

# CONCEPTUALIZING BARRIERS TO INCIDENT REPORTING: A PSYCHOLOGICAL FRAMEWORK

Yvonne Pfeiffer  
PhD Student  
ETH Zurich / ZOA  
Kreuzplatz 5, CH-8032 Zurich  
+41 44 632 7071  
ypfeiffer@ethz.ch

Simon Foster  
Research Assistant  
ETH Zurich / ZOA  
Kreuzplatz 5, CH-8032 Zurich  
+41 44 632 7071  
sfoster@ethz.ch

Matthias Briner  
PhD Student  
ETH Zurich / ZOA  
Kreuzplatz 5, CH-8032 Zurich  
+41 44 632 7071  
mbriner@ethz.ch

Theo Wehner  
Professor  
ETH Zurich / ZOA  
Kreuzplatz 5, CH-8032 Zurich  
+41 44 632 70 88  
twehner@ethz.ch

Tanja Manser  
Senior Researcher  
ETH Zurich / ZOA  
Kreuzplatz 5, CH-8032 Zurich  
+41 44 632 8407  
tmanser@ethz.ch

## TOPICS

Accidents/incidents reporting systems and organizational learning, development of a psychological framework of factors influencing physicians' and nurses' willingness to report incidents and barriers to reporting

## KEYWORDS

Barriers to report incidents, Incident Reporting Systems, underreporting, willingness to report

## 1. INTRODUCTION

In healthcare and other industries Incident Reporting Systems (IRS) are widely considered effective instruments to learn from incidents, errors and near-misses (e.g. Runciman et al., 1993). However, 'underreporting' is a major problem of IRS (e.g. Stanhope et al. 1999). Numerous studies investigating barriers to incident reporting have led to recommendations concerning the design and application of IRS. But still, the relationship between barriers and reporting behavior is not well understood from a psychological perspective, and thus requires further investigation.

### 1.1 Aims of the Study

This study aimed at developing a psychological framework for barriers to incident reporting. Such a framework provides an important theoretical basis for further empirical studies on barriers to incident reporting in healthcare settings and beyond.

## 2. METHODOLOGY

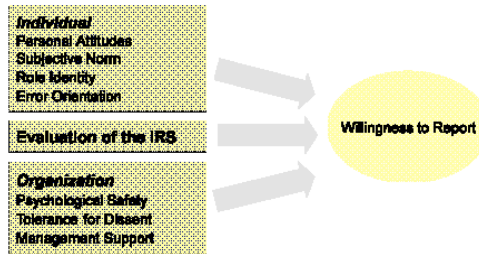
Based on a literature review, a broad spectrum of barriers to incident reporting was identified. In a first step, these barriers were systematically sorted into thematic groups. For example, many barriers listed in literature referred to design characteristics of the IRS and its evaluation by potential users. Thus, we included "IRS characteristics" into the model. In a second step, the thematic groups of barriers were assigned to psychological concepts describing motivational antecedents of reporting

behavior and organizational factors relevant to reporting behavior. In a third step, we included additional psychological concepts because the focus of this research was to provide a *psychological* framework explaining clinicians' reporting behavior. These concepts were assumed to be relevant to reporting behavior but were not yet mentioned in the literature concerning barriers to incident reporting.

The resulting clusters of barriers were then integrated into a framework illustrating the expected relationships between barriers and reporting behavior. As this framework serves as basis for an empirical study, it was important that all barriers and concepts integrated in the model could be measured. Thus, we conceptualized reporting behavior by using the subjectively measure of 'willingness to report' (Edmondson, 1996).

## 3. RESULTS

The framework describes individual, organizational, and IRS characteristics that are hypothesized to influence clinicians' willingness to report (see figure 1). In the following, the concepts and their proposed influence on the willingness to report will be described.



**Figure 1. Psychological Framework on Factors Influencing the Willingness to Report Incidents**

## 3.1 Individual Level

### 3.1.1 Personal Attitude and Expectation of Others

An individual's motivation to (not) report an incident was conceptualized adopting Fishbein and Ajizens' theory of reasoned action that differentiates between 'personal attitude' and 'subjective norm' influencing the intention to execute a behavior (Fishbein & Ajizens, 1975). The stronger the intention, the more the individual will strive for executing the corresponding behavior and the more likely the behavior will be executed.

*Personal attitude:* The personal attitude towards a specific behavior consists of beliefs about possible consequences of the behavior. The personal valuation of the consequences is weighted by their probability. For example, the personal attitude towards reporting an incident can be influenced by the belief that it is very likely that colleagues or leaders will question the reporter's clinical competence after the report (i.e. a consequence with a negative value). Barriers identified from the literature review – like the fear of being blamed or not feeling responsible for reporting – are conceptualized in our model as a 'personal attitude'.

*Subjective norm:* The subjective norm implies the perceived expectations of relevant others (e.g. colleagues, leaders), combined with the individual's motivation to behave according to these expectations. Thus, the intention (willingness) to report an incident can be influenced by the perception that relevant others within the organization (e.g. the supervisor) expect a person to do so. This perception only becomes relevant, if the person is in fact willing to comply with those expectations of others.

### 3.1.2 Role Identity

In order to account for the fact that incident reporting is a behavior that is ideally exhibited repeatedly and not only once, role identity theory (Piliavin et al. 2002) has been integrated into the model. Piliavin et al. (2002) analyse different role-identities to understand the (non-) reporting of incidents in healthcare. In general, role identity is developed when the role associated with a position in a social network has been internalized to become part of the self. Grube and Piliavin (2000) draw attention to the fact that different role identities may conflict and, thus, distinguish between a general role identity (i.e. 'nurse') and organization-specific role identity (i.e. 'hospital employee'). Based on these findings, we hypothesized, that clinicians' general role-identity as 'nurse' or 'physician' and their specific role-identities as a member of their team and as an employee of their hospital influence their willingness to report incidents. For example,

although the hospital fosters the reporting of incidents (applying to the 'general role identity'), employees may not report incidents because they feel committed their team and fear negative consequences for their team (as a result of the specific role identity as team member).

### 3.1.3 Error Orientation

As IRS aim at fostering the learning from errors and near-misses (i.e. incidents), the subjective view of the employees on errors and near-misses becomes relevant. Rybowskiak et al. (1999) argue that an organization can easier learn from errors when there is a positive attitude towards errors. In the framework we expect that specifically the following error orientation dimensions are important for the handling of errors and near-misses thus for the reporting of incidents: a) the assumption that one can learn from errors and b) the tendency to (not) cover up errors.

## 3.2 Organizational Level

Besides individual factors influencing the decision to report incidents, organization characteristics play a crucial role for the willingness to report incidents. We hypothesised that three organizational-level factors influence the willingness to report: psychological safety, tolerance for organizational dissent, and management support for patient safety.

### 3.2.1 Psychological Safety

Psychological safety, i.e. the extent to which employees are at ease to bring up own ideas and errors, is has been shown to influence reporting behavior (Edmondson, 2004).

Edmondson highlights the importance of establishing a positive, creative climate in which employees can talk about their errors and incidents in order to learn from them. In addition, Carmeli (2007) identified a positive relationship between psychological safety and learning from errors. Originally, the concept 'psychological safety' was developed for the individual or team level, Brown and Leigh (1996) adapted it to the organizational level.

### 3.2.2 Tolerance for Organizational Dissent

Organizational dissent describes the phenomenon of speaking up and bringing up tough issues or a personal view which is not conform to established practices (Shahinpoor & Matt, 2007). On the one hand, an IRS offers the possibility to express one's own opinion. On the other hand, organizations may react to organizational dissent in a positive or negative way. The extent to which an employee perceives freedom of speech and the possibility to contradict or challenge established procedures and management practices is conceptualized as the degree of 'tolerance for organizational dissent' within an organization (Kassing, 2001). Based on this concept, we hypothesized that individuals perceiving that their organization is tolerant to dissent are more willing to report incidents.

Piliavin et al. (2002) found that formal dissent procedures and protection for dissenters enhance incident reporting by nurses. IRS providing the possibility to report anonymously can be regarded as a formal dissent procedure as long as the users trust in the anonymity of the system protecting the dissenter. Therefore,

we assume that the willingness to report decreases when employees do not believe in the anonymity of the system. However, we expect this relationship to be moderated by perceptions of psychological safety and tolerance for organizational dissent.

### 3.2.3 Management Support for Patient Safety

In patient safety literature, leadership with regard to patient safety issues is considered a crucial success factor for the reporting of incidents (Pronovost et al., 2006). Thus, employees' perceptions of management support for patient safety were integrated in the framework.

Both, psychological safety and tolerance for organizational dissent are regarded as strongly influenced by leadership behavior. Thus, a general perception on leadership behavior was not included in the framework. Instead, we focused on a specific aspect of leadership: management support for activities fostering patient safety. We hypothesize that employees perceiving their management as being active in enhancing patient safety and fostering the reporting of incidents, are more willing to report.

## 3.3 Evaluation of the IRS

In reviewing the literature on barriers to incident reporting, it became obvious that many of the reported barriers refer to IRS characteristics and their evaluation by employees.

According to the literature review, it is important that

- employees believe that IRS are an effective instrument to enhance patient safety.
- it is clearly defined which incidents have to be reported.
- employees know how and where an incident can be reported.
- the form to report incidents is easy to handle.
- reporting an incident is not too time-consuming and can be integrated in everyday work.
- feedback is given on incidents reported.
- one can trust in the anonymity of the system.
- competent persons conduct the analysis of the incidents.

We hypothesize that employees evaluating IRS positively (i.e. IRS in general and the IRS they have access to) are more willing to report incidents.

## 3.4 Willingness to Report

The frequency of incident reporting is a crucial factor for the successful functioning of any IRS. The ratio between actual incident occurrence and incidents reported was the perfect measure to assess the frequency of incident reporting. However, it is very costly and time-consuming – if not impossible – to assess the real number of incidents occurring in a hospital unit (e.g. by manually reviewing patient charts in combination with participant observation) (Sari et al., 2007).

Therefore, we conceptualized reporting behavior using the 'willingness to report' (Edmondson, 1996) as a subjective measure of the intention to report incidents in the framework (see figure 1). In line with the theory of reasoned action (Fishbein &

Ajzen, 1975) the willingness to report can be seen as an indicator for the intention to report incidents. And this intention is the best subjective predictor for reporting behavior.

## 4. IRS and Incident Characteristics

We assume that the *subjective perceptions* factored in the framework at the individual and organizational level as well as concerning employees' evaluation of the IRS (see figure 1) are influenced by a) characteristics of the IRS and b) characteristics of the incidents.

### 4.1.1 Characteristics of the IRS

Clinicians' evaluation of the IRS as well as their willingness to report incidents may vary considerably depending on characteristics of an IRS. For example, it might be important whether the person responsible for the IRS is the supervisor of the reporter. Other IRS characteristics assumed that we assume to be psychologically relevant are:

- the degree of anonymity
- the reporting form (e.g. paper-based vs. electronic)
- analysis process of the incidents (e.g. conducted within the hospital or by external experts).

The psychological relevance of the characteristics will have to be evaluated empirically before integrating them into the framework.

### 4.1.2 Incident Characteristics

In previous studies incident characteristics were shown to be relevant for the reporting of an incident (Evans et al., 2006). For example, the severity of outcome was found to be relevant to reporting behavior (Lawton and Parker, 2002). Concerning the framework, we assume an influence of incident characteristics a) on clinicians' personal attitude towards reporting this incident, b) on the willingness to report, and c) a moderating effect on the relationship between individual and organizational determinants and the willingness to report.

## 5. CONCLUSIONS

With this paper we have proposed a psychological framework to advance the understanding of the determinants of reporting behavior. The framework proposed in this paper conceptualizes and complements barriers to incident reporting mentioned in the literature from a psychological point of view. By integrating concepts from psychological theories that are assumed to be relevant to the willingness to report incidents our framework provides a basis for empirical further investigation of barriers to incident reporting in healthcare settings. In the framework influences on the willingness to report incidents are located on three levels: the individual, the organizational and the IRS-related level.

Many of the barriers identified in previous studies refer to the individual's evaluation of features of IRS. This finding has an important impact on further research because implications of such a study can only be generalized, when the IRS under investigation are comparable. As IRS can differ in many ways, barriers identified in one study may be of no relevance to potential users of other IRS.

We assume that IRS characteristics are psychologically important for the willingness to report, which has not yet been considered in literature. Thus, there is a need to investigate the psychological consequences of the fact that IRS are set up and run in different ways. Investigating these differing characteristics will broaden our understanding of successful implementations of IRS in healthcare settings.

The psychological framework proposed in this paper is currently empirically tested in a survey in five Swiss hospitals. The results of this study will provide further insights into the evolution of the willingness to (not) report incidents and more complete information on how IRS can be better adapted to requirements of healthcare settings.

## 6. REFERENCES

- [1] Carmeli, A., Social Capital, Psychological Safety and Learning Behaviours from Failure in Organisations. *Long Range Planning* 2007; 40: 30-44.
- [2] Edmondson, A.C., Learning from mistakes is easier said than done: group and organizational influences on the detection and correction of human error. *Journal of Applied Behavioral Science* 1996; 32: 5-28
- [3] Edmondson, A.C., Learning from failure in health care: frequent opportunities, pervasive barriers. *Quality and Safety in Healthcare* 2004; 13: 3-9.
- [4] Evans, S. M., Berry, J.G., Smith, B. J., Esterman, A., Selim, P., O'Shaughnessy, J., DeWit, M., Attitudes and barriers to incident reporting: a collaborative hospital study. *Quality and Safety in Healthcare* 2006; 15: 39-43.
- [5] Fishbein, M., Aijzen, I. *Belief, attitude, intention, and behavior: An introduction to theory and research*, Addison-Wesley, Mass, 1975.
- [6] Grube, J. A., Piliavin, J. A., Role Identity, Organizational Experiences, and Volunteer Performance. *Personality and Social Psychology Bulletin* 2000; 26: 1108-1119.
- [7] Kassing, J.W., From the Looks of Things: Assessing Perceptions of Organizational Dissenters. *Management Communication Quarterly* 2001; 14: 442-470.
- [8] Lawton, R., Parker, D., Barriers to incident reporting in a healthcare system. *Quality and Safety in Healthcare* 2002; 11:15-18.
- [9] Piliavin, J.A., Grube, J.A., Callero, P.L., Role as Resource for Action in Public Service. *Journal of Social Issues* 2002; 58: 469-485.
- [10] Pronovost, P.J., Thompson, D.A., Holzmueller, C.G., Lubomski, L.H., Dorman, T., Dickman, F., Fahey, M., Steinwachs, D.M., Engineer, L., Sexton, J.B., Wu, A.W., Morlock, L.L., Toward learning from patient safety reporting systems. *Journal of Critical Care* 2006; 21: 305- 315
- [11] Runciman, W.B., Sellen, A., Webb, R.K., Williamson, J.A., Currie, M., Morgan, C., Russell, W.J., The Australian Incident Monitoring Study. Errors, incidents and accidents in anaesthetic practice. *Anaesthesia and Intensive Care* 1993; 21: 506-19.
- [12] Sari, A.B., Sheldon, T.A., Cracknell, A., Turnbull, A., Dobson, Y., Grant, C., Gray, W., Richardson, A. Extent, nature and consequences of adverse events: results of a retrospective casenote review in a large NHS hospital. *Quality and Safety in Healthcare* 2007;16(6):434-439.
- [13] Shahinpoor, N., Matt, B.F., The Power of One: Dissent and Organizational Life. *Journal of Business Ethics* 2007; 74: 37-48.
- [14] Stanhope, N., Crowley-Murphy, M., Vincent, C., O'Connor, A. M., Taylor-Adams, S. E., An evaluation of adverse incident reporting. *Journal of Evaluation in Clinical Practice* 1999; 5: 5-12.