

Effectiveness of Bilingual Multidisciplinary Simulation-based Training in Improving Communication and Breaking Bad News Skills

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Abstract—Background: Healthcare worker (HCW)-patient communication is an essential element of every patient’s journey, and evidence links good communication with favourable patient experiences and outcomes. Simulation-based training (SBT) is a promising and effective tool to improve such communication.

Aim: To develop a bilingual SBT programme in communication skills for all HCWs in an academic tertiary hospital, to improve patient care, experiences and outcomes.

Methods: This was a quasi-experimental design, conducted in 2018 at King Abdulaziz University (KAU). We designed and delivered a bilingual, simulation-based, full-day course for HCWs (both clinical and administrative), and measured its impact by comparing pre- and post-course test scores, participant feedback, and instructor performance satisfaction indices.

Results: We trained 318 HCWs over 15 days, using 10 instructors. Post-test scores showed individual and overall improvement. The average scores were 26.6% (14-40%) for the pre-test and 55.8% (37-70%) for the post-test, with an average improvement of 29% ($P < 0.005$). Participant feedback was 77% positive and in favour of more training. The average instructor performance satisfaction score was 96.2% (92-99%).
Conclusion: We demonstrated the positive impact of SBT on communication skills for both clinical and administrative HCWs. We also demonstrated the sustainability and scalability of this course.

Index Terms—breaking bad news, communication,

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NURSE, simulation education, SPIKES.

I. INTRODUCTION

Healthcare worker (HCW)-patient communication has been shown to play an integral role in the success of therapeutic outcomes in all medical settings. Multiple studies have shown the potential negative impact of poor patient-centred communication on clinical outcomes [1-5]. A 2010 review [2] showed that “...communication has the potential to help regulate patients’ emotions, facilitate comprehension of medical information, and allow for better identification of patients’ needs, perceptions, and expectations...” and that “... Patients reporting good communication with their doctor are more likely to be satisfied with their care, and especially to share pertinent information for accurate diagnosis of their problems, follow advice, and adhere to the prescribed treatment...”. It also showed that clinicians tend to overestimate their skills when it comes to patient communication [2]. In addition to this over-estimation, the literature found other barriers to proper HCW-patient communication, including cultural differences, patient fears, provider anxiety, burden of work, and lack of training.

Simulation-based training (SBT) is a promising training modality that can be utilised to address this gap, improving patient communication and hence clinical outcomes. Hybrid simulation integrated training in communication and breaking bad news has resulted in improved providers’ communication skills, as well as providing an opportunity to identify and address individual and system gaps [10,11].

As part of its continuous efforts, the Clinical Skills and Simulation Center (CSSC) at King Abdulaziz University (KAU) initiated this project with

the aim of improving the communication skills of its HCWs. The study includes possibly the highest number of participants out of any study in the literature; we have not found any previous report that approaches more than tens of participants. Another unique feature of this study is the fact that we used Arabic translation of the tools for breaking bad news: SPIKES, NURSE and CUS. SPIKES (Setting up, Perception, Invitation, Knowledge, Emotions, Strategy/Summary) is a six-step tool for breaking bad news; NURSE (Naming, Understanding, Respecting, Supporting, Exploring) is a helpful tool for addressing patient emotion; and CUS (Concerned, Uncomfortable, Safety) is a third tool for helping to improve communication [7-9].

These tools are described in the literature as having been used effectively in English and a few other languages, but our report contains the first mention of their use in the Arabic language. In addition, the training of administrative HCWs in such a project has not previously been reported in the literature.

In this study, we sought to develop a bilingual SBT programme in communication skills (including breaking bad news and difficult communication) for all HCWs at the King Abdulaziz University Hospital (KAUH), as part of a continuous effort to improve patient care, experiences and outcomes.

II. MATERIALS AND METHODS

A. Study Design:

This is a quasi-experimental design, conducted in 2018 over a period of five months (April-September) in the CSSC at KAUH.

B. Study Tools:

The course was developed by simulation and education experts working at the CSSC. An interdisciplinary committee of physicians, nurses and educators designed a bilingual, full-day (eight hours) SBT course for HCWs at KAUH. We recruited 10 instructors (simulation experts) from various disciplines (anaesthesiology, emergency medicine, paediatrics, quality improvement and education specialists) and backgrounds (physicians, nurses, administration, management and professional actors). All instructors received unified training from the

course directors to ensure a standardised delivery method.

C. Study Participants:

Participants were recruited randomly. Both electronic and written course invitations were distributed within the hospital and made available to all HCWs at KAUH. No preferences or exclusion criteria were used; seats were allocated on a first-come, first-served basis to avoid any biases by pre-selecting participants. We ensured that the invitations were extended to non-clinical as well as clinical HCWs.

D. Implementation:

The course consisted of four phases.

Phase A: Introduction and Pre-test (30 minutes):

Each course started with an introduction, which included a pre-test. The questions targeted the determined objectives of the course. The test was reviewed by 10 educators and was piloted on 20 participants to ensure its validity and reliability. It consisted of 14 multiple choice questions (MCQ) and one short answer question. The MCQs covered routes and modes of communication, verbal and non-verbal communication, while the short answer question was about tools used when breaking bad news (Appendix 1). Participants were also provided with handouts containing learning materials.

Phase B: Didactic sessions (240 minutes):

The introduction was followed by four didactic sessions of 60 minutes each, including breaks (Table 1).

Phase C: Practice Groups (180 minutes)

The didactic sessions were followed by two 90-minute practice sessions, using advanced illness scenarios pre-written with the consensus of simulation experts (Table 2).

The instructions for scenario implementation were:

Divide participants into subgroups of three to five. In each subgroup, one participant will be assigned

TABLE I
LIST OF 60-MINUTE DIDACTIC SESSIONS

Session 1	Modes of communication
Session 2	Verbal and non-verbal communication
Session 3	Small group communication
Session 4	Difficult communication and tools used to break bad news in a clinical setting

TABLE II
LIST OF STANDARDISED PATIENT CASE SCENARIOS

Case 1	Sudden death of a family member from severe septic shock.
Case 2	Unexpected lifesaving emergent Caesarean section with severe post-partum haemorrhage, requiring vascular ligation and possible hysterectomy.
Case 3	Hospital staff termination of employment due to poor performance.
Case 4	Medical error (medication administration error) resulting in severe morbidity.
Case 5	Medical error (unnecessary intervention) resulting in complication necessitating invasive treatment.
Case 6	A senior requesting fraudulent documentation upon a patient's death.
Case 7	Escalating situation wherein a patient requesting non-emergency services at the Emergency Room becomes increasingly aggravated by delays.
Case 8	A co-worker requesting hospital registration and examination of a family member under a different patient file due to administrative and financial issues.

as “delivering the news (doctor)” and one as “receiving the news (patient, relative or another doctor)”, while the rest of the subgroup actively observes the communication process and documents their observations. Each assigned participant is given two to three minutes to read through their role. When they are ready, they engage in the role-play for 7 to 10 minutes. When the role-play is finished, 15 minutes are allocated for feedback. The debriefing format was based on the well-known Plus-Delta method [12], focusing simply on general description, what went well (WWW) and things to improve (TTI), followed by case conclusion, whereupon another scenario commenced.

E. Phase D: Wrap-up and evaluation (30 minutes)

Following the practice session, a summary session was conducted which included the post-test and evaluations. The post-test covered the course contents and the questions were identical to those in the pre-test.

To measure the impact of the project, we analysed the pre-test and post-test scores, collected feedback comments, and measured instructor performance

satisfaction. Given the timing of the pre- and post-tests just before and after the intervention (course), we can conclude that the intervention is the only possible cause of the observed outcome. The pre-test and post-test scores were used as a measure of the improvement in knowledge that could reflect on employee performance and patient satisfaction in future practice. Participant feedback and satisfaction scores were collected as a supporting measure and to provide ongoing formative assessment to the course instructors, using open-ended questions and Likert's scale as appropriate.

To ensure accuracy and completeness, data were collected manually by an independent CSSC employee, who had no interest in the success or failure of the course, without any identifying information and in such a way that answers could not be traced to individual participants. There was no missing data.

We conducted a descriptive analysis of the data. Data collection, coding and analysis were completed manually, using GraphPad Prism 8. We used multiple measures of dispersion, and cross-tabulations. We presented quantitative data for categorical vari-

ables as percentages or frequencies, as appropriate. To measure the difference between pre-test and post-test scores, we used a paired t-test with a significance level of $p \leq 0.05$.

This training course involved minimal ethical risks, with the participants' privacy and well-being assured prior to and throughout the course. Given the difficult nature of breaking bad news, participants were offered access to appropriate resources in case of any unanticipated psychological stress. Ethics committee approval was received for this study from the Unit of Biomedical Ethics at KAU School of Medicine (Reference No. 413-20). Consents were waived during the ethical approval, since no personal or traceable data were collected.

III. RESULTS

The course was repeated a total of 15 times (8 times in the Arabic language and 7 times in English), with a total of 318 participants (ranging from 13-27 participants per course), representing 10-15% of the total number of KAUH employees. Participants were interdisciplinary; 105 (33%) were female and 213 (67%) male; and they represented all the major clinical (69%) and administrative (31%) hospital departments (Table 3).

Pre-test/post-test analysis: All participants completed the tests. All of the individual courses, as well as the overall test results, showed an improvement in test scores (figure 1). A paired t-test was used for analysis where appropriate. The average pre- and post-test scores for the 15 courses were 26.6% (14-40%) and 55.8% (37-70%) respectively. The statistically significant mean difference was 29.20, standard deviation of difference was 17.86, and standard error of mean of difference was 4.611, with a 95% confidence interval; 19.31 to 39.09, correlation coefficient (r) -0.6579 (figure 1).

Participant feedback: Only 35 participants provided the optional written feedback. Overall, 77% of the feedback was positive. The 23% negative feedback was related to centre facilities (5 comments) and the provision of better materials (3 comments). Suggestions for improvement included prolonging the course duration (18 comments), increasing the

scenario exercises (7 comments), mandating the course to hospital staff (6 comments), providing certificates of completion (1 comment), and providing more video materials (1 comment).

Instructor performance satisfaction indices: Ten instructors participated in this course. All participants responded to the questionnaire, and the average instructor performance satisfaction score was 96.2% (92-99%).

IV. DISCUSSION

This study has demonstrated the feasibility, significance and reproducibility of a multidisciplinary SBT programme that focuses on improving HCWs' communication and breaking bad news skills. The number of participants in this project is one of the most sizable reported in the literature. Furthermore, to the best of our knowledge, this project is the first of its kind to include administrative staff, and the first to translate communication tools such as SPIKES, NURSE and CUS [7-9] into the Arabic language for clinical practice.

Our results demonstrated a positive impact on knowledge acquisition after completing the course. These results are aligned with multiple previous research protocols [6] that showed the positive impact of communication training for General Practitioners, both on post-training test scores (similarly to our study) and on behaviour during patient interviews [6]. Similar positive impacts were repeatedly demonstrated when role-play was used with standardised patients and/or training for clinical students [10], trainees [11] and/or clinicians in different specialties, including nurses, social workers and chaplains.

Recent systematic reviews have not revealed a single study that investigates the potential effect of communication training on non-clinical administrative HCWs [13,14]. Our project demonstrated a positive impact not only on clinical HCWs, but also on administrative HCWs. The integration of multidisciplinary participants, including non-clinical HCWs, did not impede the learning process; rather, it was viewed as an advantage to facilitate knowledge transfer across disciplines.

Translation of validated communication and tools for breaking bad news, such as SPIKES, NURSE and CUS, into the Arabic language for clinical use

TABLE III
PARTICIPANT DEMOGRAPHICS

Participant distribution by specialty		
Administrative	99	31.1%
Nurse	94	29.5%
Physician	44	13.8%
Technician	24	7.5%
Dietitian	17	5.3%
Pharmacist	11	3.4%
Specialist	7	2.2%
Security	6	1.8%
Laboratory	6	1.8%
Project & Maintenance	8	2.5%
Nurse Educator	2	0.6%
Attendance by department		
Emergency Medicine	77	24.2%
Human Resources	36	11.3%
Anaesthesia & Critical Care	20	6.3%
Nursing Administration	20	6.3%
Outpatient	18	5.6%
CSSC	17	5.3%

would have a great impact, both on Arabic-speaking clinicians and on their patients, providing an easier way to build a therapeutic relationship. Moreover, our results demonstrated sustainability and scalability to include a larger number of participants. The cost to scale and sustain this project after its establishment would be minimal, attributed mainly to staff time and availability of space. We mitigated the cost by recruiting and training local instructors and by using the hospital's facilities to as a course venue. Participant recruitment is a potential obstacle that could be overcome with strong support from higher leadership.

Our project had certain limitations. First, although we included 318 participants, representing 10-15% of all of the hospital's HCWs, the impact of the training on the overall quality of the hospital's service was too small without training more HCWs. Second, as with most SBT, demonstrating the direct effect on patient outcomes is difficult; a longer period and a higher number of participants is required to determine whether a higher level can be reached in Kirkpatrick's model [15]. A third limitation was the large number of instructors [10] required for the project; on a larger scale this might result in a variation in the quality of course delivery. We tried to minimize this latter limitation by focusing on instructor training and providing unified course

instructions and materials.

V. CONCLUSION

Using structured SBT has a positive impact on improving communication and breaking bad news skills for all HCWs, including administrative personnel. SBT has the potential to provide the sustainability and scalability of such programmes. Future studies should continue to examine patient-related outcomes and quality improvement indices of hospital systems.

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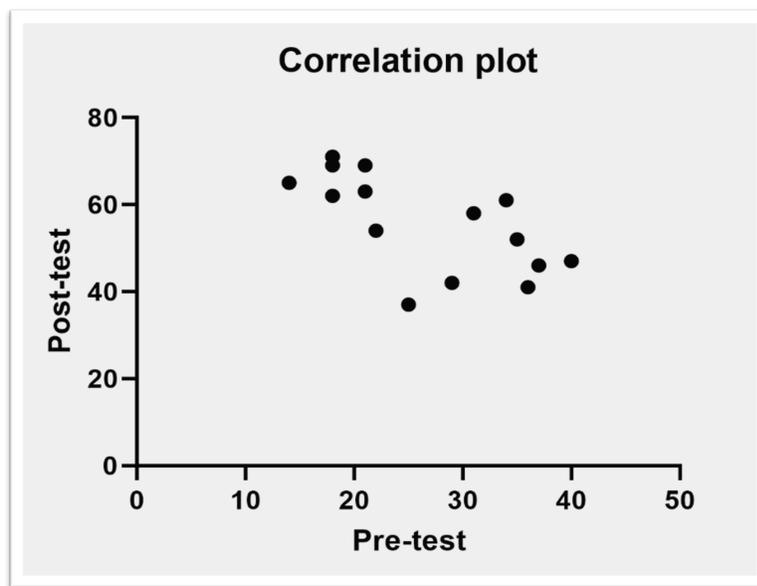
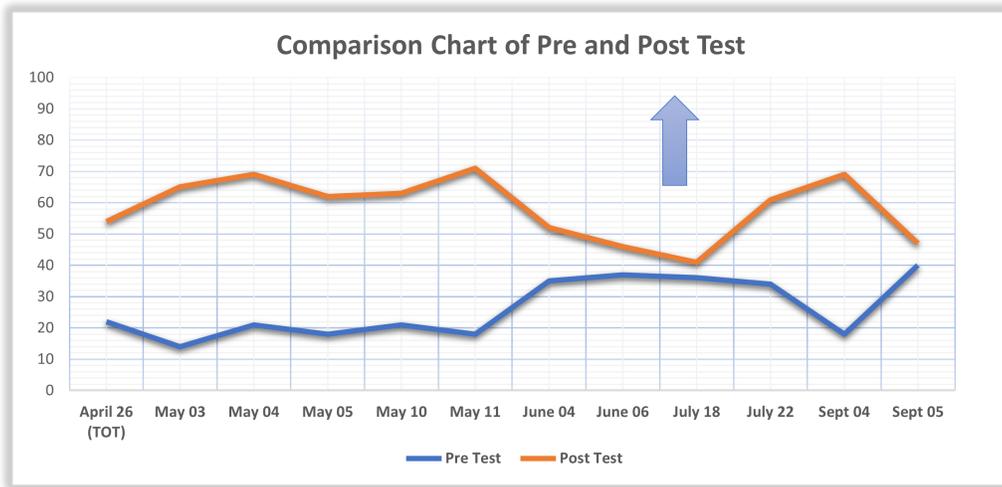


Figure 1: The average pre-test and post-test scores were 26.6% (14-40%) and 55.8% (37-70%) respectively.