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Research Article

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The "Second Victim" – Nurses' Coping with Medication Errors Comparison of Two Decades (2005-2018)

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Abstract

Background: *Medication errors may be a critical event for the patients and caregivers involved. The performance of an erring worker, might be detrimental in the private and organizational life. This situation is known as the "secondary victim".*

Objectives: *To examine the affect of medication errors on the mental state and function of the caregiver who erred: a comparison between findings in 2005 versus its findings in 2018.*

Design: *The research was conducted in the qualitative method. A semi-structured interviews were held with the participants. The data were processed by means of content analysis.*

Participants: *40 nurses from a general hospital in central Israel who had made an error in the administration of medication.*

Ethical considerations: *The research was approved by the institutional Helsinki committee.*

Findings: *severe emotional consequences commenced immediately after the incident and continued for several days. They were expressed by fear, anxiety, self-blame, shame etc. The participants' reactions were grouped as: "Taking responsibility", "Immediate stress response", "Why did this happen to me", "Dilemma - whether to tell the patient and his family", "The staff's response to the mistake", "Fear of punishment" versus "In the past there was fear to tell, today there isn't, anymore", "The culture of learning and not punishing" and "The emotional impact over time".*

Discussion: *The ongoing emotional distress that characterized some of the participants was similar to PTSD. The main differences between the findings after more than a decade were the perception of the organization as investigative rather than blameful, which enabled better functioning.*

Conclusions: *workplaces should plan in advance for such events and offer support mechanisms for the "second victim" regardless of the inquiries and examinations held by the risk management unit.*

Keywords: Medication Error, Stress Response, Secondary Victim

Background

Medication errors occur in 19%-25% of all medication administrations. As a result, one of four patients may be involved in a medication error [1-3]. Although medication errors may occur at any stage of the medication administration process, most of them occur during the preparation of the medication and its' administration to the patient, due to misidentification of the drug or the patient [4]. Preparation and administration of medications are considered to be core nursing tasks. Different studies show that these tasks consume up to 40% of the nurses' time. A nurse can administer approximately 50 medications throughout a shift. These conditions position the nurse in a situation where the chance for making a mistake is very high [5-6]. The reporting rate of medication errors is low and those reported are only the tip of the iceberg. In various studies, nurses stated that only one in four mistakes is reported [7].

The resons for this are: fear of punishment, fear to lose one's good reputation and being labeled as "the nurse that made a mistake". In some instances, the system will react to medication errors in suspension from the workplace or of the license. More often, the consequences are loss of acknowledgement and professional respect by peers [7-11]. Nurses that were involved in medication errors reported feelings of self disappointment, self anger, shame, self-guilt, prolonged anxiety, concentration and sleep disorders. As

such, medication errors can be critical events for the patient and the caregiver responsible for the mistake. The personal lives and careers of caregivers involved in medication errors, especially those that are perceived as severe mistakes, may be affected. The concept "Second Victim"describes the difficulties in coping with this situation and the emotional difficulty encountered by the the caregivers involved in the mistake [11-13]. Studies show that half of all medical staff members in hospitals (doctors and nurses), become "second victims" at least once in their career lives [14].

While many studies have examined the causes for the mistakes, the characteristics of those involved in the mistakes and the methods of preventing them, little attention has been given to the impact of mistakes on the mental status of the caregiver and his function in the organization [3, 14].

In the year 2005 we studied the influence of medication errors on the mental status of nurses involved in them [15]. In light of the results of this study, the nursing administration of Assaf Harofeh Medical Center developed an instruction tool for head nurses on the manner of managing medication error events, in order to to minimize the harm to patients and caregivers.

Today, after more than a decade, we have decided to repeat the study, using the same tools in order to see what has changed over time in the implications of medication errors on the nurses making the mistake. The study has focused on the subjective perception of those making the mistake and examined how they are coping with its affects in 2018, with comparison to the findings in 2005.

In light of the findings, we will be able to examine the need to develop additional methods to reduce the stress and tension of the nurse involved in the mistake, in a manner that will enable her to return to the proper and stable functional status, for the benefit of both the nurse and the organization.

Method

This study was a phenomenological qualitative study giving in-depth understanding of the human experience and hearing the stories hiding behind the numbers and data [16]. This method enables a more personal presentation of the nurses' experience and actions through words in complex situations such as medication errors.

Population

40 nurses (male and female) working in a general hospital in central Israel participated in this study. 20 participated in the study performed in 2005 and an additional 20 in the study in 2018. The inclusion criteria were nurses experiencing their first medication error not causing any harm to the patient. The sample was a convenience sample of nurses consenting to participate in the study.

Study Tool

Qualitative data was collected by a semi structured- in-depth interview, designed especially for this study. The advantage of this type of interview is in its flexibility, which on one hand keeps the structure of the subjects posed to all participants and on the other hand enables rephrasing the questions or changing their order to fit each participant. This enables the participants to express their subjective perception as they wish and to acquire more and diverse data while making it possible to find the differences and the similarities between participants [16, 17].

The interview starts with a general question: "Tell me how it all started and what happened after that?" .Obscured points pertaining secondary subjects were attached to the interview in order to remind the interviewer what is the scope of the question, for example: "how did you feel and how did you react", "how did this event affect your ability to function at home and at work?". The interview included probing questions such as: "What do you mean?" "Can you give me an example?" [16]. These questions were posed only when the participants' answers were shallow and further details were needed, or when the participant "lost direction".

Procedure

After receiving the approval of the institutional Helsinki committee, risk management unit supervisor inspected the list of wrongful medication by nurses in the years 2017-2018. Based on personal acquaintance the list had been narrowed down to 30 names, who represent the phenomenon. Next, the chosen nurses were approached by telephone, and were presented with the research targets, and were guaranteed complete anonymity. It was made clear to them that this research is being conducted in order to improve the management of medication error events, with an emphasis on the feelings of those responsible for the error, his or her ways to cope and the support methods. The interviews lasted for approximately one hour and were transcribed by the researcher.

Analyses of findings were performed by the means of content analysis by coding important, major, repetitive components. The analysis included identification of overt and covert contents, wording of the various sorts of categories, placing paragraphs with similar contents in common categories18 and comparing the data collected in the current study (2018) to the data collected in the 2005 study while producing inferences.

Findings

Participant Characteristics

70% of the participants were female (n=28) and all the rest were male (n=12). The average age was 36.4 years old with a range of 24-56 years (SD=8.45). 55% were married (n=22), 22.5% were divorced (n=9) and the remainder were single (22.5%, n=9). The distribution of the educational status was: 5% (n=2) had Master's degrees, 72% (n=29) had bachelor degrees, 17.5% (n=7) were registered nurses with no academic degree and 5% (n=2) were practical nurses. The average professional seniority was 9.8 years (SD=8.24) with a range of 1-32 years. The time that elapsed from the event of the error until the interview ranged from two months to two years (Mean=12.5 months; SD=15.45). The types of errors were: wrong dose, patient misidentification, wrong medication and erroneous medication documentation. No major differences were seen in the participant demographic characteristics in 2005 and 2018.

Taking Responsibility

In the decade that has elapsed there has been no change in the initial response of the participants from the moment that the mistake has been identified. When confronting the stressful event, they took responsibility and chose immediately to report the mistake to the doctor in order to take measures to minimize the harm caused to the patient:

**(2005) I reported to the doctor immediately because I wanted to prevent the patient's complications. I was very uneasy until the end of the shift and I went to see if he is Ok all the time.*

(2018) I went to tell the doctor immediately in order to make sure that there is no immediate or long-term danger to the patient.

Immediate Stress Response

Upon revealing the error all participants in both decades reported immediate stress responses that express extreme stress:
(2005) I had a heart attack at that moment. I was totally in shock and my whole body began to shake…

(2018) The feeling was terrible, I felt a heat wave in my head and all the symptoms of fight or flight…
The participants' condition after the error reflected severe anxiety that caused intrusive and unremitting thoughts about the mistake for a number of days.

(2005) For a week or two It was very difficult for me to cope. I was exhausted, finished, with tears in my eyes. It was in my mind all the time, how do you get out of this situation…

(2005) It was flight of thoughts. I kept on reliving the event and couldn't fall asleep properly. I kept on thinking how the system will see my mistake, will they keep me or throw me out…

(2018) I was very worried and cried for almost a week. I felt guilt all the time. I couldn't sleep at night. I was afraid that something will happen to the patient. The hardest thing was the understanding that I wasn't concentrated and I made a mistake…

"Why did this happen to me"

After the patient had been examined and treated and it was clear that he was not harmed by the mistake, all participants in both decades expressed the question why did it happen to me?
(2005) After it happened, I was worried that something more serious should not happen to me. I thought why was it me who made the mistake? I, who am an example for everyone in the department…

(2018) The hardest thing is what will happen to the patient. He is supposed to receive the best care and because of me he didn't. I added more to his suffering. I kept on thinking how I did this, why did this happen to me…

The staff's response to the mistake

In the 2005 study, we found that nurses involved in mistakes talked about it with a small number of staff members, but over time everyone in the staff heard about it.
(2005) Now, I think that everyone in the department knows, but not specifically from me. At first, I told the head nurse and another nurse only, because I knew that her reaction will be mature and she will not celebrate it. In principle, people's reactions can be divided into two: those that will say that anyone that works can make a mistake and it can happen to anybody and those that didn't say anything, but I know that they gossiped about me behind my back…

(2005) The doctors for example, thought that I'm making a big deal over nothing. And there were those staff members that thought that here, she with her degree and fancy speech, turns out to be not so smart… and the fear is that at the end you will lose the respect of those that are important to you…

The reactions of the staff members a decade ago were divided to those who expressed support and thought that it can happen to anyone and those that expressed lack of respect to the staff member responsible for the error. On the other hand, in the current study (2018), it was very noticeable that the reactions of all team members, nurses and doctors, were very supportive:

(2018) The doctor did not make a big deal, she said: "Nothing happened, everything is fine, no reason to stress out". She just asked me to take blood sugar levels and monitor them until the end of the shift

(2018) I reported to the staff working with me. So that they will know what's going on with the patient. No one from the staff made a big deal. They did not get excited. The more experienced nurses said "It's good that nothing happened, don't take it to heart, it can happen to anyone". I remember that everyone told me about his mistakes. I felt support from all the team.

The fear from punishment

The initial fear that the participants expressed was the fear from harming the patient. Only afterwards did the fear from punishment appear, that was expressed more prominently in the interviews in 2005:
(2005) In the first moment, my thoughts took me very far. What will happen to the patient if he will be injured by my mistake. First of all, I was concerned about the patient. It was what scared me the most. Only afterwards I thought about what will happen to me. I was afraid that they will stop letting me administer medications, that they will punish me…

(2005) I was very afraid from the punishment that I will receive. I did not know what to expect and I thought of the worst.

(2005) I was very anxious that I will be fired. In the end, it is not a small matter.

"In the past there was fear to tell, today there isn't, anymore"

In the interviews held in 2018 with nurses involved in mistakes they expressed less fear from punishment:
(2018) I felt no fear, because I had support from the doctor and the head nurse, I was calm. In the past there was fear to tell, today there isn't anymore…

(2018) I felt relief from the mere fact that I reported. Because I did what I was supposed to. I was at peace with the way I behaved after the event and I understood that it was for my best benefit.

(2018) I didn't think that they would fire me, but I felt uncomfortable with the staff, everyone thinks I am good and compliments me and suddenly I make a mistake…

Investigation of the mistake by the management

It seems that the fear from the investigation that the participants experienced in 2005 was stronger and accompanied by thoughts of being fired:
(2005) I was very scared. What is expected from me, what I am supposed to do until then? They have to pick up a phone and schedule an appointment as soon as possible and not to let me wait, because the worse scenarios cross your mind. For example: That I will not be promoted, that from now on I will be placed under a magnifying

glass. So, the mistake is not enough, you have to deal with this fear….

**(2005) They invited me a little late. I waited for the inquiry a whole week and every day was like eternity. I was very anxious and I didn't know what to do if they decided to fire me.*

The culture of learning and not punishing

Most of the participants in 2018 were not afraid that the investigation of the error will lead to punishment, but conceived it as a learning process and not as a punishment.

**(2018) The risk management unit held the investigation in two weeks. From their inquiry I understood that they want to improve the situation, not to punish. They tried to calm me down. The idea was to learn from what happened…*

**(2018) In one week there was an investigation in the management offices. The atmosphere was good. They wanted to know how it happened. I did not feel fear. They just requested that I pay more attention when administering medications. The atmosphere was not blameful, but what can be learnt. If there are issues with the system they correct them. If you are not afraid you learn more. You understand your mistake and are not only afraid from punishment…*

However, they were a few participants that criticized the system's reaction to errors, that is too busy investigating and does not give enough support:

**(2018) That same night I went back to work, It was very difficult for me to function, to care for the patients, the hardest thing was to administer medications…you are going through something and it takes time to digest it, to cope. Its not that you immediately go on as if nothing happened. But you are expected to function as usual … Although the system is not blameful and punishing as in the past, but it is not one that sees the workers' distress either…*

The emotional impact over time

It seems that by some of the participants, mistakes had emotional impact even after six months. A number of participants reported that they thought of the event and dreamt about it for weeks and even months. Others reported difficulty falling asleep and sleeping, due to recurrent thoughts about the event. Two participants reported events of emotional outbursts during the first three months after the event. There were participants that had strong unresolved emotions regarding the event six months after it occurred.

**(2005) Absurdly, it has become worse over time. At first, I rationalized, what have I done altogether, nothing happened. But with time it became heavier because it's a mistake…even today I have flashbacks sometimes from the event, but I try to forget….*

**(2005) Time has passed but it still has impact. It is difficult for me until today, it has left me with severe trauma. I couldn't forgive myself. When I administer medications, I have to work with another staff member. Every time is like the first time for me. I check every medication 80 times. It lowered my confidence very much…*

**(2018) Every time that something happens in the ward, that there is a mistake, I take it to heart very seriously. I feel that I am reliving the event with my mistake….I was left with the thought about what will happen if I will be under pressure and it will happen to me again.. it's always there, some kind of lack of confidence and guilt feelings…*

**(2018) I am afraid to go near medications. When I administer medications, I don't trust myself. I've lost my confidence….but if they would have stopped me from administering medications it would have affected my self-confidence even more …*

Discussion

The current study has examined the implications of medication errors on the emotional and functional status of nurses involved in these mistakes and has examined what has changed in the past decade. The findings show that medication errors have severe emotional implications commencing immediately after the event and continuing for several days causing emotional storm, fear, anxiety, self-guilt, shame and more.

The initial steps taken by the participants once they revealed their mistake, focused on preventing further harm to the patient and characteristically demonstrated professional responsibility: reporting the mistake to the physician, correcting the mistake and monitoring the patient. This finding is not surprising, since the professional ethos of nursing guides nurses to care for their patients first of all and to be fully accountable for their actions [19]. In a qualitative study on 10 nurse practitioners it was seen that the first reaction of the participants to errors was focused on reducing the harm caused to the patient. Only after they ensured the patients' safety they experienced acute stress reactions that were expressed as: feelings of failure, guilt and difficulty to continue to function effectively [20]. In 2005, emotions such as depression, insomnia and intrusive thoughts about the event that lasted for a long time and reminded symptoms of PTSD, were more outstanding. A decade later, medication errors continued to have severe emotional implications on some of the participants, which reported difficulty falling asleep, loss of self-confidence, fear of making mistakes and recurrent thoughts about the event that lasted over time.

Wu, (2000) that embded the term "the second victim", explained that caregivers involved in mistakes have difficulty in forgiving themselves and this harms their ability to function at work and in their personal lives [13]. The second victim feels responsible for his mistake and for disappointing the patient that trusted him. He may feel fear, guilt, anxiety, anger, depression, social disengagement and memory and sleep disturbances. He looses his self- confidence in his clinical capabilities and is anxious about the reactions of his colleagues. Usually, he feels ashamed to seek emotional support and feels lonely. All this may cause some of the caregivers to develop symptoms of Post-Traumatic Stress Disorder (PTSD) [15]. The findings of this study join the findings of other studies in which stress reactions were identified over time in caregivers involved in mistakes. In one study on 898 participants including doctors, nurses and allied health professionals it was found that due to their mistake 30% reported anxiety, depression, doubt their confidence to continue to perform professionally, 15% reported severe reactions and even wanted to leave their profession [21].

Other studies on doctors and nurses found that some of them continued to feel guilt due to errors they were responsible for even after 10 and 15 years, and these mistakes cause prolonged distress [11, 22, 23]. In light of these findings, it may be stated that medication errors have potential to cause trauma and leave some of the healthcare workers traumatized. One study with 913 participants including doctors and nurses showed that the responses of care givers to the event of a mistake is affected by conditional, systemic and personal factors. The conditional factors include the severity of the

injury caused to the patient and the way the caregiver perceived his responsibility for the occurrence of the event. If the patient's harm was more severe the caregiver involved in the mistake had worse feelings. Another conditional factor is time. As time elapses from the event the intensity of the emotional reaction subsides. Personal characteristics such as; female gender, active coping style and pessimistic personality are all related to worse emotional reactions to the event. Professional seniority was not related to the intensity of the emotional reaction.

Amongst all of the systemic factors, it seems that a supportive organizational culture in contrast to a blameful culture can significantly reduce the intensity of the negative emotional reaction of caregivers involved in mistakes [11].

One study on 898 healthcare professionals showed that in 35% of the cases the support was mostly given by colleagues and spouses at home and only 29% reported receiving support from their superiors [21]. Support by family members and friends was found to be less significant than conversations with colleagues [14]. In the current study, as in similar studies, we found that supportive reactions from colleagues – nurses and doctors, were perceived by the participants as significant sources of support that alleviate the severe feelings they felt due to the mistake. Evidence from many studies demonstrates the importance of peer support as a source of emotional relief and reducing the feelings of loneliness of the caregiver involved in the mistake [20]. Albeit, it seems that the reactions of the team members are not always supportive. Studies show that caregivers involved in mistakes experience more unsupportive reactions than supportive ones such as; rejection, hostility, wisecracks and even humiliation. Even in those cases where there aren't clear expressions of guilt, anger or rejection there is an evident lack of support [12, 20, 24]. One possible explanation is that the culture of discipline and guilt is still deeply embedded in the minds of clinicians, even though the norm today is not to criticize and blame.

Based on the evidence, some assumed that the only way for a caregiver involved in a mistake to cope with the feelings of guilt, especially in those case where the mistake was severe and harmed the patient, is to "admit guilt" in front of the patient and colleagues and as a result receive forgiveness. Sometimes the ability to "admit guilt" is delayed actively due to instruction from the risk management units and hospital legal advisors. On other accounts, confession of the mistake is delayed due to lack of suitable forums for discussing this subject. Moreover, even when mistakes are discussed in mortality and morbidity meetings, only the medical facts are discussed and the feelings of the caregivers involved are not considered. The system tends to neglect the second victim and ignore what he is experiencing and there are no organizational bodies to help him through the difficult process he or she is going through due to the mistake [12-13, 25]. It is possible that the reason for this is that the organization is also harmed by the mistake. Currently, another term is being used "the third victim", in order to express the organizational losses due to mistakes, such as: damage to its' public reputation and prestige, impact on the staff's morale and legal and financial liability [14].

The findings of the current study show difference between decades in the system's reaction to the caregiver involved in medication errors. We can conclude, that most of the participants perceived the system as investigative and not blameful. The support that most of the participants received in 2018 in comparison with that in 2005 enabled them to cope with their negative feelings due to the event and function better. The non- judgmental atmosphere that is existent enabled them to tell what happened without being punished and lose support. The actions taken by the nursing administration of the hospital over the last decade, based on the findings of the 2005 study, improved the manner in which medication error events are managed while being sensitive and thoughtful to those involved. A structured tool for head nurses was developed, in order to guide her in managing a medication error event. The tool contains two parts: Managerial-Clinical, Emotional-Supportive. The head nurses of the hospital were trained on how to manage medication error events including principles of debriefing, principles of emotional support for the nurse involved in the mistake, setting a timetable for dealing with the event and discussions on ethical matters.

In the international literature on the subject organizational models for supporting the second victim can be found. The most well-known model is that of Susan Scott and associates [21]. Stage one – first aid will be given by a senior staff member appointed for this matter. Her studies show that for 60% of the victims this will be sufficient support. The second stage is intended for the 30% of the victims that the first stage was not sufficient enough for them. This includes intense surveillance of the second victim by trained colleagues that have been trained specifically to identify signs of distress and give individual or group support. Only 10% of the second victims will reach the third stage. This stage will be activated when the emotional needs of the second victim were net sufficiently met in the first two stages. The team in the stage is comprised of mental health professionals such as psychologists and social workers.

A dedicated team, with knowledge and experience in supporting professionals throughout the acute stages of the emotional trauma, can significantly assist the recovery of the second victims. On the other hand, one study on 913 participants including doctors and nurses found no relation between the presence of an especially dedicated team for the support of the second victim and the intensity of psychological effects of the event [11].

Conclusion

This qualitative study has expressed the personal point of view of the participants, and as such has thrived to bring a deeper understanding of the implications of mistakes on the staff members. Due to the limited sample size, it's dealing with mistakes that did not harm the patient and the fact the participants were all from one profession it is recommended to expand the study to additional healthcare professions and study the emotional implications of mistakes which caused harm to the patients.

Since this study is retrospective and the participants were requested to recollect events from the past, it is possible that some things have been forgotten. In light of the fact that people tend to examine processes from different time aspects, this study has differentiated between various aspects over the timeline.

Recommendations

Based on the current study, it is recommended to take actions to familiarize the staff with the term of the second victim that has been considered to be a taboo and silenced subject until now, meaning that the victim was left to deal with his emotions and suffering alone, with no organizational acknowledgement of his distress and no referral to support. The staff members should know that they may

express their feelings about the mistake with their superiors and colleagues without being exposed to judgement or besmirching of their good reputation. In the process of investigating the event by the management or risk management unit, the emotional status of the worker should be addressed and if he is in need and is interested, he should be referred to a special team dedicated to supporting staff members involved in mistakes. The current study and previous studies show that workers that express emotional distress after events of mistakes are interested in receiving support from their superiors and co-workers.

It is of utmost importance to encourage the second victim to tell what has happened, to accept what he says, not to put blame, not to criticize and not to belittle the meaning of the mistake for him. Revealing our own experience with mistakes in the past can alleviate the feeling of loneliness that our colleague feels. It is important to recognize the emotional implications of being involved in errors, inquire how he or she is coping and the need for assistance. The senior staff members should receive instructions on how to refer their workers to the proper professionals to receive support.

The second victim is entitled, that we should assume that his intentions were good, and that the mistake was unintentional and that he can trust the organization's integrity, fairness and mutual responsibility for whatever will happen. Dealing with the second victim should be by honorable and fair standards. He should not be blamed or shamed for this human mishap.

The second victim needs understanding and compassion while coping with his mistake. The directors should recognize and understand the psychological stress that the worker is in when accidentally harming a patient. The second victims are entitled to professional, organized emotional support if they wish it. The second victims have the right to participate in the learning process from the mistake in order to share important information with the organization and contribute to the prevention of similar events in the future.

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