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Midwives' perception of patient safety culture—A qualitative study

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ABSTRACT

Objective: To explore midwives' experiences with and perceptions of patient safety culture in the German-speaking countries.
Design and setting: Semi-structured interviews with midwives were conducted between December 2013 and March 2014, whereby the narrative nature of the questions on patient safety culture provided the space for the interviewed midwives to express their own wishes and thoughts freely. The interviews were recorded and transcribed, and the transcripts were anonymized with respect to personal and institutional names. The analysis of the transcripts was based on the methods of qualitative content analysis with the goal to consider all of the remarks with open coding, following a strictly inductive approach. Data analysis and categorization was performed using the software MAXQDA Release 12.2.1.
Participants: 14 midwives from Austria, Germany and Switzerland.
Findings: The interviewed midwives provided insights into their thoughts and experiences on factors that promote and inhibit patient safety culture as well as superordinate topics related to patient safety culture in general. Their statements were assigned to seven main categories; (i) institutional circumstances, (ii) role of the management, (iii) interprofessional factors, (iv) meetings, (v) education and training, and (vi) psychosocial aspects. Moreover, the majority of statements assigned to these categories additionally related to two overarching core categories, communication and knowledge / skills.
Key conclusions and implications for practice: It appears that patient safety culture is a personal matter for the majority of the participating midwives. However, it seems that at least at some institutions a discrepancy between the perceived importance of patient safety culture and an incomplete implementation into everyday work exists. A natural way of dealing with patient safety culture and an open blame-free discussion of critical incidences rely on the implementation of institutional circumstances that promote education, training as well as intra- and interprofessional exchange and transparent clear responsibilities.

Introduction

Adverse events are a serious healthcare problem with approximately one out of ten hospital patients affected. Also in obstetrics adverse events have been reported to occur in 7–15% of births (Healthcare Commission, 2008; Nielsen et al., 2007). Almost half of these adverse events are preventable meaning they result from medical errors (de Vries et al., 2008). With estimated 5-10% of adverse events resulting in patients death, medial error is the third leading cause of death in the US (de Vries et al., 2008; Makary and Daniel, 2016).

Patient safety is defined as "the absence of preventable harm to a patient during the process of health care" and the discipline of patient safety as "the coordinated effort to prevent harm, caused by the process of health care itself, from occurring to patients" by the World Health Organization (World Health Organization, 2017). Improvement of patient safety depends on the building of a patient safety culture, as defined as "the integration of safety thinking and practices into clinical activities" (Pettker et al., 2011). The Canadian Patient Safety Institute provided a practical framework, 'The Safety Competencies', designed for all healthcare professionals comprising six core competency domains: (i) contribute to a culture of patient safety, (ii) work in teams for patient safety, (iii) communicate ef-

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fectively for patient safety, (iv) manage safety risks, (v) optimize human and environmental factors, (vi) recognize, respond to, and disclose adverse events (Frank and Brien, 2009).

Healthcare provider attitudes about safety culture can be evaluated by questionnaires such as the Safety Attitude Questionnaire that assess six dimensions or patient safety subcultures, namely Teamwork Climate, Safety Climate, Perceptions of Management, Job Satisfaction, Working Conditions, and Stress Recognition (Sexton et al., 2006).

Effective communication and teamwork are of particular importance in patient safety culture since communication issues are the leading cause of preventable adverse events (Gluck, 2012; Leonard et al., 2004). Modern healthcare is usually delivered by teams of individuals from multiple professions and disciplines. In obstetrics, for instance, nurses, midwives, obstetricians, anesthetists and neonatologists provide care. Various factors contribute to communication failures including educational, psychological and organizational factors (Leonard et al., 2004; Weller et al., 2014). Education and training occurs largely within professional groups resulting in different ways of organizing and sharing information. Psychological barriers include the hierarchical structure in healthcare, both intra- and interprofessional, that might inhibit people from speaking up (Leonard et al., 2004; Weller et al., 2014). It has been shown that nurses and midwives allowed others in the workplace to express their opinion but less frequently expressed their own opinions. Moreover, they used assertive behavior more often with others in the same profession but less likely with medical staff, whereby managers, the work atmosphere and fear were viewed as obstacles (Timmins and McCabe, 2005).

An important approach to improve patient safety is learning from preventable events and near misses. Consequently, the vast majority of hospitals have implemented adverse-event-reporting or critical incidence reporting systems (CIRS). However, substantial shortcomings in hospital reporting systems regarding broad staff involvement, supportive environments for reporting as well as distribution and consideration of reports have been reported (Farley et al., 2008). We previously conducted a survey among midwives from German-speaking countries, demonstrating that only 14% of 831 respondents review adverse events in CIRS meetings at their workplace (Romano et al., 2013). The readiness to report critical incidences can be reduced by various factors, such as hierarchical structures and fear. Thus, a successful implementation of reporting systems requires active leadership commitment by valuation of transparency and encouragement of reporting as well as the establishment of a just culture, since responding to medical errors with blame will discourage transparency (Gluck, 2012; Scholefield, 2005).

Whereas safety culture questionnaires have been applied more frequently to investigate safety culture in obstetrics, both in hospitals (Nabhan and Ahmed-Tawfik, 2007; Pettker et al., 2011; Raftopoulos et al., 2011; Timmins and McCabe, 2005) and in primary care practices (Bodur and Filiz, 2009; Verbakel et al., 2014), knowledge on the midwives' perceptions and experiences regarding patient safety culture obtained by qualitative research is limited.

In the present study, we investigated patient safety culture as perceived and experienced by midwives from Austria, Germany and Switzerland using in-depth semi-structured interviews. The obstetric healthcare system provided in the German-speaking countries is highly comparable, with approximately 98% of births taking place in a hospital ward. The vast majority of these wards are obstetrician-led, whereas midwife-led delivery wards in hospitals are rare. To assess all areas of midwifery-related work, the study sample comprised of both, midwives employed in hospital wards as well as freelance colleagues.

Methods

The qualitative study design applied in this study was chosen in order to obtain a view as unbiased as possible of how midwives see patient safety culture and the factors that inhibit or enhance it. The study design was based on the following principles: (i) Diversity of sample (multi-site, various countries, various types of employment, full-time/part-time employment), (ii) a narrative interview technique and (iii) inductive data analysis.

Interviewed midwives

Face-to-Face interviews with 14 midwives were conducted between December 2013 and March 2014. The midwives worked in Austria ($n=9$), Germany ($n=2$) and Switzerland ($n=3$) and each interview took place in the respective country of employment.

In addition to geographic diversity, the midwife sample included the following types of employment.

Hospital midwives ($n=9$): Employed at a hospital. Hospital midwives work in the labor ward, provide postpartum care and are involved in antenatal outpatient care.

Charge midwives ($n=2$): Employed at a hospital, in addition to the work as hospital midwife they manage the labor ward.

Self-employed midwives ($n=5$): Mainly provide antenatal care, antenatal classes and puerperal care as a freelancer. Some self-employed also attend home births.

Affiliated midwives ($n=2$): Self-employed midwives with a contract with a hospital. In contrast to self-employed midwives, affiliated midwives additionally work at the labor ward.

The sum of employments listed exceeds the total number of participating midwives because several midwives had more than one employment at the time of the interview, e.g. working part time as hospital midwife and part time as freelancer.

Information concerning country and type of employment was gathered to demonstrate the diversity of the sample. The study goals did not include investigating potential differences between the groups.

Interview procedure

In order to create an atmosphere in which the participants felt that they were understood professionally, the semi-structured interviews were conducted by midwives. However, interviewers were not employed at the same institutions as the interviewees, thus ensuring professional distance. At the beginning of the interviews, structured data were collected concerning country, position, working hours and type of employment. The remaining questions were posed in a semi-structured fashion. The narrative nature of the questions on patient safety culture provided the space for the interviewed midwives to express their own wishes and thoughts freely. This may be exemplified by the following question: "When you think of patient safety culture, what spontaneous thoughts and ideas do you have?"

In a subsequent section of the interviews, midwives were asked, to talk about their experiences regarding a specific CIRS platform for midwives (Fälle für Alle e.V.) that we and others developed. "Fälle für Alle" is an international, extra-institutional, German language, online CIRS for midwives. Interviewees were asked about their thoughts on factors that inhibit or would enhance the usage of this platform. Because of the deductive nature of such material, it has not been included in the present study, but was instead published elsewhere (König-Bachmann et al., 2015)

The interviews were audio-recorded and transcribed; the transcripts were anonymized with respect to personal and institutional names.

Analysis and evaluation

The intention of the study was to allow the identification of aspects of patient safety culture that had not yet been addressed by theoretical approaches or quantitative empirical studies, or areas not yet characterized as meaningful within midwifery.

An analysis of qualitative interview data was performed using the qualitative content analysis proposed by Mayring (2000, 2010). Accordingly, the transcripts were analyzed by the stepwise inductive construction of codes, which were subsequently grouped to form the categories. The goal was to consider all of the remarks with open coding, following a strictly inductive approach. The categorization was performed in several iterative steps, each with immediate reference to the material collected. To enhance the trustworthiness of the results, a second researcher independently performed coding, and occasional differences in the researchers' conceptions were discussed and resolved in the research team.

In regard to the questions concerning inhibiting and enhancing factors, the interviewees were not asked whether these factors were present at their workplaces. Nevertheless, references to their own work were frequently made by the midwives, and this information was included in the analysis, building an axial relation between the codes and categories. Data analysis and categorization was performed using the software MAXQDA Release 12.2.1.

Presentation of results

The presentation of the results shows the categories with the related codes in a table. It is designed to fulfill scientific standards, providing a basis for potential further studies, including those with a quantitative focus. Furthermore, the presentation should also offer decision makers a practical list of ideas that can be used to consider areas and measures for patient safety culture improvement.

When discussing inhibiting and enhancing factors, the midwives often made reference to their own workplaces, noting whether such factors were present there. This information was included in the results under the header "at own workplace".

Codes relating to psychosocial aspects were not summarized in tables. Because of the uniqueness of the personal emotion-focused coping strategies given by the midwives, these comments are given in full and were not summarized. In discussing the mood or atmosphere of a given setting, the midwives often gave single-word responses; these are represented in a word cloud of enhancing and inhibiting factors.

Findings

In the course of the conducted interviews, the responding midwives provided insights into their thoughts and experiences on factors that promote and inhibit patient safety culture as well as superordinate topics related to patient safety culture in general.

The respondents emphasized the specific role of the midwife, given that occurring errors may have consequences throughout the entire lifetime of the newborn. In this respect, one midwife mentioned a German proverb:

> *"When someone dies at age 80, then it is no longer the fault of the midwife."*

This proverb indicates that it could be the midwife's fault when someone dies before the age of 80. Consistently, many of the interviewed midwives pointed out that they perceive a feeling of high responsibility to avoid errors. A hospital midwife stated that:

> *"There are simply things we are not able to afford to do in our job. That's just the way it is."*

Consequently, many of the midwives' statements indicate their desire for improved patient safety culture, in hospitals as well as in private practice:

> *"And I think that the healthcare system urgently needs reform. If we had a different patient safety culture, our whole way of working in the hospital would change. In private practice, too."*

For the interviewed midwives, the most important prerequisite for a good patient safety culture is the willingness to communicate errors frankly to colleagues and to management, because as a hospital midwife noted:

> *"Error management culture means learning from people who have already made mistakes."*

Another hospital midwife in this respect particularly emphasized errors that caused no harm to the patient or nearby misses:

> *"And I find that mistakes need to be discussed openly at the workplace – even if nothing happened. Because the next time, something might happen."*

Thus, patient safety culture is perceived as a measure that can result in a positive aftermath of a negative event, as expressed by a hospital midwife:

> *"A mistake is not positive in the sense that I'd want to make it more often. But patient safety culture means that I can talk about it openly, and something can be gained from it."*

Despite the perceived importance of a frank communication regarding errors, several of the interviewed midwives tended to adapt to the work environment in their facility. They would support error management culture but refrain from initiating it. A hospital midwife that also works as freelancer stated:

> *"If I knew that others talked about their mistakes, I would talk about mine."*

Besides the atmosphere at the workplace, there were additional conditions at the institution addressed that impact on the development and maintenance of a patient safety culture. Several midwives commented on this aspect when comparing institutions where they worked. A hospital midwife comparing two facilities:

> *"In one hospital, mistakes are hushed up as much as possible. In another hospital, there was a good error management culture with case discussions, which meant that the team was able to deal with them better."*

Similarly, the importance of management is emphasized in comparisons of how errors were dealt with. For example, a hospital midwife reported a change in error management due to the replacement of the ward head:

> *"And for us, it would've been really, really important to talk through everything* [note: errors] *again, including with the physicians who were involved, but then nothing happened. That's completely different with our new head."*

The present discussion is thus concerned not only with the collection of opinions, but also aims to gather ideas on how to improve also organizational factors for error management.

In the subsequent sections, the identified promoting and inhibiting factors for patient safety culture as perceived and experienced by the interviewed midwives are summarized. Statements by the interviewees were coded and assigned to the main categories (i) institutional circumstances, (ii) role of the management, (iii) interprofessional factors, (iv) meetings, (v) education and training, and (vi) psychosocial aspects.

Table 1
Codes related to institutional circumstances regarding patient safety culture.

Codes	Described at the own workplace as
Addressed by the majority of the respondents	
Hospital CIRS	Existing, missing*
Addressed by several respondents	
Defined procedure to handle errors	Existing, missing*
Designated responsible person for error management	Existing, missing
Working standards	Existing
Addressed by one respondent	
Written documentation of errors	
General concept for patient safety culture	Missing

* Most frequent answer.

Institutional circumstances regarding patient safety culture

After being asked by the interviewers about institutional circumstances at the workplace, almost all midwives referred to hospital-specific CIRS, and all respondents were familiar with the concept. However, several midwives indicated that no such system was in use at their workplace or that the CIRS at their institution was not intended for use by midwives or was not being used by them. One hospital midwife reported that the anonymity of the system, although implemented in the technology, was not realistic because errors affecting births could clearly be traced to one department. Moreover, because of the small size of the team, the involved midwife could also easily be determined.

Many midwives stress the importance of having a defined procedure to handle occurring errors. Several midwives commented that there was no formal system for dealing with errors in place at their workplace, as noted by a hospital midwife:

"Errors are just left there, without being dealt with."

Working standards were mentioned frequently by the respondents as a mean of preventing errors and, indirectly, of improving patient safety culture. A self-employed midwife pointed to the *"great potential"* of institution-spanning working standards that should be coordinated by the midwife community.

An affiliated midwife, who also works as a freelancer, expressed her wish for written documentations of occurred errors at the facilities *"so that one can react better in a similar case."*

When addressing the situation at their own workplace, several interviewed midwifes frequently referred to a lack of certain patient safety measures, such as a designated person responsible for error management. Although some measures were in place, a hospital midwife perceived a lack of a general concept for patient safety culture at her facility:

"For me, it's all just somehow loosely connected."

Table 1 summarizes all identified codes related to institutional circumstances that affect patient safety culture according to the interviewed midwives.

Hierarchy: the role of the management in patient safety culture

All surveyed midwives have addressed the management's role in patient safety culture and managers' responsibility and possibilities. In most cases, these statements referred to the management in general, to the charge midwife or to their own role and responsibility as charge midwife or manager, whereas the medical management was rarely addressed.

In particular, the charge midwife plays an important role for the patient safety culture in her area of responsibility. The interviewed midwives perceived the management not only as a formally responsible institution but also as a personal contact person for the individual midwife or the whole team as expressed by a hospital midwife:

"I do not really have the feeling that I cannot dare to say anything - so I am able to go to the management and just talk about problems."

While several midwives emphasized the possibility to talk to the management about errors, one charge midwife experienced the opposite, a lack of direct conversation with the team.

"So, for my part, I do miss the direct conversation. I personally only notice it (note: occurred error) through second or third parties and then I have to ask for further information."

When talking about the management's role in patient safety culture, interviewed midwives reported a lack of objectivity by the management when evaluating errors.

A hospital midwife stated regarding management's objectivity: "That you always handle it the same way and not, if it is this person you might rather overlook it, whereas when the other person is affected you point with your finger on it. And that can be like, it's always that particular midwife and now she did an mistake again. I experience that too. … For me, this is just fairness, it is important, that everyone is treated the same way when an error occurs."

Several midwives expressed their desire for management's support in general and in the implementation of measures to improve patient safety culture. In particular, a hospital midwife addressed the supporting and protecting role of the charge midwife:

"It seems important to me, that the management supports the culture of error tolerance, so I do not have to fear the others."

Management's support is desirable in routine work but particularly in case of exceptional events culminating in pending litigation, as described by a hospital midwife:

"The boss was always … on our side. He always helped a lot, even if it led to a lawsuit."

All codes related to the role of the management in patient safety culture are summarized in Table 2.

Interprofessional aspects

From an interprofessional perspective, the interviewed midwives frequently focused on the professional relationship between midwives and physicians. A charge midwife described midwives and physicians as:

"Our two professions … which get along well."

Another midwife, in contrast, sees *"a difficult relationship"* between midwives and physicians within the context of patient safety culture.

Besides the relationship to physicians, the respondents consider the appreciation they encounter from people of other professions

Table 2
Codes related to the role of the management in patient safety culture.

Codes	Described at the own workplace as
Addressed by several respondents	
Talk to the management about errors	Existing*, missing
Objectivity, equal treatment of all employees	Missing
Backing if error occurs	Existing
Management should do training regarding patient safety culture	Existing
Search for culprit by management	Existing
Addressed by one respondent	
Charge midwife supports open handling of errors	
No sanctions from the management	
Management supports error culture	

* Most frequent answer.

Table 3
Codes related to interprofessional aspects regarding patient safety culture.

Codes	Described at the own workplace as
Addressed by several respondents	
Good working relationship with physicians	Existing, missing*
Recognition of the profession of midwifery at the institution	Missing
Grey areas regarding responsibilities	Existing
Addressed by one respondent	
Interprofessional meetings for error management	Existing
Shortage of physicians	

* Most frequent answer.

important for a good patient safety culture. As a hospital midwife noted:

"The respect for our work as midwives makes it … easier to talk about errors."

One factor within interprofessional work that the respondents perceived as a concrete cause of errors and as a hindrance to good error management is the lack of clarity regarding responsibilities, as stated by a hospital midwife:

"To know who's responsible for what."

Another hospital midwife raised legal aspects: *"As midwives, we often find ourselves in grey areas … where it's not always clear what we' re allowed to do or what we're supposed to do."*

The respondents' wish for interprofessional meetings, including case discussions with participants from various disciplines, indicates that they value close interprofessional collaboration. In this regard, an affiliated midwife also mentions interprofessional colleagues besides the obstetricians in the labor ward, namely the staff from the post-anesthesia care unit, pediatric nurses and pediatricians.

Respondents named rigid and ponderous organizational structures as barriers to more effective interprofessional work. Such structures also stand in conflict with the open nature of midwifery as a profession:

"I think that we're a very open profession. And if we've slipped too much into certain structures or hierarchies, it's hard for us to have the confidence to discuss mistakes properly."

An overview of all codes related to interprofessional aspects regarding patient safety culture is given in Table 3.

Reprocessing: meetings and case discussions

The interviewed midwives frequently addressed meetings as a possibility of reprocessing errors or to enhance patient safety culture. The statements referred to either meetings in general, to the opportunity to discuss occurred errors in team meetings or to the fact that occurred errors can trigger the implementation of meetings to enhance patient safety culture.

The importance of meetings for the patient safety culture of an institution is described concisely by a hospital midwife: *"In the other hospital, error management was good, with team meetings and case discussions, which meant that the team dealt with it better."*

However, the plain implementation of team meetings does not support patient safety culture if the required openness concerning errors is missing. Team meetings need an atmosphere were cases can be discussed frankly and truthfully as stated by a hospital midwife:

"I'd need a team meeting that stated clearly: today, we're going to talk about this or that birth. It doesn't always have to be the bad cases. It should just be normal to talk through things that didn't go so well."

A hospital midwife at another facility describes the atmosphere at the team meetings in her ward as follows:

"In the team, everyone is very open, very open, especially at team meetings."

Many interviewed midwives appreciated that in their institutions case discussion meeting take place when serious errors occur. In this regard a hospital midwife states:

"When such cases occur, like we experienced recently, then a meeting with all people involved is called very quickly."

Another hospital midwife refers to the realization of such meetings and describes an interprofessional case discussion:

"Then we sat down together, and one person presented all the information, CTGs, and then we went through it together."

However, several of the interviewed midwives reported that meetings following errors did not occur at their institution, As a midwife states regarding the maternity clinic in which she is employed:

"No, we don't have anything like that. To me, that gives the impression that errors don't occur."

Two midwives appreciated the implementation of regular quality circles, where occurred but also potential errors can be dis-

Table 4
Codes related to reprocessing of occurred errors.

Codes	Described at the own workplace as
Addressed by the majority of the respondents	
Errors are discussed at team meetings	Existing*, missing
Case discussions as a result of errors	Existing*, missing
Addressed by several respondents	
Regular meetings on errors/quality circle	Existing
Clinical supervision	Existing, missing
Addressed by one respondent	
Discussion rules, fairness, no-blame culture	

* Most frequent answer.

cussed. An affiliated midwife declared that such meetings take place in her area once a year.

One midwife complained about the lack of supervision as an essential part of a no-blame culture at her workplace. Another midwife referred to positive experiences and enhancement of teamwork at her workplace due to implemented supervision.

A hospital midwife emphasized that for all kinds of meetings, adherence to discussion rules, fairness and a practiced no-blame culture are prerequisites for achieving success.

Table 4 summarizes all codes related to reprocessing of occurred errors in meetings.

Avoidance of future errors: education and training

The majority of the interviewed midwives advocate staff education regarding patient safety culture. A hospital midwife emphasized the regularity of such trainings:

> *"It would be ideal if there were repeated staff trainings on the workplace on this."*

Upon inquire of the interviewer, midwives specified topics that such education programs should address. A hospital midwife referred to law cases as a topic of interest:

> *"I find it important for myself to hear something about law and legal cases in such a staff training. This includes: where is it applicable, why such incidents happen, how the processes are, to offer instruments to establish an error management culture. And if then something happens and a lawsuit occurs, it can be handled differently."*

Another hospital midwife who additionally practices freelance named self-reflection as a desired topic for trainings. A hospital midwife emphasized staff trainings with various teaching contents:

> *"Yes, we do really need knowledge in different means of error analysis, processing methods and even more important I would find risk management. So, a real TRAINING, I think this is missing here extremely."*

Besides staff education and trainings, the interviewed midwives addressed the beneficial impact of simulation trainings. Whereas a midwife reported *"extremely positive experiences with a simulator in the labor and birth unit"*, a hospital midwife expressed her desire for simulation trainings that obviously were not implemented in her clinic: *"…like real emergency situations, to do simulations"* .

In Table 5, all codes regarding statements on staff education and training are listed.

Psychosocial aspects

In the course of the interviews, the midwives often expressed their idea of an ideal workplace atmosphere or how they experienced the atmosphere at their actual workplace and what feelings and emotions they perceive. In order to provide an overview over complex information thereby provided, named atmospheres or moods were summarized in a word cloud in Fig. 1. Moreover, deducible dependencies between individual aspects were depicted, and they were classified as either enhancing or inhibiting a workplace atmosphere that enables and enhances patient safety culture (Fig. 1).

Many of the above listed codes (Tables 1–5) deal with problem-focused coping strategies. Additionally, the interviewed midwives frequently related to their personal strategies to cope with their feelings and emotions after demanding situations at the workplace such as critical incidences or occurred errors. In order not to lose the individuality of these statements, they were completely presented in original quotations and loosely grouped according to their content in Fig. 2.

Discussion

The present study investigated the perceptions and experiences of midwives regarding patient safety culture by means of in-depth semi-structured interviews. Given the limited knowledge in this area obtained by qualitative research, this study provided interesting and novel insights into the way patient safety culture is established and applied in obstetrics. To our knowledge, this is the first in-depth qualitative study addressing the perspective of midwives from German-speaking countries on patient safety culture.

The interviewed midwives were in general very interested in the topic of patient safety culture as indicated by the substantial and extensive answers given to the open-ended questions. The factors and concepts addressed in the interviews by the midwives related to various personal, structural and organizational levels of everyday work. Consistently, identified codes were assigned to categories that reflected these various levels, namely (i) institutional circumstances, (ii) role of the management, (iii) interprofessional factors, (iv) meetings, (v) education and training, and (vi) psychosocial aspects. However, when analyzing the individual codes in the single categories, it becomes evident that many of these codes relate to one of two overarching core categories, communication and knowledge / skills.

The frequent naming of communication aspects demonstrates the high importance of communication to ensure a good patient safety culture as perceived by the interviewed midwives. These findings are in line with importance of communication in patient safety culture reported in previous studies (Gluck, 2012; Leonard et al., 2004; Weller et al., 2014). Therefore, improving communication is a key factor to ensure patient safety culture. However, at their workplace, some of the interviewed midwives were lacking various communication forms or platforms that were perceived as important or helpful. These included oral forms of communication such as talking to the management about errors, discussion errors at (interprofessional) team meetings, case discussions or quality circles, and written forms such as written documentation of errors or CIRS.

Table 5
Codes related to patient safety culture in education and training.

Codes	Described at the own workplace as
Addressed by the majority of the respondents	
Staff training error management culture in general	Existing, missing
Addressed by one respondent	
Staff training legal clarifications/lawsuits	Missing
Staff training self-reflexion with errors	
Staff training means of error analysis, risk management	Missing
Simulate emergencies	Missing
Simulation in labor and birth unit	Existing

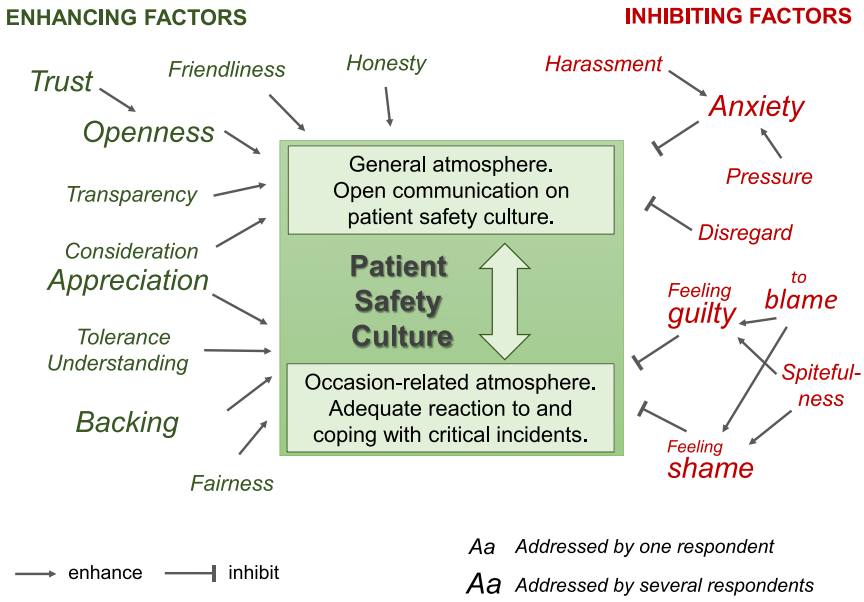

Fig. 1. Impact of the workplace atmosphere on patient safety culture. Expressions of the workplace atmosphere, feelings and emotions perceived by the interviewed midwives are classified as either enhancing or inhibiting factors for a workplace atmosphere that enables patient safety culture. These factors can either impact the general atmosphere in everyday work related to patient safety culture or the atmospheric and emotional reactions to occurring incidences.

Communication can be an effective mean to develop a positive atmosphere at the work place. In this respect, the midwives addressed the importance of a good working relationship with midwives and physicians, and the requirement for recognition of the profession of midwifery within the interprofessional team. Patient safety culture benefits from mutual tolerance and respect. The midwives criticized grey areas regarding responsibilities, which can also be the result of missing or wrong communication. Legal provisions on who is responsible for what, do not replace communication in critical situations. The greatest danger is the supposed assumption. Speaking clears up misunderstandings and wrong assumptions, and is a mean to communicate tolerance and respect. Thus, speaking is a prerequisite for a positive patient safety culture that is hindered by reticence and silence.

The second core category that summarizes many of the midwives' points addressed in the conducted interviews is knowledge and skills. In the statements of the midwives is a feeling of insecurity is noticeable with respect to mistakes. 'What am I in charge of?' 'Will I be protected if I make a mistake?' There is a consistent desire for inner security/clarity, created by knowledge and skills regarding patient safety culture. A clearly defined process how to handle an error after it has become apparent, which also indicates how the involved employees are protected, creates security. The interviewed midwives often mention training and further education as well as written stipulations and guidelines.

Besides education and training to increase knowledge several midwives specifically addressed simulation training to enhance skills. Training critical events in the simulation not only reduces the likelihood to make errors in critical situations and limits the consequences of critical situations, but also counteracts fear and provides confidence and trust in the own capabilities. The desire for interdisciplinary teamwork trainings in simulation settings is in line with previous evidence of the potential effectiveness of such trainings by others and us (Merién et al., 2010; Störr et al., 2017).

The perceived uncertainties regarding patient safety culture and in dealing with errors that have occurred can result in a strong emotionality. When talking about potential or occurred errors or critical incidences the interviewed midwives frequently addressed their emotions and feelings such as anxiety, guilt and shame. Besides the circumstances at the workplace, these feelings appear also to be driven by the perceived specific responsibility of the midwife, given that occurring errors may have consequences throughout the entire lifetime of the newborn. This responsibility is also reflected in the recent public and political debates in Germany about the massively increased liability payments that causes considerable financial burdens on hospitals, midwives and attending physicians (Soergel et al., 2015). Knowledge and skills in patient safety culture acquired by (simulation) trainings and a good communication basis in the obstetric team can prevent a high emotionality and contribute to an objective approach with critical incidences.

To achieve these goals, certain institutional circumstances are required. Patient safety culture can be implemented in existing quality management processes such as team meetings and regular case discussions, or in specific measures in response to errors or critical incidences such as occasion-related case discussions and

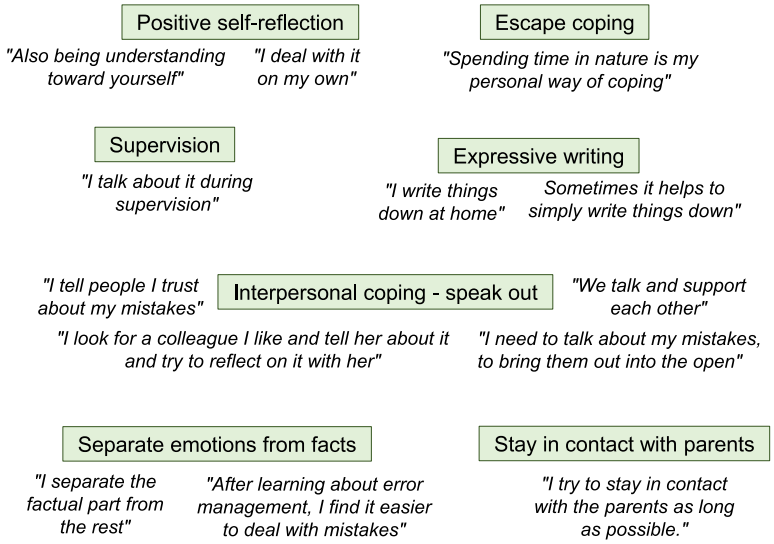

Fig. 2. Emotion-focused coping strategies. Personal strategies to cope with their feelings and emotions related to critical incidences or errors are given as original quotations from the interviewed midwives and loosely grouped according to their content.

CIRS. Successful implementation will depend on creating time and space to focus on patient safety culture in existing processes. The implementation of additional specific measures might be challenging, as this will cause additional organizational expenses for coordination. The management has a special role to enable patient safety culture, and the importance of the ward manager and leadership styles have been demonstrated previously (Pinnock, 2012; Sfantou et al., 2017). As highlighted in the Joint Commissions' 'Comprehensive Accreditation Manual for Hospitals' effective safety culture depends on a cycle of trust, reporting, and improvement: *'In the trust-report-improve cycle, leaders foster trust, which enables staff to report, which enables the hospital to improve. In turn, staff see that their reporting contributes to actual improvement, which bolsters their trust. Thus, the trust-report-improve cycle reinforces itself'* (Joint Commission, 2018). On the one hand, the management needs to create and provide the required institutional circumstances and on the other hand, it should serve as a contact point for the employees. Thus, the charge midwife has to fulfill a wide range of, partly contradictory, requirements: tough in enforcing institutional circumstances for patient safety culture but at the same time understanding in a personal conversation. Specific management trainings and further education can help to adequately fill these roles of a charge midwife. Alternatively, as suggested by one midwife, the responsibility for patient safety culture could be delegated to another (trained) staff member to relief the charge midwife. In general, the hospital management must support the charge midwife in her aim to continuously improve patient safety culture.

We identified two previous studies that investigated the perceptions of midwifery staff on patient safety culture by means of qualitative research. Currie and Richens (2009) performed focus groups with midwives in a large obstetric hospital within an urban acute NHS trust in England. In agreement with our findings, among the main themes identified were feedback and learning as well as communication. Moreover, they highlighted the need that patient safety is accorded the highest priority at the institution. Accordingly, specific education and training as well as the authority to complete incident reports has to be provided to all staff members (Currie and Richens, 2009).

Sinni et al. (2014) investigated perinatal staff perceptions of safety and quality in a midwifery-led maternity service in Australia by in depth open-ended interviews. Among the three major themes identified were clinical governance, highlighting the impact of the management, and inter-professional relationships. Additionally, in this midwifery-led service, midwives had the greatest impact on the safe delivery of perinatal care (Sinni et al., 2014).

The present study has several limitations. The representativeness is limited by the relatively small samples size. The findings of our study are reflective of a particular cultural and temporal context and thus might not be generalizable to other people or other settings, particularly such as other countries with differing health care services. In order to create an atmosphere of professional understanding, midwives conducted the interviews. Thus, for some study participants the professional distance might have been too low to speak frankly about the situation at their workplace. However, all participating midwives appeared to be very interested in the topic and provided extensive information on their perceptions and thoughts, indicating an open interview atmosphere.

In conclusion, from the conducted interviews it appears that patient safety culture is a personal matter for the majority of the participating midwives. However, at least at some institutions is seems that there is a discrepancy between the perceived importance of patient safety culture and an incomplete implementation into everyday work. A natural way of dealing with patient safety culture and an open blame-free discussion of critical incidences rely on the implementation of institutional circumstances that promote education, (simulation) training as well as intra- and interprofessional exchange and transparent clear responsibilities.

Conflict of interest

None declared.

Ethical approval

Not applicable.

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