; adjusted $R^2 = .24$) and negatively related to nurses' internal, control-focused attributions ($\beta = .33$, $p < .05$; adjusted $R^2 = .04$).

Table 3 Outcomes of regression analysis based on the survey data (N = 91)

Independent variable	**Dependent variable**		
	Internal, commitment-focused attributions	Internal, control-focused attributions	External attributions
	β	β	β
Supervisor Feedback Environment	0.53***	-0.33*	0.12
R^2	0.24	0.05	0.02
Adjusted R^2	0.24	0.04	0.01
F	28.78***	4.67*	1.42

* $p <$ 0.05, ** $p <$ 0.01, *** $p <$ 0.001

Our survey results showed a bivariate relationship between the feedback environment and nurses' attributions. However, the data from the interviews with the ward managers indicated that a third variable may be relevant in this relationship: the ward managers' purpose in providing feedback on quality measurements. It could be that nurses' attributions will more likely match their ward manager's motivations within a supportive feedback environment. The interview data revealed, the ward managers' purpose in providing feedback was mainly to improve the quality of nursing care and/or to make nurses' work more attractive (internal, commitment-focused) and as a 'side-effect' adhere to external constraints, like governmental requirements. None of the ward managers appeared to explicitly describe a reduction in costs as their purpose in providing feedback on quality measurements. For instance, the following ward manager explained that her main purpose in providing feedback on quality measurements was to improve the quality of care.

> "The aim is to improve the quality of care, especially the improvements that are obliged. By providing feedback we can achieve rapid results. I'm in favor of that. I'm in favor of everything that leads to clarification for the nurses, for ourselves and clarifies the possibilities for improvements. [...] It [feedback] showed we were performing very good. That's also nice to hear for a change. That's not why you do this, but it's nice to see we are on the right track. And when you see you are not yet on the right track, to do something with that information. [...] With these quality measurements we can say, as a hospital, we are performing well. I'm part of this hospital." (participant 10, ward manager, ward 4)

Another ward manager explained that her purpose in providing feedback on quality measurements was to improve the quality of care by making nurses aware of their low performance on the quality measurements.

> "It's my opinion that people remained stuck in the believe that they were performing very well. At times, I got quite sick of that. Really, I think that's very extraordinary. [...] I wanted to make them aware of the fact that they were not performing that good. That this is the future. Providing good care is not only about pampering patients. We should also pay attention to patients in another way [referring to the quality measurements] which is better for the quality of care and for patient safety." (participant 19, ward manager, ward 1)

DISCUSSION

The purpose of this study was to enhance our understanding of HR attributions, by exploring the attributions that nurses make about *why* feedback on quality measurements is provided to them, and what the effect of these attributions is on their well-being. Additionally, we explored the influence of the feedback environment set by the ward manager on nurses' attributions. Our study comprised a convergent mixed methods approach, combining both quantitative and qualitative methods, following a feedback intervention in four hospital wards.

Our findings indicate that nurses as a group and individually, make varying attributions for the same feedback on quality measurements, and that these attributions appear to be differently associated with burnout. Internal, commitment-focused attributions are negatively associated with burnout, and external attributions are positively associated with burnout. The latter relationship was unexpected, which may be explained by the fact that nurses experience governmental requirements as job demands. Many nurses appear to simultaneously make internal, commitment-focused attributions and external attributions, for which they have different rationales. Additionally, our findings show that a supportive feedback environment is positively associated with internal, commitment-focused attributions and negatively with internal, control-focused attributions.

In the following, we will discuss the most important theoretical and practical implications of our findings as well as some methodological limitations.

Theoretical implications

Our findings shed some light on *how* feedback on quality measurements to nursing teams working in a hospital setting is experienced by the nurses. However, we believe that our findings are relevant in a broader perspective and may be used to better understand the relationship between HR practices and employee outcomes. Our findings suggest that it is relevant to consider attributional processes in order to better understand the impact of HR practices on employee outcomes (Nishii et al., 2008). Employees can have different attributions for the *same* HR practice, in this particular empirical work 'feedback on quality measurements', which may result in different effects on their well-being. Our study also confirms that the distinction

between internal commitment-focused, internal control-focused and external attributions is relevant and provides a good starting-point for more elaborate research on attributions about specific HR practices. In contrast to past research done by Koys (1988, 1991) and Nishii et al. (2008), our findings indicate that external attributions can be significantly and negatively associated with employee well-being. We suggest that future research on HR attributions should therefore always take internal commitment-focused, internal control-focused *and* external attributions into account.

Our study also shows that an individual employee can make multiple attributions related to its different dimensions (internal control-focused, internal commitment-focused or external attributions) for a single HR practice. For example, our findings show that an individual nurse, at the same time, believed that she was provided with feedback on quality measurements both because the hospital needed to adhere to quality standards imposed by the inspectorate, and because her ward manager wanted to improve the quality of patient care. Although the possibility of multiple attributions was left open in previous research on HR attributions (see for instance, Nishii et al., 2008; Van de Voorde and Beijer, 2015), it has not been explicitly addressed in previous scholarly work. Moreover, the possible effects of multiple attributions may interact. The outcomes of our study confirm that a better understanding of multiple attributions and their effects on employee well-being provides an interesting avenue for future research.

Our findings confirm that context variables, in this study the 'feedback environment', indeed influence employees' HR attributions. Additionally, our findings indicate that the relationship between a supportive feedback environment and nurses' attributions may be partially explained by the ward manager's purpose in providing feedback on quality measurements. An interesting possibility that should be further examined, is that nurses' attributions are more likely to match their ward manager's purpose within a supportive feedback environment, where nurses regularly receive high-quality feedback from their ward manager.

Future research in this domain should focus on identifying additional individual variables that possibly influence employees' HR attributions. With regard to nurses' attributions about the 'why' of feedback on quality measurements, more research is needed to better understand the influence of nurses' feedback orientation, or nurses' individual propensity to seek and utilize feedback. Recent empirical work by Gabriel, Frantz, Levy, and Hilliard (2014) has shown that a supportive feedback environment is beneficial for employees that are favorably oriented towards feedback, yet can be harmful for employees that do not necessarily want to receive or use feedback. Finally, an interesting avenue for future studies would be to look at individuals' past histories because this can strongly influence their perceptions of a focal phenomenon (Wright and Nishii, 2013). For example, nurses' past experiences with quality measurements can influence the attributions they make about feedback on quality measurements.

Practical implications

At a general level, our findings imply that employees' HR attributions should be taken into account by operational managers. In the specific context of feedback on quality measurements to hospital nursing teams, according to our results, ward managers cannot expect that this feedback on quality measurements will have a consistent positive impact on nurses' well-being at work. That is to say, from our approach we may conclude that the attributions nurses make about 'why' feedback is provided to them, should be taken into account. Although it seems logical that nurses will turn to their ward manager for explanations about why certain feedback is provided to them, our findings show that nurses do not by definition take over their ward manager's purpose in providing feedback on quality measurements. In line with HRM process theory (Bowen & Ostroff, 2004; Wright and Nishii, 2013), we believe that the discrepancy between nurses' and their ward manager's attributions represents a communication challenge. Ward managers should pay more attention to unambiguous and salient communication on their purpose in providing feedback on quality measurements. Besides aligning nurses' and their ward manager's attributions, a more open communication would also unveil nurses' undesired attributions (external attributions) so that they can subsequently be addressed by management.

Additionally, our findings suggest that ward managers can develop a supportive feedback environment that is associated with internal, commitment-focused attributions. To date, limited empirical research has been conducted on how a supportive feedback environment can be developed. Dahling and O'Malley (2011) summarized existing recommendations in four key themes. First, managers need to be trained in feedback provision. Second, senior managers need to serve as role models to line managers. Third, an assessment of managers' understanding of the feedback information is important. Fourth and finally, it is important to clearly communicate that allocating time for informal feedback by line managers is supported and rewarded by the top management in a specific organization.

Limitations

This study has several limitations. First, the focus on one very specific HR practice - feedback on quality measurements to nursing teams - can be seen as both a strength and a weakness (Sumelius et al., 2014). A strength because it adds detail and refinement to our understanding of HR attributions and it allows for a fine-grained analysis of this particular HR practice which currently is very relevant within the hospital context, and a weakness because the results cannot necessarily be generalized to other HR practices or to the HR system in general.

Second, as the measure on nurses' attributions about the 'why' of feedback on quality measurements was newly created there might be some psychometric aspects that deserve further attention. Although we carefully took all the appropriate steps to develop and validate our measure, it is only after repeated use that researchers may be confident that the scale

adequately captures nurses' attributions about the 'why' of feedback on quality measurements, and safely conclude about its reliability.

Third, all measures were assessed at the same time, making the causal ordering among them ambiguous. Therefore, it would be interesting to repeat this study, using a longitudinal, preferably a multi-wave design, to gain more specific information about the stability/change of the variables and causal relationships between the variables (De Lange, 2005; Taris and Kompier, 2003).

Fourth, a remark regarding the ward selection has to be made. Wards were included in case the ward manager volunteered to participate in our study. These ward managers may have more positive feelings, that is to say, may be more prone towards feedback on quality measurements, than other ward managers. This must be borne in mind when considering the results, although, in our opinion, it does not make them less valid. Still, future research could explore the generalizability of our data on nurses' and their ward manager's attributions about the 'why' of feedback on quality measurements focusing on other wards, from different occupational settings and/or countries.

Fifth, in contrast to what we aimed for, our observations showed that the feedback interventions after implementation on the different wards were not entirely the same. Although our results indicate that this variance had no significant effect on the study variables, future research could further explore how differences in the feedback intervention influence nurses' attributions about the 'why' of feedback on quality measurements.

CONCLUSION

Despite these limitations, we believe that the results of this study provide important insights into the underlying process by which specific HR practices, in this study 'feedback on quality measurements to nursing teams', affect employee well-being. As expected based on previous research on HR attributions, nurses did not respond uniformly in their attributions and consequently in their well-being, to the same feedback on quality measurements. Additionally, a supportive feedback environment appeared to be differently related to nurses' varying attributions about the 'why' of feedback on quality measurements. While additional research that further explores the notion of HR attributions is certainly needed, this study provides a useful starting point for future efforts in a similar vein to explore the underlying process by which specific HR practices become reflected in employee well-being.

5

Nurses' perceptions of feedback to nursing teams on quality measurements: An embedded case study design

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ABSTRACT

Background: Providing nursing teams with feedback on quality measurements is used as a quality improvement instrument in healthcare organizations worldwide. Previous research indicated contradictory results regarding the effect of such feedback on both nurses' well-being and performance.

Objectives: Building on the Job Demands-Resources model this study explores: (1) whether and how nurses' perceptions of feedback on quality measurements (as a burdening job demand or rather as an intrinsically or extrinsically motivating job resource) are respectively related to nurses' well-being and performance; and (2) whether and how team reflection influences nurses' perceptions.

Design: An embedded case study.

Settings: Four surgical wards within three different acute teaching-hospital settings in the Netherlands.

Methods: During a period of four months, the nurses on each ward were provided with similar feedback on quality measurements. After this period, interviews with eight nurses and the ward manager for each ward were conducted. Additionally, observational data were collected from three oral feedback moments on each of the participating wards.

Results: The data revealed that individual nurses perceive the same feedback on quality measurements differently, leading to different effects on nurses' well-being and performance: (1) feedback can be perceived as a job demand that pressures nurses to improve the results on the quality measurements; (2) feedback can be perceived as an extrinsically motivating job resource, that is instrumental to improve the results on quality measurements; (3) feedback can be perceived as an intrinsically motivating job resource that stimulates nurses to improve the results on the quality measurements; and 4) feedback can be perceived neither as a job demand, nor as a job resource, and has no effect on nurses' well-being and performance. Additionally, this study indicates that team reflection after feedback seems to be very low in practice, while our data also provides evidence that nursing teams using the feedback to jointly reflect and analyse their performance and strategies will be able to better translate information about quality measurements into corrective behaviours, which may result in more positive perceptions of feedback on quality measurements among individual nurses.

Conclusions: To better understand the impact of feedback to nursing teams on quality measurements, we should take nurses' individual perceptions of this feedback into account.

Supporting nursing teams in team reflection after them having received feedback on quality measurements may help in eliciting positive perceptions among nurses, and therewith create positive effects of feedback on both their well- being and performance.

Keywords: Feedback, Hospitals, Motivating, Nursing Team, Quality improvement, Quality indicators, Healthcare

What is known already about the topic

- Providing nursing teams with feedback on quality measurements is a widely used strategy for quality improvement.

- Previous research shows variability, both in the effect of feedback to nursing teams on quality measurements on nurses' well-being (motivating versus alienating) and in its effect on performance.

What this paper adds

- The effect of feedback to nursing teams on quality measurements on nurses' well-being and performance depends on nurses' individual perceptions of this feedback; that is, negatively in case of perceptions as a job demand while positively when seen as a job resource.

- When nursing teams engage in meaningful team reflection after having received feedback on quality measurements, nurses are able to use feedback more effectively.

INTRODUCTION

Background

With increasing frequency, nursing teams are provided with feedback about the quality of care they deliver, based on quality measurements such as the number of patient falls and the incidence of pressure ulcers. Previous research highlighted that feedback to nursing teams on quality measurements can lead to a higher motivation among nurses (e.g., Lindblom et al., 2012), but the focus on quality measurements may also possibly lead to alienation and demotivation among nursing staff (e.g., Struijs and Vathorst, 2009). In addition to this variability in effects of feedback on nurses' well-being, earlier studies on the effects of feedback on performance, both within and outside healthcare, showed similar heterogeneous results (Gabelica et al., 2012; Ivers et al., 2012; Kluger and DeNisi, 1996). For example, the extensive review by Ivers et al. (2012) of 140 studies (randomised trials) showed that the effect of performance feedback to healthcare professionals on professional behaviour and on patient outcomes ranged from little or no effect to a substantial effect. The complexity regarding the effects of feedback on well-being and performance, led Kluger and DeNisi (1998) to refer to feedback as 'a double-edged sword' that calls for more empirical work. Therefore, this study is aimed at better understanding how feedback to nursing teams on quality measurements affects nurses' well-being and performance.

Job demand versus job resource

This study builds on the Job Demands-Resources (JD-R) model (Bakker and Demerouti, 2007; Demerouti et al., 2001) which is a widely used framework by scholars around the world to investigate the effect of job characteristics on employee well- being and performance. Within nursing studies, the JD-R model plays an important role in research on work engagement, burn-out and intention to leave the nursing profession (e.g. Hansen et al., 2009; Jourdain and Chênevert, 2010; Keyko et al., 2016). Although the JD-R model is non-limitative in terms of the study concepts (Schaufeli and Taris, 2014), the use of the model within quality improvement research has been sparse to date. Some researchers have used the JD-R model to study safety outcomes, such as incidents and unsafe behaviour, within and beyond the healthcare industry (e.g. Hansez and Chmiel, 2010; Nahrgang et al., 2011).

The JD-R model distinguishes two different categories of job characteristics – job demands and job resources – which have different effects on employee well-being and performance. In this article, we follow the definitions by Schaufeli and Taris (2014, p.56): "(1) job demands are negatively valued physical, social, or organizational aspects of the job that require sustained physical or psychological effort and are therefore associated with certain physiological and psychological costs; and (2) job resources are positively valued physical, social, or organizational aspects of the job that are functional in achieving work goals or that reduce job

demands (extrinsically motivating job resource), or stimulate personal growth and development (intrinsically motivating job resource)". These value-based definitions of job demands and job resources indicate that not all job characteristics are perceived the same by employees.

Feedback is often described as a job resource that can motivate employees to increase performance (Bakker and Demerouti, 2007; Demerouti et al., 2001). Based on an integration of scholarly literature on feedback provision and strategic human resource management, Giesbers et al. (2015) argued that feedback to nursing teams on quality measurements can be perceived by individual nurses either as a job demand or as an extrinsically or intrinsically job resource and that these perceptions are differently related to nurses' well-being and performance. First, nurses may perceive feedback on quality measurements as a job demand in a situation wherein, for example, feedback on quality measurements shows that the nurses' practice is inconsistent with a desirable target. This may pressure nurses to improve their performance resulting in stress, which may, in its turn, contribute to an increased effort by nurses to improve performance. This process, where performance is 'indirectly' – by negatively affecting nurses' well-being – influenced by feedback on quality measurements, is referred to as the 'conflicting outcomes perspective' by Giesbers et al. (2015).

Second, nurses may perceive feedback on quality measurements as an extrinsically motivating job resource that is instrumental in their work as a nurse. For example, feedback may increase nurses' knowledge, by which nurses are more informed of what to do, and how to improve performance. This process where performance is 'directly' influenced by feedback on quality measurements, is referred to as the 'parallel outcomes perspective' by Giesbers et al. (2015). From the parallel outcomes perspective, the effect of feedback on quality measurements on nurses' well-being is analogous to the side effect of the treatment, and may range from a negative or no effect, to a positive effect.

Finally, nurses may perceive feedback on quality measurements as an intrinsically motivating job resource when, for example, the feedback increases their understanding of the hospital's objectives, and their role in the achievement of these goals. This may give nurses more control over their work and may reduce their uncertainty, because they know what their ward managers expect from them. As a result, these nurses may be intrinsically motivated to improve performance. This process where performance is 'indirectly' – by positively affecting nurses' well-being – influenced by feedback on quality measurements, is referred to as the 'mutual gains perspective' by Giesbers et al. (2015).

This study explores how feedback to nursing teams on quality measurements is perceived by individual nurses (as a burdening job demand or rather as an intrinsically or extrinsically motivating job resource), and how this is related to nurses' well-being and performance. More specifically, based on the above, the validity of the following assumed 'perspectives' is explored:

1) Conflicting outcomes perspective: when nurses perceive feedback on quality measurements as a job demand, it is assumed that this negatively affects their well-being resulting in an increase in performance.

2) Parallel outcomes perspective: when nurses perceive feedback on quality measurements as an extrinsically motivating job resource, it is assumed that this directly results in an increase in performance.

3) Mutual gains perspective: when nurses perceive feedback on quality measurements as an intrinsically motivating job resource, it is assumed that this positively affects their well-being, resulting in an increase in performance.

Team reflection

If feedback on quality measurements can be perceived by individual nurses as both a job demand and as an extrinsically or intrinsically motivating job resource, then which factors explain nurses' different perceptions? Based on previous research we may expect that the extent to which team reflection (conscious reflection on team functioning) occurs after feedback on quality measurements may be an important explanatory factor. The underlying assumption is that feedback gives information but that teams are still responsible for its mindful uptake (Gabelica et al., 2014). Earlier studies on the effectiveness of feedback alone versus feedback in combination with reflection all indicated that a reflection strategy after feedback stimulates deeper learning (Anseel et al., 2009; Gabelica et al., 2014; Seifert et al., 2003; Smither et al., 2003). It seems that teams which consciously reflect on how to improve their performance will be more able to use feedback effectively, to learn from mistakes, and will be in a better position to fix what went wrong. Teams which are initially low-performing might particularly benefit from team reflexivity (Schippers et al., 2013).

Theoretically, team reflection consists of three steps: (1) evaluating performance and strategies; (2) looking for alternatives; and (3) making a clear decision about how to implement changes (Gabelica et al., 2014). The first step refers to team members evaluating their goals, performance, strategies, and possible reasons behind success or failures. The second step occurs when teams make an inventory of possible ways to achieve the task. Finally, the third step, consists of clearly stating a decision about how to handle the task differently and acting upon it. This study explores how differences in team reflection after feedback on quality measurements may explain nurses' different perceptions of feedback on quality measurements. We may expect that when full cycles of team reflection occur after teams have received feedback on quality measurements, including all three steps mentioned above, nurses will more likely perceive feedback as an extrinsically or intrinsically motivating job resource.

METHOD

Design

Our study can best be described as an embedded case study design (Yin, 2003), based on a phenomenologist orientation (Benton and Craib, 2001). The case study is about feedback to nursing teams on quality measurements within an acute teaching-hospital setting, and involves the nursing teams within four different hospital wards as the embedded units of analysis. Using multiple, qualitative research methods, our study provides us with an advanced understanding about how nurses perceive and react to feedback on quality measurements, within its real-life context.

Participating wards

For reasons of comparability, we included only surgical wards from one type of hospital, i.e. acute teaching-hospitals in the Netherlands. Moreover, to be able to properly study our feedback intervention, we included only wards where nurses were not provided with regular feedback on quality measurements before. Based on convenience sampling, we found four wards (hereafter referred to as ward one to four) within three different hospitals that volunteered to participate in this study. The hospitals in our study were institutions with numbers of beds ranging from 643 to 1070 and numbers of staff (fte) ranging from 2640 to 2915. Table 1 shows the demographic characteristics for each of the participating wards. The participating wards were informed about the findings on their individual wards. The feedback the researchers received from them, did not affect the findings that are presented in this paper.

Feedback intervention

The first author developed a framework for the design of feedback on quality measurements on each participating ward. The framework implied that, during a period of four months, the nurses on each ward were regularly (at least once every two weeks) provided with oral and written feedback on a maximum of six quality measurements, linked to a clear target and presented in a chart. The ward manager subsequently determined how the feedback on quality measurements was implemented (see Table 2): which quality measurements were selected, which target was set, how the quality measurements were carried out, and when and how exactly oral and written feedback was provided to the nurses.

Table 1 Demographical characteristics, data collection methods and participants' characteristics.

Ward	**1**	**2**	**3**	**4**
Hospital	**A**	**B**	**C**	**C**
Demographical characteristics				
Number of nurses working on the ward	29	30	69	56
Medical specialties on the ward	Neurosurgery and orthopaedics	Lung surgery	Urology, plastic surgery and gynaecology	General surgery
Data collection methods and participants' characteristics				
Interviews	Nurses: n = 8	Nurses: n = 8	Nurses: n = 8	Nurses: n = 8
	Male: n = 2	Male: n = 1	Male: n = 1	Male: n = 1
	Female: n = 6	Female: n = 7	Female: n = 7	Female: n = 7
	Average age: 30.86	Average age: 29.86	Average age: 42.00	Average age: 31.25
	Ward manager (n = 1, female)	Ward manager (n = 1, male)	Ward manager (n = 1, female)	Ward manager (n = 1, female)
Observations	Oral feedback moments (n = 3)	Oral feedback moments (n = 3)	Oral feedback moments (n = 3)	Oral feedback moments (n = 3)
	Average number of participants: 8	Average number of participants: 16	Average number of participants: 9	Average number of participants: 23

Table 2 Feedback characteristics for each of the four wards.

Ward	**1**	**2**	**3**	**4**
Hospital	**A**	**B**	**C**	**C**
Source	Sample from the electronic medical records of admitted patients	A database of a defined data set for every admitted patient (quality registry). All data are entered on a daily basis by nurses working on this ward	The electronic medical record of every admitted patient	The electronic medical record of every admitted patient
Agent of delivery	Ward manager or senior nurse	Ward manager or senior nurse	Ward manager or senior nurse	Ward manager or senior nurse
Format and intensity of the written feedback	Poster in the team room *Renewed once every two weeks*	E-mail *Once every two weeks*	E-mail (attached to weekly newsletter) *Once every week* Poster in the team room *Renewed once every week*	E-mail (attached to weekly newsletter) *Once every week*
Format and intensity of the oral feedback	Presentation and discussion during team briefings in the morning *Twice every two weeks*	Presentation and discussion during coffee breaks *Once every two weeks*	Presentation and discussion during team meetings or debriefings in the afternoon *Only occasionally*	Presentation and discussion during team meetings or debriefings in the afternoon *Only occasionally*
Content: Quality measurements and related targets (written in brackets)	The percentage of patients screened for: *the (risk of) pressure ulcers* (>80%) *pain* (>90%) *acute ill-ness* (>75%) The percentage of patients who experienced *severe pain* (<5%) The number of patients who developed *pressure ulcers* (=0)	The percentage of patients screened for: *the (risk of) pressure ulcers* (>90%) *the (risk of) delirium* (>90%) *the (risk of) malnutrition* (>90%) The percentage of patients who did not experience *severe pain* (>80%) The percentage of patients who rated the *quality of care >7,5* (>80%)	The percentage of patients screened for: *the (risk of) pressure ulcers* (>80%) *the (risk of) malnutrition* (>80%) *frailty in elderly* (>80%) The percentage of patients who experienced *severe pain* (<10%)	The percentage of patients screened for: *the (risk of) pressure ulcers* **(>80%)** *the (risk of) malnutrition* **(>80%)** *frailty in elderly* **(>80%)** The percentage of patients who experienced *severe pain* (<10%)
Content: Results on quality measurements	*Targets*: Mostly not met *Trend*: Strongly fluctuating results	*Targets*: Mostly met *Trend*: Constantly positive results	*Targets*: Met for the second half of the feedback period *Trend*: Constantly improving results	*Targets*: Mostly met *Trend*: Somewhat fluctuating results

Data collection

After four months, during which regular feedback on quality measurements was provided to the nurses, individual, semi-structured face-to-face interviews with eight nurses and the specific ward manager were conducted by the first author. The eight nurses per ward were selected by the manager from all the nurses working on one specific day that was indicated by the first author. The first author requested the ward manager to take into account the nurses' gender and age at this selection, in order to safeguard a representative sampling strategy. All nurses were approached face-to-face by their ward manager. This resulted in a sample consisting in total of 32 nurses and their four ward managers (see Table 1).

Out of the 32 nurses, 27 were females and five were males, and their average age was 32.93 years (SD = 11.66). From the four ward managers, three were females and one was male, and their average age was unknown. The interviews were conducted at the workplace in a private room and focused on: (1) how the participants perceived the feedback on quality measurements, and what was the effect of the feedback on their well-being and performance; and (2) the participants' descriptions of the feedback as implemented on their wards (including the extent to which team reflection occurred). Interviews lasted between 9 and 37 min, with an average of 19 min. Each participant was interviewed once and no repeat interviews were carried out. All participants consented to the interviews being taped, and all interviews were transcribed verbatim. Transcripts were not returned to participants to comment on, as we aimed to precisely report on participants' initial and spontaneous utterances and wanted to prevent participants to edit information they provided in the original interview (Hagens et al., 2009). Participant data was anonymized using 2-digit codes.

In addition to the interview data, we collected observational data based on the 'observer as participant' approach (Anderson, 2009). The first author observed three oral feedback moments on each of the participating wards, and her main role was merely to observe. The first round of observations took place at the beginning of the four-month feedback period, the second round of observations was conducted when the feedback period was halfway and the third round of observations took place at the end of the feedback period. Observations lasted between approximately five and 20 min., with an average of 14 min. The number of participating nurses ranged between 6 and 50, with an average of 14 nurses. Both descriptive (including date, time, location, participants, activities and discussions) and reflective (including impressions, insights and unanswered questions) field notes were written during and directly after the observation.

Data analysis

The steps taken to analyse our data are visualised in Figure 1. First, the data from the interviews and observations were analysed separately. To analyse the interview data for this article, the first author undertook three cycles of coding, using the Atlas.ti software package. Phase 1 comprised open coding and focused on identifying different perceptions of feedback on quality measurements, different effects of the feedback on nurses' well-being and performance, and

descriptions of team reflection during oral feedback moments. Phase 2 consisted of axial coding, and focused on categorizing nurses' perceptions of feedback on quality measurements based on the JD-R model (Bakker and Demerouti, 2007; Demerouti et al., 2001) as a 'job demand', as an 'extrinsically motivating job resource' or as an 'intrinsically motivating job resource', and on categorizing statements regarding team reflection based on the three steps of team reflection (Gabelica et al., 2014). as 'evaluating performance and strategies', 'looking for alternatives' and 'making a clear decision about how to implement changes'. Phase 3 consisted of identifying relationships between the different perceptions of feedback on quality measurements, the effects of feedback on nurses' well-being and performance, and on team reflection. Additionally, we formulated a grid to compare the data from the different wards. Differences in perceptions and effects of feedback on quality measurements could not be explained by differences in feedback characteristics as outlined in Table 2. Data saturation was discussed and assessed as adequate by the first three authors.

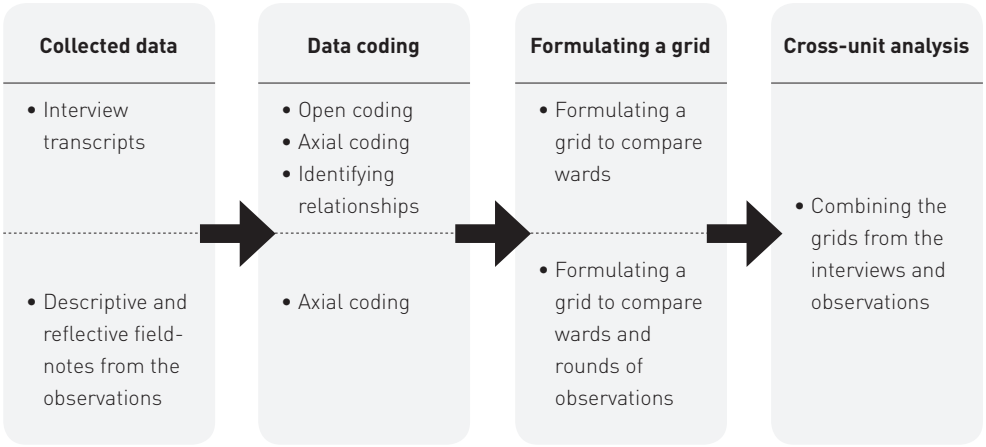

Figure 1. Data analysis steps.

The observational data was also coded by the first author using Atlas.ti software, and focused on identifying the extent to which full cycles of team reflection occurred after feedback on quality measurements. The occurrence of each step of team reflection ('evaluating performance and strategies', and 'looking for alternatives', and 'making a clear decision about how to implement changes') (Gabelica et al., 2014) was identified for each quality measurement that was presented to the nursing team during the oral feedback moments (axial coding). Additionally, we identified the number of nurses that actively participated at each step of team reflection ('none', 'one', 'more than one'). Moreover, we formulated a grid to compare the data from the different wards and from the different rounds of observation (at the beginning, halfway or at the end of the four-month feedback period).

Second, the results from the two sets of data analyses were merged with the purpose of comparing and refining the results. More specifically, the grids based on the interview data and the observational data from the different wards were combined, to conduct a cross-unit analysis and explore how team reflection is related to nurses' perceptions of feedback on quality measurements as a job demand or as an extrinsically or intrinsically motivating job resource. Coding outputs and grids (all in Dutch) are available upon request at the authors. The coding book (including the number of quotations per theme) is available as a Supplementary file to this paper.

Ethical considerations

As our study was outside the scope of the Netherlands' Medical Research Involving Human Subjects Act (Central Committee on Research Involving Human Subjects, 2016), no formal ethical approval was needed. However, thorough considerations were given to ethical guidelines that were present within the authors' research domains. Before the study on each ward commenced, the ward manager and nurses from the participating wards were given comprehensive information about the details of the study. General research permission was obtained from the ward managers. Additionally, before each interview and observation the participants were informed about the details of the study. All interviews were voluntary; the participating nurses gave their verbal consent to participate. The ward managers gave permission for the observations. All data were anonymized.

FINDINGS

First, we will present the findings from the interview data regarding nurses' individual perceptions of feedback on quality measurements (as a job demand or as an intrinsically or extrinsically motivating job resource), and how these are related to nurses' well-being and performance. Second, we will present the findings from the observations and interviews regarding the relationship between nurses' perceptions and the extent to which team reflection occurred after feedback on quality measurements. Although the individual wards serve as the evidentiary base for this study, there are no separate sections devoted to the individual wards because the main focus of this paper is on lessons learned from all of them in aggregation.

Job demand versus job resource

The interview data revealed evidence for the three perspectives Giesbers et al. (2015) distinguished on the relationship between nurses' perceptions of feedback on quality measurements and nurses' well-being and performance: the conflicting outcomes perspective, the parallel outcomes perspective, and the mutual gains perspective. Additionally, the interview data revealed a fourth perspective on the relationship between nurses' perceptions of feedback on quality measurements and nurses' well-being and performance: when nurses

perceive feedback on quality measurements neither as a job demand nor as a job resource, this feedback has no effect on both nurses' well-being and performance. We will refer to this perspective as the 'indifference perspective'. The outcomes regarding each 'perspective' will be discussed below, with illustrative interview extracts incorporated. The extracts include a reference to the participant's code, job, and ward and in order to guarantee anonymity, they exclude a reference to the participant's sex. That is to say, all references to participants in the text are written in female form.

Conflicting outcomes perspective: feedback as a job demand

Some nurses (n = 3; 9%) mostly perceived feedback on quality measurements negatively, that is as a job demand that is threatening and is associated with certain 'costs' (Bakker and Demerouti, 2007; Demerouti et al., 2001; Schaufeli and Taris, 2014). The nurses who perceived feedback as a job demand explained that they felt pressured to change their behaviour in response to the feedback that was provided to them, and improve the results on the quality measurements. The following nurses' experience captured this:

> "It [feedback] is quite nice, however it irritated me a bit. [...] I understand the importance of these quality measurements, however I think it's a pity that it is only about these quality measurements. [...] There is no added value for me in that. It does not really interest me when I hear we performed well this week. [...] Because I know the hospital will be judged on these quality measurements, - I don't want that to happen, I am happy with my job - that is why I do it [change behaviour and improve the results on the quality measurements]." (participant 22, nurse, ward 1)

The pressure that nurses who perceived feedback on quality measurements as a job demand experienced, comes from different directions. On the one hand, these nurses felt they had to meet external demands, such as quality standards imposed on the hospital by the healthcare inspectorate. The above interview excerpt reflects this. On the other hand, nurses felt they were being watched closely by their colleagues and/or supervisor. For example, reflecting on the feedback on quality measurements that was provided to her during team briefings, the following nurse explained:

> "Back then I was not really thinking about the results that were presented during the briefing [oral feedback]. I was thinking about my own performance and how I feel about that. [...] However, this does not originate from a personal necessity, nor because I believe this is really important for patient safety. It is only about how I can improve my own results. It's purely aimed to improve that result and in my opinion it misses its purpose. [...] It does not make my job more fun. You get the feeling you are looked over your shoulder. You have lost your autonomy." (participant 24, nurse, ward 1)

Nurses who perceived feedback on quality measurements negatively as a job demand do not believe that better results on the quality measurements, will result in better patient outcomes, as also comes forward in the above interview excerpts. The nurse below explained that she believed the quality measurements mainly reflect the extent to which things are registered properly and this does not necessarily mean that high-quality nursing care is provided:

> "[...] it is purely about what we register in the computer at admittance or, if applicable, what we repeat every week. I think, when I look at myself and what I see from others, the registration part is done quickly [...] I do not believe we always act upon it. It is registered, but if it really makes a difference, if the quality of care is improved by that, it keeps me wondering." (participant 16, nurse, ward 4)

Parallel outcomes perspective: feedback as an extrinsically motivating job resource

The majority of the nurses (n = 19; 59%) mostly perceived feedback on quality measurements positively as an extrinsically motivating job resource, that is instrumental in fostering goal attainment (Bakker and Demerouti, 2007; Demerouti et al., 2001; Schaufeli and Taris, 2014). These nurses explained how the feedback on quality measurements reminded them of their work goals, raised their awareness on the results regarding quality measurements and/or provided them with knowledge on how to improve the results on the quality measurements. The interview excerpts below reflect these different ways through which feedback on quality measurements can be instrumental to improve the results on the quality measurements.

> "I believe it [feedback on quality measurements] is a good initiative. It keeps you alert... It keeps you thinking about it, so I think it works. I am more alert. For example, I very often forgot to fill in the pain measurements [one of the quality measurements focused on this subject], and it [feedback] reminded me: I have to fill them in." (participant 23, nurse, ward 1)

> "It creates awareness. Because you think you are performing well, however sometimes it shows we can do better. I believe it is important to be confronted with that, because these are the facts, so to say." (participant 02, nurse, ward 3)

> "By talking about it with each other, we are much more aware. Also, because it turned out that some nurses still do not know how to properly screen patients. What should you do when a patient has a pain score of 4 [one of the quality measurements focused on this subject]?" (participant 19, ward manager, ward 1)

As expected based on the study by Giesbers et al. (2015), the effect of feedback on quality measurements on nurses' well-being is analogous to the side effect of the treatment and ranged from a negative or no effect, to a positive effect. The nurses believed it was a good thing that they were provided with feedback on quality measurements, however, they did not always enjoy it and sometimes even experienced negative feelings. One nurse explained how feedback on quality measurements was perceived as 'merely' functional to improve the results on quality measurements:

> "It provided us with a clear view of how we are performing on our ward. 'Fun' is not the correct word to describe it. However, it is a good thing to clarify what things we do better than other things." (participant 07, nurse, ward 3)

Several nurses who perceived feedback on quality measurements as an extrinsically motivating job resource warned us that improved results on the quality measurements, do not necessarily mean high-quality nursing care is provided to the patient. The following nurse's experience captured this:

> "You don't want to depend on numbers. However, you want that number to be as high as possible. So, that is a kind of conflicting. Kind of ambiguous, so to say. Of course, it is nice to see the upward trend and that's very good to see. However, we should ensure the patient always comes first." (participant 34, nurse, ward 2)

Mutual gains perspective: feedback as an intrinsically motivating job resource

Some nurses (n = 7; 22%) mostly perceived feedback on quality measurements as an intrinsically motivating job resource, that satisfies basic human needs (Bakker and Demerouti, 2007; Demerouti et al., 2001; Schaufeli and Taris, 2014). In line with our expectation based on the study by Giesbers et al. (2015), these perceptions had a positive effect on nurses' well-being and performance. The nurses who perceived feedback as intrinsically motivating, truly enjoyed receiving feedback on quality measurements which motivated them to improve the results on the quality measurements. The following nurse's experience captured this:

> "It motivated me. It made me think about it. I was curious; did we do better or not? And what is causing that? [...] I thought it was nice to get feedback on that." (participant 21, nurse, ward 1).

Another nurse explained how the feedback motivated her to address her colleagues to improve the results on the quality measurements and to think about other opportunities for quality improvement related to the quality measurements:

> "Every week I was interested to see the results. Especially, because I am working with 'vulnerable elderly' [one of the items on which feedback was provided], I was very interested to see the results. [...] Especially, when you see that the results are not good and have to be improved, you are motivated, like, come on, we have to work on this. At that moment you try, secretly, to take a colleague on board. [...] I think it is interesting and fun to know if we are heading in the right direction." (participant 06, nurse, ward 3)

The nurses who perceived feedback as an intrinsically motivating job resource all seemed to have a personal interest in figures, at least more than other nurses. In contrast to the nurses that perceive feedback on quality measurements as a job demand, these nurses believed that better results on the quality measurements, will result in better patient outcomes. The nurse below explained this:

> "I like this kind of numbers. I have the urge to improve them. There may be quite some colleagues who have a different opinion. However, I enjoy it. I really want to know if I am delivering good work or not. [...] When a number goes down tenths of a percentage point, off course, that is negligible. It only represents a snapshot in time. However, when you are deteriorating with a number of percentage points, I feel like 'oh' something is going wrong." (participant 36, nurse, ward 2)

Indifference perspective: feedback as neither a job demand, nor a job resource

The interview data showed that several nurses (n = 3; 9%) mostly perceived feedback on quality measurements neither as a job demand, nor as a job resource. As a result, the feedback did not affect nurses' well-being and performance. These nurses were not interested in the feedback and/or explained that the feedback on quality measurements did not provide them with individual starting-points to improve the quality of nursing care. Consequently, they did not adjust their behaviour. For example, the following nurse explained how she did not see any room for improvement in her behaviour related to the quality measurements:

> "I don't always take a look at that [written feedback]. However, I am performing well, so I don't have to know how we are performing as a team. However, I believe it is a good thing for the people who are not really working on this yet. [...] I am quite alert on these items. When it works for me, I don't have to receive that feedback every week. It has no added value for me. So I do not pay any attention to it." (participant 12, nurse, ward 4)

One of the nurses observed the above-mentioned reaction to feedback on quality measurements among many of her colleagues. She experienced that it can be very difficult to make individual nurses feel responsible for results from quality measurements at the team level. For the nurse

herself, the feedback on quality measurements is an important job resource, because it allows her to guide the team to improve the quality of care:

> "For us, as senior nurses and the ward manager, it [feedback on quality measurements] is relevant to see how the team is performing and what needs to be improved. I believe it has little added value for the team. [...] It is nice to give back something positive. The team experiences that positively, like, gosh we are performing well. However, when performance was low, some time ago, then everyone thinks, like, okay. Individually, they do not feel responsible." (participant 11, nurse, ward 4)

Team reflection

We expected that when full cycles of team reflection, including 'evaluating or reviewing performance or strategies', 'looking for alternatives' and 'making decisions' (Gabelica et al., 2014), occurred after feedback on quality measurements, nurses would more likely perceive feedback as an extrinsically or intrinsically motivating job resource. Based on the observational data, Table 3 shows the frequency in which the steps of team reflection occurred, which was calculated from the coding of every quality measurement that was communicated to the team during all observations. Additionally, Table 3 shows the frequency in which no, one, or more than one nurse actively participated at each step of team reflection. From this it can be concluded that full cycles of team reflection did not occur, suggesting that teams were not naturally systematic in their reflective process. The observational data showed no differences between wards in team reflection after feedback on quality measurements. On all of the participating wards, the quality measurements were mostly only presented to the team by the ward manager or senior nurse, sometimes including some statements about the target and possible explanations for the results, as is illustrated by the following excerpt from the field notes:

> "The results on each quality measurements are presented to the team by the senior nurse. [...] The senior nurse tells the nurses that the results on the quality measurement 'the percentage of patients screened for the (risk of) pressure ulcers' are fluctuating. The senior nurse requests the other nurses to really carry out this task. None of the nurses react to this." (field note 43, ward 1, observational round 2)

Table 3 Frequencies of occurrence of each team reflection step after feedback on quality measurements.

Team reflection steps (and the number of nurses that actively participated at this)	**Frequency of occurrence***
• **1) Evaluating or reviewing performance or strategies**	
No nurse actively participated	22
One nurse actively participated	15
> One nurse actively participated	11
Total	**48**
• **1) Evaluating or reviewing performance or strategies & 2) Looking for alternatives**	
No nurse actively participated	0
One nurse actively participated	2
> One nurse actively participated	4
Total	**6**
• **1) Evaluating or reviewing performance or strategies & 2) Looking for alternatives & 3) Making decisions**	
No nurse actively participated	0
One nurse actively participated	0
> One nurse actively participated	0
Total	**0**

[a] Calculated based on the coding of every quality measurement that was communicated to the team during all observations.

Only at some occasions the nurses actively reacted to the feedback on quality measurements, which subsequently resulted in a lively discussion on how to improve the quality of care. The following excerpt from the *field* notes illustrated this:

> "The results on the quality measurement 'the percentage of patients who experienced severe pain' is presented to the team. The senior nurse tells that at some moments a relatively large group of patients experience severe pain. Additionally, she explains the quality measurements show that quite often patients are not screened for pain within 30 min after pain medication was given [the follow-up screening]. Subsequently, this problem is discussed by several nurses. The nurses explain they do screen patients for pain, but the result from this screening is not, or not directly registered. One of the nurses asks the senior nurse if you should only conduct a follow-up screening when patients experience severe pain. The senior nurse explains that you should always conduct a follow-up screening when you have given pain medication to the patient. One of the nurses suggests to communicate the rules regarding this again through the weekly newsletter. [...] Next, the discussion continues about how to react to patients who say they experience severe pain, while the nurse does not observe this much pain at the patient. The nurses discuss how you should enter into a dialogue with these patients and assess, together with these patients, how much pain is experienced and which intervention is suitable. The nurses discuss that this is also important when patients say they experience little pain, while the nurse observes the patient is in pain." (field note 44, ward 4, observational round 3)

These findings from the observational data are similar to the findings from the interview data. Nurses explained that during the oral feedback moments the results on the quality measurements were most often 'merely' presented to the team by their ward manager or senior nurse. The following nurse's experience captured this:

> "The senior nurse would then tell us how we performed in the last week or period. I don't even know exactly in what period. She showed us a chart with a target line and our result. [...] It [oral feedback] was all rather vague. It was implemented, and as it was happening, I thought: well, that is nice to know, but what do you expect from us?" (participant 20, nurse, ward 1)

Although the data in Table 3 does not capture this, the observational data did show that the number of nurses that actively participated at the first step of team reflection ('evaluating performance and strategies') increased during the four-month period of the feedback intervention. From the first round of observations on the participating wards, only two occurrences of 'evaluating performance and strategies', including more than one participating

nurse, were identified. At the second round of observations, three of these situations were identified. At the third round of observations, this number increased to six. This may imply that teams need time to develop reflection strategies after feedback on quality measurements, which was also recognized by two of the ward managers. For example, the following ward manager described that the oral feedback that was provided to her nursing team by the senior nurses, improved over time:

> "The senior nurses would tell about the team's performance in the last two weeks; whether it was good or not, and what could be improved. The latter was explained in more detail, later on during the four-month period of the feedback intervention. Not just 'is our performance good or bad?', but also 'it seems that during the day shifts, or the evening – and night shifts, we are performing badly'. I believe this is more useful to people. Also, I experienced that people feel more personally responsible." (participant 19, ward manager, ward 1)

The absence of differences in team reflection after feedback on quality measurements at each of the participating wards does not allow us to conduct a cross-unit analysis to explore how team reflection is related to nurses' perception of feedback on quality measurements as a job demand or as an extrinsically or intrinsically motivating job resource. Still, the interview data did present us with some insights on how team reflection can be important in relation to nurses' different perceptions of feedback on quality measurement. Several nurses (n = 10; 22%) described that team reflection can help to make the feedback on quality measurements more useful to nurses, when it focuses on the 'story' behind the numbers. For example, the following nurse who perceived feedback on quality measurements as an extrinsically motiving job resource, explained that the oral feedback on her ward provided her with little information on how to improve the results on the quality measurements. She explained that the feedback would be more useful to her if it was combined with an explanation of what is expected from the nurses.

> "You see the numbers and know how things should change. However, what seems to be the bottleneck and how we can jointly tackle this in practical terms, does not become clear." (participant 32, nurse, ward 2)

Another nurse, who perceived feedback on quality measurements neither as a job demand, nor as a job resource, explained that discussing the results on the quality measurements with her colleagues, makes the feedback more effective. On this nurse's ward, feedback on quality measurements was mainly provided in writing. Even though this nurse participated only once in an oral feedback moment she perceived it very positively because it clarified to her what could be improved.

> "I believe it is good to hear what went well, what did not go well, what can be improved. Like with the pain measurements [one of the quality measurements focused on this subject], that we discussed during the last meeting. It was a good point to pay attention to. [...] Through 'Kijk op de week' [newsletter in Dutch] you receive a lot of information, you read the attachment [written feedback] and just think 'Okay'. However, when you talk about it, when you discuss it, I believe it sinks in." (participant 12, nurse, ward 4)

In conclusion, although we did not conduct a cross-unit analysis to explore how team reflection is related to nurses' perception of feedback on quality measurements, based on individual statements by nurses across the different wards, it seems that team reflection can be important to elicit more positive perceptions of feedback on quality measurements.

DISCUSSION

This study contributes insights to the issue of how feedback to nursing teams on quality measurements works in practice. Because feedback to nursing teams on quality measurements is used as a quality improvement instrument in healthcare organizations in many countries, we believe that our findings will prove interesting to quality improvement practitioners worldwide. By building on the JD-R model and the conceptual framework by Giesbers et al. (2015), this study advances our understanding of the theoretical mechanisms underlying feedback on quality measurements. This is important as the use of theory in earlier studies about feedback to healthcare professionals has been sparse to date (Colquhoun et al., 2013). For example, from the 140 studies included in the review by Ivers et al. (2012) mentioned before, only 20 studies (14%) reported use of theory in any aspect of the study design, measurement, implementation or interpretation (Colquhoun et al., 2013).

More specifically, this study contributes to our understanding of feedback to nursing teams on quality measurements in a number of important ways. First, our study demonstrates how individual nurses may respond differently to the same feedback on quality measurements. While the existing literature on feedback in healthcare focused less on these individual differences, we cannot compare our outcomes with similar empirical work, yet our findings are in line with studies outside healthcare on individual differences in responses to feedback (e.g., Anseel et al., 2011; VandeWalle et al., 2001). More specifically, the empirical findings of this contribution confirm our expectation that nurses can perceive feedback on quality measurements as a burdening job demand but also as an intrinsically or extrinsically motivating job resource. Additionally, we empirically identified a group of nurses who were indifferent to feedback on quality measurements.

Second, our study confirms the importance of studying both nurses' well-being and performance-related outcomes jointly, and in relation to each other. Our study empirically identifies four 'perspectives' on the relationship between individual nurses' perceptions

of feedback on quality measurements, on the one hand, and both nurses' well-being and performance, on the other hand. The conflicting outcomes perspective describes how some nurses perceive feedback as a job demand that pressures them to improve the results on the quality measurements. This perspective is worrisome, especially within the context of global nursing shortages and nurse retention (World Health Organization, 2006), since it shows that for some nurses feedback on quality measurements has detrimental effects on their well-being, even though their performance can be potentially improved. The phenomenon wherein stress forms a modern type of coercion, has previously been described as 'management by stress' (Parker and Slaughter, 1988). The parallel outcomes perspective was most common in this study and is in line with what is widely assumed to be the effect of feedback. Based on this perspective feedback is perceived as an extrinsically motivating job resource, that is instrumental to improve the results on quality measurements. The mutual gains perspective, which was identified among some nurses in this study, describes a win-win situation, wherein the nurses, the hospital and the patient benefit from feedback on quality measurements. Based on this perspective feedback is perceived as an intrinsically motivating job resource that stimulates nurses to improve the results on the quality measurements. The indifference perspective was also quite common in this study, and describes how feedback is perceived neither as a job demand, nor as a job resource, and has no effect on nurses' well-being and performance. Just like the conflicting outcomes perspective, this perspective is worrisome for nursing practice, because it indicates feedback on quality measurements is ineffective as a quality improvement instrument for certain groups of nurses.

Third, our study shows that nursing teams using the feedback to jointly reflect and analyse their performance and strategies will be able to better translate information about quality measurements into corrective behaviours, which may result in more positive perceptions of feedback on quality measurements among individual nurses. Additionally, from this sample population the data showed nursing teams are not naturally systematic in their reflective process, which brings out the need to provide nurses with appropriate support. For example, previous research has shown that active reflection can be instigated by asking individuals to give examples of presumed accurate and inaccurate behaviour on the basis of the feedback they received (Anseel et al., 2009).

LIMITATIONS AND RESEARCHER REFLEXIVITY

This study has a number of limitations that deserve further attention. First, during this study the first author (female), being the primary researcher who conducted the interviews and observations, also worked as a consultant at the Quality and Patient Safety department in one of the participating hospitals. To avoid the first author's background to lead to preconceptions and biases, this study was designed and executed under the supervision of experienced

researchers. Also, the first author made it explicitly clear to all participants that in this case being an empirical researcher was her only role. Nevertheless, participants would sometimes explicitly appeal to the first author's own quality background. The first author was trained and experienced in the use of interview and observation techniques to counteract this appeal.
Second, although the embedded case study design provided us with rich information about feedback on quality measurements within its real-life context, it also has its limitation. Most importantly, our study mainly focused on the lessons learned from all of the wards. The absence of differences in team reflection after feedback on quality measurements at each of the participating wards did not allow us to conduct a cross-unit analysis to explore how team reflection is related to nurses' perception of feedback on quality measurements. Additionally, caution should be taken when generalizing the findings to other wards, to different occupations and/or countries. Although the data from our case study are built on theory and help to explain the heterogeneous results from previous research on feedback, future quantitative research is necessary to test our findings in a broader context. As Ivers et al. (2012) stated earlier, these quantitative studies need to be large enough to detect small and heterogeneous effects.
Third, a remark regarding the sampling strategy has to be made. Wards were included in our study in case the ward manager volunteered to participate. Subsequently, the ward manager selected the nurses for the interviews. This strategy is a potential source of bias and must be borne in mind when considering the results. However, we believe the diverse findings suggest that a critical attitude of participants was not suppressed.

CONCLUSION

Individual nurses can perceive the same feedback to nursing teams on quality measurements negatively, as a burdening job demand, positively, as an intrinsically or extrinsically motivating job resource, or nurses can be indifferent to the feedback. These different perceptions have varying effects on nurses' well-being and performance. Although in this study most nurses appear to perceive feedback on quality measurements as a job resource, some of their colleagues perceive feedback as a job demand, and it would be irresponsible to ignore these nurses. For the latter ones, feedback on quality measurements appears to have a detrimental effect on their well-being. Additionally, we should take notice of the group of nurses who are indifferent to the feedback because for these nurses feedback on quality measurements is an ineffective quality improvement instrument.
Team reflection after having received feedback on quality measurements may help in eliciting positive perceptions among nurses, and therewith create positive effects of feedback on both nurses' well-being and performance. However, we should be aware that team reflection after feedback seems to be very low in practice, which brings out the need to provide nurses with appropriate support.

CONFLICT OF INTEREST

None

ETHICAL APPROVAL

None.

FUNDING

None.

APPENDIX A. SUPPLEMENTARY DATA

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General discussion

This thesis aims to explore the mechanisms underlying the effect of feedback on quality measurements to nursing teams (defined as actions taken by healthcare providers to provide nursing team with information regarding the quality of nursing care, based on quality measurements over a specified period of time) on nurses' well-being and quality improvement. Following the explosion of quality measurement activity in healthcare over the last decades (Sheldon, 2005), providing nursing teams with feedback on these measurements is used as a quality improvement strategy in healthcare organizations worldwide. However, in spite of its prevalent use in practice, uncertainty remains regarding the effectiveness of feedback on quality measurements to improve the quality of care (Ivers et al., 2012) and little is known about the possible alienating effect it has on nurses (Loeb, 2004). By uniquely integrating scholarly literature on feedback provision and strategic human resource management (HRM) and conducting an in-depth embedded case-study within an acute hospital setting in the Netherlands, this thesis contributes to the issue of how feedback on quality measurements works. The exploration of the mechanisms underlying feedback on quality measurements to nursing teams was guided by two research questions. In the next section the main findings for each research question are presented. Subsequently, the implications for research and practice are discussed, followed by a general evaluation of the methodology. Finally, the final conclusion of this thesis is presented.

MAIN FINDINGS

RQ1: How can the relationship between feedback on quality measurements to nursing teams, nurses' well-being and quality improvement be conceptualized based on existing scholarly literature, and what is known about the variables that influence this relationship?

This research question was addressed in Chapter 2 where we have presented the results from our literature study. We have argued that the relationship between feedback on quality measurements to nursing teams, nurses' well-being and quality improvement can be conceptualized from three perspectives: the mutual gains perspective, the conflicting outcomes perspective and the parallel outcomes perspective. First, from a *mutual gains perspective* feedback on quality measurements improves the quality of care through an increase of nurses' well-being. For example, feedback on quality measurement may impact nurses' ability to learn, which may increase satisfaction and contentment and nurses may 'repay' the hospital for this by putting more effort in quality improvement. Second, from a *conflicting outcomes perspective*, feedback on quality measurements improves the quality of care through a decrease of nurses' well-being. For example, when quality measurements show that the quality of nursing care is below the desired level, this may force nurses to initiate quality improvement actions. Based on the conflicting outcomes perspective, we may expect

that feedback on quality measurements pressures nurses to improve the quality of care. Third, from a *parallel outcomes perspective,* feedback on quality measurements directly improves the quality of care, and may, secondary to this direct effect, have a positive, a negative or no impact on nurses' well-being. For example, feedback on quality measurements may increase nurses' knowledge, by which nurses are more informed of what to do, and how to improve the quality of care. At the same time, feedback may have alienating effects on nurses, because for nurses it may seem that the value of work that is non-measurable is undermined.
The perspectives that we have described illustrate that feedback on quality measurements to nursing teams can result in quality improvement at the expense of or for the benefit of nurses' well-being. We have argued that nurses' varying attributions about management's purpose in implementing feedback, followed by nurses' perception of feedback as a job demand or a job resource may explain these contradictory effects. For example, on the one hand, when nurses truly believe that management's purpose in providing feedback on quality measurements is to support nursing teams in their quality improvement endeavour, they will more likely perceive feedback as a job resource; something that is functional in achieving work goals. This is expected to positively mediate the relationship between feedback provision, nurses' well-being and quality improvement (*mutual gains perspective*). On the other hand, nurses may believe that management's purpose in implementing feedback is only to adhere to societal norms on transparency. Nurses that make such types of attributions will probably perceive feedback as a burdening job demand, requiring extra effort. This is expected to negatively mediate the relationship between feedback provision, nurses' well-being and quality improvement (*conflicting outcomes perspective*). Additionally, we have argued that nurses' perception of feedback is influenced by variables in the context in which the feedback is provided, such as the feedback environment. Within a strong feedback environment, that is supportive of feedback interaction and processes in an organization, nurses will more likely perceive feedback positively, as a job resource.

RQ2: How does feedback on quality measurements to nursing teams, affect nurses' well-being and quality improvement within Dutch general teaching hospitals and which variables influence the relationship between feedback on quality measurements to nursing teams, nurses' well-being and quality improvement?

This research question was addressed in Chapters 3 through 5 where we have presented the results from our empirical research. Our findings demonstrate how similar feedback on quality measurements may affect nurses' well-being and quality improvement differently among different nurses. Our data revealed evidence for all three perspectives from the literature on the relationship between feedback on quality measurements to nursing teams, nurses' well-being and quality improvement. Some nurses explained that the feedback on quality measurements,

intrinsically motivated them to improve the quality of care (*mutual gains perspective)*, while other nurses explained that they felt pressured to change their behavior in response to the feedback that was provided to them *(conflicting outcomes perspective)*. The *parallel outcomes perspective* was most common in our study; the majority of the nurses thought that feedback on quality measurements was instrumental for quality improvement, because it reminded them of their work goals, raised their awareness on the results regarding quality measurements and/or provided them with knowledge on how to improve the results on the quality measurements. Although these nurses believed feedback to be instrumental, they did not always enjoy it and sometimes even experienced negative feelings. In addition to the three perspectives from the literature, evidence for a fourth perspective was found; *the indifference perspective*. Several nurses explained that they were not interested in the feedback and/or explained that the feedback did not provide them with individual starting-points to improve the quality of care. As expected based on the literature, our findings demonstrate that nurses' perceptions of feedback on quality measurements, that is negatively as a burdening job demand or positively as an intrinsically or extrinsically motivating job resource, are important to understand the different reactions among nurses for the same feedback on quality measurements.

From the above findings, it seems that feedback is an effective strategy for quality improvement – either at the expense or at the benefit of nurses' well-being - with the exception of feedback to nurses who are indifferent to feedback on quality measurements. In this context, it should be noted that several nurses warned us that better results on the quality measurements, do not necessarily mean patient outcomes are improved, for in their opinion the quality measurements mainly reflect the adequacy and completeness of written information. This critical view was present most strongly among nurses who experienced the feedback on quality measurements as a job demand, but was also present among other nurses.

Additionally, our findings illustrate that nurses make varying attributions about their managers' purpose in providing feedback on quality measurements, and these different attributions appear to be differently related to their well-being. Some nurses believe that their manager's purpose is to support the nursing team in its quality improvement endeavour and increase nurses' involvement in quality improvement *(internal commitment-focused attributions*), while other nurses believe that their manager's purpose is to make the nurses work harder or to give them extra work (*internal control-focused attributions*), and, finally, some nurses believe that their manager's purpose is to better adhere to societal norms on transparency and to the quality standards imposed on the hospitals by organizations like the healthcare inspectorate (*external attributions*). Internal commitment-focused attributions are positively associated with well-being (measured in terms of burnout), while external attributions are negatively associated to well-being (measured in terms of burnout). The feedback environment, appeared to influence nurses' attributions. With our data, we found that a feedback environment that is supportive of feedback interaction and processes, is positively associated with internal commitment-focused attributions and negatively with internal control-focused attributions.

An important variable that was not in our conceptual framework based on our literature study, but emerged from the empirical data, as a possible moderator of nurses' perceptions of feedback on quality measurements, is team reflection. Our findings suggest that nursing teams, that are using the feedback to jointly reflect and analyse their performance and strategies, can better translate information about quality measurements into corrective behaviours, which may result in more positive perceptions of feedback on quality measurements among individual nurses.

DISCUSSION OF THE FINDINGS

The main findings demonstrate that it cannot be automatically assumed that when nursing teams are provided with feedback on quality measurements, they become motivated to adjust their behavior and consequently improve the quality of nursing care. Both the findings from the literature, as the empirical findings, show how individual nurses may respond differently to the same feedback on quality measurements, resulting in different effects of feedback on nurses' well-being and quality improvement. The implications of these findings for theory and scholarly research and for practice are discussed hereafter.

Implications for theory and scholarly research in this field

This thesis makes a theoretical contribution; first, to the body of knowledge in quality improvement, and second to scholarly literature on the relationship between HRM practices, employee well-being and performance. These contributions and several avenues for future research are discussed in the following paragraphs, and are complementary to the implications for research as described in Chapters 2 through 5.

Quality improvement

This thesis in several ways adds great refinement to the impressive body of research that has been done before on feedback provision to healthcare professionals as a quality improvement strategy (also referred to as 'audit and feedback') (e.g. Ivers et al., 2012). First, this thesis adds to our understanding of how *nurses* experience feedback on quality measurements. Although previous research has indicated that nurses respond differently to feedback on quality measurements than for example physicians (De Vos et al., 2010), nurses have been given relatively little attention in research on feedback on quality measurements as a quality improvement strategy (Kurtzman, Dawson, & Johnson, 2008; Kurtzman & Jennings, 2008). Regarding how nurses experience feedback on quality measurements as a quality improvement strategy, our findings showed that, on the one hand feedback may positively affect quality improvement by either pressuring or motivating nurses to adjust their behavior, or feedback may have no effect on quality improvement when nurses are indifferent to the feedback. Future research that compares nurses' reactions to feedback on quality measurements to

the experience of feedback on quality measurements by other healthcare professionals, like physicians, may be interesting. Additionally, other forms of feedback on quality measurements could be considered in future research, such as individual, peer feedback. Individual feedback may prevent nurses to be indifferent to the feedback because it makes personal starting points to improve the quality of nursing more visible. Previous research among general practitioners has shown that individual feedback, given by a respected colleague can be effective (Winkens, Pop, Grol, Bugter-Maessen, Kester, Beusman & Knottnerus, 1996). More research on individual feedback on quality measurements to nurses would be interesting.

Another point that comes forward from this study, is that researchers should take caution in relying on quality measurements as indicators for quality improvement in nursing care. Several nurses warned us that there is likely to be a disconnect between what is measured and what they consider to be the most important aspects of nursing care. The quality measurements that were part of this study, mainly focused on the technical aspects of nursing work (curing) and within this on the adequacy and completeness of written information, which may have directed attention away from aspects regarding 'human interaction' (caring) (Duffy & Hoskins, 2003). Although trying to reduce human interaction to empirical measures, such as a set of behaviors, is often considered contradictory, various instruments exist to measure caring (Watson, 2009), such as the Caring Assessment Report Evaluation Qsort (CARE-Q) (Larson, 1984; Larson & Ferketich, 1993) and the Caring Behavior Assessment (CBA) Tool (Cronin & Harrison, 1988). A focus on quality measurements about human interaction may elicit more positive reactions among nurses, both attitudinally and behaviorally, because it responds to the reasons why they chose to do this work. Future research that further explores this, would be informative.

Nurses' critical view on the relationship between quality measurements and the quality of nursing care, may explain our finding - based on a comparison of the survey data before regular feedback on quality measurements was provided to the nurses, and after a four months' period during which regular feedback on quality measurements was provided to the nurses - that on average, nurses assessed the quality of nursing care on their ward significantly higher before the feedback intervention than after.[2] Feedback on quality measurements about the technical aspects of nursing work, may have directed attention away from aspects regarding human interaction, resulting in lower assessments of the quality of nursing care. Another possible explanation may be that feedback on quality measurements increased nurses' awareness on the gap between insights from scholarly research about good nursing care and nursing practice, resulting in lower assessments of the quality of nursing care. Because in this study the decrease in nurses' assessment of the quality of nursing care could not be significantly related to implementation of feedback on quality measurements,[3] its cause should be further investigated.

2 A paired sampled T-test (one-tailed) was conducted and showed participants assessed the quality of nursing care on their ward significantly higher before the feedback intervention (M = 7.36, SE = 0.72) than after ((M = 7.21, SE.1.07), t(76) = -1.92, p =.03, r = .21).

3 A variable was computed to calculate the difference, between the quality of nursing care as measured before and after our feedback intervention. Subsequently, we examined whether the difference was correlated to (1) nurses' attributions about management's purpose in providing feedback, or (2) nurses' perception of feedback as a job demand versus a job resource. No significant correlations were found.

Second, this thesis adds to our understanding of the *processes* underlying feedback on quality measurements to nursing teams. Previous research has focused on the two endpoints of the relationship – feedback on the one hand and quality improvement on the other. By focusing on the processes, this study has demonstrated that meaningful variability exists in term of nurses' attributions, perceptions and reactions to feedback on quality measurements. This variability may partly explain the heterogeneous results on the effect of feedback on quality improvement from previous research (e.g., Ivers et al., 2012; Van de Veer, De Keizer, Ravelli, Tenkink, & Jager, 2010). Insight in the antecedents of nurses' attributions and perceptions of feedback on quality measurements also helped to explain previous heterogeneous results. This study showed the importance of a supportive feedback environment and team reflexivity after feedback, but other individual factors (e.g., personality and past experiences), organizational factors (e.g., patient safety climate and quality improvement leadership) or factors related to the content and implementations of feedback (e.g., nurses' involvement in the design of feedback) may be important. Additionally, to understand the heterogeneous results from previous research even better, future research should empirically examine the conceptual framework that we have developed on the relationship between feedback on quality measurements, quality improvement and nurses' well-being in its entirety. A first step in this direction was recently done by Schouteten, Giesbers, Poutsma, Van Achterberg and Van der Heijden (accepted). The survey research by Schouteten et al. (accepted) revealed empirical evidence for the direct relationship between different variables in our conceptual framework. First, they showed that nurses' attributions about management's purpose in implementing feedback are related to nurses' perceptions of feedback as a job demand or job resource. More specifically, when nurses believe that their manager's purpose in providing feedback is to support them to improve the quality of care (*internal commitment-focused attributions*), they are more likely to perceive feedback as a job resource. When nurses believe that their manager's purpose is to make the nurses work harder and push them toward quality improvement objectives *(internal control-focused attributions*) or when they believe that their manager's purpose is to adhere to external demands (*external attributions*), they are more likely to perceive feedback as a job demand. Second, Schouteten et al. (accepted) showed that the feedback environment is related to nurses' perceptions of feedback as a job demand or job resource. More specifically, within a s supportive feedback environment, nurses are less likely to perceive feedback on quality measurements as a job demand and are more likely to perceive feedback as a job resource. Third, evidence was found for the relationship between nurses' perceptions of feedback as a job demand or job resource and nurses' well-being. More specifically, nurses' perceptions of feedback as a job demand are negatively related to nurses' well-being, while nurses' perceptions of feedback as a job resource are positively related to nurses' well-being. Fourth, Schouteten et al. (accepted) showed that nurses' well-being is positively related to nurses' assessment of the quality of nursing care. Additionally, Schouteten et al. (acceptedd) found empirical evidence for a mediation effect (1) between nurses' internal control-focused

attributions, nurses' perception of feedback as a job demand and burn-out and (2) between the feedback environment, nurses' perception of feedback as a job demand and work engagement. The first mediation effect shows that nurses who believe that their manager's purpose is to make the nurses work harder and push them toward quality improvement objectives, are more likely to perceive feedback as a job demand, which negatively affects their well-being. The second mediation effect shows that within a supportive feedback environment, nurses are less likely to perceive feedback as a job demand, which positively affects their well-being. A related point that comes forward from this study, is the utility of focusing more future quality improvement research on the way quality improvement strategies are enacted in organizations, as revealed in the attributions, perceptions and behavior of healthcare professionals, in addition to a focus on the content and effects of quality improvement strategies. By integrating both process and content in future research, a more comprehensive picture of the relationship between quality improvement strategies and quality improvement outcomes can be achieved.

Third, our results show it is relevant to take *nurses' well-being* into account, since it may mediate the effect of feedback on quality measurements on quality improvement, and because it is an important outcome in its own right. The findings presented in Chapters 2 through 5 showed that feedback on quality measurements can both negatively and positively affect nurses' individual well-being. Additionally, we have found - based on a comparison of the survey data before regular feedback on quality measurements was provided to the nurses, and after a four months' period during which regular feedback on quality measurements was provided to the nurses - that on average, nurses experienced significantly lower burnout and higher work engagement before the feedback intervention than after.[4] Although the latter findings could not be significantly related to implementation of feedback on quality measurements,[5] the decrease in nurses' well-being is worrisome, and its cause should be further investigated. As found in other studies (e.g. McCann, Granter, Hassard, & Hyde, 2015; Struijs & Vathorst, 2009) the decrease in nurses' well-being may be caused by a focus on 'making the numbers', which undermines the value of work that is non-measurable, yet also more intrinsically motivating, such as 'comforting patients' or 'showing empathy'. Within quality improvement research the attitudinal reactions of healthcare professionals have largely been neglected. However, based on this thesis, the case can be made that in analyzing quality improvement strategies, researchers should explicitly consider the attitudinal response of healthcare professionals. It can be expected that quality improvement strategies differently affect different dimensions of healthcare professionals' well-being (Grant, Christianson, & Price, 2007): (1) their psychological well-being, for example by making their work more enjoyable or creating stress; (2) their

4 A paired sampled T-test (one-tailed) was conducted and showed participants experienced lower burnout before the feedback intervention (M = 2.36, SE = 0.65) than after ((M = 2.61, SE = .67), t(76) = 4.37, p =.00, r = .45), and higher work engagement before the feedback intervention (M = 5.67, SE = 0.76) than after ((M = 5.53, SE = .75), t(76) = -1.91, p =.03, r = .21).

5 A variable was computed to calculate the difference between burnout and work engagement as measured before and after our feedback intervention. Subsequently, we examined whether these differences were correlated to (1) nurses' attributions about management's purpose in providing feedback, or (2) nurses' perception of feedback as a job demand versus a job resource. No significant correlations were found.

physical well-being, for example by influencing worker safety and in- or decreasing injury; and (3) their social well-being, for example by improving cooperation with other healthcare professionals or by affecting the professional's trust in the organization. This thesis focused on feedback on quality measurements in relation to nurses' psychological well-being (work engagement and burnout). Future research may consider the impact of quality improvement strategies on all three dimensions of well-being. This approach considers the possibility that quality improvement strategies create trade-offs between different dimensions of well-being, for which evidence was found in relation to managerial practices in general (Grant et al., 2007).

HRM practices, employee well-being and performance

By focusing on a very specific HRM practice - feedback on quality measurements to nursing teams -, this thesis, in several ways, adds detail and refinement to our understanding of the relationship between HRM practices, employee well-being and performance. First, within strategic HRM literature, three competing perspectives were distinguished on the relationship between HRM practices, employee well-being and performance: a mutual gains perspective, a conflicting outcomes perspective and a parallel outcomes perspective (e.g., Peccei, 2004; Peccei, Van de Voorde, & Van Veldhoven, 2013; Wood, Van Veldhoven, Croon, & De Menezes, 2012). This thesis found empirical evidence for all three perspectives regarding the relationship between feedback on quality measurements, nurses' well-being and quality improvement. Additionally, evidence for a fourth perspective was found; *the indifference perspective*. More specifically, based on the interview data, we found that several nurses were not interested in the feedback and/or explained that the feedback did not provide them with individual starting-points to improve the quality of care. Some other scholars have empirically identified such an indifference perspective (Boiral, 2003; Schouteten, Benders, & Van den Bosch, 2013), but more research on this perspective on the relationship between HRM practices, employee well-being and performance is needed.

Second, this study showed that, although feedback is very often described 'objectively' as a job resource, nurses can perceive feedback on quality measurements both as a job resource and as a job demand. It shows that the conceptual difference between job demands and job resources is not as clear- cut as it may seem at first glance. Despite the conceptual indistinctiveness, job demands and job resources usually constitute two separate factors, as in this study. In their critical review of the Job Demands-Resources Model, Schaufeli and Taris (2014) have called for a redefinition of the concepts that solves this problem; (1) job demands are negatively *valued* physical, social, or organizational aspects of the job that require sustained physical or psychological effort and are therefore associated with certain physiological and psychological costs, and (2) job resources are positively *valued* physical, social, or organizational aspects of the job that are functional in achieving work goals, reduce job demands, or stimulate personal growth and development. According to this redefinition, some employees may experience certain aspects of the job negatively, as a job demand, while the same aspects of the job may be

experienced positively, as a job resource, by other employees. Future research should further investigate the validity of this value-based redefinition.

Third, our findings suggest that it is relevant to consider attributional processes in order to better understand the impact of HRM practices on outcomes. The theoretical implications of our research on nurses' attributions about why feedback on quality measurements is provided to them, were discussed in detail in Chapter 3. In general, our findings indicate that researchers should take caution in relying on managers' reports of their purpose when implementing HRM practices. As Wright and Nishii (2013) suggested, there is likely to be a disconnect between intended HRM practices, as reported by managers, on the one hand, and the way these HRM practices are perceived by employees, on the other hand. In this study (Chapter 4), we also found a disconnection between nurses' and their ward manager's attributions about 'why' feedback on quality measurements is provided to the nursing team. Future research that examines the influence of managers' attributions on the attributions of their employees, as well as the interaction of the two, would be valuable.

Fourth, this study takes a first step to integrate the literature on feedback, HRM and performance, the Job Demands-Resources Model and HR attributions. The different theories help explain the linkages between actual feedback on quality measurements, how feedback is perceived and how nurses react to the feedback. Future research could take this integration of relevant literature a step further. For example, by studying feedback in the context of the hospital performance management system. Feedback is an important component of a well-implemented performance management system that focuses on continuously 'identifying, measuring, and developing the performance of individuals and teams an aligning performance with strategic goals of the organisation' (Aguinis, 2013, p.2). More research on how hospitals use feedback on quality measurements as a component of their performance management system is needed.

Implications for practice

This thesis contributes to informing hospital management on how to use feedback on quality measurement as a quality improvement strategy while considering nurses' well-being. Within management books, different 'principles' on effective feedback are described, such as providing specific feedback, providing timely feedback and providing frequent feedback. However, several studies have shown that such 'principles' do not always work as expected. For example, regarding the specificity of feedback, Goodman, Wood, and Hendrickx (2004) showed that increasing feedback specificity is beneficial for initial performance but that it might discourage exploration and undermines the learning needed for later, more independent performance. Also, regarding the frequency of feedback, Lurie and Swaminathan (2009) showed that more frequent updates of information are not necessarily good. More specifically, they showed that in environments characterized by random noise more frequent feedback leads to declines in performance. Instead of focusing on 'principles' of effective feedback, the results from our study suggest that hospital management should pay more attention to the implementation of

feedback and the development of a supportive context in which feedback is provided. By doing this, it is expected that feedback on quality measurements is more likely to lead to quality improvement, while also serving nurses' well-being. More specifically, in Chapters 3 through 5, we have described in detail how ward managers should: (1) pay more attention to unambiguous and salient communication on their purpose in providing feedback on quality measurements, (2) develop a supportive feedback environment, and (3) support nursing teams in team reflection after them having received feedback on quality measurements. These practical implications are investigated in more detail here.

Regarding the first practical implication, the findings in Chapter 4 suggest that it is crucial that ward managers have a clear internal commitment-focused goal in mind when giving feedback, such as improving the quality of care or increase nurses' involvement in quality improvement, so that they can explicitly share this goal with the nursing team and negotiate a common goal together. An open communication could also unveil nurses' undesired attributions (external attributions) so that they can subsequently be addressed by management. Along similar lines, previous research showed that a (middle) manager's effectiveness lies in the ability to make activity meaningful for his or her employees and achieve a sense of shared purpose among his or her employees (Smith, Plowman, & Duchon, 2010). This process is also referred to as 'sensegiving' and can be seen as a fundamental leadership activity (Gioia & Chittipeddi, 1991). However, it should be born in mind that, a more open communication may not be enough to elicit the desired internal commitment-focused attributions among nurses. Although they are often described separately (e.g. Grol, Wensing, Eccles, & Davis, 2013), we believe that using feedback in the context of quality improvement cannot be seen in isolation from using feedback in the context of external evaluation. For example, in this study the ward managers themselves determined which quality measurements were selected and they mostly selected quality measurements that are also part of the external evaluation by the healthcare inspectorate. Even though the ward managers may believe that these quality measurements are, first, important in relation to quality improvement, it can be difficult for nurses to separate them from the context of external evaluation. Merely communicating that management's purpose in providing feedback on quality measurements is truly to improve the quality of care may not solve this 'problem'. A possible solution may lie in involving nurses at the design of feedback on quality measurements. In line with this, Meyer (1994) suggested that the effectiveness of performance measurement systems highly depends on the role of the team in designing its own measurement system, including selecting measurements that are relevant in their work.

Regarding the development of a supportive feedback environment, in Chapter 4 we have described how a ward manager could develop a supportive feedback environment, in which nurses are more likely to react positively to feedback on quality measurements. A supportive feedback environment is characterized by: (1) a ward manager that nurses believe to be credible and knowledgeable about the feedback topic; (2) the provision of feedback considered to be of high quality that is delivered in a tactful manner; (3) the provision of both positive and

negative feedback when it is warranted; 4) attempts by the ward manager to remain available for feedback conversations on a regular basis; and 5) active attempts by the ward manager to promote and encourage feedback seeking (Dahling & O'Malley, 2011). Our findings about the positive effect of the feedback environment are in line with the results from an impressive body of research conducted in the last decade (e.g., Dahling, Chau, & O'Malley, 2012). It seems that attempts to implement effective feedback on quality measurements to nursing teams are unlikely to succeed in environments that are hostile to feedback exchanges. Therefore, we argue that ward managers should take the extent to which a supportive feedback environment exists into consideration, when looking for an effective quality improvement strategy and providing nursing teams with feedback on quality measurements may not always be appropriate. Other quality improvement strategies may be more appropriate within environments that are hostile to feedback exchanges, such as educational meetings or distributing information.

Regarding the support of nursing teams in team reflection after feedback, in Chapter 5 we have described that supporting nursing teams in team reflection after them having received feedback on quality measurements may help in eliciting positive perceptions among nurses, and therewith create positive effects of feedback on both their well-being and performance. Because leadership is important for quality improvement (Ovretveit, 2010), and the ward managers' role is fundamental in ensuring the quality of care within the ward setting (Pegram, Grainger, Sigsworth, & While, 2014), the ward manager would seem the right person to support nursing teams in team reflection after feedback. However, in our study, we have experienced that ward managers are not always very good themselves in processing feedback from quality measurements to quality improvement activities. Therefore, besides supporting nursing teams, ward managers may also need some support to make them better prepared for providing their nursing team with feedback on quality measurements. For example, a workshop for ward managers may be organized, where a neutral facilitator – e.g., a quality and patient safety consultant - can help ward managers interpret the feedback on quality measurements. A feedback workshop also creates opportunities for mutual support and encouragement among the participating ward managers. In absence of a workshop, busy ward managers may spend little time thinking about feedback on quality measurements and may simply 'cascade' it down to the nursing team. Previous research by Seifert, Yukl and McDonald (2003) already indicated that such a workshop improves the effectiveness of feedback provided to managers.

The practical implications discussed above, suggest that training and facilitating both nurses and their ward managers on *how* to use feedback on quality measurements is central to the success of feedback. This is relevant to look at by the hospital organization. Additionally, because it is expected that major advances in information technology in combination with a growing demand for healthcare system accountability, and patient choice will drive the use of quality measurements even further in the future (Smith, Mossialos, & Papanicolas, 2008), national education programs for nurses and managers in health care could also play an important role in teaching about *how* to use feedback on quality measurements.

METHODOLOGICAL CONSIDERATIONS

The methodological considerations of the data and methods used in Chapters 3 through 5 have been described in detail in each chapter. Accordingly, the most important and more overarching considerations are mentioned briefly here and related to a number of general strengths and weaknesses of the data and the methods used. First, the focus in this thesis is on feedback to nursing teams on quality measurements. This allowed for a fine-grained analysis of this quality improvement strategy. However, this focus can also be seen as a weakness. Very often, in practice, feedback on quality measurements is combined with other quality improvement practices like reminders, education and the use of a quality improvement plan (De Vos et al., 2009). Several scholars within strategic HRM research have pleaded for a more strategically minded system approach and have argued that research should focus on the overall effects of 'bundles' of mutually reinforcing practices. For example, Kepes and Delery (2007, p. 385) argued that 'one of the defining characteristics of SHRM [strategic HRM] has been the proposition that HRM systems and not individual practices are the source of competitive advantage'. Although multifaceted quality improvement strategies can effectively improve patient care, previous research showed it is not possible to predict which combinations of practices in which situation will work best and therefore 'tailoring' – or optimally linking strategies to specific features of the improvement, the target group, and the setting - is inevitable (Hulscher, Wensing, & Grol, 2013).

Second, in this study we newly created an instrument to measure: (1) nurses' attributions about management's purpose in providing feedback, and (2) nurses' perception of feedback as a job demand versus a job resource. We carefully took all the appropriate steps to develop and validate our measure; the measure was (1) developed based on a literature study, (2) discussed with several experts and practitioners and (3) pilot-tested among 55 nurses. The findings from our pilot study and our case study reveal promising results regarding the content, construct and predictive validity. However, it is only after repeated use that researchers may be confident that the scale adequately captures what it is supposed to measure, and safely conclude about its reliability. Regarding the measure on nurses' attributions about management's purpose in providing feedback, we recognize the possibility that there may be attributions that are relevant in other occupations, organizations and/or other countries. For example, Nishii, Lepak and Schneider (2008) included the external attribution that HR practices are designed to comply with union requirements in their measure on HR attributions. Because this attribution was not relevant in relation to providing feedback to nursing teams on quality measurements within Dutch general teaching hospitals, it was not included in our measure. We chose to include other external attributions that are more appropriate, for example the attribution that feedback is provided to comply with quality standards imposed on the hospital by the healthcare inspectorate. The attribution that reflects management's purpose in providing feedback is to adhere to union contracts may be relevant in countries where unions play an

important role in setting the working conditions for nurses. Regarding the measure on nurses' perception of feedback as a job demand versus a job resource, we would like to stress that based on the interview data we distinguished four different perceptions on feedback on quality measurements: (1) as a job demand, when nurses felt pressured to change their behavior in response to the feedback, (2) as an *intrinsically motivating* job resource, when nurses truly enjoyed receiving feedback, (3) as an *extrinsically motivating* job resource, when feedback reminded nurses of their work goals or (4) neither as a job demand, nor as a job resource, when nurses were not interested in the feedback. In contrast, based on the Job Demands-Resources model (Bakker & Demerouti, 2007), our survey measure only distinguishes two different perceptions: (1) as a job demand or (2) as a job resource. Further research is necessary to determine how our qualitative findings could help to refine our quantitative measure on nurses' perception of feedback as a job demand versus a job resource.

Third, a remark regarding the embedded case study design (Yin, 2003) of our study should be made. Although it can make it difficult to generalize findings, the design was appropriate as the research questions focused on the dynamics of feedback on quality measurements in real-work settings (Yin, 2003). However, to add robustness to our findings, future research may benefit from other research designs, such as larger, quantitative research designs or multiple-case study designs (Yin, 2003). Regarding the latter, it would be interesting to follow a theoretical replication logic and study feedback on quality measurements within a strong feedback environment, in contrast to feedback research within a weak feedback environment. It would also be interesting to study feedback on quality measurements within teams that are supported to jointly reflect on and analyse their performance and strategies, in contrast to feedback within teams that are not supported in team reflection after feedback on quality measurements.

Fourth, several methodological considerations arise regarding the data collected for the embedded case study. An on-line survey was distributed to all nurses on the four participating wards, at two moments in time: before regular feedback on quality measurements was provided to the nurses, and after a four months' period during which regular feedback on quality measurements was provided to the nurses. On both moments in time nurses were asked about their well-being (burnout and work engagement) and their assessment of the quality of nursing care at their ward. As discussed before, the before- and after comparison showed on average, during the four months' period during which regular feedback on quality measurements was provided, both nurses' well-being and nurses' assessment of the quality of nursing care decreased. However, these differences were not correlated to nurses' attributions or perceptions of feedback on quality measurement. Therefore, in Chapter 5 we chose to focus on the survey data as measured after our feedback intervention. Although these cross-sectional data revealed promising results regarding the impact of nurses' attributions on their well-being and the influence of the feedback environment, it is difficult to infer causality. Therefore, it would be interesting to repeat our study, using a longitudinal, preferably a multi-

wave design, and a control group as a baseline, to gain more specific information about the causal relationship between the implementation of feedback on quality measurements and the change in nurses' well-being and nurses' assessment of the quality of nursing care.
Additionally, a remark regarding the quality measurement data from our case study should be made. The quality measurement data from the participating wards were not comparable, making it unsuitable for further analysis. Table 2 in Chapter 3 indicates that for the different wards, different data sources were used and that different aspects related to the quality of nursing care were measured. Future research should use comparable quality measurement data when studying the effect of feedback on quality improvement, for example data from quality registers could be used. Unfortunately, in the Netherlands no quality registry data are available regarding the quality of nursing care, yet. When comparable quality measurements data are available, it would be interesting to study how feedback on quality measurements affects nurse sensitive outcome measures, such as pressure ulcers, falls and urinary tract infections (Kurtzman et al., 2008). By taking this approach, we can learn how patients may benefit from feedback on quality measurements to nurses.

FINAL CONCLUSION

As new insights about good nursing care are constantly being developed, it can be difficult to successfully adopt these insights into the daily care for individual patients. Hospitals around the world use feedback on quality measurements to nursing teams as a quality improvement strategy. The underlying idea is that the quality of care will be improved if nurses are – regularly – informed about their performance, thereby allowing them to assess and adjust their performance. This thesis showed the complexity of feedback on quality measurements; feedback on quality measurements does not necessarily result in quality improvement among all nurses, and feedback on quality measurements may not always serve nurses' well-being. The success of feedback on quality measurements, both in relation to quality improvement and in relation to nurses' well-being, highly depends on how it is implemented (e.g. support team reflection after feedback) and the context (e.g. the feedback environment) in which it is implemented. By creating a better understanding of the processes underlying feedback on quality measurements (e.g. attributional processes and the importance of perceptions), this thesis paves the way to more research on sustainable quality improvement strategies, that positively affect the quality of care while also serving healthcare professionals.

Summary
Samenvatting

SUMMARY

Each year, scholarly research results in an enormous number of valuable insights about good nursing care. The implementation of these insights into the daily care for individual patients has been problematic. When it comes to closing the gap between research and practice, different quality improvement strategies exist. This thesis elaborates on one very specific, but frequently used, strategy for quality improvement: providing nursing teams with feedback on quality measurements (defined as actions taken by healthcare providers to provide nursing teams with information regarding the quality of nursing care, based on quality measurements over a specified period of time). Although it may seem plausible that feedback on quality measurements, such as the incidence of pressure ulcers or the rates of falls, to nursing teams will lead to quality improvement, worldwide research does not empirically support this assumption fully. Additionally, previous empirical work showed that a focus on quality measurements can provoke considerable anxiety, frustration, and worry among nurses. To better understand *how* feedback on quality measurements works, this thesis aims to explore the mechanisms underlying the effect of feedback on quality measurements to nursing teams on both nurses' well-being and quality improvement.

By uniquely integrating scholarly literature on feedback provision and strategic human resource management (HRM) a conceptual framework is developed in **Chapter 2** that illustrates how feedback on quality measurements to nursing teams can be related to nurses' well-being and quality improvement. Three perspectives are discussed that illustrate that feedback provision can result in quality improvement at the expense of or for the benefit of nurses' well-being. It is argued that a better understanding of nurses' perceptions of feedback on quality measurements is needed, since it is based on these perceptions that nurses will react. More specifically, it is argued that the relationship between feedback on quality measurements, nurses' well-being and quality improvement is mediated by (1) nurses' attributions about management's purpose in providing feedback, followed by (2) nurses' perception of feedback as a burdening job demand or a motivating job resource. Finally, a more contextual approach is recommended when studying feedback on quality measurements.

Building on the insights from Chapter 2, **Chapter 3** describes the development and validation of an instrument to measure (1) nurses' attributions about management's purpose in providing feedback and (2) nurses' perception of feedback as a burdening job demand or a motivating job resource. The measure was developed based on previous research on HR attributions and the Job Demands-Resources model, discussed with several experts and practitioners, and pilot-tested among 55 nurses. The pilot study revealed promising results regarding the content, construct and predictive validity of the measure.

Chapter 4 empirically explores (1) the attributions that nurses make about management's purpose in providing feedback, (2) the effects of these attributions on nurses' well-being, and (3) the role of the feedback environment. Results from a mixed methods, embedded case study in four hospital wards, showed that nurses make varying attributions for the same feedback on quality measurements, and that these attributions appear to be differently related to burnout. Internal, commitment-focused attributions (e.g. when nurses believe that their manager's purpose is to support the nursing team in its quality improvement endeavour) are negatively associated with burnout, and external attributions (e.g. when nurses believe that their manager's purpose is to adhere to the quality standards imposed on the hospital by the healthcare inspectorate) are positively associated with burnout. Additionally, our results indicated that the feedback environment influences nurses' attributions. More specifically, our results showed that a supportive feedback environment is positively associated with internal, commitment-focused attributions and negatively with internal, control-focused attributions.

In **Chapter 5** we empirically explore (1) how feedback on quality measurements to nursing teams is perceived by individual nurses (as a burdening job demand or rather as an intrinsically or extrinsically motivating job resource), (2) how this consequently affects nurses' well-being and quality improvement, and (3) the influence of team reflection on nurses' perceptions. The data from a mixed methods, embedded case study in four hospital wards, revealed that individual nurses perceive the same feedback on quality measurements differently, leading to different effects on nurses' well-being and performance: (1) feedback can be perceived as a job demand that pressures nurses to improve the results on the quality measurements; (2) feedback can be perceived as an extrinsically motivating job resource, that is instrumental to improve the results on quality measurements; (3) feedback can be perceived as an intrinsically motivating job resource that stimulates nurses to improve the results on the quality measurements; and (4) feedback can be perceived neither as a job demand, nor as a job resource, and has no effect on nurses' well-being and performance. Additionally, the results showed that team reflection after feedback seems to be very low in practice, while our data also provided evidence that nursing teams using the feedback to jointly reflect and analyse their performance and strategies will be able to better translate information about quality measurements into corrective behaviours, which may result in more positive perceptions of feedback on quality measurements among individual nurses.

The individual chapters in this thesis show the complexity of feedback on quality measurements, which is discussed further in **Chapter 6.** Hospital management cannot assume that when nursing teams are provided with feedback on quality measurements, they automatically become motivated to adjust their behavior and consequently improve the quality of nursing care. The success of feedback on quality measurements, both in relation to quality improvement and in relation to nurses' well-being, highly depends on how it is implemented (e.g. supporting

team reflection after feedback) and the context (e.g. the feedback environment) in which it is implemented. By creating a better understanding of the mechanisms underlying feedback on quality measurements (e.g. attributional processes and the importance of perceptions), this thesis paves the way to more research on sustainable quality improvement strategies, that positively affect the quality of care while also serving healthcare professionals.

SAMENVATTING

Jaarlijks levert wetenschappelijk onderzoek veel belangrijke informatie op over wat goede verpleegkundige zorg is. Het blijkt niet eenvoudig om al deze wetenschappelijke inzichten te implementeren in de dagelijkse zorgpraktijk. Er bestaan veel verschillende werkwijzen om de implementatie van wetenschappelijke inzichten te bevorderen en daarmee de kwaliteit van zorg te verbeteren. In dit proefschrift staat een specifieke, veel gebruikte werkwijze voor kwaliteitsverbetering centraal: feedback over kwaliteitsindicatoren aan verpleegkundige teams (gedefinieerd als acties ondernomen door zorgaanbieders om verpleegkundige teams te informeren over de kwaliteit van de verpleegkundige zorg op basis van kwaliteitsindicatoren, gemeten over een bepaalde periode). Het lijkt aannemelijk dat feedback over kwaliteitsindicatoren, zoals de incidentie van decubitus of het aantal valincidenten, aan verpleegkundige teams zal leiden tot een kwaliteitsverbetering. Er is echter nog maar weinig empirische ondersteuning voor deze aanname. Daarnaast laten eerdere studies zien dat de focus op kwaliteitsindicatoren bij verpleegkundigen kan leiden tot spanning en frustratie. Om beter te begrijpen hoe feedback over kwaliteitsindicatoren aan verpleegkundige teams werkt, gaat dit proefschrift in op de mechanismen die ten grondslag liggen aan feedback. Daarbij is zowel het welzijn van de verpleegkundigen als de verbetering van de kwaliteit van zorg in ogenschouw genomen.

In **Hoofdstuk 2** is een conceptueel raamwerk ontwikkeld dat illustreert hoe feedback over kwaliteitsindicatoren gerelateerd kan worden aan het welzijn van verpleegkundigen en kwaliteitsverbetering. Het raamwerk is gebaseerd op een unieke combinatie van de wetenschappelijke literatuur over feedback en de wetenschappelijke literatuur over strategisch *human resource management* (HRM). Het raamwerk maakt duidelijk hoe feedback kan resulteren in een kwaliteitsverbetering ten koste of ten voordele van verpleegkundigen. Inzicht in de percepties van verpleegkundigen over de feedback die zij ontvangen is daarbij van groot belang. Immers, deze percepties staan aan de basis van hun reacties. Meer specifiek is beargumenteerd dat de relatie tussen feedback over kwaliteitsindicatoren, het welzijn van verpleegkundigen en kwaliteitsverbetering wordt gemedieerd door (1) de attributies van verpleegkundigen over het doel van het management bij het geven van feedback, gevolgd door (2) de percepties van verpleegkundigen van feedback als belastend (*job demand*) of ondersteunend (*job resource*). Ten slotte is in Hoofdstuk 2 gepleit om bij het bestuderen van feedback over kwaliteitsindicatoren meer aandacht te besteden aan de context waarbinnen feedback wordt gegeven, zoals de feedbackomgeving. Uit eerder onderzoek blijkt namelijk dat medewerkers binnen een ondersteunende feedbackomgeving meer open staan voor feedback.

Voortbouwend op de inzichten uit Hoofdstuk 2, is in **Hoofdstuk 3** de ontwikkeling en validatie van een instrument beschreven om de volgende constructen te meten: (1) de attributies van

verpleegkundigen over het doel van het management bij het geven van feedback, en (2) de percepties van verpleegkundigen van feedback als belastend (*job demand*) of ondersteunend (*job resource*). Het meetinstrument is ontwikkeld op basis van eerder onderzoek naar HR attributies en het Job Demands-Resources model. Het instrument is besproken met verschillende experts en verpleegkundigen en is getest onder 55 verpleegkundigen. De pilotstudie liet veelbelovende resultaten zien betreffende de inhouds-, construct- en predictieve validiteit van het meetinstrument.

In **Hoofdstuk 4** zijn (1) de attributies van verpleegkundigen over het doel van het management bij het geven van feedback, (2) het effect van deze attributies op het welzijn van verpleegkundigen en (3) de invloed van de feedbackomgeving, empirisch onderzocht. Uit de resultaten van onze casestudie binnen vier verpleegafdelingen van ziekenhuizen, bleek dat verpleegkundigen verschillende attributies hebben voor dezelfde feedback over kwaliteitsindicatoren en dat deze verschillende attributies op verschillende manieren zijn gerelateerd aan burnout. Zogenaamde interne *commitment-focused* attributies (bijv. wanneer verpleegkundigen denken dat hun manager met het geven van feedback tot doel heeft om het verpleegkundig team te ondersteunen bij een kwaliteitsverbetering) waren negatief gerelateerd aan burnout, en externe attributies (bijv. wanneer verpleegkundigen denken dat hun manager met het geven van feedback tot doel heeft dat er wordt voldaan aan de eisen van de Inspectie voor de Gezondheidszorg) waren positief gerelateerd aan burnout. Daarnaast lieten onze resultaten zien dat de attributies van verpleegkundigen worden beïnvloed door de feedbackomgeving. Een ondersteunende feedbackomgeving bleek positief gerelateerd te zijn aan interne *commitment-focused* attributies en negatief aan interne control-focused attributies (bijv. wanneer verpleegkundigen denken dat hun manager met het geven van feedback tot doel heeft de verpleegkundigen harder te laten werken).

In **Hoofdstuk 5** is empirisch onderzocht (1) hoe individuele verpleegkundigen feedback over kwaliteitsindicatoren percipiëren (als een belastende *job demand* of juist als een intrinsiek of extrinsiek motiverende *job resource*), (2) hoe deze percepties het welzijn van verpleegkundigen en kwaliteitsverbetering beïnvloeden, en (3) hoe teamreflectie de percepties van verpleegkundigen op feedback beïnvloedt. Uit de data van onze casestudie binnen vier verpleegafdelingen van ziekenhuizen, bleek dat individuele verpleegkundigen dezelfde feedback over kwaliteitsindicatoren op verschillende manieren percipiëren. De verschillende percepties resulteerden in verschillende effecten op het welzijn van verpleegkundigen en hun prestaties: (1) feedback kan worden gepercipieerd als een *job demand* dat de verpleegkundigen onder druk zet om de resultaten op de indicatoren te verbeteren, (2) feedback kan worden gepercipieerd als een extrinsiek motiverende *job resource* dat verpleegkundigen helpt om de resultaten op de indicatoren te verbeteren; (3) feedback kan worden gepercipieerd als een intrinsiek motiverende job resource dat verpleegkundigen positief stimuleert om de resultaten

op de indicatoren te verbeteren en (4) feedback kan noch als een job demand, noch als een job resource worden gepercipieerd. In het laatste geval heeft feedback geen effect op zowel het welzijn van verpleegkundigen als op hun prestaties. Daarnaast lieten de resultaten zien dat teamreflectie na het geven van feedback slechts in beperkte mate voorkomt in de praktijk. Desondanks bleek uit onze data dat verpleegkundige teams die feedback gebruikten om gezamenlijk te reflecteren op hun prestaties en hun aanpak (teamreflectie), beter in staat zijn om de informatie uit de kwaliteitsindicatoren om te zetten naar concrete acties. Hierdoor lijkt het aannemelijk dat teamreflectie na het geven van feedback over kwaliteitsindicatoren zal leiden tot meer positieve percepties bij verpleegkundigen over feedback.

Uit de verschillende hoofdstukken in dit proefschrift blijkt de complexiteit van feedback over kwaliteitsindicatoren. In **Hoofdstuk 6** zijn de resultaten nader bediscussieerd en is geconcludeerd dat het ziekenhuismanagement niet zonder meer kan aannemen dat feedback over kwaliteitsindicatoren verpleegkundigen motiveert om de kwaliteit van de verpleegkundige zorg verbeteren. Het succes van feedback over kwaliteitsindicatoren, zowel in relatie tot het welzijn van verpleegkundigen als in relatie tot kwaliteitsverbetering, is in hoge mate afhankelijk van hoe feedback is geïmplementeerd (bijv. door het ondersteunen van teamreflectie na feedback) en de context waarbinnen feedback wordt geïmplementeerd (bijv. de feedbackomgeving). Door inzicht te creëren in de mechanismen die ten grondslag liggen aan feedback over kwaliteitsindicatoren (bijv. attributieprocessen en het belang van percepties), legt dit proefschrift een unieke basis voor meer onderzoek naar duurzame strategieën voor kwaliteitsverbetering; strategieën die zowel ten dienste staan van de kwaliteit van zorg als van de professionals in de gezondheidszorg.

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Curriculum Vitae

Suzanne Giesbers werd geboren op 17 augustus 1985 te Drunen. In 2003 haalde ze haar VWO diploma aan het d'Oultremontcollege aldaar. Aan de Universiteit Utrecht studeerde ze vervolgens Bestuurs- & Organisatiewetenschappen en in 2008 rondde ze haar master 'Bestuur en Beleid' cum laude af. Haar carrière startte Suzanne bij Deloitte Consulting en in 2010 maakte ze de overstap naar Canisius-Wilhelmina ziekenhuis (CWZ). In CWZ begon Suzanne als adviseur binnen de unit Kwaliteit, Veiligheid en Verantwoording en sinds april 2017 vervult zij de functie van programmamanager bij de staf raad van bestuur ten behoeve van het strategisch programma 'Beter, beter worden – onze zorg'.

In 2011 startte Suzanne naast haar werk bij CWZ een promotieonderzoek aan het Institute for Management Research (IMR) van de Radboud Universiteit. Daarbij volgde zij het parttime PhD programma The Responsible Organisation (RESORG). In 2015 won Suzanne de IMR Internationalization Grant voor beste paper tijdens de IMR Research Day.

Suzanne is getrouwd met Rob Penders en samen hebben ze twee kinderen, Lena en Huub.

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Appendix

APPENDIX A. SUPPLEMENTARY DATA TO CHAPTER 5

Coding book interview data

1. Open coding	2. Axial coding
Perceptions of feedback on quality measurements	
Creates a pressure to improve registration	Perceptions of feedback on quality measurements as a job demand
Difficulty regarding the interpretation and reliability of the results	
Feels like being watched / patronising	
I don't like feedback	
I don't like the statistical nature	
I only enjoy feedback, when the quality measurements are usefull	
Information about the background of the results is missing (causes, excplanations, etc	
Intrinsic commitment is lacking	
It does not motivate me	
More attention should go to 'soft' quality	
No added value	
Only reflect the extent to which things are registered	
Resistance	
Risk that only 'making the number' will become a working goal	
The quality measurements are not representative of the quality of care	
	Quotations: 46
It's a good thing	Perceptions of feedback on quality measurements as an extrinsically motivating job resource
It's good to have insight in our performance	
Motivates to improve performance	
	Quotations: 45
I truely enjoy to have insight in our performance	Perceptions of feedback on quality measurements as an intrinsically motivating job
Interested	
	Quotations: 21
Amazed when results are bad	Indifferent perception of feedback on quality measurements
Individual results are needed to manage quality improvement more accurately	
Just taking notice of the results, no further action	
Not interested	Quotations: 12
Effects of feedback on quality measurements	
Changes behavior to achieve work goals	Positive effects
Creates awareness regarding the importance of the quality measurements	
Creates awareness regarding the results/performance	
Facilitates nursing management to give direction to quality improvement	
Focuses attention to quality improvement, beyond the quality measurements	
Gives rise to adress collegueas about their behavior	
Gives rise to check individual behavior	
Helps to integrate quality improvement in daily routine	
Helps to overcome the lack of commitment to quality improvement	
Helps to remind you of your work goals	
Helps to remind your collegueas of work goals	
Improves digital registration	
Makes you think about possibilities for quality improvement	
Makes you think about your individual 'performance'	
Makes you work extra hours to achieve work goals	
Provides knowledge on how to improve the results	
Quality measurements are discussed more	
Stimulates doing research when results are bad	
	Quotations: 99
Focuses attention to 'making the numbers', while other things are more important	Negative effects
Helps to improve one thing, at the expense of something else	
Makes you do things that are not necessary, only to improve the 'numbers'	
	Quotations: 4

Education has more effect than feedback	No effects
No effect on behavior	
Nurses do not feel responsible to improve the results	
Provides too little information to improve	
Temporary effect	
The effect is connected to the effect of other interventions	
	Quotations: 26
Team reflection	
Description of team reflection - step #1	First step in team reflection: evaluating performance and strategies
	Quotations: 39
Description of team reflection - step #1&2	Second step in team reflection: looking for alternatives
Give more information / start research on the causes of the results	
Information about the background of the results is missing (causes, excplanations, etc	
Negative results should be discussed more	
Results should be discussed more	
	Quotations: 22
Feedback should be linked to improvement plans	Third step in team reflection: making a clear decision about how to implement changes
Provides too little information to improve	
	Quotations: 3

Coding book observational data

Team reflection	
	Team reflection - step#1 - no participant
	Team reflection - step#1 - 1 participant
	Team reflection - step#1 - >1 participant
	Team reflection - step #1&2 - no participant
	Team reflection - step #1&2 - 1 participant
	Team reflection - step #1&2 - >1 participants
	Team reflection - step #1&2&3 - no participant
	Team reflection - step #1&2&3 - 1 participant
	Team reflection - step #1&2&3 - >1 participant