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The impact of delivery style on doctors' experience of stress during simulated bad news consultations

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ABSTRACT

Objective: The purpose of this study was to investigate the relationship between doctors' bad news delivery style and their experience of physiological stress during simulated bad news consultations.
Methods: 31 doctors participated in two simulated breaking bad news (BBN) consultations. Delivery style was categorized as either blunt, forecasting or stalling (i.e. avoidant), based on the time to deliver the bad news and qualitative analysis of the interaction content and doctor's language style. Doctors' heart rate (HR) and skin conductance (SC) were recorded in consecutive 30 s epochs.
Results: Doctors experienced a significant decrease in HR ($F_{(1,36)} = 44.9$, $p < .0001$) and SC ($F_{(1,48)} = 5.6$, $p < .001$) between the pre- and post-news delivery phases of the consultation. Between-group comparisons for the three delivery styles did not identify any significant differences in HR ($F_{(2,36)} = 2.2$, $p > .05$) or SC ($F_{(2,48)} = .66$, $p > .05$).
Conclusion and practice implications: Doctors experience heightened stress in the pre-news delivery phase of breaking bad news interactions. Delaying the delivery of bad news exposes doctors to a longer period of increased stress.This suggests that medical students and doctors should be taught to deliver bad news without delay, to help mitigate their response to this stressful encounter.

1. Introduction

Breaking bad medical news (BBN) is a complex communication challenge. Doctors need to convey relevant medical information, and also simultaneously empathically respond to the patient's and family's emotional cues and concerns, in order to tailor the information to their individual needs. Getting this form of communication right has important implications since poor communication can increase the recipients' stress and anxiety [1], compromise their adjustment to the news [2] and potentially result in poorer health outcomes [3,4], and patients often lose trust in the doctor and the medical system in general [5,6]. Despite the importance of these medical interactions, responsibility for BBN often comes early in a doctor's career [7]. There is little evidence that BBN communication improves with experience without being provided with targeted medical training [8–10].

Not surprisingly, doctor's self-reports indicate that they find BBN stressful [11,12], particularly when they feel a sense of responsibility for the news, [13] or fear the patient/family emotional reactions to the news [14]. Doctors also report that they sometimes have difficulty separating their own emotions from the clinical situation [15,16].

In an effort to quantify BBN stress and explore potential factors which may contribute to heightened stress, a number of studies involving medical students and doctors have used physiological indices to measure stress responses during simulated BBN consultations. These studies have empirically confirmed that delivering bad news is more stressful than giving good news (i.e. non-cancer diagnosis) [17–19]. For instance, in a study conducted by our group [8] with 24 senior and junior doctors, all doctors experienced a significant increase in HR and a decrease in several HRV indices during the bad news task, relative to the good news task, especially in doctors who were less experienced or more fatigued [17]. Studies with medical students report similar increases in cardiac activity when comparing the delivery of bad news to good news or neutral medical tasks such as taking a medical history [18,19].

Another recent study by our group [20] examined the trajectory of the BBN stress response across the BBN interaction. This study

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confirmed the early anticipatory increase in HR and SC as doctors prepared to deliver the bad news, with most doctors experiencing a later brief increase in stress response as they delivered the bad news. However, about one-third of the doctors showed a prolonged stress response that continued after the BBN session. Van Dulmen et al. has reported similar anticipatory increases in cardiovascular activity and serum cortisol levels in medical students which decreased in the majority of students after the consultation [21].

However, factors that may potentially account for the observed variations in individual stress response patterns have yet to be identified, although different communication strategies may account for this variation. For instance, Van Dulmen et al. [21] found that in medical students, a relationship existed between the type of communication students used and their stress levels after the consultation. The provision of more medical information and greater patient-directed gaze was associated with higher heart rate. In contrast, students who addressed the emotional concerns of the patient experienced a reduction in their stress response. However, our group has found no relationship between poor communication performance and higher stress responses in doctors [17], suggesting that the relationship may be more nuanced than purely poor vs. good communication.

Structurally, bad news consultations differ from other medical interactions inasmuch as the salient information for the patient tends to be presented early in the interaction. Thus, the communication approach used by a doctor when delivering the bad news may directly impact on the experience of stress during BBN. For example, if the news delivery is delayed this may result in higher stress levels in the doctor, until the bad news is delivered.

In relation to this, Maynard has described three theoretically-derived approaches to delivering bad news based on an analysis of medical and non-medical interactions [22]. Our group has adapted these delivery styles to pertain to BBN in the medical setting [23]. The three doctor delivery styles, which have been observed and systematically classified [23] (1) blunt—characterised by doctors delivering the news within the first 30 s of the interaction with little preamble; (2) forecasting—a staged delivery of the news occurring within the first 2 mins that incorporates warning shots of the approaching bad news, or (3) stalling—delaying the news delivery for more than 2 min.

The aim of this study was to investigate whether the doctor's delivery style accounted for the differences in individual variations in HR and SC response patterns in doctors. Specifically, it was hypothesized that HR and SC response patterns of doctors who utilized a forecasting style would differ from those who utilized a blunt or stalling delivery style, consistent with the recommendations that a staged delivery of bad news be given that includes a 'warning shot' to pre-empt the delivery of the news [24,25]. The physiological indices (HR and SC) used in this study were chosen as they differ in terms of pattern of response, latency and relationship to central arousal mechanisms of action [26,27].

2. Method

2.1. Participants

Thirty-one doctors (21 male, 10 female; mean age 36.6 years, SD 11.2) employed in one of a number of metropolitan hospitals in Sydney, Australia across were recruited. Twenty-two senior medical officers (SMOs—registrars and staff specialists/consultants) and 9 junior medical officers (JMOs—interns and residents) from a range of specialties (Table 1) participated in the study. BBN experience was commiserate with participants' level of seniority (SMOs delivered bad news more frequently than JMOs), although 71% ($n = 22$) of participants BBN as a routine part of practice and all had some BBN experience. Recruitment to the study was indirect such that doctors were asked to contact the researcher (JS) if they wished to participate, after an initial approach to the heads of department to advertise the study to their staff or a presentation on the study at departmental or clinical education meetings (SD). Time and funding constraints limited the researchers' ability to recruit more participants. This study was conducted with full ethical approval from the Human Research Ethics Committee of the Northern Sydney Local Health District.

Table 1
Medical specialties represented.

Specialty	*N*	(%)
Oncology	8	25.8
Surgery	6	19.3
Obstetrics/gynaecology	3	9.7
Emergency medicine	3	9.7
Cardiology	3	9.7
Palliative care	1	3.2
Paediatrics	3	9.7
Infectious diseases	1	3.2
Respiratory medicine	1	3.2
General medicine	1	3.2

2.2. Physiological measures

During the two simulated consultations, heart rate (HR) and skin conductance (SC) were recorded using the ProComp Infinity 8-channel, multi-modality encoder (Thought Technology Ltd., Montreal, Canada), connected to a laptop computer equipped with Biograph Infinity software (version 3.1.6, Thought Technology Ltd., Montreal, Canada). Data was recorded on a laptop in real-time, and video recording of the interactions enabled the synchronisation of physiological data with the simulation activities. HR was recorded using a three-electrode ECG sensor (Thought Technology Ltd.), with a sampling rate set at 2048 Hz. The placement of the Ag–AgCl electrodes was according to the standard ECG configuration (negative electrode: placed on the right shoulder, the positive electrode be placed on the left side of the chest (xiphoid process) and the ground electrode, on the left shoulder). SC was recorded using a pair of Ag–AgCl electrodes attached to the palm of non-dominant hand, and connected to a sensor that excited the electrodes, using a constant voltage of 0.5 V. The sampling rate was set at 256 Hz. This placement was selected over the finger placement as it provided better electrode connection and therefore fewer artefacts in the data due to movement of the electrodes during the interaction.

The Biograph Infinity software (version 3.1.6) was used to convert raw ECG signals to inter-beat intervals (in milliseconds), reported as beats per minute (bpm). SC (μS) was recorded and the number of fluctuations was counted manually. To differentiate between changes in generalised arousal (tonic skin conductance level) and the more rapid SC fluctuations that occur as a result of discrete stimuli (phasic skin conductance), the data was visually inspected and the number of discrete SC changes in one second intervals was manually counted. A change in SC was considered a fluctuation if there was >0.05 μS increase from the SC value [27,28,29]. Responses with a long duration (that is a slow return to baseline) were designated as a single response. The number of fluctuations counted were standardised into fluctuations per minute. HR and SC were both reported in consecutive 30-s epochs over the entire length of the two consultations. Calculating the mean over a 30 s epoch reduced the impact of artefacts in the data due to movement.

2.3. BBN scenarios

Two medical scenarios involving patient deaths were utilised as the BBN scenarios. The first scenario involved a wife in her mid-