The relationship between two approaches to the problem of human fallibility and blame culture in health care organisations
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Abstract

Background
A ‘blame culture’ in health care organisations constitutes a threat to the prevention of medication incidents resulting in deaths and injuries. The problem of human fallibility can be addressed through two different approaches to error management: the person approach and the system approach. This study tests the reliability and construct validity of the recently adjusted blame culture questionnaire and examines the relationship between the person and system approaches and blame culture in health care organisations.

Research question
What is the relationship between the two approaches to the problem of human fallibility (i.e. person approach and system approach) and blame culture in health care organisations?

Method
Ninety-seven health care employees completed the Medication Safety Culture Questionnaire (MSCQ). The psychometric quality of the questionnaire was measured with a reliability analysis and a confirmatory factor analysis. A simple regression analysis was executed to measure the presence of a link between the person and system approaches and blame culture.

Results
Although the reliability of the blame culture questionnaire was considered good, it was not constructually valid, even after moving and deleting items. Based on this data, there was a significant, positive relation between the person and system approaches and blame culture. About half of the variance of blame culture was explained by the person/system scale. People who experienced a person approach reported significantly more fear than those who experienced a system approach.

Conclusion
The current blame culture questionnaire is not yet complete. The person and system approaches have a significant influence on the fear/trust aspect of blame culture. More research into the theoretical aspects of blame culture is needed to improve the questionnaire. Further research should also focus on the effect of importing characteristics of high-reliability organisations into the medical domain. This can contribute to the prevention of medication incidents and thereby improve patient safety.
Introduction

The need to organise health care in an effective manner is becoming increasingly important in aiming for patient safety (Ramanujam & Rousseau, 2006). A ‘blame culture’ in health care is considered a major factor for an excessively high number of medical errors, including medication incidents (Khatri, Brown & Hicks, 2009). A ‘just culture’, on the other hand, fosters a supportive work environment in which members believe that they can criticise the activities carried out, talk openly about worries and admit mistakes without fear of punishment (Tucker, Nembhard & Edmondson, 2007). This culture has emerged as a necessity for improving the quality of care, and thereby patient safety (Pronovost et al., 2003). However, the role of a safety culture in the prevention of medication incidents in health care organisations has so far been underexposed, as little research has focused on the effect of cultural factors on medical errors and the quality of health care.

Many hospitalisations have resulted from the side effects of medication, and almost half of them could have been prevented (Leendertse et al., 2008). The main objective of this study is to enhance patient safety among health care organisations in which medication is prescribed, administered and/or monitored. This is achieved by answering the following research question: What is the relationship between the two approaches to the problem of human fallibility (i.e. person approach and system approach) and blame culture in health care organisations with health care employees who prescribe, administer and/or monitor medication? Each approach has its own method of error management (Reason, 2000). In order to fully understand all of this, the theoretical background with regard to human error and blame culture is discussed in more detail later in this report.

The first section explains the theories related to the subject matter, including safety culture, human error, organisational learning and error management. This section concludes with the resulting hypotheses. The first part of the method section describes the statistical analyses undertaken to achieve the desired results. The second part specifies the study’s target population. The results section presents the research findings. The fourth section answers the question of whether there is a link between the person and system approaches and blame culture. This section highlights the limitations of the research and ends with a conclusion that summarises the main findings and offers recommendations for further research.
1 Theoretical background

1.1 Medication incidents in the Netherlands

Medication incidents can cause serious side effects that could even result in hospitalisation. The research of Leendertse et al. (2008) has indicated that 5.6% of hospital admissions in the Netherlands is due to medication incidents. Each year, thousands of people are hospitalised because of medication incidents. Approximately 2,500 of these admissions result in death or serious injury, of which nearly half (46.5%) could have been prevented. It can thus be concluded that unintended patient harm is often caused by medication, more specifically by either side effects of medication use or by medication incidents. Medication incidents deliver millions of unnecessary costs that must be paid by medical insurance. Currently, no information is available concerning medication incidents by general practitioners and nursing home physicians. Many medication incidents occur unnecessarily and have a recurrent pattern because health care employees rarely report errors, and thereby barely learn from them (Gotzsche, 2013). In view of this, it is important that medication incidents are reported and discussed openly to improve patient safety. High-quality health care systems assign high priority to this (Pronovost et al., 2003).

Incident reporting is important to avoid similar problems in the future. Hospitals still infrequently report medication incidents even though this is easily accessible and can be done anonymously through the central medication incidents registration (CMR) system. In the Netherlands, the nationwide CMR system was developed for the use in hospitals in 2006 and adapted for additional settings in 2010 (Cheung, Van Den Bemt, Bouvy, Wensing & De Smet, 2011). Research by Cheung et al. (2011) has indicated that, in a period of four years, very few hospitals have reported more than hundred medication incidents, namely 14% of 90 hospitals in the Netherlands (i.e. 96.8% of the 93-total number of hospitals in the Netherlands), and 74% has not reported a single incident. Hospitals and community pharmacies report different types of medication incidents. The reports of hospitals are often related to the administration of medication (39%). The reports of community pharmacies often concern medication incidents that occur during prescribing and/or monitoring medication (43%). In this research, consideration is therefore given to health care employees who prescribe, administer and/or monitor medication.
There are several factors predicting preventable medication-related hospital admissions. The main determinants are deteriorated cognition, many medical diseases, poor living conditions, renal impairment, a high number of previous hospitalisations and the usage of several medicines at the same time (Leendertse et al., 2008). Reporting incidents can help health care providers learn from incidents and improve patient safety (Corrigan, Donaldson, Kohn et al., 2000). Thus, a proper system for reporting medication incidents is crucial (Leape, 2002). Well-functioning reporting systems can offer information to other health care organisations about types of mistakes, causes, risks, consequences and preventive measures (Montesi & Lechi, 2009; Dovey & Phillips, 2004; Williams & Ashcroft, 2009). The identified risk factors can be used in the prevention of hospitalisations that are caused by medication incidents (Leendertse et al., 2008).

1.2 Organisational learning

Organisational learning plays a vital role in improving safety (Akselsson, Jacobsson, Bötjesson & Enander, 2012), and there are four processes link learning from the individual to the organisation. These are intuiting, interpreting, integrating and institutionalising, also called the 4I. Figure 1 depicts how learning flows through the 4I processes in the form of feedback and feed-forward. The process starts with intuiting and interpreting at the individual level. Together with interpreting, integrating occurs at the group level. Integrating is the process of ensuring a common understanding among people. Integrating and institutionalising occur at the organisational level. Institutionalising ensures that routine operations continue to exist and is achieved through the process of embedding the learning that arises through people within the organisation (Crossan, Lane & White, 1999).
Figure 1. Organisational Learning as a Dynamic Process*

* Excerpted from Crossan, Lane & White (1999)

Adverse events occur frequently in health care organisations. They negatively affect organisational learning and patient safety. Zegers et al. (2009) define an adverse event as ‘an unintended jury that results in temporary or permanent disability, death or prolonged hospital stay, and is caused by health care management rather than by the patient’s underlying disease process’. Although adverse events have a negative impact on organisations, they can also considerably contribute to improvements to the system. Every adverse event has many serious incidents that have a major effect on patient safety as well as many less serious incidents that have little or no effect on patient safety. More effective organisational learning from these serious and less serious incidents could support improvements in the system that can reduce the risk of recurrent adverse events (Cooke, Dunscombe & Lee, 2007). Khatri et al. (2009) have argued that a just culture should consist of highly developed organisational learning and expect that fewer harmful incidents occur that have an adverse effect on patient safety within an organisation, as well as that people are more capable of learning from incidents. In other words, from an organisational learning perspective, a just culture can be defined as an organisation’s ability to analyse, report and investigate incidents and to undertake resolving actions that improve patient safety and reduce the risk of further incidents.
Cook et al. (2007) have found that management- and organisational-related problems were major obstacles to effective incident learning within an organisation. They have also determined that this is a larger barrier than the willingness of the staff to report incidents. Furthermore, the research by Cook et al. (2007) has evidenced that organisational learning is hindered by a lack of follow-up actions for reported incidents. Learning from incidents strongly correlates with safety climate variables, as well as with safety-related behaviors and trust. This is particularly the case for trust, knowledge with regard to safety, participation in the safety environment and compliance with safety rules (Akselsson et al., 2012). Therefore, in order to ensure that an organisation is able to make improvements and become safer, it is necessary to learn effectively from incidents that occur within that organisation (Drupsteen, Groeneweg & Zwetsloot, 2013). Drupsteen, Groeneweg and Zwetsloot (2013) illustrate this through their learning from incidents model consisting of four stages: investigating and analysing incidents, planning interventions, intervening and evaluating. The first stage – investigating and analysing incidents – consists of the following steps: incident reporting, incident registration, determining the depth and scope of research, fact finding and incident analysis. If a step is not performed well, this is a serious obstacle in the learning process, leading to a loss of learning potential.

1.3 Blame culture

Firstly, we need to gain a better understanding of how a blame culture arises and to define precisely what it is. When a person’s self-image is endangered, he or she is strongly motivated to protect a positive self-image. One common way is to blame other people for his or her own failures in order to avoid admitting responsibility for an unwanted situation (Fast & Tiedens, 2009). This problem worsens when blame plays a prominent role in the shared culture of an organisation. Although several definitions exist, the working definition used here is that of Khatri et al. (2009), which defines a blame culture as ‘a set of norms and attitudes within an organization characterized by an unwillingness to take risks or accept responsibility for mistakes because of fear of criticism or management admonishment’. Such a culture fosters distrust and fear, and people blame each other to avoid being accused themselves. This results in a lack of inspiration, joy and creativity because people are terrified to make mistakes (Khatri et al., 2009).
There are many potential causes for the emergence of a blame culture. Reason (1997) think this is due to the high amount of individual autonomy in Western cultures. Western people are accustomed to searching for a victim to blame when an incident happens (Reason, 1997). Research by Cresswell et al. (2013) has demonstrated that medical education curricula do not familiarise students with patient safety theory and, more importantly, students do not receive practical training to develop their skills for constructively challenging unsafe practices. Instead, they are trained to make no mistakes and perform perfectly. This may seriously enhance the fear of taking responsibility for one’s own actions, which in turn encourages a blame culture (Mitchell, 2014).

A prevailing blame culture has devastating consequences for organisations. When it is present and incidents occur, the focus is on the person or people who caused the incidents instead of on the system that might be unsafe. Hereby, attention is diverted from the defects of the system (Kaissi, 2006). This is also referred to as a ‘person approach’, and is discussed further in the human error section. Another negative effect of a prevailing blame culture is that defensive medicine takes place more often. Defensive medicine occurs when a health care professional unnecessarily prescribes medication or does not perform important procedures in order to avoid a risk or damage claims from patients. This phenomenon is directly related to the growing threat of medical malpractice in recent years. Defensive medicine increases the cost of health care and may present a danger for patients (Catino, 2009). Another reason for blame culture’s detrimental impact on organisations is that it can lead to a decrease in compassion. In this way, a blame culture could endanger the achievement of an open work atmosphere with empathic interactions in organisations (Crawford, Brown, Kvangarsnes & Gilbert, 2014). These consequences constitute a serious threat to patient safety.

### 1.4 Just culture

An environment that supports openness to facilitate patient safety is often referred to as a just culture (Scott-Cawiezell et al., 2006). According to research by Sammer, Lykens, Singh, Mains and Lackan (2010), a just culture recognises errors as system failures, rather than individual failures, and does not hold individuals responsible for their actions. The following characteristics describe a just culture: full
commitment to patient safety, uninhibited reporting and identification of medication incidents, quick and detailed research on medication incidents, open communication and information sharing, effective learning after the medication incident has occurred, training in the field of patient safety and improving the quality of teamwork regarding safety (Kirk, Parker, Claridge, Esmail & Marshall, 2007). In a just culture environment, health care employees understand that they can talk openly about incidents and report them without being afraid of being punished. A just culture encourages health care employees to report incidents and truly learn from their mistakes. This also helps organisations gain insight into their errors and make improvements (Beyea, 2004). Edmonson (2004) has stated that employees being uncomfortable about speaking up with questions can compromise the safety of patients and render them much more vulnerable. According to Von Thaden, Hoppes, Li, Johnson and Schriver (2006), a just culture provides a safe environment in which trust is highly regarded. Moreover, it encourages employees for the conveyance of important safety-related information and makes a clear distinction between acceptable and unacceptable behaviour. Just as with a blame culture, a just culture is located within the entire safety culture of an organisation (Figure 2).

Figure 2. Representation of a just culture as the middle component between patient safety and a safety culture*

* Excerpted from Hoppes, et al. (2005)

1.5 Aspects of blame culture

On the basis of the literature, it is recognised that blame culture consists of various aspects, including: management, openness, speaking up, fairness, fear/trust and psychological safety. Blame culture is a major factor in medical reporting and
organisational learning, which in turn influences patient safety. It is assumed that person and system approaches greatly influence the various aspects of blame culture, and thus influence blame culture itself, medical reporting, and so on (Figure 3).

According to Khatri et al. (2009), there are clearly two ways of management – control-based and commitment-based – which result in different practices. The control-based approach assumes that people are incapable of self-regulating their behaviors, and they need constant guidance from the management. This has an adverse effect on the behavior of employees. For example, employees in the control-based approach follow orders from above and do not like to take any responsibility. The control-based approach does not enable learning, and therefore could unleash a vicious cycle in which an increasing frequency of medication incidents further strengthens the blame culture. The commitment-based approach is instrumental in creating a just culture (Khatri et al., 2009).

Research by Derickson, Fishman, Osatuke, Teclaw and Ramsel (2015) has indicated that psychological safety also fosters learning environments. Psychologically safe work environments give employees the feeling that they are free to ask questions, make suggestions, identify mistakes or seek feedback. More specifically, psychologically safe health care workplaces facilitate the reporting of
medication incidents by creating an environment where errors can be corrected without fear of the consequences. Gorini, Miglioretti and Pravettoni (2012) have stated that the fear of being blamed is assumed to be more damaging than beneficial because it evokes feelings of anxiety and constitutes a significant barrier to the reporting of medication incidents, which hinders possibilities for improvement.

The aforementioned aspects were identified as majorly impacting the existence of a blame culture, which in turn influences the reporting of medication incidents. The learning from incidents model by Drupsteen et al. (2013) has demonstrated that incident reporting is an essential part of organisational learning. Drupsteen et al. (2013) have noted that it is necessary to report an incident before it can be analysed. They have also asserted that some form of a reporting system is required to enable reporting, and that a just culture – or at least a blameless culture – should be present (Drupsteen et al., 2013). Waring (2005) has stated that the culture of blame constitutes a major barrier to incidents reporting. When the reporting of incidents is hindered, learning from mistakes is no longer possible, which has an inhibitory effect on patient safety (Khatri et al., 2009). The way in which the human error problem is addressed is also strongly linked with blame culture. This is discussed further in the next section.

1.6 The person and system approaches

There are two ways of addressing the human error problem: blaming the person and holding the system accountable. Each has a distinct way of error causation and a different idea of error management. These differences in error management have important practical implications for contending with the always-present risk of errors in health care. Proponents of the person approach focus on the unsafe acts, including errors and procedural violations, of the people concerned. These unsafe acts are seen as the cause of deviating mental processes, such as forgetfulness, inattention and recklessness (McCauley & Berkowitz Lerner, 1970). For example, data from the Australian Incident Monitoring Study, which is based upon 2,000 anaesthetic incidents, has identified the following as the most commonly contributing factors: misjudgement, equipment-related failures, inattention, inexpenience, communication problems and haste (Cooper, Newbower, Long et al., 1978). Psychological factors, such as inattention and recklessness, are hard to predict and control. In contrast, the
organisational factors that give rise to them are present before an incident occurs, and can therefore be effectively addressed (Reason, 2005). This is discussed further in the following sections.

Blaming individuals is emotionally more fulfilling than seeking defects in the institution. From this point of view, i.e. according to the person approach, people are able freely to choose between safe and unsafe acts. If an incident occurs, it is assumed that an individual or a group of individuals is responsible. It is vital for the management to view an individual’s unsafe acts independently of any organisational responsibility. Nevertheless, the person approach has serious weaknesses and is not well suited for the medical domain. One such shortcoming is that unsafe acts are isolated from their systemic context. For this reason, two key features of human error are often disregarded. First, human beings easily make mistakes. Second, mishaps often recur. Apart from the people involved, the same circumstances can cause similar mistakes. In this way, an approach that does not help to remove error-triggering gaps within the system hinders the achievement of greater safety (Reason, 2000).

Although some unsafe acts arise due to errors made by the people in an organisation, approximately 90% of lapses in maintaining planes – also a high-risk job – were determined to be unconscious (Marx, 1997). A reporting culture is crucial in the pursuit of effective risk management (Reason, 1997). A thorough analysis of incidents is necessary to detect recurring errors. Trust is considered the most defining aspect of a reporting culture, which itself requires a just culture (Marx, 1999). In view of this, developing a just culture is the first step to increasing safety. It seems that this must be accompanied by the system approach. An assumption in the system approach is that people are made in such a way that they easily make mistakes and, even in the best organisations, errors are to be expected. Errors are not considered as causes but as consequences (Reason, 2000).

1.7 The Swiss cheese model of system accidents

The system approach assigns high priority to barriers, defences and safeguards, which are present in high-technology systems. High-technology systems consist of three types of defensive layers: constructed layers (alarms, physical barriers, etc.), people-dependent layers (physicians, pilots, etc.) and defences that rely on procedures and administrative controls. These systems attempt to protect victims
from potential dangers. They normally succeed, but there are still major shortcomings. It would be ideal if each defensive layer would be undamaged; however, each layer instead has many holes, like slices of Swiss cheese (Stein & Heiss, 2015). Reason (1990) has presumed that these layers can be conceptualised as four levels of failure: organisational influences, unsafe supervision, preconditions for unsafe acts and the unsafe acts themselves. The holes are constantly changing places. A negative outcome happens when the holes in many layers form an incident opportunity, whereby potential dangers come into damaging contact with victims (Stein & Heiss, 2015). According to Reason’s Swiss cheese model, organisational safety can be improved by designing safeguards that are effective in preventing accidents and incidents (Peuscher & Groeneweg, 2012).

Almost all adverse events may be due to combinations of active failures and latent conditions. Active failures are unsafe acts that are often carried out by people who come into immediate contact with the system. Active failures directly affect the robustness of the defences. There are various distinguishable forms of active failures: mistakes, violations, slips and lapses. Mistakes are decision-making failures; they arise when a person does something wrong, believing it to be right. Violations are intentional failures. Slips and lapses occur with particularly familiar tasks that are performed without much conscious attention, e.g. driving. Proponents of the person approach often conclude their search for the causes of an adverse event once an individual is blamed for the unsafe acts. Latent conditions occur mostly as of management decisions. Management has a major impact on the design of a system’s safeguards. Latent conditions can contribute to errors within the workplace as a consequence of high time pressure, tiredness and incapacity. They can also contribute to the occurrence of holes in the defences due to unreliable alarms, design flaws and poor-working procedures. An accident opportunity arises easily once latent conditions combine with active failures. Active failures are incredibly difficult to anticipate. However, latent conditions can be identified and combated before an incident occurs. This is referred to as proactive error management (Reason, 2000).

1.8 Error management

The person and system approaches have their own method of error management. Research into human factors has always aimed to develop managing
and resolving errors. It has revealed two ways of managing unsafe acts: preventing dangerous errors and mitigating detrimental effects if they have occurred. Those are powerful tools, which are characteristic for the system approach. Proponents of the person approach, however, strive for management that renders individuals less fallible. But as noted earlier, blaming others hinders learning, and performance may therefore deteriorate. Most managers in organisations where the person approach is the dominant tradition strive to eliminate human fallibility as much as possible. For followers of the system approach, it is important to direct their management resources at multiple targets: the person, the team, the task, the workplace and the organisation (Reason, 2000).

High-reliability organisations are the main examples of a system approach. In high-reliability organisations, it is recognised that humans’ varying responses to changing events can be considered one of the system’s most important safeguards (Weick, 1987). High-reliability organisations are designed in such a way that they are resistant to all possible circumstances. Although high-reliability organisations expect and encourage various human responses, they also work tirelessly in striving for an attitude of intelligent wariness (Weick, Sutcliffe & Obstfeld, 1999). High-reliability organisations distinguish themselves by their main point of view that failure can arise anywhere, and at any time. They therefore train their employees to cope with the most difficult situations. Furthermore, they are protected from extreme external influences and have the resources to contend with potential danger at all levels of the organisation. Employees may be less careful, but the culture of a high-reliability organisation gives them the tools to help them remember. It is not that these organisations are immune to adverse events, but rather they have converted these incidents into enhanced defensibility of the system (Reason, 2000).

1.9 Summary and hypotheses

Medication incidents remain widespread and may have a major impact on patient safety. They can also result in hospitalisations. This has much to do with the lack of openness, trust, fairness, speaking up and psychological safety, poor medical reporting and poor organisational learning - aspects which are viewed as parts of a blame culture. This study has examined if there is a relationship between two approaches to the problem of human fallibility and blame culture. The human error
problem can be addressed in two ways: the person approach and the system approach. Adherence to the person approach does not contribute to a safer health care. On the other hand, adherence to the system approach does contribute to ensuring a just culture, and can thereby improve patient safety. The results of the study may help to enhance patient safety in health care organisations concerning medication. Because the questionnaire was recently developed, the first hypothesis (hypothesis 1) focuses on the internal consistency of the Medication Safety Culture Questionnaire (MSCQ). Hypothesis 2 relates to the construct validity of the person/system scale when it is used in health care organisations. The other three hypotheses (hypothesis 3, hypothesis 4 and hypothesis 5) regard the relationship between the person and system approaches and blame culture in health care organisations.

Hypothesis 1: The various scales of the MSCQ are internally consistent.

Hypothesis 2: The person/system scale is a constructually valid predictor of the two approaches of human fallibility in health care organisations.

Hypothesis 3: Participants report viewing their organisational culture as unsafe (blame culture) when they experience the person approach.

Hypothesis 4: Participants report viewing their organisational culture as safe (just culture) when they experience the system approach.

Hypothesis 5: There is a significant difference between scores on the various scales of the MSCQ for health care employees who experience the person approach and health care employees who experience the system approach.
2 Methods

2.1 Procedure

The revised online MSCQ was filled in by 97 health care employees who prescribe, administer and/or monitor medication. The minimum age for participation was 18 years old. The participants were recruited through personal contacts and social media. Other participants received an e-mail containing information about the research and the link to the online survey. Participants filled in the questionnaire by either following a link in an e-mail (when acquired through personal networks) or following a link on social media (when acquired through Facebook, Twitter or LinkedIn). Data collection was completely anonymous; the names of participants were not requested and the link to the questionnaire was not linked to their e-mail addresses. It took approximately 20 minutes to complete the questionnaire. The questions appeared in random order. Five €20 bol.com gift vouchers were raffled to randomly chosen participants who filled in their e-mail address after completing the survey. The data was explored from Qualtrics to the statistical analysis programmes SPSS (IBM Corp, Armonk, NY) and R (R Core Team).

2.2 Instruments

The quantitative data was collected by administering the MSCQ. This questionnaire was constructed based on the previously developed Blame/Just Culture Questionnaire and literature research on blame culture, human error and medication incidents registration. The questionnaire was developed for use in health care organisations where medication is prescribed, administered and/or monitored. The questionnaire contains 65 questions concerning blame culture, human error and medication incidents registration (Appendix 1). Various aspects of blame culture are addressed: management, fairness, fear/trust, openness, reporting, the person and system approaches, speaking up, psychological safety and organisational learning. These are discussed below. The questionnaire also includes questions about the CMR system. These questions were added because of additional research, and therefore are not taken into account in developing the blame culture/just culture questionnaire, which can be used in all health care organisations. Additionally, the questionnaire has one overriding question that measures the extent to which the participants perceive the culture in their departments as safe. All questions were combined in one online
survey made in Qualtrics (Qualtrics, Provo, UT). Qualtrics is online software that enables researchers to create surveys, send surveys with a specific link to participants and collect responses.

**Management** contains the management style within the team/department. Low scores on this scale are associated with a strong hierarchy, strict procedures, and close supervision by superiors.

**Reporting** contains the extent to which the culture within the team/department stimulates the reporting of medication incidents.

**Openness** contains the extent to which information is shared within the team/department when an incident occurs, and the extent to which incidents are discussed openly.

**Speaking up** contains the extent to which people within the team/department are stimulated to make suggestions for improving the existing system.

**Fairness** contains the extent to which people within the team/department are treated fairly.

**Fear/trust** contains the extent to which people within the team/department support each other in their work, and the extent to which people are scared to make mistakes.

**Person/system** contains the extent to which people within the team/department are focusing on the unsafe acts of the people concerned instead of looking for the cause in the defensibility of the system.

**Psychological safety** contains the extent to which the team/department is committed to improve patient safety.

**Learning** contains the extent to which previous incidents are analysed and improvements are implemented within the team/department.

### 2.3 Statistical analyses

The hypotheses were tested with the statistical analysis programmes SPSS and R. The variables were treated as interval variables, since the scales used in the questionnaire were based on a five-point Likert scale (Field, 2013). To test the first hypothesis, a **reliability analysis** was executed. Based on this analysis, the MSCQ was adjusted. The most frequently used internal consistency measure is **Cronbach’s $\alpha$**. Internal consistency measures the consistency of results across items within a test.
The various scales of the questionnaire are internally consistent when $\alpha$ is greater than .70 (Field, 2013). Items that weighed the Cronbach’s $\alpha$ down were moved to another scale when possible, or otherwise removed from the analysis. If an item that weighed the Cronbach’s $\alpha$ down did not load high on another scale, it was removed from the analysis. Items were removed when Cronbach’s $\alpha$ was less than .50.

A **principal component analysis (PCA)** was conducted to test whether the latent variable behind the items in the questionnaire was indeed blame culture. Hypothesis 2 stated that the person/system scale is a constructually valid predictor of the person and system approaches and, to test this assumption, **confirmatory factor analysis (CFA)** was executed by the statistical analysis program R. Confirmatory factor analysis tests whether the data fits the hypothesised measurement model (Figure 4). The hypothesised model is based on extensive literature research (Williams et al., 2010). The model assumes that person/system approach is the underlying construct behind the items in the person/system scale. By means of the chi-square test and absolute fits indices, it was determined how well the model fit to the data. The chi-squared test indicates the difference between observed and expected covariance matrices. Values closer to zero indicate a better fit. A comparative fit index (CFI) value of 0.95 or higher, and a goodness of fit index (GFI) value of over 0.90 is considered as an indicator of good fit. A root mean square error of approximation (RMSEA) value of 0.10 or less indicates a good fit (Brown, 2015).

![Blame Culture CFA Model](image)

*Figure 4. Hypothesized first-order CFA model of blame culture*
A simple regression analysis was executed to measure whether the person approach and system approach were related to blame culture/just culture (hypotheses 3 and 4). The dependent variable was blame culture/just culture and the independent variable was person approach/system approach. The analysis was executed on the means of the items contributing to each scale. The $R^2$ reflects how much variance of blame culture ($Y$) is explained by person/system approach ($X$). The ANOVA showed whether the model was significant by calculating the $F$ value. If the model was significant with $p$ less than .05, the null hypothesis could be rejected. If $X$ had a $p$ value greater than .05, this variable was likely to be a bad predictor of blame culture.

To test the fifth hypothesis, the participants were divided into two independent groups depending on whether they experience the person approach or the system approach. An independent sample t-test was conducted to compare the means of these two unrelated groups on the scales of the MSCQ. The independent sample t-test requires that the dependent variable is approximately normally distributed within each group. Some deviation away from normality does not have a large influence on Type 1 error rates, except when the ratio of the smallest to largest group size is greater than 1.5 (largest compared to smallest). The independent t-test assumes the variances of the two groups are equal in the population. The Levene’s $F$ test of equality of variances provides an $F$-statistic and a significance value ($p$-value). If the $p$-value is greater than 0.05, the group variances can be treated as equal (Field, 2013).
3 Results

3.1 Participants

The questionnaire was completed by 97 health care employees throughout the Netherlands. Table 1 provides an overview of the characteristics of the participants. The male/female division was 16/84%. This seems logical, given that it was mostly women working in the care sector. The participants were employed at a variety of institutions in the health care sector: pharmacies, hospitals, care centres, nursing homes, home care and drugstores. Only health care employees who prescribe, administer and/or monitor medication could participate, as the questionnaire also consisted of questions about the CMR. The educational backgrounds of participants ranged from medicine, nursing and doctor’s assistance to pharmacy and pharmaceutical assistance.

Table 1. Descriptive statistics of the participants

<table>
<thead>
<tr>
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<th>Males (n = 16)</th>
<th>Females (n = 81)</th>
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<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Age</td>
<td>41.69</td>
<td>14.56</td>
</tr>
<tr>
<td>Healthcare (y)</td>
<td>17.94</td>
<td>12.69</td>
</tr>
<tr>
<td>Position (y)</td>
<td>13.56</td>
<td>12.07</td>
</tr>
</tbody>
</table>

3.2 Reliability MSCQ and principal component analysis

The MSCQ had a Cronbach’s α of .869, which means that the reliability is considered good. Table 2 provides the Cronbach’s α for the total questionnaire and the different scales. The Cronbach’s alpha if item deleted indicates that the removal of items could increase the reliability. The number of participants remained the same (97).
Table 2. Cronbach’s alpha MSCQ

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>α</th>
<th>α if item deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total questionnaire</td>
<td>97</td>
<td>.885</td>
<td></td>
</tr>
<tr>
<td>Management</td>
<td>97</td>
<td>.167</td>
<td>.660 (Q25 and Q28)</td>
</tr>
<tr>
<td>Reporting</td>
<td>97</td>
<td>.566</td>
<td>.669 (Q33)</td>
</tr>
<tr>
<td>Openness</td>
<td>97</td>
<td>.809</td>
<td></td>
</tr>
<tr>
<td>Speaking up</td>
<td>97</td>
<td>.608</td>
<td>.706 (Q42)</td>
</tr>
<tr>
<td>Fairness</td>
<td>97</td>
<td>.790</td>
<td></td>
</tr>
<tr>
<td>Fear/trust</td>
<td>97</td>
<td>.766</td>
<td>.827 (Q55)</td>
</tr>
<tr>
<td>Person/system</td>
<td>97</td>
<td>.767</td>
<td>.800 (Q59 and Q60)</td>
</tr>
<tr>
<td>Safety</td>
<td>97</td>
<td>.728</td>
<td>.763 (Q70)</td>
</tr>
<tr>
<td>Learning</td>
<td>97</td>
<td>.847</td>
<td></td>
</tr>
</tbody>
</table>

A principal component analysis was conducted to check whether blame culture is the underlying construct behind the items in the questionnaire. The sample size was considered too small to perform a factor analysis (N = 97). However, the Kaiser-Meyer-Olkin measure was .758, which indicates that the sampling is meritorious, and that it is worth doing a principal component analysis despite the small sample size. Bartlett’s test of sphericity was significant ($x^2 = 3464.444; \text{df} = 1431, p < .001$). For factor analysis to be recommended suitable, the Bartlett’s test of sphericity must be less than .05. The unrotated solution was used, which showed fifteen components with an eigenvalue higher than one. Based on the scree plot, the solution could have only one component (Figure 5). The first component included many items of all various scales. It is striking that the principal component had a very large eigenvalue, which means that that component explains most of the variance.
Figure 5. Scree plot of the principal component analysis of the blame culture questionnaire.

Based on the reliability analysis and principal component analysis, the scales of the questionnaire were adjusted. Items that did not fit with the current scales were checked on content and fit with items from another scale. Only one item was moved to another scale, as noted in Table 3. The items Q25, Q28, Q33, Q42, Q55, Q59 and Q60 were deleted from the questionnaire, as these items did not seem to fit to any of the scales according to the reliability analysis and principal component analysis. The item Q70 was moved to the management scale. This item is about what can be done to improve patient safety. This makes sense, as major changes often come from the management side rather than from the employees. The Cronbach’s alpha remained the same for openness ($\alpha = .809$), fairness ($\alpha = .790$) and learning ($\alpha = .847$), and was improved for the other scales. This also applies to the total questionnaire ($\alpha = .905$).
Table 3. Cronbach’s alpha of the final version of the MSCQ

<table>
<thead>
<tr>
<th></th>
<th>α</th>
<th>Items deleted</th>
<th>Items added</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total questionnaire</td>
<td>.905</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management</td>
<td>.694</td>
<td>Q25 and Q28</td>
<td>Q70</td>
</tr>
<tr>
<td>Reporting</td>
<td>.669</td>
<td>Q33</td>
<td></td>
</tr>
<tr>
<td>Openness</td>
<td>.809</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speaking up</td>
<td>.706</td>
<td>Q42</td>
<td></td>
</tr>
<tr>
<td>Fairness</td>
<td>.790</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fear/trust</td>
<td>.827</td>
<td>Q55</td>
<td></td>
</tr>
<tr>
<td>Person/system</td>
<td>.800</td>
<td>Q59 and Q60</td>
<td></td>
</tr>
<tr>
<td>Safety</td>
<td>.763</td>
<td>Q70</td>
<td></td>
</tr>
<tr>
<td>Learning</td>
<td>.847</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4 presents the final descriptive statistics of the questionnaire. Without the questions about the CMR and after removal of items based on the results of the reliability analysis 38 items remain. The Kolmogorov-Smirnov tests were significant for the total questionnaire and its scales. Therefore, it was assumed that the population is not normally distributed. This is in line with the skewness and kurtosis of the various scales.

Table 4. Descriptive statistics of the MSCQ

<table>
<thead>
<tr>
<th></th>
<th>α</th>
<th>items</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>Sk</th>
<th>Kurtosis</th>
<th>KST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total questionnaire</td>
<td>.905</td>
<td>38</td>
<td>97</td>
<td>2.111</td>
<td>.611</td>
<td>.470</td>
<td>-.628</td>
<td>.105*</td>
</tr>
<tr>
<td>Management</td>
<td>.694</td>
<td>4</td>
<td>97</td>
<td>2.487</td>
<td>.730</td>
<td>.665</td>
<td>.164</td>
<td>.166***</td>
</tr>
<tr>
<td>Reporting</td>
<td>.669</td>
<td>4</td>
<td>97</td>
<td>2.255</td>
<td>.901</td>
<td>.558</td>
<td>-.319</td>
<td>.121**</td>
</tr>
<tr>
<td>Openness</td>
<td>.809</td>
<td>4</td>
<td>97</td>
<td>2.134</td>
<td>.907</td>
<td>.404</td>
<td>-.875</td>
<td>.139***</td>
</tr>
<tr>
<td>Speaking up</td>
<td>.706</td>
<td>3</td>
<td>97</td>
<td>2.560</td>
<td>.893</td>
<td>-.164</td>
<td>-.595</td>
<td>.111**</td>
</tr>
<tr>
<td>Fairness</td>
<td>.790</td>
<td>3</td>
<td>97</td>
<td>1.735</td>
<td>.812</td>
<td>1.217</td>
<td>.818</td>
<td>.241***</td>
</tr>
<tr>
<td>Fear/trust</td>
<td>.827</td>
<td>5</td>
<td>97</td>
<td>1.950</td>
<td>.798</td>
<td>1.076</td>
<td>.461</td>
<td>.196***</td>
</tr>
<tr>
<td>Person/system</td>
<td>.800</td>
<td>8</td>
<td>97</td>
<td>2.278</td>
<td>.712</td>
<td>.802</td>
<td>.628</td>
<td>.094*</td>
</tr>
<tr>
<td>Safety</td>
<td>.763</td>
<td>3</td>
<td>97</td>
<td>1.619</td>
<td>.674</td>
<td>1.044</td>
<td>.757</td>
<td>.213***</td>
</tr>
<tr>
<td>Learning</td>
<td>.847</td>
<td>4</td>
<td>97</td>
<td>1.992</td>
<td>.823</td>
<td>.654</td>
<td>-.260</td>
<td>.117**</td>
</tr>
</tbody>
</table>

*p = < .05, ** p = < .01, *** p = .001
3.3 Confirmatory factor analysis MSCQ

To test whether the data fit the hypothesised model, a CFA was executed. The assumption of a CFA that a sufficient sample size should be greater than \( N = 200 \) was violated. The adjusted model was used, which was based on the adaptations that resulted from the reliability analysis (Table 3). The fit indices indicate that the adjusted model does not have a good fit to the data. The chi-square test was significant \( (\chi^2 = 1113.480; \text{df} = 629, p < .001) \) and the CFI, NNFI and RMSEA respectively had values of .758, .730 and .089. Only the RMSEA was on the verge of a sufficient fit. Another confirmatory factor analysis was conducted to test whether person/system approach is the latent variable behind the questions in the person/system scale (Hypothesis 2). The chi-square test was significant \( (\chi^2 = 35.194; \text{df} = 14, p < .05) \). CFI was .886, NNFI was .830 and RMSEA was .125. Again, this points to a poor-fitting model. All items theoretically connected with the person/system scale loaded above .40. According to Hatcher (1994), factor loadings above .40 are meaningful, so this means that the items belong to this scale.

3.4 Relationship person/system approach and blame culture

To determine the relationship between the score on the person/system scale and the score on the blame culture questionnaire (management, reporting, openness, speaking up, fairness, fair/trust, psychological safety and learning), a simple regression analysis was executed using the enter method. All assumptions of simple linear regression were met. The model was linear and exhibited homoscedasticity. Errors were independent and normally distributed. The Durbin-Watson value was 2.183. None of the participants were excluded \( (N = 97) \). Person/system approach correlates positively with blame culture \( (r = .741, p = < .001) \). The ANOVA was significant \( (F = 115.74; \text{df} = 1.95, p = < .001) \). This meant that the score on the person/system scale was a significant, positive predictor of the score on the blame culture questionnaire. \( R^2 \) was .549, indicating that 54.9% of the variance in the score on the blame culture questionnaire could be predicted from the score on the person/system scale.
3.5  **Comparing the person and system approach groups**

To compare the means of participants who experienced the person approach (N = 18) and participants who experienced the system approach (N = 79), the cases are divided into two groups based on the cut point. For the given cut point 3 (the middle option on the 1 to 5 scale), the new categories are group 1 (≥ 3) and group 2 (< 3). First, the assumptions of the independent sample t-test were checked. Levene’s test of homogeneity of variances was not significant for the scales, except for fear/trust. This meant that the assumption of homogeneity of variances was in most of the cases not violated. Violation of the assumption was corrected by using the Welch-Satterthwaite method. The plot below is a check on normality; the plotted points should follow the straight line. Serious departures would suggest that normality assumption is not met. But there is no major cause for concern (Figure 6). After checking the assumptions, an independent sample t-test was executed. The participants were excluded analysis by analysis. The results of the independent sample t-test are presented in Table 5.

![Normal P–P Plot of Regression Standardized Residual](image)

*Figure 6. Normal P-P plot of the total mean score on the blame culture questionnaire and the person/system scale.*
## Table 5. Independent sample t-test

<table>
<thead>
<tr>
<th></th>
<th>Person approach</th>
<th>System approach</th>
<th>t-test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>Total questionnaire</td>
<td>2.89</td>
<td>.41</td>
<td>2.10</td>
</tr>
<tr>
<td>Management</td>
<td>2.98</td>
<td>.53</td>
<td>2.63</td>
</tr>
<tr>
<td>Reporting</td>
<td>2.58</td>
<td>.67</td>
<td>2.33</td>
</tr>
<tr>
<td>Openness</td>
<td>2.81</td>
<td>.76</td>
<td>1.98</td>
</tr>
<tr>
<td>Speaking up</td>
<td>3.14</td>
<td>.60</td>
<td>2.39</td>
</tr>
<tr>
<td>Fairness</td>
<td>2.63</td>
<td>.77</td>
<td>1.52</td>
</tr>
<tr>
<td>Fear/trust</td>
<td>2.94</td>
<td>.82</td>
<td>2.07</td>
</tr>
<tr>
<td>Safety</td>
<td>2.68</td>
<td>.67</td>
<td>1.97</td>
</tr>
<tr>
<td>Learning</td>
<td>2.78</td>
<td>.83</td>
<td>1.81</td>
</tr>
</tbody>
</table>

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

There was no significant difference between the person approach group and the system approach group on the total questionnaire. Only the score on fear/trust differed significantly between the two groups. The person approach group had a higher mean on the fear/trust scale (Mpa = 2.94, SDpa = .82 and Msa = 2.07, SDsa = .58). The results of the t-test are inconsistent with the results of the regression analysis. This is explained in the next section.
4 Discussion

4.1 Discussion

This research has tested the reliability and construct validity of the recently adjusted blame culture questionnaire in health care organisations. It has also examined whether there is a relationship between the person and system approaches and blame culture. The first hypothesis stated that the various scales of the MSCQ are internally consistent. The results did support this hypothesis, since the reliability of the total questionnaire was considered good. Therefore, the total questionnaire seems to measure the same concept, but it did not capture every aspect of blame culture. The questionnaire was based on the most recent literature on blame culture, human error and medication incidents registration, but it is likely that the current research does not completely identify the complete definition of a blame culture. It is clear, however, that blame culture consists of several aspects, including management, reporting, fear/trust, openness, speaking up, fairness, person/system, psychological safety and learning. The reliability of the openness, fairness, person/system and learning scales were considered high. The Cronbach’s alpha for the rest of the scales was around .60 and .70 out of 100, which can be considered sufficient.

The second hypothesis assumed that the person/system scale is a valid predictor of the two approaches of human fallibility in health care organisations. This was tested with a confirmatory factor analysis. It revealed that the person/system scale is not a valid predictor of the person and system approaches. The fit indices of the CFA evidence that the hypothesised model does not have a sufficient fit to the data. This means that the person/system scale is still incomplete, but that on the basis of the factor loadings, no items on this scale should be removed. The total questionnaire is also not complete yet since the fit indices again indicated a poor model fit. There might be other aspects that were not mentioned in the literature that also play a role in blame culture, for example the interplay between team members. To date, only the influence of the manager on the team was taken into account. It is quite possible that the interplay between colleagues also plays a major role in determining the quality of the safety culture in their team/department.

The third and fourth hypotheses stated that the score on the person/system scale is related to the score on the MSCQ. The results support these hypotheses.
However, although a low score on the person/system scale (which indicates that there is a prevailing system approach) was strongly linked to a low score on the blame culture questionnaire, this does not necessarily mean that it is linked to a just culture, since it is not certain that a just culture is the opposite of a blame culture. Therefore, hypothesis four cannot be adopted yet. The score on the person/system scale is a significant predictor of the score on the blame culture questionnaire, since the person/system scale predicted 54.9% of the variance in the score on the blame culture questionnaire. This means that the person/system scale is a key predictor of blame culture, but there are also other related causal aspects. This accords with the research of Reason (2000), which mentions that the decoupling of a person’s unsafe acts from the responsibility of the organisation is in the interest of managers in most organisations with a prevailing person approach. This means that if there is an accident, a person or a group of people must have been responsible. Khatri et al. (2009) have stated that the unwillingness to accept responsibility for mistakes due to a fear of criticism or admonishment from management is the main characteristic of a blame culture. From both the literature and the results of this research, it becomes obvious that the person approach is strongly linked to blame culture.

Hypothesis 5 stated that participants who experienced the person approach and participants who experienced the system approach had a significantly different score on the various scales of the blame culture questionnaire. This is only confirmed for the fear/trust scale. The significant difference between the two groups on fear/trust is supported by the research of Gorini, Miglioretti and Pravettoni (2012). These authors state that a blame culture is not only caused by blaming each other, but may also be due to fear of being blamed. According to Reason (2000), the person approach is the most common method of error management among health care organisations. People are scared to make mistakes, as an individual or group of individuals is held responsible for unsafe acts. The two groups did not differ significantly from each other on the management scale. This may be because compliance with strict procedures within an organisation can be either negative or positive. The non-significant difference for the speaking up scale can be explained by the fact that the extent to which people are stimulated to make suggestions for improvement is not only dependent on the extent to which they experience a blame culture, but also on individual personality. It is remarkable that the mean scores for the person approach were higher on all aspects than the mean scores for the system approach, implying
that there is a difference between the two groups. The reason why the groups did not differ significantly on most of the scales is probably because the group sizes differ greatly. As the person approach group was much smaller than the system approach group, the statistical power of the research was affected.

4.2 Limitations and recommendations

For a correct interpretation of the research results, it is necessary to draw attention to the limitations of this research. Data were obtained by a self-reporting questionnaire. Because the questionnaire was filled in anonymously, it was therefore impossible to discourage socially desirable responses. Furthermore, the group of participants varied widely in position and number of years employed in the health sector. The downside of this is that participants within the sample still differ greatly from each other. It is remarkable that all participants have completed the questionnaire. This could be due to the length of the questionnaire. On average, it took the participants in the sample 20 minutes to fill in the questionnaire.

This study has revealed that the adjusted version of the questionnaire was still incomplete; there are likely other aspects of blame culture that need to be taken into account. Follow-up research should focus on those aspects with an uncertain relation to blame culture, e.g. the interplay between team members. The questionnaire should be further adjusted on the basis of the recommendations in this study and advance research in the area of blame culture. After all, the questionnaire should be tested again in the health care sector. Because the quality of the questionnaire is still relatively undetermined, the research results should be interpreted with care. Since it is also uncertain whether a just culture is the exact opposite of a blame culture, further work is therefore needed to research the link between blame culture and just culture.

Furthermore, the scores on the person/system scale were close to the cut point in many cases. This indicates that there was often a small difference between the two groups. Thus, it is difficult to compare them with each other. This perhaps also explains why there was only a significant difference between the two groups on the fear/trust scale. For instance, if only the “fully agree” (1-2) and “fully disagree” (4-5) responses are taken into account, it is expected that a significant difference between the groups will be found; at least on the score of the total questionnaire. But average responses are then excluded and neglected which reduces the total number of
participants. A larger sample size would have been preferable in this case. The sample size was particularly problematic in the performance of the CFA. Typical CFA models with several factors and indicators require a minimum sample of 200. In the case of a small sample size, major discrepancies are still not significant, and relatively poor models are therefore not quickly rejected. Larger samples produce larger chi-squares that are significant even with very small discrepancies between the obtained and the implied covariance matrices (Wolf, Harrington, Clark & Miller, 2013).

Despite the fact that the person/system scale was not constructually valid, the results of the CFA were not extremely bad for such a small sample size. The regression analysis demonstrated that approximately 50% of the variance in score on the blame culture questionnaire is predicted by the person/system scale. This supports the conclusion that the person/system scale is a notable predictor of blame culture in the health care sector. So, it is worthwhile to undertake more research into the area of human error and the two methods of error management. This can contribute positively to the reliability and validity of the scale. It would then be possible to estimate with more certainty whether a person within a team/department experiences the person approach or the system approach.

4.3 Conclusion

The safety culture in health care organisations has a major impact on the reporting of medication incidents, and accordingly influences patient safety. Despite the high reliability of the questionnaire, the model behind it is still incomplete. The current questionnaire includes important aspects of blame culture, but it does not identify the definition of a blame culture completely. It is imperative to continue searching for aspects that may influence blame culture. These can be used to further adjust the current version of the questionnaire, which enables health care organisations to examine whether there is a prevailing blame culture within the team/department. Obviously, a flaw must first be demonstrated before any improvements can be considered. A complete and valid questionnaire can therefore play a major role in improving patient safety.

Based on data received from the current questionnaire, a significant, positive correlation was found between the person and system approaches and blame culture in health care organisations, and approximately half of the variance of blame culture
is explained by person/system approach, so it can be concluded that the person and system approaches are key predictors of blame culture. This accords with the hypotheses that participants reported viewing their organisational culture as unsafe (blame culture) when they experienced the person approach, and as safe (no-blame culture) when they experienced the system approach. Reason (2000) has confirmed this, and has further explained that cultural characteristics of high-reliability organisations could be imported into the health care sector. Further research should focus on the implications of this for the health care domain and determine which improvements can be made to achieve a just culture.
References


Khatri, N., Brown, G. D., & Hicks, L. L. (2009). From a blame culture to a just


Appendix 1  Safety Medication Culture Questionnaire (MSCQ)

Vragen over de CMR (Questions about the CMR)
Sinds 2009 kunnen medicatie-incidenten worden gemeld bij de Centrale Medicatie-incidenten Registratie (CMR). Het doel van de CMR is om medicatie-incidenten te voorkomen en daarmee de patiëntveiligheid te vergroten. De volgende vragen gaan over uw persoonlijke gebruik van de CMR, en dat van uw team of afdeling.

Hoe vaak heeft u de afgelopen vijf jaar een incident gemeld bij het CMR?

Wanneer u korter dan vijf jaar met medicatie werkzaam bent, vragen wij u uw gemiddelde per jaar te vermenigvuldigen met vijf. (Q10)

Hoe vaak heeft u de afgelopen vijf jaar een medicatie-incident meegemaakt? (Q12)

Hoeveel keer per jaar doet uw team of afdeling een melding bij de CMR? (Q14)

Hoeveel keer per jaar doet een medicatie-incident zich voor binnen uw team of afdeling? (Q15)

In mijn team/op mijn afdeling wordt veel aandacht besteedt aan medewerkers bekendmaken met de CMR. (Q16)

In mijn team/op mijn afdeling is voldoende kennis aanwezig om effectief gebruik te maken van de CMR. (Q18)

In mijn team/op mijn afdeling zijn alle medewerkers goed in staat om een medicatie-incident te herkennen. (Q 19)

Wanneer medicatie-incidenten zich voordoen in mijn team/op mijn afdeling worden medewerkers voldoende op de hoogte gesteld van waar en hoe zij dit kunnen melden. (Q20)
Als ik een medicatie-incident zou meemaken, weet ik niet goed hoe ik een melding moet maken bij de CMR. (Q21)

**Management**

In mijn team/op mijn afdeling is er ruimte om kritiek te leveren op de ideeën van het management. (Q23)

In mijn team/op mijn afdeling zijn er strikte procedures en richtlijnen die bepalen hoe er gewerkt dient te worden. (Q25)

In mijn team/op mijn afdeling is er sprake van een sterke hiërarchie. (Q26)

De leidinggevenden van mijn afdeling/team handelen integer. (Q27)

Mijn leidinggevende(n) zijn goed benaderbaar voor vragen, suggesties en/of zorgen. (Q24)

In mijn team/op mijn afdeling houden leidinggevenden strikt toezicht op de uitvoering van werkzaamheden. (Q28)

**Rapporteren (Reporting)**

In mijn team/op mijn afdeling worden de meeste medicatie-incidenten gemeld. (Q29)

Mijn direct leidinggevende stimuleert me om medicatie-incidenten te melden. (Q31)

Medicatie-incidenten die zich binnen mijn team/op mijn afdeling voordoen, worden door de betrokkene(n) zelf gemeld. (Q32)

Medicatie-incidenten die zich binnen mijn team/op mijn afdeling voordoen, worden door anderen gemeld. (Q33)
In mijn team/op mijn afdeling worden veel medicatie-incidenten niet gerapporteerd. (Q34)

**Openheid (Openness)**
In mijn team/op mijn afdeling worden zorgverleners voldoende op de hoogte gesteld wanneer medicatie-incidenten zich voordoen. (Q36)

In mijn team/op mijn afdeling blijven we geïnformeerd over de afhandeling van gemelde medicatie-incidenten. (Q38)

Wanneer medicatie-incidenten zich voordoen in mijn team/op mijn afdeling nemen betrokkenen de verantwoordelijkheid op zich. (Q39)

In mijn team/op mijn afdeling worden medicatie-incidenten openlijk besproken. (Q40)

**Zich uitspreken (Speaking up)**
Ik doe regelmatig suggesties voor veranderingen om medicatie-incidenten te voorkomen. (Q42)

In mijn team/op mijn afdeling worden Weinig suggesties gedaan om medicatie-incidenten te voorkomen. (Q44)

In mijn team/op mijn afdeling wordt het gestimuleerd om zorgen en/of suggesties over de uitvoering van werkzaamheden te delen. (Q45)

In mijn team/op mijn afdeling wordt Weinig gedaan met suggesties om medicatie-incidenten te voorkomen. (Q46)

**Eerlijkheid/rechtvaardigheid (Fairness)**
In mijn team/op mijn afdeling worden mensen die een medicatie-incident melden rechtvaardig behandeld. (Q47)
In mijn team/op mijn afdeling krijgen medewerkers regelmatig de schuld van andermans fouten. (Q48)

In mijn team/op mijn afdeling gelden voor iedereen dezelfde regels. (Q49)

**Angst/vertrouwen (Fear/trust)**
In mijn team/op mijn afdeling heerst een vertrouwenssfeer. (Q50)

In mijn team/op mijn afdeling wordt goed samengewerkt. (Q51)

In mijn team/op mijn afdeling mogen fouten gemaakt worden. (Q52)

In mijn team/op mijn afdeling worden medicatie-incidenten niet gemeld uit angst voor eventuele negatieve gevolgen (Q53).

In mijn team/op mijn afdeling ondersteunt men elkaar in het uitvoeren van de werkzaamheden. (Q54)

In mijn team/op mijn afdeling worden erg hoge verwachtingen gesteld. (Q55)

**Person/system**
In mijn team/op mijn afdeling wordt ervan uitgegaan dat mensen feilbaar zijn en dat er fouten gemaakt kunnen worden. (Q56)

In mijn team/op mijn afdeling word ik en/of mijn collega’s vaak beschuldigd van dingen zoals onoplettendheid, vergeetachtigheid en roekeloosheid. (Q57)

Wanneer medicatie-incidenten zich voordoen in mijn team/op mijn afdeling wordt de oorzaak gezocht in fouten in de procedures/beschermingsmaatregelen. (Q58)
Wanneer medicatie-incidenten zich voordoen in mijn team/op mijn afdeling worden de werkomstandigheden sterk aangescherpt. (Q59)

Wanneer medicatie-incidenten zich voordoen in mijn team/op mijn afdeling wordt de oorzaak gezocht in fouten van en/of overtredingen door medewerkers. (Q60)

Wanneer medicatie-incidenten zich voordoen in mijn team/op mijn afdeling worden de volgende maatregelen genomen: campagnes die angstgevoelens oproepen, disciplinaire maatregelen, omscholing, de schuld geven en/of dreigen met een rechtszaak. (Q61)

Wanneer medicatie-incidenten zich voordoen in mijn team/op mijn afdeling wordt er eerder gekeken naar waarom de procedures hebben gefaald dan naar wie er een steek heeft laten vallen. (Q62)

In mijn team/op mijn afdeling worden beschermingsmaatregelen genomen om het risico te verkleinen dat vergissingen, onoplettendheid en/of overtredingen van medewerkers tot medicatie-incidenten leiden. (Q63)

Wanneer medicatie-incidenten optreden in mijn team/op mijn afdeling wordt ervan uit gegaan dat iemand van het personeel verantwoordelijk is. (Q64)

**Veiligheid (Psychological safety)**

In mijn team/op mijn afdeling staat patiëntveiligheid hoog in het vaandel. (Q65)

In mijn team/op mijn afdeling wordt veel gedaan om de patiëntveiligheid te verbeteren. (Q67)

Wanneer medewerkers in mijn team/op mijn afdeling hun werkzaamheden uitvoeren op een manier die ten koste gaat van de patiëntveiligheid worden zij hierop aangesproken. (Q69)
In mijn team/op mijn afdeling zou meer gedaan kunnen worden om de patiëntveiligheid te verbeteren. (Q70)

**Leren (Learning)**
In mijn team/op mijn afdeling zijn we actief bezig om medicatie-incidenten te voorkomen. (Q71)

In mijn team/op mijn afdeling worden medicatie-incidenten besproken om te voorkomen dat ze in de toekomst weer gebeuren. (Q72)

In mijn team/op mijn afdeling hebben de evaluaties van eerdere medicatie-incidenten tot positieve veranderingen geleid. (Q73)

Wanneer medicatie-incidenten zich voordoen in mijn team/op mijn afdeling wordt vaak oplossingsgericht gedacht. (Q77)