Evaluation of emergency medical services staff knowledge in breaking bad news to patients

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Abstract

Objective: The aim of the study was to investigate knowledge of breaking bad news (BBN) among medical personnel in the emergency medical services (EMS).

Methods: A cross-sectional survey was conducted of 148 individuals employed in EMS. An interview was conducted using a structured questionnaire.

Results: Of study participants, 89.2% were not aware of any formal BBN procedure and 58.1% had not participated in any form of training. Compared with males, females were more likely to report that dealing with the emotional state of the family or the patient was the most difficult aspect of BBN. Only a few participants were aware of the SPIKES protocol for BBN, and none knew what the acronym meant. Sex, educational level, occupation, work experience and workplace were not associated with knowledge of BBN procedures.

Conclusions: Knowledge of BBN in both male and female EMS staff was insufficient. EMS personnel held different opinions about the method of BBN. Even staff who have participated in specific BBN training or have extensive professional experience were pessimistic about BBN skills in self-assessments.

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Introduction

An emergency medical service (EMS) can be defined as 'a comprehensive system which provides the arrangements of personnel, facilities and equipment for the effective, coordinated and timely delivery of health and safety services to victims of sudden illness or injury'.[1] A permanent aspect of EMS work is communicating with patients and families about a poor prognosis, dying or death. Informing patients and their relatives of bad news is a difficult and challenging task.[2] However, oncology research indicates that good communication skills in health care providers can increase patients' ability to deal with emotions resulting from an unfavourable diagnosis.[3]

Breaking bad news (BBN) is one of the most difficult duties for all types of health providers, but medical education typically offers little formal preparation for this daunting task.[4] In addition, communication skills are not an essential part of medical studies in many countries. However, recent evidence indicates that patient and physician attitudes toward BBN have been changing in the last few years.[5] This may be a result of the development of various BBN structured guidelines. Unfortunately, the reliability and validity of many standard recommendations remain to be demonstrated and less than 25% of publications on BBN are based on studies reporting original data.[4] Rabow and McPhee have developed a practical and comprehensive model, synthesized from multiple sources, that uses the simple mnemonic ABCDE. This stands for Advance preparation, Building a therapeutic relationship or environment, Communicating well, Dealing with patient and family reactions, and Encouraging and validating emotions.[6,7] SPIKES, which is a six-step protocol for delivering bad news to patients, is an alternative to the ABCDE model.[8] Each letter in the name represents a phase in the six-step sequence: 1) Setting up the interview; 2) assessing the patient's Perception;[9] obtaining the patient's Invitation;[10] giving Knowledge and information to the patient;[11] addressing the patient's Emotions with empathic responses and[12] Strategy and Summary. This model for structuring the delivery of bad news has been evaluated in the United States and has reached a guideline status in the United States and several other countries.[13,14] SPIKES is used as a guide for the sensitive BBN process and for communication skills training in this context.[10] The SPIKES framework guideline[15] is a useful tool that helps medical staff to improve their ability to deliver bad news and is used most frequently in oncology wards.[2,8] It has also been used as a novel and efficient module to teach emergency personnel how to deliver bad news in the stressful emergency room environment.[16]

The practice of BBN differs across cultures. For example, in North America and western Europe, most physicians express a diagnosis clearly, but in southern and eastern Europe and China, information about their disease may be withheld from patients owing to the patriarchal social context.[11] This does not solely occur in relation to cancer patients, although SPIKES is associated with this group of patients.[9] Patients with neurological disorders such as spinal cord injury also often receive bad news in relation to their diagnosis and prognosis. One study reported a lack of satisfaction

among spinal cord injury survivors with the knowledge and emotional support provided by rehabilitation physicians.[17]

Although there is much research on physician skills in BBN,[18] especially among cancer patients,[2,3] similar research on EMS staff is sparse.[16] EMS systems are no different from other health care systems in the need for objective comparative information to assist government officials in monitoring system quality and effectiveness.[1] Therefore, the aim of this study was to investigate knowledge of BBN among medical personnel working in different EMS. A review of the literature indicated that emotional intelligence is one of the most important factors in promoting communication effectiveness.[19] Research also indicates that sex has a positive relationship with emotional intelligence.[20] Therefore, we hypothesized that that there would be sex differences in BBN approach and knowledge and so compared male and female subjects. In addition, the study evaluated the influence of different sociodemographic variables on EMS staff knowledge.

Methods

Participants

A cross-sectional survey was conducted among medical staff working in various entities belonging to the EMS system (stationary and ambulances). The study enrolled medical staff from four emergency departments, five EMS and two helicopter EMS. The potential sample comprised prehospital ambulance staff and emergency department medical staff. The study was conducted from September 2017 to December 2017. All consenting individuals working in the EMS aged 21 to 63 years were asked to take part in a diagnostic survey in the form of a structured questionnaire. The following were excluded: physicians and other medical staff who did not

have any contact with patients (e.g. radiologists, pathologists and laboratory workers) and individuals who did not sign an informed consent statement. Respondents could ask questions while completing the questionnaire because the researcher was present all the time. Informed consent and subject confidentiality were ensured. Questionnaires were anonymous and completion was equivalent to agreeing to participate in the study, so the relevant university human ethics committee waived the need for approval. The study meets the ethical standards of this journal.

Materials

Most previous studies[21] have evaluated knowledge and experience using a specially designed questionnaire. A knowledge survey is a way of evaluating the delivery of a course by gathering feedback from the learner on the level of the knowledge they have acquired after the completion of the instruction. A knowledge survey usually consists of questions that assess the content of the course.[22] Therefore, a specially designed questionnaire was developed based on the prior experience of the investigators and input from colleagues. Each question was based on the SPIKES protocol and on questionnaires used in other studies.[21,23,24] A draft of the questionnaire was pretested on 20 respondents and the results indicated that no changes were necessary. The questionnaire was divided into three sections. The first section recorded respondent sociodemographic information. Section 2 consisted of questions on skills and practical experience in BBN. The last section contained an open question that required respondents to decipher the acronym SPIKES, and was designed to assess their knowledge of the protocol for BBN.

Descriptive statistics were used to describe the patterns in the data. Data are presented as percentages, means and

standard deviations. Logistic regression was used to evaluate the separate effect of each independent variable on responses. Multivariate logistic regression analysis is an extension of bivariate (i.e. simple) regression in which two or more independent variables (Xi) are taken into consideration simultaneously to predict a value of a dependent variable (Y) for each subject. The dependent variable is dichotomized or categorical (i.e. multinomial or ordinal) in logistic regression models.[25,26] All analyses were carried out using STATISTICA (Statistica Inc. 2017, version 13.1, StatSoft, Tulsa, OK, USA, www.statsoft.com). Values of $P < 0.05$ indicated statistical significance.

Results

Characteristics of the study group

A total of 194 individuals were approached and invited to participate in the survey. Of these, 15 did not return the questionnaires and 31 questionnaires had information missing. A total of 148 respondents completed full interviews and these were used for primary analysis.

The sociodemographic characteristics of the study group are shown in Table 1. The mean age of participants was 38.7 ± 9.9 years, but men were slightly older than women (40.1 ± 9.9 and 36.6 ± 10.6 years, respectively). Most participants lived in cities of over 500,000 inhabitants, especially women (38.3% of women and 23.9% of men). Most men and women had graduated from university with a Master's degree (47.7% and 61.7%, respectively). Most male participants were paramedics and most female respondents were nurses. Work experience ranged from 10 to 30 years; the mean was 15.5 ± 9.5 years (15.9 ± 9.0 years for men and 14.7 ± 10.3 years for women). Most male participants (67.1%) worked at the EMS and most females (40.0%) were emergency department nurses (Table 1).

Knowledge and experience in delivering bad news

Almost all participants declared that they had provided information about a patient's negative prognosis or death, but there were significant differences in the frequency of BBN between male and female respondents ($P < 0.05$). Male participants usually reported that they had to deliver bad news several times a year, whereas female respondents stated that this had happened only a few times in their whole career ($P < 0.05$). The main rules that guided participants while conveying bad news included empathy, finding the right place and being properly understood. Male respondents tried to maintain eye contact more often than females. Participants, particularly female respondents ($P < 0.05$), reported that dealing with the emotional state of the family or the patient was the most difficult part of BBN. Although participants had experience of providing unfavourable information to patients or relatives, most (89.2%) were not aware of any formal procedure that could be used in that situation (Table 2). The most popular framework, SPIKES, was known only by six respondents, none of whom were able to decipher the acronym. It should be noted that some participants reported previous specific training in BBN at a university or via special courses. However, about 60% of male respondents and 50% of female respondents had never taken part in any form of training (58.1% for the whole sample) (Table 2). Multivariate logistic regression analysis for the whole sample showed that none of the independent variables (sex, level of education, occupation, work experience, place of work) influenced knowledge of BBN procedures (Table 3).

Discussion

Conveying negative information about adverse prognosis or death is an

Table 1. Sociodemographic characteristic of the study group (n = 148).

	All (n = 148) Mean (±SD)	Males (n = 88) Mean (±SD)	Females (n = 60) Mean (±SD)
Age (years)	38.7 ± 9.9	40.1 ± 9.9	36.6 ± 10.6
Work experience (years)	15.5 ± 9.5	15.9 ± 9.0	14.7 ± 10.3
	N (%)	N (%)	N (%)
Population of residential area			
<10,000 citizens	28 (18.9)	17 (19.2)	11 (18.3)
10,000–49,999 citizens	16 (10.8)	13 (14.8)	3 (5.0)
50,000–99,999 citizens	21 (14.2)	13 (14.8)	8 (13.3)
100,000–500,000 citizens	34 (23.0)	21 (23.9)	13 (21.7)
>500,000 citizens	44 (29.7)	21 (23.9)	23 (38.3)
No information	5 (3.4)	3 (3.4)	2 (3.4)
Level of education			
Secondary school	28 (18.9)	22 (25.0)	6 (10.0)
Bachelor's degree	28 (18.9)	16 (18.2)	12 (20.0)
Master's degree	79 (53.4)	42 (47.7)	37 (61.7)
PhD or Professorship	13 (8.8)	8 (9.1)	5 (8.3)
Occupation			
Paramedic	69 (46.6)	50 (56.8)	19 (31.7)
Nurse	25 (16.9)	2 (2.3)	23 (38.3)
Physician	45 (30.4)	34 (38.6)	11 (18.3)
Other	9 (6.1)	2 (2.3)	7 (11.7)
Work experience			
No experience	3 (2.1)	1 (1.1)	2 (3.3)
<10 years	39 (26.3)	19 (21.6)	20 (33.3)
10–30 years	86 (58.1)	55 (62.5)	31 (51.7)
>30 years	12 (8.1)	9 (10.2)	3 (5.0)
No information	8 (5.4)	4 (4.6)	4 (6.7)
Place of work			
Emergency department	44 (29.7)	20 (22.7)	24 (40.0)
Emergency medical service	78 (52.7)	59 (67.1)	19 (31.7)
Helicopter emergency medical service	4 (2.7)	4 (4.5)	0 (0.0)
Other	21 (14.2)	5 (5.7)	16 (26.7)
No information	1 (0.7)	0 (0.0)	1 (1.6)

SD: standard deviation.

unavoidable aspect of the work of medical staff. To our knowledge, there are few studies on this issue in the emergency sector. Therefore, the aim of this study was to investigate EMS staff knowledge of communicating bad news to patients.

During their career, most participants experienced situations in which they were obliged to deliver bad news about a negative prognosis to a patient, or bad news about a patient's death to relatives. Unfortunately, most participants reported that they did not know how to perform BBN professionally. They usually tried to find the right place to deliver bad news, to be empathetic and to ensure that they were fully understood. Participants felt that the most difficult part of BBN was how to

Table 2. Knowledge and experience of participants in breaking bad news (n = 148).

	Total (n = 148) N (%)	Male (n = 88) N (%)	Female (n = 60) N (%)
Have you ever participated in a situation in which you have delivered bad news e.g. negative prognosis or information about death?			
YES	137 (92.6)	85 (96.6)	52 (86.7)*
NO	11 (7.4)	3 (3.4)	8 (13.3)**
How often do you have to break bad news to a patient (e.g. diagnosis, recurrence, progressive disease)?			
A few times a day	1 (0.7)	0 (0)	1 (1.7)
Once a day	4 (2.7)	4 (4.5)	0 (0)
Once a week	8 (5.4)	5 (5.7)	3 (5.0)
A few times a month	33 (22.3)	25 (28.4)	8 (13.3)*
Once a month	8 (5.4)	5 (5.7)	3 (5.0)
A few times a year	39 (26.3)	27 (30.7)	12 (20.0)
Once a year	5 (3.4)	2 (2.3)	3 (5.0)
A few times during my career	34 (23.0)	14 (15.9)	20 (33.3)*
Only once during my career	3 (2.0)	1 (1.1)	2 (3.3)
Never	12 (8.1)	5 (5.7)	7 (11.7)
No answer	1 (0.7)	0 (0)	1 (1.7)
Do you know any procedures that may be applied to situations that involve delivering bad news?			
YES	14 (9.5)	6 (6.8)	8 (13.3)
NO	132 (89.2)	81 (92.1)	51 (85.0)
No answer	2 (1.3)	1 (1.1)	1 (1.7)
Have you had any specific teaching or training for breaking bad news?			
Formal teaching	30 (20.3)	15 (17.1)	15 (25.0)**
Special courses	18 (12.1)	10 (11.4)	8 (13.4)
During conferences	6 (4.1)	4 (4.5)	2 (3.3)
Other	6 (4.1)	3 (3.4)	3 (5.0)
Neither	86 (58.1)	56 (63.6)	30 (50.0)
No answer	2 (1.3)	0 (0)	2 (3.3)
Rules that you use when delivering bad new:			
Eye contact	7 (4.7)	6 (6.8)	1 (1.7)
Empathy	22 (14.9)	13 (14.8)	9 (15.0)
Finding the right place to deliver bad news	22 (14.9)	11 (12.5)	11 (18.3)
Using easy and understandable language	23 (15.5)	14 (15.9)	9 (15.0)
No answer	87 (58.8)	52 (59.1)	35 (58.3)
What do you feel is the most difficult part of discussing bad news?			
Dealing with the patient's emotions (e.g. crying, anger)	55 (37.2)	26 (29.5)	29 (48.3)*
Eye contact	4 (2.7)	3 (3.4)	1 (1.7)
Using easy and understandable language	9 (6.1)	6 (6.8)	3 (5.0)
Finding the right place to deliver bad news	2 (1.4)	2 (2.3)	0 (0)
Other	80 (54.1)	52 (59.1)	28 (46.7)
Do you know the SPIKES procedure?			
YES	6 (4.1)	4 (4.5)	2 (3.3)
NO	133 (89.9)	81 (92.1)	52 (86.7)
No answer	9 (6.0)	3 (3.4)	6 (10.0)

No comparisons were statistically significant except those indicated by *$P < 0.05$; **$P < 0.01$, males compared with females.

Table 3. Logistic regression results for the association between sociodemographic variables and lack of knowledge of breaking bad news (n = 132).

	No knowledge of BBN procedures (n = 132)		
	OR	95% CI	P
Overall			
Sex			
Male (n = 81)	2.04	(0.72–5.82)	0.182
Female (n = 51)	1.00		
Level of education			
Secondary school level (n = 26)	1.67	(0.34–8.25)	0.528
Bachelor's degree (n = 24)	0.77	(0.22–2.73)	0.688
Master's degree (n = 70)	1.00		
PhD or Professorship (n = 12)	1.54	(0.18–13.31)	0.693
Occupation			
Paramedic (n = 61)	1.00		
Nurse (n = 22)	0.96	(0.23–3.95)	0.957
Physician (n = 40)	1.05	(0.32–3.44)	0.937
Other (n = 9)	2.63	(0.14–49.32)	0.519
Work experience			
<10 years (n = 36)	1.40	(0.36–5.50)	0.627
10–30 years (n = 77)	1.00		
>30 years (n = 11)	1.29	(0.15–11.15)	0.820
Place of work			
Emergency department (n = 36)	0.38	(0.12–1.16)	0.089
Emergency medical service (n = 72)	1.00		
Helicopter emergency medical service (n = 4)	0.81	(0.04–16.70)	0.890
Other (n = 19)	0.79	(0.15–4.24)	0.785

P < 0.05 indicates statistical significance. OR: odds ratio; CI: confidence interval; BBN: breaking bad news.

properly deal with the emotional state of patients and their families.

Although some study participants stated that they had had specific training in BBN at university or via special courses, none of the participants were able to decipher the acronym of SPIKES, which is one of the most commonly used protocols in different type of medical wards. Moreover, sex, educational level, occupation, work experience and place of work did not affect BBN knowledge. This suggests that medical emergency staff, who deal with life-threatening situations every day, have insufficient ability to convey bad news to patients. Studies conducted by other researchers suggest that a lack of knowledge of BBN procedures, including the SPIKES protocol, is also found in other medical specialties.[2] A study conducted by Konstantis and Exiara[2] showed that over 60% of all doctors in one oncology ward had not heard about BBN techniques and guidelines, and that physicians did not even try to obtain information about different BBN procedures.[2] Ignorance of procedures can cause more stress for medical staff[27] because of the risk of burnout syndrome, traumatic stress disorders, negative feelings and nightmares. Moreover, if informed improperly, families may suffer from long-term emotional consequences and pathologic grief reactions.[16]

Teaching new behaviours is very different to, and more difficult than, teaching knowledge.[16] The delivery of bad news to patients or their families is an important task[16] that EMS staff must perform and it should be approached in the same way as any important high-impact medical or surgical procedure.[28] Knowledge about different procedures, especially the SPIKES procedure, which has become central in many medical specialties, should be supplemented at every stage of education.[23] One of the few studies on BBN among cancer patients indicated that not all patients were completely satisfied with how bad news had been transmitted to them, which suggests that the SPIKES protocol may not fully meet the priorities of different patients.[29] However, SPIKES does provide practical and easy to learn tools and allows the logical ordering of subsequent stages of the process, giving the informer a sense of security and control over the situation.[23] Moreover, it mobilizes staff to maintain sensitivity to reactions and reduces the risk of taking steps inappropriate to the emotional capabilities of the interlocutor.[8,16]

It should be remembered that a lack of information about procedures for BBN correlates with empathy. The personal experience of life-threatening illness has a strong relationship with greater emotional support.[12] Additionally, it is not necessarily the case that individuals who are unaware of the SPIKES protocol do not know how to break bad news. Although years in practice or the frequency of giving such news does not diminish the stress associated with BBN,[30] EMS medical personnel may learn from their senior colleagues, and real life experience may have an important educational effect on their professional skills.

The main strength of this study is its uniqueness, as only a few studies have evaluated BBN skills among emergency sector staff.[24,31] The participants were diverse in terms of age, level of education, occupation,

job seniority and place of work; therefore, the results can be generalized to the entire emergency sector, not only to physicians. Additional studies evaluating different educational interventions and their influence on the BBN skills of emergency sector staff are recommended.

ome study limitations should be acknowledged. First, BBN knowledge was evaluated using a questionnaire rather than more objective tools. However, specially designed questionnaires are often used in survey studies evaluating knowledge or skills.[21–23] Moreover, the questionnaire was pretested and all necessary amendments were considered. The researcher was present when participants were filling in the questionnaire, which may have generated social desirability bias. However, the interviewer's presence during questionnaire completion was important to ensure the accuracy and completeness of the data obtained, and is often recommended in this type of research.[32]

It would be useful to conduct a more objective assessment in the form of an observational study of EMS staff members during their hospital duties. Unfortunately, such a study would be difficult to carry out from an ethical point of view. It would require the presence of a stranger when paramedics or physicians were delivering bad news (e.g. about the death of a patient). A bioethics committee would not approve such a study. Second, the main study focus was the SPIKES protocol; there are other procedures useful for BBN. However, we aimed to maximize the comparability of the results to other study findings, and SPIKES is one of the most studied procedures.[8,29]

The importance of communication skills for BBN has been increasingly highlighted over the last 40 years; despite this, medical staff do not have sufficient BBN knowledge.[21,33] The need to sometimes deliver bad news to patients and families in emergency medical situations is inevitable.[16] We

suspect that if this is done improperly, it can negatively affect the patient and their family. Moreover, the nature of bad news means that EMS staff may experience psychological stress from conveying such news. Therefore, we conducted the present study to assess EMS staff preparation for BBN. The findings may help to promote the importance of teaching BBN. It is important that emergency personnel learn how to deliver bad news in the stressful environment of an emergency room.

To summarize, the results of this study show that the knowledge of both male and female EMS staff in giving bad news is insufficient. This may be a result of the medical education curriculum, which is strongly focused on medical science subjects and neglects humanities. EMS medical personnel in this sample expressed differing opinions about the method of BBN. Although some had received specific BBN training or had extensive professional experience, they were pessimistic about their BBN skills in self-assessment. We believe that if BBN is carried out improperly, it can reduce patients' trust and generate more inconvenience to EMS staff in difficult BBN situations. More attention should be paid to EMS staff, and their knowledge of BBN should be developed. We recommend the use of innovative workshops using simulation as an educational tool, use of the SPIKES protocol and small group role playing.

Declaration of conflicting interest

The authors declare that there is no conflict of interest.

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