Competence of medical students in communicating drug therapy: Value of role-play demonstrations

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ABSTRACT

Objectives: This study used role-play demonstrations to train medical students to communicate drug therapy and evaluated the perceptions on this instructional approach. Materials and Methods: The second-year medical students who attended a prescription writing session (n = 133), participated in this study. Prescription communication was introduced by using role-play demonstrations. Participant’s perceptions were explored by a self-administered questionnaire and focus group discussion. The academic achievement of attendees and nonattendees was compared with an objective structured performance evaluation (OSPE) station that tested students’ competence in this skill. Results: Most attendees responded to the questionnaire (81.2%). Almost all respondents expressed their desire to have similar demonstrations in other units. A large proportion of participants reported that role-play demonstrations helped them develop their communication skills, in general, confidence to communicate drug-related information in a prescription, and the ability to explain the aim of drug therapy to patients. Most trainees thought also that they developed skills to communicate instructions on drug use including drug dose, frequency of administration, duration of therapy, adverse drug reactions, and warnings. During the focus group interviews, students thought that role-play was useful but would be more beneficial if conducted frequently in small group as part of the curriculum implementation. The majority of students also reported improved competence in writing a complete prescription. Analysis of attendees and nonattendees grades in the OSPE showed that the former scored higher than the latter group (P = 0.016). Conclusions: Role-play demonstrations were well accepted by medical students and led to the development of their competence in communicating drug therapy to patients.

KEY WORDS: Communication skills, drug therapy, medical students, objective structured performance evaluation, prescription, role-play
and respond to their queries using plain language that the patient can understand. However, most medical schools tend to offer medical students training on this skill mainly during the preclinical part of their study while such training tends to decline during the clinical years. The art of communication with patients has been successfully introduced using several approaches. These include ward round-based teaching, small group learning, case-based discussions, independent study, patient tracking, role-play demonstration, simulation, as well as incorporation into problem-based learning scenarios. Among these, role-play demonstration, as a format for introducing the principles of communication skills, represents an innovative pedagogy that has been extensively investigated and found to be extremely useful.

Since most medical consultations end up with writing a prescription, drug therapy communication is considered an important part of the student–patient interaction. Among several other factors, communicating drug therapy to patients during a medical interview is considered to be important for maintaining patient’s safety. These include professionalism, medicolegal practice, medication safety, infection control, and procedural skills. A recent study has investigated the level of awareness of 264 outpatient clinic attendants of their drug therapy and found that although a considerable number of patients were aware of the therapeutic effects of their drugs and the route of administration of their medications, a significantly large number of them lacked information regarding the adverse reactions of their medications, warnings, and the information they are supposed to bring to their physician during the next consultation.

The College of Medicine and Medical Sciences (CMMS) at the Arabian Gulf University (AGU), offers extensive training on the principles of writing a complete prescription. The training focuses on all elements of prescription including prescriber’s details, patient’s details, main body of the prescription, refill information, and warnings. This skill is sequentially introduced at the end of the different units of the preclerkship phase of the undergraduate medical program. The training is provided in a case-based, interactive format where students and instructors analyze clinical case scenarios for which students are required to write a complete prescription. The value of attending these sessions has been recently highlighted. However, during these sessions, no training on communicating these prescriptions to patients is offered. Therefore, the major aim of conducting this study was to explore medical student’s perceptions of using role-play demonstrations for introducing the proper approach for medications communication. Moreover, the value of this intervention was further assessed by examining student’s academic achievement at an experimental unit’s objective structured performance evaluation (OSPE) station which tested students’ competence in this skill.

Materials and Methods

Ethical Approval

Ethical approval was granted by the AGU/CMMS Research and Ethics Committee. Oral consent was sought from the students after the purpose and nature of the study were explained. The students were informed that participation is anonymous, voluntary, and confidential. Moreover, the participants were advised that they can withdraw from the study at any time and that their participation or withdrawal will not affect their assessment.

Settings

The AGU was established in Al Manama, the capital city of the Kingdom of Bahrain in 1979 as a model regional institution which provides modern medical education within the Gulf Cooperation Council (GCC) region. The CMMS at the AGU offers a 6-year undergraduate program and awards the Doctor of Medicine (MD) degree.

The curriculum at the CMMS is fully integrated both horizontally and vertically. During the preclinical phase of the program which runs from year 2 to year 4, the students are offered a system-based, student-centered, and problem-based learning curriculum supported by large group didactic resource sessions (lectures) which are held 3 times per week. On completion of this phase successfully, students move to the clinical phase (year 5 and 6) which culminates in awarding the MD degree to successful students.

Prescription writing is introduced at the end of each unit during the preclinical phase of the curriculum as a part of their pharmacology and therapeutics education. Each prescription writing session, which typically lasts for 2 h, is led by a faculty member from the Department of Pharmacology and Therapeutics. During this session, a set of clinical case scenarios is introduced which describe the history, physical findings, and results of investigations of patients who present with various diseases related to the unit. For each case scenario, the students and instructor interactively analyze the case, reach a diagnosis, and plan drug treatment. Finally, the students are required to write a complete prescription for each case. One prescription writing session is conducted at the end of each organ system. The number of scenarios that are discussed in each session depends on the number of problems in the unit. Typically, one scenario is used to introduce a prescription writing exercise for each problem in the unit.

Subjects

All participants in this study were the 2nd year medical students enrolled in the MD program at the AGU during the academic year 2014/2015. Students originated primarily from the GCC countries (Kingdom of Bahrain, Kingdom of Saudi Arabia, State of Kuwait, State of Qatar, United Arab Emirates, and Sultanate of Oman).

Study Design

Second-year medical students who attended the prescription writing session of the cardiovascular subunit of the curriculum in June 2015 (n = 133) were invited to participate in this study. During this session, a number of case scenarios that introduced different common cardiovascular diseases were analyzed and complete prescriptions were discussed. In addition, the students were provided with role-play demonstrations on how to communicate with patients regarding their drug treatment. During these demonstrations, an instructor, who was a faculty member from the department of pharmacology and therapeutics at the college, and a volunteer student played the roles of a prescribing physician and a patient, respectively. The right way of relaying information related to drug therapy was demonstrated to the students. This included the proper way to
introduce themselves to the patient followed by explaining the disease, aim of drug therapy, instructions of drug’s use, major adverse drug reactions, and warnings. Thereafter, volunteer students were invited to perform the demonstrations for another case scenario, and feedback was given by the instructor.

**Students Perception Questionnaire and Focus Groups Interview**

At the end of the session, the participants were asked to respond to a self-administered structured questionnaire (Table 1) to report their perceptions on this experience. The survey used a 5-point Likert scale to record responses (1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, and 5 = strongly agree). Thereafter, three small groups of students (n = 8 each) were separately invited to participate in a focus group interview in which the students’ opinions on the value of this demonstration was further explored.

**Evaluating Student’s Academic Performance**

During the final examination of the experimental unit which took place in June 2015, the value of the role-play demonstrations was objectively assessed by analyzing the students’ scores in a summative OSPE station which was specifically designed to measure student’s competence to communicate a prescription to a patient. In this station, the students were provided with a short case scenario that provided information about patient’s identity, diagnosis and a complete prescription including drug’s name, strength, dose, formulation, route of administration, frequency of administration, duration of therapy, and one specific warning for the given medication. The students were asked to communicate this prescription with a simulated patient in the presence of a faculty member from the department of pharmacology and therapeutic. Each student was given 3 min to complete this task. Student’s performance was evaluated in three different domains; the first domain was an introduction which included patient greeting and the way the student introduced himself to the patient. The second domain addressed explaining patient’s illness and the aim of drug therapy. The third domain focused on student’s capability to communicate the details of the prescription (drug dose, frequency of administration, duration of therapy, and one significant warning). The total score and the scores in each individual domain for students who attended (attendees) and those who did not attend the role-play demonstration (nonattendees) in this OSPE station were compared.

**Statistical Analysis**

Data generated from the student’s perceptions questionnaire were entered into Microsoft Office Excel-2010 software and were analyzed by using simple descriptive statistics. The comparison of attendees’ and nonattendees’ grades in the OSPE station were compared by using two-sample t-test and the level of statistical significance was set at P < 0.05.

**Results**

Of the total number of students in year 2 of the undergraduate medical program (n = 181), the experimental prescription writing session was attended by about two-thirds of them (n = 133). The majority of attendant students volunteered to participate in the study (n = 108, 81.2% of attendees). Generally, our results revealed that most participating students considered the role-play demonstrations useful [Table 1]. All students expressed their desire to have similar role-play demonstrations in other units. In response to an item on the impact of these demonstrations on student’s communication skills with patients, the majority of respondents gave a positive answer. Likewise, regarding student’s self-reported competence to communicate a prescription to a patient, a large proportion of students believed that this skill improved. A similar positive response was observed when the students were asked about their ability to convey information about the aim of drug therapy in patient’s illness.

**Table 1:** Medical student’s perceptions of employing role-play demonstrations for introducing drug therapy communication (n=108)

| Perception                                                                 | Strongly disagree (%) | Disagree (%) | Not sure (%) | Agree (%) | Strongly agree (%) |
|----------------------------------------------------------------------------|-----------------------|--------------|--------------|-----------|--------------------|
| My communication skills with patients has generally improved              | 1 (0.8)               | 0 (0)        | 7 (5.3)      | 20 (15)   | 80 (60.2)          |
| My confidence in communicating drug therapy to patients has generally improved | 1 (0.8)               | 0 (0)        | 5 (3.8)      | 22 (16.5) | 80 (60.2)          |
| My confidence in communicating the role of a certain drug to a patient’s disease has improved | 1 (0.8)               | 0 (0)        | 8 (6)        | 22 (16.5) | 77 (57.9)          |
| My confidence in communicating instructions of drug use to patients has improved | 1 (0.8)               | 0 (0)        | 3 (2.3)      | 22 (16.5) | 82 (61.7)          |
| My confidence in communicating drug dose has improved                     | 1 (0.8)               | 1 (0.08)     | 8 (6)        | 19 (14.3) | 78 (58.6)          |
| My confidence in communicating frequency of administration has improved   | 1 (0.8)               | 0 (0)        | 5 (3.8)      | 19 (14.3) | 80 (60.2)          |
| My confidence in communicating duration of therapy has improved           | 1 (0.8)               | 2 (1.5)      | 4 (3)        | 20 (15)   | 81 (60.9)          |
| My confidence in communicating drug’s adverse effects has improved        | 1 (0.8)               | 1 (0.8)      | 5 (3.8)      | 19 (14.3) | 82 (61.7)          |
| My confidence in communicating drug’s warnings has improved              | 1 (0.8)               | 1 (0.8)      | 6 (4.5)      | 18 (13.5) | 80 (60.2)          |
| I became familiar with abbreviations used in a prescription               | 1 (0.8)               | 1 (0.8)      | 5 (3.8)      | 25 (18.8) | 74 (55.6)          |
| My competence to write a complete prescription has improved               | 1 (0.8)               | 0 (0)        | 3 (2.3)      | 16 (12)   | 85 (63.9)          |
| I think I will perform better in this unit’s prescription writing objective structured performance evaluation stations | 1 (0.8)               | 0 (0)        | 5 (3.8)      | 14 (10.5) | 85 (63.9)          |
| I’m satisfied with my prescription writing skills                         | 1 (0.8)               | 1 (0.8)      | 7 (5.3)      | 21 (15.8) | 76 (57.1)          |
| I need more training on prescription writing                              | 3 (2.3)               | 8 (6)        | 11 (8.3)     | 24 (18)   | 59 (44.4)          |
| I wish to have similar demonstrations in other units in the preclinical phase | 1 (0.8)               | 0 (0)        | 0 (0)        | 11 (8.3)  | 94 (70.7)          |
| I wish to have similar demonstrations during the clinical phase           | 1 (0.8)               | 1 (0.8)      | 2 (1.5)      | 11 (8.3)  | 91 (68.4)          |
We also asked the participants about the value of the role-play demonstrations on developing the expertise to convey instructions on drug use. Our findings showed that most attendees reported that they felt more confident to communicate drug dose, frequency of administration, duration of therapy, adverse drug reactions, and warnings. Regarding the potential effect of these demonstrations on student’s prescription writing skills, the majority of respondents believed that they became familiar with the abbreviations used in a prescription and that they became more confident to write a complete prescription.

Student’s perceptions were further explored during the focus group interviews. All students reported that this intervention helped them develop their interaction skills with patients including conveying drug therapy information. However, they believed that practicing this skill frequently and within small groups would be more effective. Interestingly, the participants reported that this experience helped them transform the information into a conversation with the patient using plain language which the patient can understand. When we asked the participants whether or not these illustrations helped their prescription writing skills, the majority of them answered that they became more familiar with the abbreviations used for writing a prescription. However, they believed that developing their prescription writing proficiency will progress by using a traditional session rather than a demonstration. Finally, all the students thought that they certainly would like to have similar role-play workshops in other units.

Analysis of attendees’ and nonattendees’ total grades in the final examination prescription communication OSPE station [Figure 1] showed that the former achieved a higher total score than the latter group ($P = 0.016$). Further evaluation of the performance of the two groups in the individually tested domains demonstrated that the students who were present in the interventional session achieved a higher score in all three domains compared to the absent group. That is, attendees performed better in introducing themselves to patients ($P < 0.05$), explaining patient’s condition and the aim of drug therapy ($P < 0.01$), and providing instructions on drug use ($P < 0.01$).

![Figure 1: Total grade achieved in the drug therapy communication objective structured performance evaluation station for attendees ($n = 133$) and nonattendees ($n = 46$) students ($P = 0.016$)](image)

Discussion

Since the patient-centered medical interview is considered valuable for maintaining patient safety, the vast majority of medical schools worldwide have integrated communication skills training in their curricula. This study was conducted to explore the value of using role-play to develop medical student’s prescription communication skills. Overall, our findings showed that this intervention was well accepted by the students and led to a significant improvement in their competence to interact with patients regarding their drug treatment.

Our data demonstrated that the majority of participants were satisfied with the role-play session as evidenced by their desire to have further sessions in future units. The students reported that this approach enhanced their communication skills including their ability to explain drug therapy to a patient. These findings are in line with the findings of Mills et al., who organized a role-play session for the first-year medical students that were chaired by a tutor, a peer, or a clinician. The authors found that most participating trainees had positive feelings about the role-play session irrespective of the background of the tutor. Likewise, the first-year medical student’s views were explored before and after a role-play workshop as a part of their communication skills course. The investigators found that the majority of students appreciated this approach for acquisition of communication skills. Our results and the reports of others have clearly demonstrated the value of role-play demonstrations for developing and reinforcing communication skills of medical students.

Our study further analyzed the attendee’s self-reported competence to communicate the details of drug use to a patient. The vast majority of participants believed that, due to the role-play session, they felt more confident to exchange all the elements of drug therapy with patients including dose, frequency of administration, duration of therapy, adverse reactions, and warnings. Although our study represented the first report on the usefulness of using role-play demonstration in introducing medication communication skills, these positive findings were anticipated based on the previous reports that favored this approach for general communication skills training. Interestingly, participating trainees reported that this experience not only helped them to develop their therapy communication proficiency but also supported their prescription writing skills. Indeed, most students thought that their ability to identify the elements of a prescription improved following the workshop. This finding was anticipated since the students had to understand these elements in order to explain them to the patient, an observation which represented a notable additive advantage of this experience.

The merit of using role-play for the acquisition of drug therapy communication aptitude was objectively assessed by comparing the academic achievement of attendees and nonattendees during the OSPE examination of the experimental unit. Our findings demonstrated that attendees scored higher than nonattendees in an OSPE station which was specifically designed to measure student’s competence to communicate drug therapy to a simulated patient. Attendees achieved a statistically significant higher total score in this station compared to nonattendees. Moreover, attendees achieved a significantly higher grade in all domains which we intended.
to examine in this station including introduction, disease and aim of therapy, and drug use explanation. These findings are compatible with a previous report where a 2 h communication skills workshop was organized for clinical students using simulated patients. The intervention students performed better in a communication skills exam than the control group.[15] These findings further emphasize the value of role-play for demonstrating communication skills to junior medical students.

Many students in the focus group discussion believed that the session helped them communicate with patients using plain language. This finding was also expected since the participants needed to convert the information in the prescription to a language that the patient can understand. In agreement with this observation, a study was conducted to examine the value of translating medical reports into plain language for real patients found that this exercise improved student’s communication skills and knowledge.[16] Two other comments were raised by the students during the focus-group interviews. First, the training was offered over one session which was viewed by the trainees to be insufficient. Rather, most students believed that to get more benefit out of these sessions continuity over various phases of the curriculum needs to be maintained. Second, most students believed that conducting the demonstrations within their small groups would be more useful. The value of a single versus repeated training on communication skills during the preclinical years has been investigated in previous studies. Although some of them showed that repeated training on patient interviewing was useful,[17] others reported the effectiveness of a single workshop.[18] We believe that these two comments need to be carefully addressed. Providing a nonthreatening training atmosphere and giving formative feedback are critical elements for successful implementation of role-play in skill training. Introducing this skill in small groups though is ideal, but it would place a lot of demand both on faculty staff and curricular time. On the other hand, introducing the training at multiple places in the curriculum, though is more useful, is more demanding in crowded medical curricula. Overall, communication skills training during the preclinical phase, regardless of its frequency and format, is essential since it has been reported that such training is believed to be overlooked during the clinical years.[19] Despite the fact that the intervention was introduced on a single occasion in this study, we believe that the strength of this study lies in the triangulation approach that was employed to assess the usefulness of role-play which combined the questionnaire, focus group interview, and intervention outcome data based on student’s academic performance.

Conclusion

We introduced and systematically evaluated an educational pedagogy whereby medical students received training on prescription interviewing skills by using role-play demonstrations. This experience was valued by participating students and led to improvement in their academic performance. We believe that this innovative curricular experience will establish a venue for medical students to develop their drug therapy communication competency.

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Nil.

Conflicts of Interest

There are no conflicts of interest.

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