Error in Intensive Care: Psychological Repercussions and Defense Mechanisms Among Health Professionals

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Objective: To identify the psychological repercussions of an error on professionals in intensive care and to understand their evolution. To identify the psychological defense mechanisms used by professionals to cope with error.

Design: Qualitative study with clinical interviews. We transcribed recordings and analysed the data using an interpretative phenomenological analysis.

Setting: Two ICUs in the teaching hospitals of Besançon and Dijon (France).

Subjects: Fourteen professionals in intensive care (20 physicians and 20 nurses).

Interventions: None.

Measurements and Main Results: We conducted 40 individual semistructured interviews. The participants were invited to speak about the experience of error in ICU. The interviews were transcribed and analyzed thematically by three experts. In the month following the error, the professionals described feelings of guilt (53.8%) and shame (42.5%). These feelings were associated with anxiety states with rumination (37.5%) and fear for the patient (23%); a loss of confidence (32.5%); an inability to verbalize one’s error (22.5%); questioning oneself at a professional level (20%); and anger toward the team (15%). In the long term, the error remains fixed in memory for many of the subjects (80%); on one hand, for 72.5%, it was associated with an increase in vigilance and verifications in their professional practice, and on the other hand, for three professionals, it was associated with a loss of confidence. Finally, three professionals felt guilt which still persisted at the time of the interview. We also observed different defense mechanisms implemented by the professional to fight against the emotional load inherent in the error: verbalization (70%), developing skills and knowledge (43%), rejecting responsibility (32.5%), and avoidance (23%). We also observed a minimization (60%) of the error during the interviews.

Conclusions: It is important to take into account the psychological experience of error and the defense mechanisms developed following an error because they appear to determine the professional’s capacity to acknowledge and disclose his/her error and to learn from it. (Crit Care Med 2014; XX:00–00)

Key Words: defense mechanisms; error; guilt; healthcare professionals; intensive care units; shame

Human error among healthcare professionals is a subject of current affairs. The reality and the extent of the problem in France (1) were evaluated, and 120,000–190,000 serious adverse events, which could have been avoided, occur during hospitalization each year. In 1999, a report by the American Institute of Medicine (2) estimated that 44,000–98,000 deaths per year would be due to an undesirable event and would be the eighth cause of mortality in the United States (3, 4). Global epidemiological data on undesirable events have been collected in different countries, and these studies estimate that the prevalence of undesirable events for short stays in health establishments is between 4% and 17%, and 27–51% of them are considered to be preventable or due to negligence (5–9).

ICUs are among the services with a high risk of error. Rothschild et al (9) counted an average of 120 undesirable events (45% of which were preventable) for 1,490 patients/d in 79 ICUs. Osmon et al (10) found a rate of error of 89.3 for 1,000 patients/d. A range of factors are behind this high risk of error: the context...
of emergency, the serious pathological states of the patients, an important coordination of human means, the complexity of the diagnostic and therapeutic procedures, and the use of more and more sophisticated procedures and technical means (11–14).

If the error affects the patient and his/her family, it will also have an impact on the caregivers involved, their colleagues, and even the entire service (15). In an editorial in the British Medical Journal, Wu (15) introduced the term “the second victim” to define a caregiver implicated in and traumatized by an medical error for which he/she feels personally responsible. This second victim will experience feelings of failure and will question his/her clinical expertise and fundamental competence. The studies done in this domain show that an error can have a profound impact on the healthcare professional (16–19).

The majority of the studies done on the psychological repercussions of error on healthcare professionals were based either on recollections of individual experience (15, 17) or on quantitative methodology or interviews with closed questions reflecting symptoms at a given moment in the subject’s life (19–23). However, little research has been done on the meaning of the psychological repercussions which occur following an error, their evolution over time, and the way in which the professionals cope with them.

Our purpose was to identify the psychological repercussions of error on professionals, to describe and better understand the evolution of the repercussions beyond 3 months, and to identify the defense mechanisms used by professionals to cope with error. We used a very broad definition of error such as defined by Leape (24): “An unintended act (either of omission or commission) or one that does not achieve its intended outcome.” The error is linked to the medical management of the patient and not to the complications related to the underlying injury or disease. “Error” in our study does not take into account the objective characteristics of the error (seriousness and consequences for the patient). In our study, we question the significance of error as it was experienced, perceived, and managed by healthcare professionals.

**METHODS**

**Study Setting and Population**

Our study took place in the ICUs of urban teaching hospitals in two French cities (Besançon: 18-bed medical ICU; Dijon: 15-bed medical ICU).

The two services are composed of 117 professionals (14 senior physicians, 12 residents, 91 nurses). In all, 64 professionals, or 54.7% of the professionals, participated in the study which consisted of an individual clinical interview and answering a sociodemographic questionnaire. Participants were recruited via a presentation at a staff meeting and an advertisement posted on notice boards within the unit. All of the healthcare professionals in the ICUs were invited to participate in the study, to avoid associating participation with having had committed an error. The interviewers were available in both units for 2 months (March to June 2012), and all of the healthcare professionals were invited to participate in the study.

Forty professionals were chosen from our population based on the following criteria:

1. The professionals stated that they had experienced at least one error during their career in ICU.
2. The subjects experienced an error at least 3 months prior to the interview. This criterion allowed us to observe the short-term (<3-month duration) and the long-term evolution (>3-month duration) of the psychological manifestations linked to the error. In effect, the psychopathology of anxiety disorders (Diagnostic and Statistical Manual of Mental Disorders and International Classification of Diseases) distinguishes acute psychological manifestations inherent in the intensity of the event which disappear in the 3 months following the event, and symptoms which persist beyond 3 months and become chronic.
3. A homogeneous distribution of the socioprofessional categories (20 nurses and 20 physicians consisting of 10 residents and 10 senior physicians) and the length of professional experience in ICU (20 subjects with >1 year of experience: 10 nurses and 10 senior physicians; 20 subjects with <1 year of experience: 10 nurses and 10 senior physicians).

The direction of care of the two teaching hospitals gave their consent to this study, and the Ethics Committee of the Teaching Hospital of Besançon approved the study. The subjects were informed of the study, and all signed a fully informed consent.

**Materials and Procedure**

*Sociodemographic Questionnaire*. The professionals completed a sociodemographic questionnaire and gave their age, socioprofessional category, and length of time worked in the ICU.

*Clinical Interview*. In order to create favorable conditions to access the experience of the professionals confronted with error, we used the interpersonal relation. The clinical interview method (25) seemed to be well adapted to meet our requirements and to put subjectivity at the center of the professionals’ discourse. The interviews were conducted by two interviewers (A.L., L.A.) in private conference rooms when the participants were off duty. Semi-structured interviews, lasting about 1 hour, were used to collect data (26). A semi-structured interview format provided the participants with an opportunity to openly share their personal experiences of error in the ICU.

Interview questions were based on literature review, clinical observations, and expert opinion. An exploratory study on a small group of ICU professionals allowed us to test the credibility of the questioning framework. The final interview guide explored five topics presented in an interview script (*Appendix* 1). In the context of this article, we focused on the dimensions “experience and repercussions of an error within ICU,” which allowed us to develop the following points: 1) the date, circumstance, and type of error; 2) experience of the error; 3) repercussions and management of the error immediately after the incident; and 4) repercussions and management of the error over the long term.

The interviews were anonymous, audiotaped, transcribed verbatim, and verified for transcription accuracy. The 40
interviews were analyzed using the method of Interpretative Phenomenological Analysis (IPA) (27). IPA is a relevant tool for understanding a subjective and intimate phenomenon. Qualitative methodology recognizes that reality is subjective, acknowledging there is not one true reality for all humans. The scientific rigor of the IPA is ensured by standardized procedure (27), as well as by a process of multiple coding by expert researchers in this method and the issue in question. For this study, three clinical psychologists (A.L., K.C., A.B.) coded all the interviews independently. The investigators did an open coding of the first five interviews and together generated a coding framework highlighting the different themes discussed by professionals during the interview. All of the 40 interviews were analyzed using the coding framework, thereby highlighting the main themes raised by all the professionals as well as more isolated themes which illustrate some specific behaviors in relation to the risk of error.

RESULTS

Characteristics of the Sample
Forty professionals, 18 men and 22 women (20 physicians and 20 nurses), were included in the analysis. All of the sociodemographic data are shown in Table 1.

Type of Error Experienced
The errors experienced by the 40 subjects included in this study can be broken down as follows (Table 2): error of a medical procedure (13/40), error of dosage or treatment (8/40), error of judgment (6/40), oversight (5/40), prescription error (4/40), confusion between two patients (2/10), and diagnostic error (2/40). In all, 40 errors were identified, and according to the professionals, 12 patients died as a result of the error.

Psychological Experience of the Error: Short- and Long-Term Repercussions
The professionals described the short-term psychological repercussions after the error, in other words in the 3 months following the error, and the more long-term psychological repercussions which persisted for more than 3 months and were still present at the time of the interview. The different dimensions illustrating the short- and long-term psychological repercussions are shown in Supplemental Table 1 (Supplemental Digital Content 1, http://links.lww.com/CCM/B2).

In the month that followed the error, the professionals experienced guilt (53.8%) and shame (42.5%). These effects were associated with anxiety states characterized by rumination (37.5%) and fear and worry about the patient (23%). We also observed a loss of confidence (32.5%), the inability to verbalize the error (22.5%), and questioning oneself at a professional level (20%). Finally, 15% of the subjects described anger, which was mainly directed at the team and its absence of support. All of these psychological repercussions disappeared 1 month after the error.

However, some manifestations persisted over time. Many of the subjects stated that the error was imprinted in their memory (80%), and for 72.5% of them, it was associated with an increase in vigilance and verifications in their professional practice (particularly when they were confronted with a similar situation), whereas for three professionals, it was associated with a loss of confidence. Finally, three professionals felt guilt which was still persistent at the time of the interview.

Defense Mechanisms Against Error
The different defense mechanisms described by the professionals after an error are shown in Table 3. The thematic analysis showed that 25 of 40 caregivers verbalized the error in order to free themselves from an emotional burden, to respond to a need for affiliation, and to be supported by others. The error was verbalized mainly in the service to one or a few colleagues often belonging to the same socioprofessional category. Three physicians also verbalized their error in the family circle and only one professional verbalized his error to the patient.

We also observed that after an error, 13 of 40 caregivers (including the seniors) developed knowledge and skills which were lacking when the situation that led to the error occurred. The professionals underlined the need for training based on experience and a systematic evaluation of the problems that could arise.

Fifty percent of the caregivers rejected responsibility: they emphasized dimensions of group responsibility and associated the error with professional practices rather than the individual aspect. Therefore, the group error enables them to put aside individual negative emotions. By underlining the group

<table>
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<tr>
<th>TABLE 1. Sociodemographic Data of the Population Studied</th>
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<tr>
<td>Population Studied (n = 40)</td>
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<tr>
<td>Physicians (n = 20)</td>
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<tr>
<td>Socioprofessional Categories</td>
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<tr>
<td>Years in the service</td>
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<tr>
<td>Less than 1 yr</td>
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<td>More than 1 yr</td>
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<tr>
<td>Mean age in years (sd)</td>
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<tr>
<td>Male</td>
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<td>Female</td>
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TABLE 2. Characteristics of the Error Experienced (n = 40)

<table>
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<tr>
<th>Patient Death After Error</th>
<th>Population Studied (n = 40)</th>
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<tbody>
<tr>
<td>Patient death</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>12</td>
</tr>
<tr>
<td>No</td>
<td>28</td>
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<tr>
<td>Type of error</td>
<td></td>
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<tr>
<td>Error of a medical procedure</td>
<td>13</td>
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<tr>
<td>Error of dosage/treatment</td>
<td>8</td>
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<td>Error of evaluation/judgment</td>
<td>6</td>
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<tr>
<td>Oversight</td>
<td>5</td>
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<td>Prescription error</td>
<td>4</td>
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<td>Diagnostic error</td>
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<td>Confusion between two patients</td>
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dimension of the error, particularly at the level of responsibility, the team takes on a supportive role for the caregiver.

Finally, we noted that 23% described emotional avoidance. For example, they said that they refused to let themselves feel negative emotions such as guilt, because this emotion could have a negative impact on the quality of their work.

During the interviews, we observed the importance of minimizing (60%) when the professionals spoke about their error.

DISCUSSION

This qualitative study explored the psychological repercussions felt by professionals in intensive care after an error. The professionals whom we interviewed reported different psychological manifestations after her/his error, such as guilt (53.8%), shame (42.5%), anxiety states with rumination (37.5%) and fear for the patient (23%), loss of confidence (32.5%), inability to verbalize one’s error (22.5%), questioning oneself at a professional level (20%), and anger toward the team (15%). These different manifestations disappeared gradually for the majority of the professionals in the months following the error. In the long term, we observed that the error remains fixed in the professional’s memory. However, a feeling of guilt persisted for three subjects.

Guilt and Shame After an Error

Half of the professionals questioned had a feeling of guilt after experiencing an error in ICU. From the perspective of the interviews, this guilt was expressed by a feeling of failure in the professional practice and was associated with an anxiety state characterized by rumination (37.5%) and worry about the patient (23%). However, the guilt described by the professionals did not appear to lead to chronic psychopathological symptoms as has been observed in posttraumatic stress disorder (28). During the interviews, the professionals made it clear that these different manifestations faded gradually in the month following the error.

The guilt described by the professionals seems to correspond more to a guilt “alarm” whose defensive function prevents emotional overflow (29). Considered in this way, guilt is defined (28, 29) as an effect which restores the subject to the place of actor “I felt guilty, because I did the procedure which led to the error”: to be an actor in the event is to make the event controllable and thus assure oneself that it cannot be reproduced.

According to psychodynamics theories, being guilty signifies that one seeks to commit oneself in the area of responsibility. It indicates sufficient sensitivity and testifies to the fact that the subject has been affected and concerned by what happened (30). This dimension is important in a hospital service because guilt will have a healing function for the professional’s peer group, that is, the ICU team “… I said it, I said it right away, I pointed it out, they saw that I was afraid, so I think a professional conscience …” and will allow the professional to maintain his/her place in the group (31).

However, guilt does not seem to follow the same pattern for three professionals. It is clearly differentiated from the guilt expressed by the majority of the professionals because on one hand, it persists over time (> 3 mo) and it was still present at the time of the interview, and on the other hand, it is reinforced by the death or the suffering of the patient.

Shame is defined by Tisseron (31) as a strong fear of losing three things: the love of those close to you, self-esteem, and links with your community. Shame is influenced by the negative reaction of others to the error. In this way, shame, which is most often imposed by the group, affects the subject’s self-image. It expresses fear of group judgment, of disappointing, of being incompetent and unworthy of working in the service “you’re also ashamed, well you think you’re lousy … you didn’t do your job right.” By verbalizing the feeling of shame, the professionals express their fear of being excluded from the peer group and of being stigmatized and marginalized (29–31). This shame corresponds to the decline of the caregiver’s ideals; thus, it profoundly affects him/her and represents the narcissistic attack which the error provokes. The corollary being that shame will be more difficult to share than guilt, it tends to isolate and grow in silence (29).

Imprinting the Error in Memory

Eighty percent of the 40 professionals who experienced an error more than 3 months prior to the interview stated that they perfectly remember their error, because it is fixed firmly in memory and is reactivated when the professional finds himself confronted with a similar situation. In “From the inside,” Bellomo (32) also described it: “I remember it like yesterday, but it was 25 years ago.”

The imprinting of the error in memory will have a range of consequences on the professionals:

1. The imprinting of an event is part of the context of learning (76.6%). It serves as a reference, and the error is perceived as an experience which enables skills to be developed for use later in a similar situation.

The majority of the professionals with less than 1-year experience (15 of 20 subjects) explain that not forgetting allows
them to be more attentive and vigilant and thus to feel more operational to avoid making the same error. After the error, the physicians (12 of 20) sought more knowledge and implemented actions to improve their professional practice. If the error remains fixed in memory, it does not lead to persistent rumination as is found in the symptoms of posttraumatic stress (33). On the contrary, the error remains in memory to allow the implementation of adaptive cognitive and behavioral strategies with the aim of controlling the situation. Our results are in line with those of Reason (34) and Amalberti et al (35) who consider the error as a special medium for the elaboration of a skill; they emphasize the role that the error plays in the acquisition and the effectiveness of security at an individual and collective level. According to these authors, it is the inevitable price that human beings must pay in order to develop further skills. More recently, Plews-Ogan et al (36)

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<th>Defense Mechanisms</th>
<th>Frequencya</th>
<th>Quotes</th>
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<tr>
<td>Verbalization</td>
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<td>“Talking afterwards, that gets others to loosen their tongue, to … know a little bit what everybody can think about it, and then to realize that in the end, people aren’t all that critical. Because they also already experienced other things so er … I think you shouldn’t keep things to yourself …; “it’s really liberating to talk about it in the end. When you start talking about your errors, well often the others talk about them too. That does some good, that frees you to speak … *”</td>
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<tr>
<td>Verbalization, Intraprofessional</td>
<td>70 8 5 5 7</td>
<td>“It wasn’t vital for the patient,” *What I thought was an error wasn’t as … as important as that, there weren’t so many consequences, considering that in any case they would have still put in the catheter; “it wasn’t something serious, it wasn’t … like giving some potassium; “he’s dead … that’s part of the risk in intensive care … it’s happened to everyone. I’m not the only one, I’m not the first … *”</td>
</tr>
<tr>
<td>Verbalization, Extraprofessional</td>
<td>7.5 1 2 0 0</td>
<td>“… You also manage to do … to accept it because you know that after you’re going … you’re always going to pick it up and analyse what you did, so that it doesn’t happen again …; “The way to manage an error, it’s more to evaluate it er and then implement actions for improvement to avoid it from happening again; “I took out my books and then I reread the specific data on the technique. So I question my practices to try to improve them.”</td>
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<tr>
<td>Minimizing</td>
<td>60 6 4 6 8</td>
<td>“We’re all responsible, that’s what creates this team culture; *even if after I was … well that too is something you say to yourself to reassure yourself, well to experience it better, but I wasn’t all alone, there were the chiefs who were, who were there, who saw the prescription, who didn’t think about it either, so you say to yourself, well I’m not the only one who’s responsible …; “that was always considered as a group error of the service, er … and then no one ever held it against me, no one ever criticized me because of it, not even the paramedical team, so that gave me support from the service … Luckily for me; “it’s strange, but the teams really like to talk about problems, but then on the other hand, they don’t mention names, that’s completely taboo … there really must be good team cohesion.”</td>
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<td>Developing skills and knowledge</td>
<td>43 8 4 1 0</td>
<td>“… When you talk in medicine, you don’t talk at all about feelings; “The aim is especially to evaluate and improve the practices. And that must be done precisely in a way that is completely detached from each one’s problems; “Recognize, but not feeling guilty otherwise that inhibits the action of care; “Afterwards it prevented me from sleeping. It’s the things that you encounter in ICU … you don’t have to feel guilty … it mustn’t affect the work or following the patients’ treatment, that’s for sure.”</td>
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<tr>
<td>Rejecting responsibility</td>
<td>32.5 5 5 2 1</td>
<td>“Talking afterwards, that gets others to loosen their tongue, to … know a little bit what everybody can think about it, and then to realize that in the end, people aren’t all that critical. Because they also already experienced other things so er … I think you shouldn’t keep things to yourself …; “it’s really liberating to talk about it in the end. When you start talking about your errors, well often the others talk about them too. That does some good, that frees you to speak … *”</td>
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<tr>
<td>Emotional avoidance</td>
<td>23 5 2 2 0</td>
<td>“… When you talk in medicine, you don’t talk at all about feelings; “The aim is especially to evaluate and improve the practices. And that must be done precisely in a way that is completely detached from each one’s problems; “Recognize, but not feeling guilty otherwise that inhibits the action of care; “Afterwards it prevented me from sleeping. It’s the things that you encounter in ICU … you don’t have to feel guilty … it mustn’t affect the work or following the patients’ treatment, that’s for sure.”</td>
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*A = frequency (%), B = physicians (n = 10), C = residents (n = 10), D = nurses with > 1 yr of experience (n = 10), E = nurses with < 1 yr of experience (n=10).
associated medical error with the development of professional skills as well as personal ones. Thus, Branch and Mitchell (37) speak about “wisdom in medicine,” meaning that the error will offer the possibility to know the limits of one’s knowledge and the opportunity to develop the capacity for self-reflection.

2. However, for three professionals, imprinting the error in memory was experienced in a negative way, it is associated with a loss of confidence with a persistent fear of being confronted with an analogous situation “Because when you find yourself all alone … and the laryngoscope and the thing-ummy … and you say to yourself that that’s going to begin again, they’re really very very stressing situations. It’s, it’s the worst. It’s the worst.” Imprinting the error in memory is a source of anxiety here, and it seems more difficult for the professionals to transform it into a learning experience.

**Defense Mechanisms After the Error**

We observed that the majority of the psychological manifestations experienced immediately after the error do not last over time. This result corroborates other theoretical and clinical works in psychology (38, 39) and the psychodynamics of work (33, 40) which show that the constraints linked to the exercise of a profession do not have a systematic effect on the health of the personnel who are subjected to them. In essence, when confronted with a difficult situation, the subject will try to adapt by developing defense mechanisms. These defense mechanisms are defined as psychological processes allowing the subject to protect his/her psychic integrity and to continue to do his/her work in spite of the difficult events that the professional can be confronted with (41–43). Thus, the professionals of ICU will use different defense mechanisms in a more or less effective and conscious way against error, to protect themselves from this experience and make the event easier to manage emotionally. Our results show two levels of defense mechanisms:

1. **Verbalization and the pursuit of knowledge and complementary skills:** Engel et al (44) listed these mechanisms in a study on error and coping among residents. According to the *Diagnostic and Statistical Manual of Mental Disorders* (41), they are among the strategies the most adaptive to difficult situations. Verbalization allows sharing one’s experience. The error also reinforces motivations to learn and to develop in order to avoid being confronted with a similar situation.

   We observed that the pursuit of knowledge and skills was mainly used by the physicians. The nurses did not favor this strategy to cope with error. Nurses in France do not receive specific training in intensive care during study for their diploma nor do they receive training in research. This means they are ill equipped to undertake research themselves that could enable them to better cope with the errors.

2. **By contrast, minimizing (the professionals distance themselves from emotion by assessing the situation as less serious than others), rejecting responsibility, and emotional avoidance will keep the objective reality of the error, as well as the emotional load associated with it, at a distance. According to the literature (41–43), the failure to recognize the objective reality will prevent awareness of the situation experienced.**

More specifically, rejecting responsibility seems to be a defense strategy accepted by the group, which becomes a dimension of group strategy (40) and allows the professionals to not feel alone with the error and to be supported by the team. However, this defense strategy can only be implemented if the group has elaborated a common culture of work that is shared by the members of the group. This strategy is peculiar to error and will not appear in the same way when the professional was negligent, showed reckless conduct, or knowing violations (45).

**LIMITATIONS**

Since our sample is focused on two ICUs, we are cautious concerning the generalization of our findings, and we are conscious that some specificities inherent in the service (organization, atmosphere of the service, length of time worked in the service, initial and continuous training of the staff, policy of security of care, etc.) can have an impact on our qualitative data.

It should also be pointed out that some dimensions of the experience of error can be missing from our analysis for various reasons:

1. Our study mainly dealt with professionals who wanted to talk about their error. It is likely that there were professionals suffering or in denial because of a bad experience who did not want to discuss it.
2. Despite the confidentiality of the interviews and the impartiality of the interviewers, we could not be sure that there was no social desirability bias in the responses, particularly concerning a topic such as error.
3. This study deals with an experience which has already been subjected to modifications over time. We can assume that a range of defense mechanisms have already been implemented and modified the current perception of reality. Consequently, one wonders about themes absent from the interviews, such as the fear of legal proceedings and complaints lodged by the patient or the patient’s family.

Finally, 30% of the patients died as a result of the error. In effect, the qualitative analysis did not allow us to measure if the seriousness of the error (in terms of consequences for the patient) impacts the intensity of the professionals’ emotional experience. It would be interesting to investigate this in a future study to identify situations that are vulnerable to error and would require a specific support for the professional.

**IMPLICATIONS AND CONCLUSION**

The studies carried out on the prevalence of error in healthcare (1–4, 7) have prompted the development of policies for the security of care. These policies are based on the implementation of a system of quality of care with new regulations, structural reorganizations, and a system of guidelines for medical...
practice (46). Mortality and morbidity reviews (MMR) are also a part of this approach as they offer professionals the opportunity to collectively analyze the circumstances which could lead to error. In addition, debriefing (47) after an error could give an opportunity to share emotional responses (48, 49) and facilitate the emergence of adaptive coping strategies (redinbaugh).

Current studies increasingly recommend replacing the culture of blame and shame by a new culture (48, 50–52). Marx (45) used the term of “just culture,” in which one learns and improves by openly identifying and examining one’s own weaknesses. It is crucial that caregivers feel that they are supported and safe when voicing concerns. Some authors also speak about “safety culture” (53) based on communication strategies, two-way feedback about performance, stress management, leadership, building and maintaining a team structure, and developing a climate of strong cooperation (54). An additional recommendation emerges from these studies that of revealing the error to both the team and the patient (51, 52, 55–60). According to the authors, disclosing errors would preserve patient-doctor confidence. Verbalizing the error would also help to reduce the stress which results from continuous deception and may facilitate obtaining the patient’s forgiveness (57, 60, 61). Finally, error disclosure would also have a role in improving professional practices (48, 51, 52, 57, 60, 62). According to Bourdeaut et al (63), verbalizing one’s error within a team enables the individual to view the error as a normal part of healthcare and to consider it as a “common heritage” which provides the opportunity for exchange and learning.

However, our study, like that of the study by Engel et al (44), shows that verbalizing the error to the family or patient is rarely done. Giving patients and their family bad news such as error is difficult and a stressful experience (51). As in the study by Espin et al (64), the qualitative analysis of the interviews shows that the professionals mainly verbalized the error within their service and more specifically to a close colleague. The literature underlines that acknowledging one’s errors still remains difficult, even impossible for numerous caregivers (15, 20, 65–69). A survey revealed that even if errors are partially dealt with at morning staff meetings and in MMRs, the most difficult problems and the most awkward issues are passed over in silence, and medical events are mainly discussed rather than the feelings of the caregivers (15, 70). The principal reasons for ICU professionals not disclosing their error were fear of damaging their personal reputation, medicolegal prosecution, disciplinary sanctions, the families’ expectations concerning a hospitalized patient, losing one’s job, and damage to the ego (20). Furthermore, the culture of infallibility in healthcare does not encourage the honesty needed for open communication about adverse events (51)

This is the challenge for developing a policy of security of care: the need to verbalize errors in order to learn from them. However, before encouraging the “disclosure of error,” one must take into account the professional’s experience and the way in which he/she copes with it. Our results show that the effects of shame and guilt felt by the professionals following an error impact the ability of the subject to disclose his/her error and, by doing so, to receive the support of the group to cope with the event. We observed that the effects of shame and guilt were accompanied by defense mechanisms which served to reduce the emotional load and enabled the professional to continue working. On the other hand, these same defense mechanisms hinder the subject’s ability to acknowledge the error and to learn from it.

Although the MMRs and/or the creation of a space for discussion within the services such as debriefing could facilitate the disclosure of error, we must advance with caution. Our research shows that there are dangers in insisting that the professional talk about his/her error if the service has not installed a sufficiently reassuring and comprehensive work climate beforehand. The seniors and heads of departments have an important role to play in this climate of confidence (48, 50) because it is essential that the error be discussed without fear and without fear of judgment, a reprimand or professional disqualification. However, this does not imply minimizing the caregiver’s responsibility for an error. On the contrary, support in the face of error serves to restore the caregiver’s self-confidence and facilitates discussion of the repercussions of the error in order to learn from it.

Thus, an ICU culture that encourages caregivers to acknowledge and take responsibility for their errors empowers them in situations that can initially be perceived as hopeless and out of control.

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Laurent et al
APPENDIX 1. INTERVIEW SCRIPT

1. Experience of professional activity in intensive care
   a. What motivated your choice to work in intensive care?
   b. At present, how do you feel about working in intensive care?

2. Experience of the risk of error
   a. What is your definition of error in intensive care?
   b. How did you apprehend the risk of error when you began in this service?
   c. How do you apprehend it today?

3. Experience of an error in ICU
   a. Have you already been confronted with an error in this service (type of error, when)?
   b. According to you, what factors led you to make this error?
   c. How did you experience this error?

4. Repercussions of this error at the individual level
   a. What were the repercussions of this error at the professional level?
   b. What were the repercussions of this error at the team level?
   c. What were the repercussions of this error at the personal level?
   d. How did you handle the situation?

5. Recommendations by the interviewee for reducing medical error
   a. What solutions do you recommend to avoid error in an ICU?