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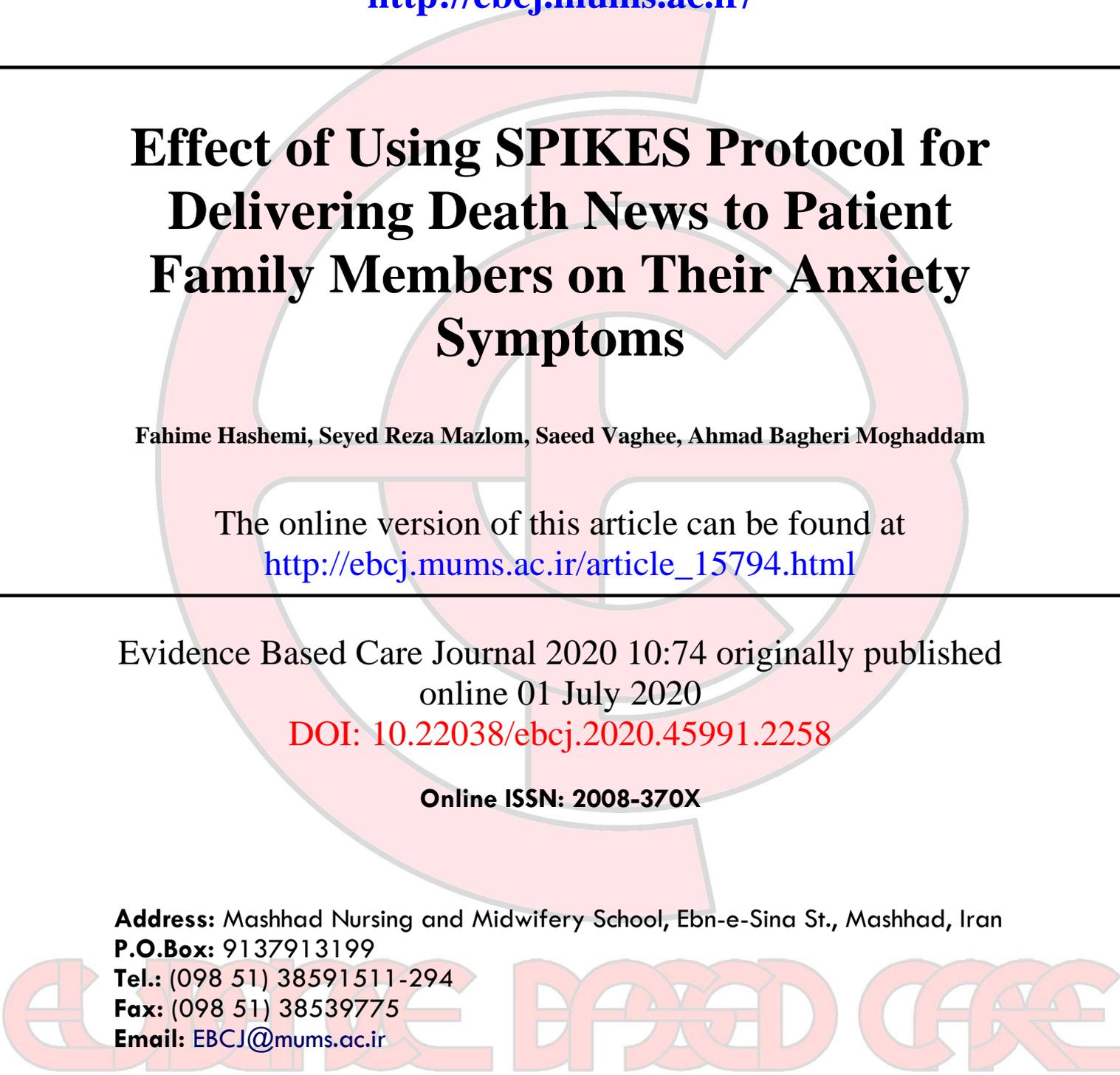
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## Effect of Using SPIKES Protocol for Delivering Death News to Patient Family Members on Their Anxiety Symptoms

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### Abstract

Receiving the news of a loved one's death can cause extreme anxiety reactions. Breaking death news according to the setting, patient perception, invitation, knowledge, empathy, and strategy (SPIKES) protocol could be effective in alleviating this anxiety. This study aimed to determine the effect of using the SPIKES protocol for delivering death news to patient family members on their anxiety symptoms. This non-randomized controlled intervention study was carried out on the 60 families of the patients who died in Imam Reza Hospital of Mashhad, Iran. The subjects (i.e., next of kin or close family members) were divided into two groups of 30 cases. In the control group, the nurse conveyed the news of death using her routine method. In the intervention group, this task was performed according to the SPIKES protocol. After delivering the news, the nurse assessed the level of anxiety in the recipient of the news by filling out an inventory of visual symptoms of anxiety. The Mann-Whitney U test showed that the mean anxiety score in the intervention group ( $31.2 \pm 11.7$ ) was significantly lower than that of the control group ( $63.4 \pm 18.1$ ) ( $P < 0.001$ ). Since the findings revealed that the SPIKES protocol reduced the level of anxiety in the recipients of bad news, it is essential to apply this protocol in nurse education and training courses in Iran.

**Keywords:** Anxiety, Death, Nurse, Truth disclosure

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## Introduction

Delivering bad news is an important part of the clinical interactions of healthcare professionals (1). In clinical settings, bad news refers to any news that adversely and seriously affects an individual's view of his or her future (2). Breaking bad news to a person is an unpleasant experience that can adversely influence the health of that person; however, if properly done, it can also help the person to cope with the unfortunate event (3). In a study carried out by Karim et al. (2015), it was reported that the most common bad news in intensive care and emergency units is the news of death (4).

Today, it is believed that breaking bad news is a process requiring the cooperation of all medical staff, including nurses, and patient's family (3, 5). Indeed, nursing care is not limited to the patient, and its area of responsibility also extends to the specific needs of the patient's family when they are experiencing a stressful situation (6). Nurses can effectively help a patient's family adapt to the bad news as they establish close relationships with patients and their families and often witness mortality (7). Since nurses spend more time with patients than doctors, patients and their families often view them as the first source of information (8).

In a study carried out by Stajduhar et al. (2010), patients and families believed that their most important need after receiving bad news is to receive emotional support (9). This highlights the importance of breaking bad news in the presence of competent and experienced nurses as they can facilitate the process of conveying this information (5). In this regard, one of the core duties of nurses is to provide all the information that patients or their families will need and answer any question about the delivered news (10). Therefore, the inability to establish a reassuring relationship with patients and their families will be a significant and serious problem for any nurse (11).

Hearing bad news can make a person psychologically vulnerable and cause unhealthy anxiety reactions (12). Anxiety is a response to an unknown internal threat that is conflictual in origin. The response to anxiety may be conscious and constructive or unconscious and influenced by the individual's subconscious forces. The unexpected occurrence of an event can cause anxiety disorders (13), which may have physical, emotional, cognitive, and behavioral symptoms (14). One of the most important causes of anxiety in the medical profession is the responsibility to break bad news, show support and empathy, and convey necessary information to the recipients of the news (15).

There are several guidelines for clinical personnel with this responsibility to reduce the unpleasant reactions to bad news (16). One of the most important of these guidelines is the setting, patient perception, invitation, knowledge, empathy, and strategy (SPIKES) protocol which instructs healthcare professionals how to prepare the environment for breaking bad news, how to prepare an individual for receiving this news, how to deliver bad news, and what to do afterward (17).

However, the studies carried out in Iran and experiences of researchers in clinical settings indicate that nursing education programs in this country do not pay enough attention to the manner of breaking bad news, and there is actually no written hospital guideline in this regard. Consequently, Iranian nurses often perform this task solely based on their own experience (18, 19). Therefore, it is required to carry out intervention studies to determine the reduction of the anxiety of bad news recipients in Iranian clinical settings using the SPIKES protocol.

## Methods

This non-randomized controlled intervention study was conducted on the families of patients who died in the Intensive Care Unit, General Ward, and Adult Ward of Imam Reza Hospital (with 57 beds) in Mashhad, Iran, within June 22 to November 6, 2019. Based on the results of a pilot study performed on 10 subjects and using the formula for comparing two means with 95% confidence interval and 90% test power, the sample size was calculated at 22 cases per group. To improve accuracy, the present study was carried out on 60 families.

The inclusion criteria for the recipients of bad news were the age range of 18-50 years, first-degree relative of the deceased, no history of mental illness, no severe physical illness, and no awareness of the patient's death. The exclusion criterion for the recipients of bad news was any delay in receiving the news once the person arrived at the hospital as it may have interfered with the level of anxiety.

The data were collected using a questionnaire of demographic information, including eight items on the deceased and recipient of the news. Moreover, the data were gathered using an inventory of visual symptoms of anxiety with 29 items aiming to measure the anxiety of the recipient of the bad news. The nurse in charge of the deceased patient was also responsible for filling out this inventory, as

she/he was more informed about the patient's condition and treatment process. This inventory was made by the researcher with the input of supervising and advising professors based on the behavioral symptoms of anxiety according to NANDA (North American Nursing Diagnosis Association) and Carpenito Nursing Diagnosis.

The above-mentioned inventory consisted of the six following dimensions:

Behavioral symptoms with four items on body movements, eye contact, tenseness, and aggressiveness  
Emotional reactions with eight items on the reactions to sadness, speech pattern, talkativeness, attribution of blame to others, anger, response to stimuli, inability to make decisions, and inability to manage the situation

Physiological symptoms with four items on facial changes, body tremors, sweating, and strained voice  
Sympathetic reactions with seven items on breathing speed, face color, sudden body movements, feeling weakness, dry mouth, and shortness of breath

Parasympathetic reactions with three items on nausea, dizziness, and imbalance

Cognitive reactions with three items on the inability to comprehend speech, confusion, and forgetfulness

The nurse in charge had to give each item a score within the range of 0 (no symptom) to 3 (severe symptom) based on the person's condition after receiving bad news. The total score of the inventory ranged from 0 to 87. The content validity of this tool was checked by seven faculty members of nursing and psychology at Mashhad University of Medical Sciences, Mashhad, Iran, who confirmed its validity with a content validity index of 0.89. The reliability of this tool was verified using the inter-rater method with  $r = 0.91$ . The reliability of individual dimensions was measured at  $r = 0.71$  for behavioral symptoms,  $r = 0.84$  for emotional reactions,  $r = 0.81$  for physiological symptoms,  $r = 0.75$  for sympathetic reactions,  $r = 0.90$  for parasympathetic reactions, and  $r = 0.87$  for cognitive reactions.

Sampling was performed by assigning the eligible subjects (i.e., next of kin or close family members of the deceased patients) to two groups of the control (i.e., the first 30 subjects) and intervention (i.e., the next 30 subjects). To make the results more generalizable to the study population, the same seven volunteer nurses who were assigned to the control group were also used in the intervention phase. The reason for not using the randomized subject assignment method was that after learning the SPIKES protocol, the nurses were likely to change their routine method of breaking bad news to families. In both groups, all the nurses were assigned an equal number of subjects.

To standardize the nurses' assessment of anxiety in the subjects, they were firstly trained by the researcher to learn how to fill out the researcher-made inventory. Sampling began only after that all the nurses managed to correctly complete the inventory for a random subject. After each death, the nurse called the patient's family and asked them to come to the hospital. In the control phase, the nurse delivered the news of the death using his/her routine approach (without preparation according to the SPIKES protocol) in a place routinely used to communicate with the families of patients in the presence of the researcher.

At the end of the control phase, the researcher trained the same nurses to break the bad news according to the SPIKES protocol. The second phase started only after that all the nurses managed to perform the task according to the protocol for one random subject. In this phase, a nurse conveyed the bad news according to the protocol in a room prepared for this purpose in the presence of the researcher. In both phases, the nurse filled out the researcher-made inventory after breaking the bad news through the observation of the person's reactions.

The six steps of the SPIKES protocol are as follows:

**1) Setting up the meeting:** This step involves the preparation of oneself and environment for delivering the bad news. In this step, firstly, the right environment for communicating the bad news to the family was determined. Before the meeting, the nurse reviewed the patient's information and planned the meeting and subjects to be discussed. The nurse met the family members in the selected room and introduced herself as the patient's nurse while using her communication skills to establish rapport.

**2) Assessing the person's perception:** This step involves assessing the knowledge and understanding of the recipient of the news about the situation. In this step, the nurse asked questions, such as "how much do you know about the condition of the patient?", to make this assessment and correct false information when necessary.

**3) Obtaining the person's invitation:** This step involves assessing the desire and competence of the

person to obtain information. In this step, the nurse made this assessment by asking questions, such as "Do you want to know if the condition is turning out to be serious?". If the answer was negative, the nurse skipped giving extra explanations, otherwise, she offered some details and spent enough time answering questions.

**4) Communicating knowledge and information:** This step involves conveying the news of death explicitly and without censorship. In this step, the nurse broke the news of death and provided sufficient information about the death process with complete honesty and using easily comprehensible words.

**5) Providing empathic responses:** This step involves building a platform to respond to the feelings and reactions of the person. In this step, the nurse offered water or tea, gave the person some time to express his or her feelings, and expressed her sympathy.

**6) Strategizing:** This step involves helping the person to prepare for spreading the news to others. In this step, the nurse reassured the family members that they would not be left untended and told them what they have to do next, including how to maintain self-control and provide the right conditions for delivering the news of death to others without creating much anxiety (20).

All the ethical codes of research in medical sciences were observed throughout the study. With the approval of the Ethics Committee of Mashhad University of Medical Sciences, the informed consent of the news recipients and their demographic information were obtained less than one week later by telephone. The information of the subjects who did not give consent was removed. Data analysis was performed by SPSS software (version 21) using the independent t-test, Chi-square test, and Mann-Whitney U test.

The main limitation of the present study was the completion of the anxiety assessment inventory by the nurses in charge of the deceased patients which undermined the accuracy of the anxiety assessments. Therefore, to improve the accuracy of these assessments, the researcher remained present in all the meetings and rechecked the completed inventories.

## Results

The mean age values of the deceased patients and recipients of bad news were  $55.6 \pm 21.0$  and

**Table 1. Demographic characteristics of deceased patients and recipients of death news in control and intervention groups**

| Variable  | Group             |                        | Result    |            |
|---|-------------------|------------------------|-----------|------------|
|   | Control<br>(n=30) | Intervention<br>(n=30) |           |            |
| Age of deceased patient (year)<br>(mean±standard deviation)                   | 57.1±20.0         | 54.2±22.0              | * P=0.28  |            |
| Duration of deceased patient hospital stay (day)<br>(mean±standard deviation) | 16.1±16.6         | 22.3±27.8              | ** P=0.57 |            |
| Age of recipient of death news (year)<br>(mean±standard deviation)            | 38.6±8.1          | 40.6±7.5               | * P=0.54  |            |
| Waiting time of recipient of death news (min)<br>(mean±standard deviation)    | 13.3±8.6          | 11.6±4.6               | ** P=0.69 |            |
| Diagnosis of death cause<br>Frequency (%)                                     | Sepsis            | 9 (30.0)               | 6 (20.0)  | *** P=0.94 |
|   | Toxicity          | 6 (20.0)               | 7 (23.3)  |            |
|   | Internal          | 15 (50.0)              | 17 (56.7) |            |
| Gender of death news recipient<br>(year) Frequency (%)                        | Male              | 20 (66.7)              | 22 (73.7) | *** P=0.57 |
|   | Female            | 10 (33.3)              | 8 (26.7)  |            |
| Relation of news recipient with the<br>deceased Frequency (%)                 | Child             | 20 (66.7)              | 16 (53.3) | *** P=0.78 |
|   | Brother           | 6 (20.0)               | 8 (26.7)  |            |
|   | Sister            | 2 (6.7)                | 2 (6.7)   |            |
|   | Spouse            | 1 (3.3)                | 2 (6.7)   |            |
|   | Mother            | 1 (3.3)                | 1 (3.3)   |            |
|   | Father            | 0 (0.0)                | 1 (3.3)   |            |

\* Independent t-test; \*\* Mann Whitney U test; \*\*\* Exact Chi-square test

**Table 2. Mean values of total scores and scores of individual dimensions of visual symptoms of anxiety in deceased patients' families after delivering death news in control and intervention groups**

| Variable                  | Group                   |                         | Intergroup comparison<br>Mann-Whitney U test |
|---------------------------|-------------------------|-------------------------|--|
|                           | Control<br>(n=30)       | Intervention<br>(n=30)  |  |
|                           | Mean±standard deviation | Mean±standard deviation |  |
| Behavioral symptoms       | 6.6±2.4                 | 3.0±1.7                 | P<0.001                                      |
| Emotional reactions       | 6.2±2.1                 | 2.6±1.5                 | P<0.001                                      |
| Physiological symptoms    | 7.6±1.8                 | 5.4±1.6                 | P<0.001                                      |
| Sympathetic reactions     | 6.6±2.0                 | 3.3±1.4                 | P<0.001                                      |
| Parasympathetic reactions | 2.8±2.0                 | 1.2±0.9                 | P<0.001                                      |
| Cognitive reactions       | 7.1±2.3                 | 2.8±1.7                 | P<0.001                                      |
| Total anxiety score       | 63.4±18.1               | 31.2±11.7               | P<0.001                                      |

39.6±7.8 years, respectively. Table 1 tabulates other demographic data of the subjects. The results of the statistical tests showed that the two groups were homogeneous in terms of demographic variables (Table 1).

The mean values of the total scores of visual anxiety symptoms were 31.2±11.7 and 63.4±18.1 in the intervention and control groups, respectively. The Mann-Whitney U test showed a significant difference between the aforementioned scores (P<0.001). The total scores were normalized within the range of 0-100. The Mann-Whitney U test also showed that the mean score of each dimension of anxiety symptoms was significantly lower in the intervention group (P<0.001) than the corresponding figure in the control group (6.6±2.4 and 3.0±1.7 for behavioral symptoms, 6.2±2.1 and 2.6±1.5 for emotional reactions, 7.6±1.8 and 5.4±1.6 for physiological symptoms, 6.6±2.0 and 3.3±1.4 for sympathetic reactions, 2.8±2.0 and 1.2±0.9 for parasympathetic reactions, and 7.1±2.3 and 2.8±1.7 for cognitive reactions in the control and intervention groups, respectively). The total scores were normalized within the range of 0-10 (Table 2).

### Implications for Practice

The obtained results of the current study showed that breaking the news of death according to the SPIKES protocol can reduce the anxiety of the recipients of the news. Since one of the goals of evidence-based nursing is the improvement of the quality and health impacts of nursing services, nursing courses should contain communication skills and codified protocol for delivering bad news to patients and their families. It is recommended to carry out future studies to measure the effect of the SPIKES protocol on treatment follow-up, for example in cancer patients.

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### Conflicts of Interest

The authors declare that there is no conflict of interest.

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