Developing a training program based on intervention mapping to improve healthcare professionals' communication skills: A study protocol

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Abstract:

BACKGROUND: Poor communication by healthcare professionals contributes to physical and psychological suffering in patients. Intervention mapping (IM) is a framework that integrates theoretical and empirical evidence to ensure that the intervention can be implemented in real-world settings. From this perspective, the aim of this study is to describe a specific study protocol for developing a training program to improve healthcare professionals' communication skills based on the IM.

MATERIALS AND METHODS: In this protocol study, the IM framework is applied as the theoretical backbone of designing a training program for improving healthcare providers' communication skills. IM included a six-step process to develop our intervention program. Completing the six steps provides a plan for designing, implementing, and evaluating training the program. Basically, phases 1–4 focus on developing multistep interventions to improve health behaviors and environmental conditions, phase 5 focuses on developing an implementation strategy to better utilize the program, and phase 6 is used to plan the evaluation of the program itself and its implementation.

CONCLUSIONS: IM seems to be a useful framework for developing training program because professionals' communication skills are being affected by multiple internal and extra-organizational factors that will be explained in more details by applying IM steps. In this article, we describe IM as a relevant approach for designing improved communication skill interventions.

Keywords:

Communication skills, healthcare professional, intervention mapping, training program

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Introduction

Healthcare professional's communication skills are critical factors for effective care, client's satisfaction, and disease management in all healthcare systems.[1] On the other hand, it is important that HCPs have correct therapeutic communication by which patients, families, and healthcare providers can review treatment options, reach consensus on decisions, guide efforts, and evaluate clinical outcomes.[2,3] Therapeutic communication takes place in the present moment in healthcare encounters, but it can have a profound impact on a client's future health status, so the application of communication skills to therapeutic relationships is essential for optimizing the patients' experiences and collaborative practices.[2]

Effective communication is a two-way exchange of information between clients and healthcare professionals that ensures a clear understanding of each other's expectations and responsibilities. The basis of effective professional communication is "building relationships by initiating

discussions, gathering information, understanding the patient's point of view, sharing information, reaching agreement on problems and plans, and drawing conclusions."[4] This communication can lead to clients' trust and greater patients' willingness to follow the treatment plan, which in turn can influence the client's understanding of preferences and values and uncover possible misconceptions about treatment effects contributing to improved health. Conversely, suboptimal and ineffective communication can leave patients feeling anxious, insecure, and generally dissatisfied with care, which is linked to noncompliance with prescribed medication schedules, and poor health.[5]

The ability to communicate effectively is a prerequisite of qualification for most healthcare professional degrees because it positively impacts the work atmosphere and sustains team enthusiasm for continuous working.[6] Unfortunately, healthcare professionals are not sufficiently trained to communicate confidently with patients.[7] The deficiency in communication skills education is well recognized by universities and teaching hospitals, leading to a lack of systematic education, despite evidence that patients want productive discussions with their treating physician these conversations do not take place.[8,9] In a study conducted to assess the knowledge and communication needs of healthcare workers, 80% of the respondents expressed a need for improvement.[10] It is concerning to note that only 5.15% of postgraduate residents in a tertiary-care hospital reported receiving formal training in communication skills as undergraduate medical students.[11] Therefore, Medical Education Accreditation Bodies highlight "interpersonal and communication skills" as essential skills that healthcare professionals should learn at both undergraduate and postgraduate levels.[12] Since communication skills are not improved with experience alone or only with theory training alone, planning and conducting communication skills training courses is an inevitable necessity.[13-15] In this study, the research team needs to find ways to be better involved in professional communication with patients and support long-term health maintenance. Despite numerous programs identified for improving healthcare providers' communication skills, there is generally no clear research showing the process or framework for designing those programs and how planners have considered such different aspects, issues, and methods of teaching and learning in designing their programs.[16,17] Since developing effective health promotion interventions often requires reviewing relevant literature, applying theories, collecting new data, and involving experts, community members, and stakeholders in the planning process.[18]

Intervention mapping (IM) has been used to guide the design of many healthcare interventions, with a focus also on program implementation.[19] IM is a planning framework that provides a systematic process and detailed protocol for effective step-by-step decision-making to design, implement, and evaluate interventions. IM takes an ecological approach to understanding health problems and intervening at multiple levels (e.g., individual, interpersonal, organizational, and social), and as such guides the development of multilevel interventions.[20] However, despite the extensive scientific literature supporting the role of effective communication and the large investments of time and money in health promotion programs that have accumulated over the past few decades, the research team do not have a comprehensive framework of interventions to improve communication. The majority of research in the medical area has focused on physicians and nurses. However, in this article, all members of the treatment and healthcare team from various disciplines are taken into account collectively.

This article describes the development of an implementation intervention using IM to facilitate adoption, implementation, and maintenance and to improve communication skills and compliance between healthcare providers and patients in healthcare clinics.

Materials and Methods

Study design and setting
In our protocol study, the IM framework is applied as the theoretical backbone of a practical participatory method for designing a training program for improving healthcare providers' communication skills. At first, the research team established a group composed of academics and multidisciplinary health professionals in health centers. Then, we included a six-step process to develop our intervention program based on the IM theory and related evidences. Therefore, the result of each step led to the next step. Each of the six phases consisted of several tasks, and the completion of these tasks formed the basis for the next phase. Completing the six steps provides a plan for designing, implementing, and evaluating our training program. Figure 1 shows the six steps of the IM process. The process of developing our IM intervention in six phases with details of each phase described below.

Study participants and sampling
Phase 1. Who are program adopters, implementers, and maintainers?
In this phase, the research team must identify the stakeholders who will be involved in adopting, implementing, and sustaining the program and create a planning group to lead the process. The group consists of academic team members, our social partners, and patients. They help to find the best place among health services to implement and provision the program as a training service. Planning group by brainstorming will
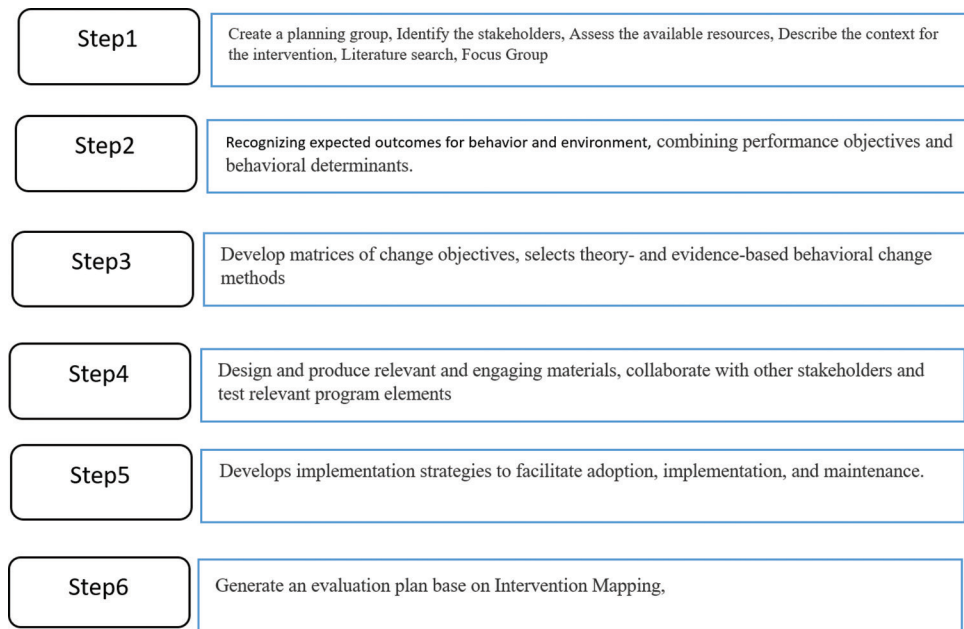
Step1	Create a planning group, Identify the stakeholders, Assess the available resources, Describe the context for the intervention, Literature search, Focus Group
Step2	Recognizing expected outcomes for behavior and environment, combining performance objectives and behavioral determinants.
Step3	Develop matrices of change objectives, selects theory- and evidence-based behavioral change methods
Step4	Design and produce relevant and engaging materials, collaborate with other stakeholders and test relevant program elements
Step5	Develops implementation strategies to facilitate adoption, implementation, and maintenance.
Step6	Generate an evaluation plan base on Intervention Mapping,

Figure 1: Intervention mapping steps

provide answers to the following key questions that will feed other phases and develop the implementation measure:

(1) Who will decide on the rollout of our program in health centers and who will these decision-makers consult?
(2) Who will implement the program? Does our program require different people to implement different components?
(3) Who ensures that our program is maintained for as long as necessary?

At this step, the research team needs to gain a detailed understanding of the communication problem, the population affected, the environmental and behavioral causes, the determinants of those environmental and behavioral conditions, and assess the available resources. Therefore, the programming group will conduct an analysis of the environment of health centers and the atmosphere and atmosphere of the organization. The group also identifies factors (determinants) that influence the risk behaviors and problematic environmental conditions contributing to the communication problem.

Finally, in the first phase, a comprehensive scientific research is carried out to identify the different aspects of the topic and previous research. Due to the importance of health workers' environmental conditions in the workplace, through short interviews and group discussions, the factors affecting communication skills are also identified.

Literature search: A literature research will be done in databases such as Google Scholar, Scopus, and ScienceDirect using keywords such as communication, intervention, health worker, healthcare professional, IM, and training program.

The studies will be selected, respectively, based on their titles, abstracts, and full texts. The inclusion criteria: English/Persian language and focus on the communication between the healthcare worker and the patient. The exclusion criteria: lack of availability of the full text and lack of compliance with the requirements of this study.

Focus group: The researcher will visit seven healthcare centers and interview 20 healthcare providers about their communication problems and how they will solve these problems.

Phase 2. How to develop several matrices to represent health issue and proposed methods of change?
This phase consists of selecting the target behavior determinants. A number of specific behavioral determinants will be identified both in the scientific literature and through focus group discussions. For this phase, the planning group determines who needs to do what to adapt/implement/maintain the program. Expected behavioral and environmental changes, performance goals, and change goals are formulated through focus group discussions between all authors and stakeholders. It should be mentioned that change objectives are created by combining performance objectives and behavioral determinants.

The planning group will answer important questions, such as

(1) What does the healthcare center (our stakeholders) need to do to adapt to our program?
(2) Which stakeholders must participate in the planning group or consult for our program to be adopted?

Phase 3. How to develop matrices of change objectives?

In this phase, the planning group by creating matrices of change objectives discusses initial ideas for the program and selects theory- and evidence-based behavioral change methods based on the determinants that need to be changed. The selection of intervention methods based on theory and practical applications for the program occurs concurrently with Step 2 of the IM framework (development of change goal matrices). After selecting the determinants, the research team creates the change goal matrices by crossing the identified determinants with the performance goals by asking the question: What needs to change about the determinants (e.g., knowledge, skills) in order for the implementer to achieve this goal performance? Theoretical methods that can help achieve for teaching communication skills will be identified and then translated into practical applications. The planning team answers the following questions:
(1) Why do users choose to use our program?
(2) Why will implementers do what is necessary to implement the program?

Phase 4. Translating methods and strategies into an organized program

In phase 4, the various applications selected in phase 3 will be reorganized and further developed. The programming team and production professionals (scientific writers, video producers, graphic designers, technical and scientific academic consultants) will work together to ensure that the program outcomes are compelling, accessible, and reflect the methodologies, practicalities, and key messages developed during the work planning.

We intend to design and produce relevant and engaging materials, collaborate with other stakeholders, and test relevant program elements. The research team seeks to combine intervention elements into a cohesive program using contextually appropriate delivery channels. The research team then reviews the relevant research and practice literature to validate, refute, or modify the tentative list of modification methods and their practical applications. Pretesting should be conducted after the concept and message have been designed and the materials developed, but before the materials are finalized.[21] It can be executed using experimental research designs, focus groups, in-depth interviews, and intercept surveys.[15] The research team will conduct pretesting and ensure that effective program materials are implemented and that the program is tailored to the specific context and population. Typically, initial testing assesses understanding, attractiveness, acceptance, credibility, motivation, early signs of effectiveness, and recommendations for improvement.

With regards to the occupations of the intervention participants burdened by extensive workloads, we aim to undertake short but regular training sessions in the guise of specialized webinars and through the utilization of instructional clips. Additionally, mobile phones serve as a medium for dispatching exercises pertinent to each session. Resolving these exercises promptly while providing timely responses to queries that arise throughout the course presents advantages.

Throughout the duration of this course, we shall engage in an intricate collaboration with each participant, endeavoring to construct a personalized and attainable communication blueprint that affords them autonomy in facilitating fruitful conversations. Moreover, we shall remain in constant correspondence with the participants during the intervention period. All our interactions will be meticulously designed to furnish positive affirmation for their achievements, coupled with empathetic understanding for any difficulties they may encounter. Additionally, we aim to reinforce the notion that setbacks are ordinary occurrences that can unquestionably be surmounted.

Phase 5. How to develop implementation approaches, known as strategies or interventions?

This phase guides the planning team in thinking about adoption, implementation, and maintenance. Also, our team will answer who does what and why in each of those steps and develop implementation strategies to facilitate adoption, implementation, and maintenance.

To organize the process, we develop a PowerPoint presentation that is updated at each team planning meeting. The presentation provides background information on the needs assessment, implementation, and evaluation of the original program, as well as the brainstorming results of each phase of the IM process, and serves as a comprehensive record of project work that can be easily edited during each session and viewed by team members in remote locations (e.g., phone call or internet).

Data collection tool and technique
Phase 6. How to generate an evaluation plan based on IM?

In Phase 6, the evaluation plan will be implemented through three online questionnaires that will be sent by e-mail and cell phone to all health workers and patients at the beginning and end of the course of the intervention. Data from the literature research are used to develop evaluation questionnaires. From among the existing valid

questionnaires, the research team will examine and select the best communication skill evaluation questionnaire by examining the questions, the number and content of each questionnaire, and the degree of its localization.

The evaluation designs in the last phase are as follows:

Setting: Health centers and clinics connected to the health network.

Participants: All staff of the health centers and clinics connected to the health network such as doctors, nurses, health workers, nutritionists, and psychologists are invited to participate in this program. They will be divided into two groups: (a) intervention group and (b) control group.

Eligibility: This study includes the following inclusion and exclusion criteria:

Inclusion criteria:
(1) individuals working in health centers.
(2) informed consent to participate in the study.

Exclusion criteria:
(1) individuals who did not volunteer to attend the intervention session;
(2) failure to attend more than two sessions;
(3) lack of internet access at work;
(4) are on long-term leave; and
(5) who do not answer online questions more than three times.

Sample size: The sample size was calculated by the formula below:

$$n = \frac{\left(Z_{1-\alpha/2} + Z_{1-\beta}\right)^2 \left(\sigma_1^2 + \sigma_2^2\right)}{d^2}$$

According to the above formula, 71 samples were estimated for each group considering the dropout rate and response rate and added 10% to the sample size to increase the power of the study, and finally, 80 samples were estimated for each group.

Evaluation procedure
Patient communication questionnaires, patient satisfaction questionnaires, and treatment compliance questionnaires will be completed before the intervention, immediately, two months after the intervention and six months after the intervention.

Randomization and blinding
All eligible health workers will be requested to complete the informed written consent form to participate in the study. Participants who agree to participate in the study will be numbered in the order of their enrollment and assigned to an intervention or control group based on the random number sequence in the randomization list. Owing to the study design, blinding is not possible because the participants will know about the intervention.

Intervention and implementation
Based on previous studies conducted by the team, the experience of planning team members in the community setting, and a review of the literature, during the design and development of the intervention, all outcomes of the previous phases of the IM will be considered.

Statistical analysis
The data are analyzed with SPSS version 18. The normal distribution of the data is evaluated using the Kolmogorov–Smirnov test. Independent *t*-tests, paired *t*-tests, ANOVA, and multiple regressions are also used. The Chi-square test is used for categorical variables. $P < 0.05$ will be considered as the significance level.

Ethical considerations
This article was derived from a Ph.D. thesis on health education and promotion (IR.MUI.RESEARCH. REC.1400.347). In the declaration of consent, all aspects of the study such as details on how to withdraw consent at any time during the study will be explained to the participants, and they are only included in the study if they give their consent. Also, an incentive for participation in the FGD group will be provided.

Discussion

The communication between patients and health professionals is not always easy. Many times, health professionals have to face different dilemmas in their interaction with patients that can cause them different and conflicting feelings.[22] Patients may not fully understand their illness, prognosis, and treatment options or may not receive medical care consistent with their goals. Despite considerable research exploring the role of communication in this setting, many questions remain and a clear agenda for communication research is lacking.[23] Framework-based interventions can increase the likelihood of adoption, implementation, and retention, and support policy and practice changes to improve health outcomes over time. However, few programs have used a theory as a basis for their approaches.[20,24]

IM can help planners to develop, select, or tailor implementation strategies to increase adoption, implementation, and sustainability,[25] but its usefulness has only recently been recognized by implementation. Scientists by using the IM research team hope to reduce the gap between the development of effective program for improving communication skills of healthcare

providers and the possible actual adoption and use of this program in our healthcare settings and community.[26]

In one study that used IM, the applied protocol led to a self-directed online communication intervention aimed at helping patients gain control during their communications with healthcare professionals. It also led to an evaluation plan and an implementation plan.[27] One article showed that the IM method helped the planning team to tailor the intervention to the needs of the target population and facilitated evaluation design.[28]

Some studies show that training communication skills have led to better communication with patients, better adherence to physician prescriptions, patients' full participation, and better health outcomes.[29,30] This training can be offered by workshops, service providers, and medical professionals as part of further training and refresher courses.[31] Also, many studies have highlighted the need for educational interventions in this area.[32,33] However, there are few programs that specifically address communication skills compliance among healthcare workers. Most of the interventions carried out concerned the target group of physicians and nurses.[34,35] While this study aims to provide an educational intervention with the participation of the healthcare team and pay attention to the communication between all team members including doctors, nutritionists, psychologists, therapists, and nurses in the health environment.

Implications
According to the literature, Iran's healthcare system still faces some challenges, such as poor communication, which need to be addressed in future healthcare plans. The Iranian health system is organized on three levels. Communication between the people working on these levels is vital to delivering quality services. This program could be used to develop communication skills training in many countries, given the similar nature of healthcare worldwide. Of course, when developing a course, contextual differences between different countries should be taken into account. The protocol will enable the continuous involvement of the health team, which will lead to valuable insights and improvements.

Conclusion

As humans, we will never be perfect, but as healthcare professionals, we must strive to provide the safest and the most compassionate care possible. In doing so, we deserve to work in workplaces that understand, respect, and support the complexities of our work. Effective and respectful communication is essential to these ideals and has motivated us to work on this issue. This protocol reports an example of developing a training course for HCPs using IM. The results will be presented in the form of research manuscripts. Through this study, we can develop educational modules and devise educational interventions to create a more holistic training program for the health team. This study will deliver groundbreaking knowledge regarding the impact of an innovative communication skills training program on resident knowledge, attitudes and skills, and patient-reported satisfaction. If successful, this program will be disseminated for implementation across all the personal health training programs across Esfahan, thereby affecting the training of thousands of residents each year and the millions of patients they serve.

Conflicts of interest
There are no conflicts of interest.

References   AQ7

1. Moslehpour M, Shalehah A, Rahman FF, Lin KH. The effect of physician communication on inpatient satisfaction. Healthcare 2022;10:1–17.
2. Zamani AR, Motamedi N, Farajzadegan Z. Routine programs of health care systems as an opportunity toward communication skills training for family physicians: A randomized field trial. J Educ Health Promot 2015;4:71.
3. Rahmanti A, Haksara E, Ediyono S. The influence of therapeutic communication to the level of patients' anxiety in Rst Dr. Soedjono Magelang Icu. Int J Heal Med Res 2023;2:78–83.
4. Kwame A, Petrucka PM. Communication in nurse-patient interaction in healthcare settings in sub-Saharan Africa: A scoping review. Int J Afr Nurs Sci 2020;12:100198.
5. Arad M, Alilu L, Habibzadeh H, Khalkhali H, Goli R. Effect of spiritual intelligence training on nurses' skills for communicating with patients – An experimental study. J Educ Health Promot 2022;12:1–8.
6. Yang J, Kim S. An online communication skills training program for nursing students: A quasi-experimental study. PloS One 2022;17:1–12.
7. Singh A, Ranjan P, Kumar A, Sarkar S, Kaur T, Aggarwal R, *et al*. A cross-sectional evaluation of communication skills and perceived barriers among the resident doctors at a tertiary care center in India. J Educ Health Promot 2022;12:1–8.
8. Singh A, Ranjan P, Kumar A, Sarkar S, Kaur T, Aggarwal R, *et al*. A cross-sectional evaluation of communication skills and perceived barriers among the resident doctors at a tertiary care center in India. J Educ Health Promot [Internet] 2022;12:1-8. Available from: https://jehp.mui.ac.ir/article_26337.html.
9. Joseph-Williams N, Elwyn G, Edwards A. Knowledge is not power for patients: A systematic review and thematic synthesis

of patient-reported barriers and facilitators to shared decision making. Patient Educ Couns 2014;94:291–309.

10. Haq Z, Hafeez A. Knowledge and communication needs assessment of community health workers in a developing country: A qualitative study. Soc Work Public Heal Hosp 2016;7:248–60.

11. Sarwar MZ, Rehman F, Fatima SM, Suhail M, Naqi SA. Breaking bad news skill of postgraduate residents of tertiary care hospital of Lahore, Pakistan: A cross-sectional survey. J Pak Med Assoc 2019;69:695–9.

12. Weller J, Boyd M, Cumin D. Teams, tribes and patient safety: Overcoming barriers to effective teamwork in healthcare. Postgrad Med J 2014;90:149–54.

13. Saslaw M, Kaplan S, Pavlicova M, Rosenbaum M, Sirota DR. Evaluation of physician assistants' self-reported attitudes and behaviors after completion of a hospital-wide multidisciplinary communication skills training workshop. J Patient Exp 2022;9:23743735221092626. Doi: 10.1177/2 3743735221092626.

14. Haut K, Wohn C, Kane B, Carroll T, Guigno C, Kumar V, *et al*. Validating a virtual human and automated feedback system for training doctor-patient communication skills 2023. Available from: http://arxiv.org/abs/2306.15213.

15. Whittingham JRD, Ruiter RAC, Castermans D, Huiberts A, Kok G. Designing effective health education materials: Experimental pre-testing of a theory-based brochure to increase knowledge. Health Educ Res 2008;23:414–26.

16. Heshmati H, Shakibazadeh E, Mortaz Hejri S, Foroushani AR, Sadeghi R. Development of a comprehensive communication skills curriculum bases on intervention mapping in response to an urgent need for community health workers' education reform: A study protocol. J Educ Health Promot 2020;9:75.

17. Neta G, Glasgow RE, Carpenter CR, Grimshaw JM, Rabin BA, Fernandez ME, *et al*. A framework for enhancing the value of research for dissemination and implementation. Am J Public Health 2015;105:49–57.

18. Powell BJ, Waltz TJ, Chinman MJ, Damschroder LJ, Smith JL, Matthieu MM, *et al*. A refined compilation of implementation strategies: Results from the Expert Recommendations for Implementing Change (ERIC) project. Implement Sci 2015;10:1–14.

19. Highfield L, Hartman MA, Mullen PD, Rodriguez SA, Fernandez ME, Bartholomew LK. Intervention mapping to adapt evidence-based interventions for use in practice: Increasing mammography among African American women. Biomed Res Int 2015;2015:160103.

20. Fernandez ME, ten Hoor GA, van Lieshout S, Rodriguez SA, Beidas RS, Parcel G, *et al*. Implementation mapping: Using intervention mapping to develop implementation strategies. Front Public Heal 2019;7:1–15.

21. Brown KMC, Lindenberger JH, Bryant CA. Using pretesting to ensure your messages and materials are on strategy. Health Promot Pract 2008;9:116–22.

22. Markides M. The importance of good communication between patient and health professionals. J Pediatr Hematol Oncol 2011;33(Suppl 2):123–5.

23. Tulsky JA, Beach MC, Butow PN, Hickman SE, Mack JW, Morrison RS, *et al*. A research agenda for communication between health care professionals and patients living with serious illness. JAMA Intern Med 2017;177:1361–6.

24. Noordegraaf AV, Huirne JAF, Pittens CA, Van Mechelen W, Broerse JEW, Brölmann HAM, *et al*. Ehealth program to empower patients in returning to normal activities and work after gynecological surgery: Intervention mapping as a useful method for development. J Med Internet Res 2012;14:e124.

25. Peskin MF, Hernandez BF, Gabay EK, Cuccaro P, Li DH, Ratliff E, *et al*. Using intervention mapping for program design and production of iCHAMPSS: An online decision support system to increase adoption, implementation, and maintenance of evidence-based sexual health programs. Front Public Heal 2017;5:203.

26. Klesges L, Estabrooks P, Dzewaltowski D, Bull S, Glasgow R. Beginning with the application in mind: Designing and planning health behavior change interventions to enhance dissemination. Ann Behav Med 2005;29:66–75.

27. Van Bruinessen IR, van Weel-Baumgarten EM, Snippe HW, Gouw H, Zijlstra JM, van Dulmen S. Active patient participation in the development of an online intervention. JMIR Res Protoc 2014;3:e59.

28. Vissenberg C, Nierkens V, Uitewaal PJM, Middelkoop BJC, Nijpels G, Stronks K. Development of the social network-based intervention "Powerful Together with Diabetes" using intervention mapping. Front Public Heal 2017;5:334.

29. Tavakoly Sany SB, Behzhad F, Ferns G, Peyman N. Communication skills training for physicians improves health literacy and medical outcomes among patients with hypertension: A randomized controlled trial. BMC Health Serv Res 2020;20:1–10.

30. Newcomb AB, Trickey AW, Porrey M, Wright J, Piscitani F, Graling P, *et al*. Talk the talk: Implementing a communication curriculum for surgical residents. J Surg Educ 2017;74:319–28.

31. McCallister JW, Gustin JL, Wells-Di Gregorio S, Way DP, Mastronarde JG. Communication skills training curriculum for pulmonary and critical care fellows. Ann Am Thorac Soc 2015;12:520–5.

32. Jalil A, Zakar R, Zakar MZ, Fischer F. Patient satisfaction with doctor-patient interactions: A mixed methods study among diabetes mellitus patients in Pakistan. BMC Health Serv Res 2017;17:1–13.

33. Trickey AW, Newcomb AB, Porrey M, Piscitani F, Wright J, Graling P, *et al*. Two-year experience implementing a curriculum to improve residents' patient-centered communication skills. J Surg Educ 2017;74:e124–32.

34. Rabol LI, Mcphail M, Bjorn B, Anhoj J, Mogensen T, Ostergaard D, *et al*. Outcomes of a classroom-based team training intervention for multi-professional hospital staff. Med Teach 2012;34:868–9.

35. Sevdalis N, Hull L, Birnbach DJ. Improving patient safety in the operating theatre and perioperative care: Obstacles, interventions, and priorities for accelerating progress. Br J Anaesth 2012;109(Suppl 1):i3-16.