



Trainees' Feedback for the Assessment of Cupping (Al-Hijamah) Training Programs Directed towards Healthcare Professionals, Kingdom of Saudi Arabia

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Authors' contributions

This work was carried out in collaboration between all authors. Authors ATEO, AMAB, MK, TSA, ISE, AAH and NAQ designed the study and performed the statistical analysis. All authors helped in writing the protocol and author ATEO wrote the first draft of the manuscript. Authors NAQ, ISE and MSA managed the analyses of the study. All authors managed the literature searches. Author NAQ revised the manuscript a number of times before and after its submission. All authors read and approved the final manuscript.

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ABSTRACT

Background: The feedback of attendees' constitutes an important tool for the evaluation of training programs directed towards healthcare professionals.

Objective: Using trainees' feedback, this study aimed to assess cupping (Al-Hijamah) training

programs tailored for healthcare professionals in Saudi Arabia.

Methods: A cross-sectional study was carried out involving 483 healthcare workers who attended the cupping training programs conducted multiple times by National Center for Complementary and Alternative Medicine (NCCAM) in Riyadh city. The participants completed a self-designed 6-item assessment form with a 5-point Likert scale at the end of each course.

Results: Trainees rated trainers (4.8 or 96.9%), organizational setup (4.2 or 84.8%), content relevance (4.5 or 90.6%), working and learning methods (4.5 or 90.7%), achievement of objectives (4.5 or 90.9%) and overall evaluation (4.9 or 97.1%) with a range of 4 (good-84.8% to excellent-97.1%) to 5 on Likert scale. The training program satisfied their expectations as reported by 94.2% of trainees and 99.1% agreed that they were the right person to attend the course. A proportion of trainees (98%) reported to recommend this course for their colleagues. Participants gained the significant knowledge from infection control measures, research and evidence based cupping. The most important skills acquired by trainees were proper scarification and precisely selecting points of cupping. The trainees suggested increase in number of case studies, sessions and duration of hands-on training for improving training course.

Conclusion: The attendees' feedback positively supported all the six items of assessment form concerning both trainers and trainees and offered some strategies for improving training courses. The evaluation of training programs using trainees' feedback or other methods needs to be regularly practiced in all healthcare centers of learning and training not only in Saudi Arabia but also other Gulf countries.

Keywords: Cupping therapy; Al-Hijamah; evaluation; training program; healthcare professional; Saudi Arabia.

1. INTRODUCTION

Evidently healthcare and other organizations globally recognize the incredible value and substantial benefits of intensive, regular training directed towards their workforce including healthcare workers. Well-articulated and properly conducted need-oriented training programs tend to create extremely efficient and competent healthcare and other professionals for increasing production, better quality and cost-effective services, and profits without wasting resources [1-3]. In addition, effective training is reported to improve compliance with regulatory measures and enhance satisfaction level of workers. However, creating effective training is not always easy because of specific problems; tailoring training programs unsupportive of a true business goal, unclear purposes and loaded with complex information [2,3]. Overall, training is undergoing innovative changes in all non-medical fields for developing highly competitive workforce around the world. Similarly medical education and the concept of health and disease have experienced major transformation around the world. It is becoming increasingly community oriented, learner-centered, self-learning, and self-peer assessing process. The traditional education system where the teacher is the sole provider of knowledge and the learner is a passive receiver (paternal model) is now being replaced by a model of structured teaching,

training and assessment by peers [4] and trainees and students are now given equal opportunities for curriculum development, active interactive learning, decision making and evaluation. The relevant literature on evaluation of training programs has evidenced that didactic teaching is less effective than are interactive small group discussions and workshops [5]. Notably, evaluation of training courses is an integral part of training program or project management cycle specifically intended to demonstrate its effectiveness and provide feedback to the evaluators and attendees on how the implementation of a program has progressed [6]. Accordingly, training programs may need modifications for further improvement. In addition, evaluation of training is a continual and systematic process of assessing its potential value, benefits, effectiveness, impact on trainees, performance of trainers, suitability of course contents and delivery methods [7]. For a detailed critical description of evaluation of training programs, this source is highly valuable [3].

Healthcare professionals including medical students intending to practice cupping therapy need to take a comprehensive training course [8]. Training courses for cupping therapy are often tailored taking into account evidence based practice of safety and efficacy and philosophy of community oriented teaching [9,10]. Arguably

cupping therapy trainers need to give the detailed pertinent information along with practical knowledge of cupping therapy (Al-Hijamah) to the trainees [11]. According to some researchers, an important quality of healthcare professional is to instil a strong will to provide the best training services to the trainees and the willingness to periodically evaluate themselves for improvement [12]. The significance of this pilot study is that the results of this research will be utilized to improve the components of cupping therapy training programs. Like in academia, the researchers will realize the significance of using attendees' feedback for evaluating the training programs in nonacademic settings.

1.1 Aims of the Study

This study evaluated the cupping therapy training programs using trainees' feedback, which were directed towards healthcare professionals in Saudi Arabia.

2. METHODS

2.1 Design

A cross-sectional descriptive study of trainees' feedbacks concerning cupping therapy training programs directed towards healthcare professionals in Saudi Arabia.

2.2 Sample

NCCAM advertised in local newspapers about each course on cupping therapy with specific details especially qualification, timeline with date, venue and location, course fees and the number of trainees required, i.e., a minimum of 18 participants. The first come first registered philosophy was applied in recruiting the participants for a particular course. In this way 509 participants were registered and for them 31 cupping training courses were conducted on multiple points of time. Only 483 participants fully completed the evaluation form (feedback) immediately after the end of the training course. Twenty six healthcare professionals (n=26, 5.1%) who also attended the cupping training course did not agree to fill out the feedback form.

2.3 Settings

National Center of Complementary and Alternative Medicine, Riyadh, Saudi Arabia organized 31 training courses, 15 for physicians

and 16 for allied health professionals [13]. The cupping training programs were conducted in three cities; Al-Medina (6 courses), Jeddah (4 courses) and 21 courses in Riyadh city, the capital of Saudi Arabia. The first course was conducted for physicians on March 29, 2015, while the last one was conducted for allied healthcare professionals on April 16, 2017 (Table 1). Detailed description of the programs is published elsewhere [14,15]. Briefly speaking, the main contents of all cupping therapy programs were the same except some programs were modified based on the needs and demands of attendees.

2.4 Data Collection Tool

An evaluation form for measuring the feedback of participants concerning the cupping training courses was designed, tested and approved by experts. This form consists of six items: 1) evaluation of trainers included nine perspectives of trainers' performance, 2) organization with five aspects, 3) content relevance with six features, 4) working and learning methods with six parts, 5) achievement of objectives with five facets and 6) overall evaluation of the course. Trainees rated each facet of six items using 5-point Likert scale as excellent [5], good [4], average [3], fair [2] and poor [1]. The evaluation form also included some open-ended questions asking for the most and the least useful aspects of the courses, the most important knowledge gained and skills acquired and opinions, comments and suggestions for improving the training courses in future.

2.5 Procedure

The participants were approached when the course ended on the last day. The evaluation form was distributed by the first author to all trainees (mostly a group of 18 in each course) in the training hall who agreed to participate in the study. All participants were briefed about the aims and purpose of this study prior to the distribution of the evaluation form. The first author helped trainees in case they need any clarification about any component and its facets related to the evaluation form. The researcher collected all the evaluation templates (feedback) from the attendees (n=483) immediately after they completed it. The time taken to fill out the evaluation template was about 15 to 25 minutes. The main inclusion criterion was oral informed consent to participate in the study.

Table 1. The timeline of 31 cupping therapy training courses conducted by NCCAM at different locations in Saudi Arabia

Serial number	Date	Venue	Location	Specialty	Registered attendees
1	29/3/15	Al-Medina	Al-Mobader T C	Physicians	21
2	5/4/15	Al-Medina	Al-Mobader T C	A H P	19
3	10/5/15	Jeddah	Ijadah T C	A H P	16
4	17/5/15	Jeddah	Ijadah T C	Physicians	15
5	24/5/15	Al-Medina	Al-Mobader T C	Physicians	12
6	31/5/15	Al-Medina	Al-Mobader T C	A H P	19
7	7/6/15	Riyadh	Ral TC	A H P	11
8	14/6/15	Riyadh	Ral TC	Physicians	15
9	27/10/15	Riyadh	Ral TC	Physicians	16
10	1/11/15	Riyadh	Ral TC	A H P	10
11	8/12/15	Al-Medina	Al-Mobader T C	Physicians	18
12	13/12/15	Al-Medina	Al-Mobader T C	A H P	21
13	31/1/16	Jeddah	Ijadah T C	Physicians	15
14	3/2/16	Jeddah	Ijadah T C	A H P	20
15	13/3/16	Riyadh	Ral TC	A H P	10
16	20/3/16	Riyadh	Ral TC	Physicians	16
17	15/5/16	Riyadh	NCCAM	A H P	14
18	22/5/16	Riyadh	NCCAM	Physicians	17
19	16/8/16	Riyadh	NCCAM	Physicians	15
20	21/8/16	Riyadh	NCCAM	A H P	24
21	16/10/16	Riyadh	NCCAM	A H P	20
22	23/10/16	Riyadh	NCCAM	Physicians	14
23	4/12/16	Riyadh	NCCAM	A H P	19
24	11/12/16	Riyadh	NCCAM	Physicians	18
25	18/12/16	Riyadh	NCCAM	A H P	19
26	8/1/17	Riyadh	NCCAM	A H P	17
27	15/1/17	Riyadh	NCCAM	Physicians	17
28	26/2/17	Riyadh	NCCAM	A H P	18
29	5/3/17	Riyadh	NCCAM	Physicians	18
30	9/4/17	Riyadh	NCCAM	Physicians	9
31	16/4/17	Riyadh	NCCAM	A H P	17
Total number of health professionals					509
Total number of health professionals who filled out the evaluation form					483

T C = Training center, AHP = Allied healthcare professionals

2.6 Ethical Consideration

The first author informed the concerned authorities of NCCAM about this study. The permission was granted to the team of researchers for conducting this study. Oral informed consent was taken from all participants prior to the distribution of evaluation form to them at the end of the course. The participants were clearly informed about the nature and objectives of the study. In addition, they were also informed that their anonymized data will be used only for research purpose and its confidentiality will be maintained. They can withdraw from this study and they can contact the study team for any query or to know the study results in the future. Furthermore, this study did not involve any risk to

the participants. The study was approved by the Ethical Committee of the National Center of Complementary and Alternative Medicine, Riyadh, Saudi Arabia. The Ethical Committee Registration number is 224/19344, dated 10/03/1431Hijri (Gregorian 23/02/2010).

2.7 Data Management and Analysis

Statistical Package for Social Sciences (SPSS) Software Version.20 was used for data entry, coding, cleaning the data, data management and analysis. The results were described as frequencies and percentages for all research variables. For continuous variables, mean and standard deviation were also calculated.

3. RESULTS

3.1 Sociodemographics of Participants

There were 483 feedbacks via an evaluation form completed by the study participants. Trainees who completed the evaluation form were as follows; 227 physicians (47%), 106 physiotherapists (21.9%), 102 nurses (21.1%), 5 CAM practitioners (1.0 %) and 43 other specialties (8.9%). Males were 65.4% and females represented 34.6% of participants. Saudi participants constituted 37.9% and non-Saudi were 62.1% having 16 different nationalities. The mean age of participants was 36.37±8.96 years with a mean duration of experience 12.21±7.54 years (Table 2).

Table 2. Sociodemographic characteristics of studied subjects

Characteristic variables		Number (n=483)	%
Specialty	Physicians	227	47.0
	Physiotherapists	106	21.9
	Nurses	102	21.1
	CAM	5	1.0
	Others	43	8.9
Gender	Male	316	65.4
	Female	167	34.6
Nationality	Saudi	183	37.9
	Non-Saudi	300	62.1
Age	Mean±SD	36.37±8.96	
Experience	Mean±SD	12.21±7.54	

3.2 Assessment of Trainers

The participants rated nine aspects of trainer performance with an average of 4.84 or 96.9%. Ratings ranged from 4.7 (94%) for 'methods or organizing the presentations', to 4.93 (98.6%) for both 'knowledge of the trainers about the material' and 'Cooperation with the trainers' (Table 3).

3.3 Assessment of Organization

The participants rated five aspects of organization with an average of all ratings (4.24, 84.8%). Ratings ranged from 3.88 (77.6%) for 'types of meals' to 4.58 (91.6%) for 'daily schedule and time commitment' (Table 3).

3.4 Assessment of Content Relevance

The participants rated six facets of the content relevance. An average of all ratings was 4.53 (90.6%). Ratings ranged from 4.32 (86.4%) for

'the amount of information delivered was enough for me', to 4.8 (95.9%) for 'the information mentioned in the course was important to me in my work' (Table 4).

3.5 Assessment of Working and Learning Methods

The participants rated six perspectives of working and learning methods with an average of all ratings (4.53, 90.7%). Ratings ranged from 3.9 (77.9%) for 'hands-on training was enough' to 4.81(96.3%) for 'case studies were highly beneficial'. The rating for 'simulation was satisfactory' was 4.77 (95.4%) (Table 4).

3.6 Assessment Concerning Achievement of Objectives

The participants rated five aspects of achievement of objectives with an average of all ratings (4.54, 90.9%). Ratings ranged from 4.28 (85.6%) for 'I became professional and able to train others in an ideal way' to 4.75 (95.0%) for 'the course helped me develop my skills in cupping' (Table 5).

3.7 Overall Assessment

The participants were asked if the course satisfy their expectations. They rated 4.71 (94.2%). The trainees were also asked if they see themselves the right persons to attend the courses and its rating was 4.95 (99.1%). In addition, the attendees were asked if they would recommend colleagues to attend the course for their benefit and its rating was 4.9 (98.0%). The rating of overall assessment of the training programs was 4.85 (97.1%) (Table 5) [Fig. 1].

3.8 Important Knowledge Gained

This perspective concerned open-ended questions and the trainees' responses. There were diverse responses but most of respondents harmoniously answered this question with the following four common responses; 1) knowledge about wrong beliefs related to cupping therapy (113 responses), 2) understanding about Infection control measures especially proper hand washing and personal protective equipment use (96 responses), 3) data about evidence-based cupping therapy (78 responses) and 4) information about research methods most commonly used in Complementary and Alternative Medicine (76 responses). These four most common responses to knowledge gained accounted for 99% of answers by trainees (363/365). (Table 6).

Table 3. Evaluation of trainers

Items - Evaluation of trainers	Likert score	%
1. Trainer's knowledge of the training course.	4.93	98.5
2. Trainer's ability to communicate information.	4.9	97.9
3. Use of body language.	4.77	95.4
4. Method of organizing the presentation in terms of clarity and adequacy.	4.7	94.0
5. Ability to explain the course content.	4.91	98.2
6. Extent of cooperation with trainees.	4.93	98.6
7. The trainer's ability to motivate participants to interact.	4.81	96.3
8. The trainer's ability to manage interventions and discussions	4.8	95.9
9. Ability of the trainer to answer questions.	4.84	96.9
The overall evaluation of the trainers	4.84	96.9
Items - Evaluation of organization		
1. Equipment and audiovisual equipment used	4.39	87.9
2. Course duration	4.11	82.1
3. Place of the session	4.23	84.5
4. Daily schedule and time commitment	4.58	91.6
5. Type of meals	3.88	77.6
The overall level of organization of the course	4.24	84.8

Table 4. Evaluation of content relevance

Item – Content relevance	Likert score	%
1. The content of the training material.	4.62	92.4
2. Handouts distributed in the courses.	4.56	91.2
3. Organization and ease of content of scientific material.	4.48	89.5
4. The information mentioned in the sessions was new to me.	4.41	88.1
5. The amount of information reported was enough for me.	4.32	86.4
6. The information mentioned in the course was important to me in my work.	4.8	95.9
The overall evaluation of the content relevance	4.53	90.6
Item - Assessment of working and learning methods		
1. Diversity of activities, exercises and explanatory materials used	4.61	92.1
2. Hands-on training was enough.	3.9	77.9
3. Working groups were helpful.	4.44	88.8
4. Role play was effective	4.67	93.4
5. Case studies were beneficial	4.81	96.3
6. Simulation was satisfactory	4.77	95.4
The overall evaluation of Working and learning methods	4.53	90.7

3.9 Important Skills Acquired

Another important open-ended question was about important skills acquired by the trainees during the course. The most common responses of respondents were gaining skills of scarifications (124 responses), dealing with cases who need special care such as patients with diabetes mellitus or multiple disorders (115 responses), performing different types of cupping (99 responses) and selecting accurately cupping points (80 responses). The aforesaid four answers related to skills acquired accounted for 99% of responses by attendees (418/422).

3.10 Usefulness of Training

When attendees asked openly about the benefits of the training programs, there were five most common responses. First, the trainees developed enhanced awareness concerning scientific basis of cupping safety and evidence-based cupping therapy (120 responses). Second, trainees benefited a lot from case studies and learned precise selection of cupping points (112 responses). Third, a well-directed discussion of wrong beliefs associated with cupping benefited most of the participants (108 responses). Fourth, the trainees developed and further improved

style of presenting topic of interest in training program and this modeling learned from presenters (78 Responses). Fifth, the participants benefited from interactional style of presentation and mutual transfer of experiential capabilities among participants (61 responses). The aforesaid top five responses accounted for 99% of comments by attendees (479/483). The least useful aspects of training programs was reflected in 'Nil' response by the trainees and accounted for 99.6% (480/483).

3.11 Improvement of Training Program

When attendees were asked in open text format to suggest improvement strategies for the training programs, comments received centered on some specificities. Allot more time for simulation sessions and hands-on training was the most common approach suggested by trainees for improving training programs (154 responses). The second most common opinion for improving training program is to include more case studies presentation along with detailed discussion in order to know a wide range of

diseases (131 responses). Their other opinions encompassed 'mark some titles as read only (such as history, medical ethics, research ethics and trusted CAM resources) (88 responses), 'deal with real patients in situ' (54 responses), and 'availability of sufficient number of simulation models' (47 Responses). These top five opinions of trainees' feedbacks accounted for 99% of responses (474/479).

Notably, trainers received two remarkable comments from participants; "a very helpful day (case studies and point selection) has challenged my practice and made me feel more confident about research-based point selection and evidence-based cupping procedures and practice" and "availability and accessibility of training material prior to attending the course is very important to me".

4. DISCUSSION

This study described cupping training programs using trainees' feedback directed towards healthcare professionals in Saudi Arabia.

Table 5. Evaluation Concerning Achievement of Objectives

Item - Evaluation of Achievement of Objectives	Likert score	%
1. Achieving the objectives of the course, yes or no.	4.6	92.1
2. The course changed my concept of cupping completely.	4.47	89.4
3. The course gained me new skills.	4.62	92.4
4. The course helped me develop my skills in cupping.	4.75	95.0
5. I became professional and able to train others in an ideal way.	4.28	85.6
The overall evaluation of achievement of objectives	4.54	90.9
Item - Overall Evaluation		
1. The program satisfied your expectations	4.71	94.2
2. I am the right person to attend the course	4.95	99.1
3. I recommend my colleagues to attend the course for their benefit	4.9	98.0
The overall evaluation of the training program	4.85	97.1

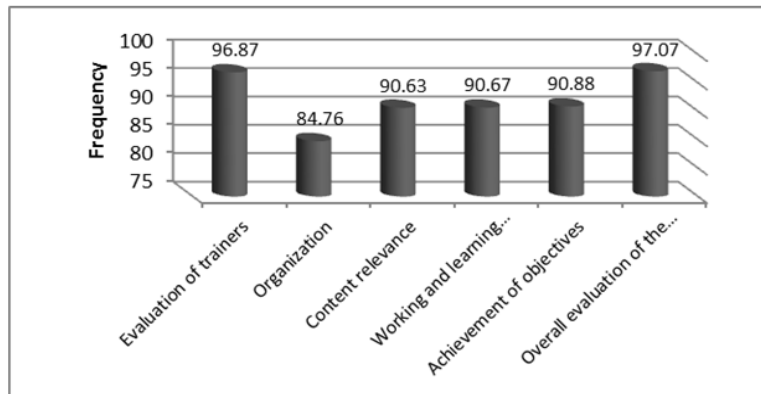


Fig. 1. Trainees' feedback of cupping training course

Table 6. Other comments of participants

Items	No. of responses	%
The most important knowledge gained about		
-Wrong beliefs related to cupping therapy.	113	23.4
-Infection control measures especially hand washing and proper use of personal protective equipment.	96	19.9
-Evidence based cupping.	78	16.2
-Research methods most appropriately used in CAM	76	15.7
The most important skills acquired		
-Skills of scarifications.	124	25.7
-Skills related to dealing with cases that need special care as diabetes mellitus or patients with multiple disorders.	115	23.8
-Skills of doing different types of cupping.	99	20.5
-Skills of proper selection of cupping points.	80	16.6
The most useful aspects of training were		
-Enhancing awareness regarding scientific basis of cupping safety and evidence based cupping.	120	24.8
-Case studies and precise selection of points.	112	23.2
-Discussion of wrong beliefs.	108	22.4
-Presenters.	78	12.6
-Interaction and transfer of experience among participants.	61	9.5
Opportunities for improving training programs		
-Allowing more time for simulation sessions and hands-on training.	154	31.9
-More case studies presentation to explore a large group of diseases.	131	27.1
-Mark some titles as read only as history, medical ethics, research ethics and trusted CAM resources.	88	18.2
-Deal with real patients in situ.	54	11.2
-Availability of sufficient number of simulation models.	47	9.7
The least useful aspects of training		
-The response Nil or its equivalent	480	99.4
Other comments		
-A very helpful day (case studies and point selection) has challenged my practice and made me feel more confident about research based point selection and evidence based cupping procedures and practice.	171	35.4
-Availability and accessibility of training material before attending training course is very important.	98	20.3

There are many important reasons and different ways for evaluating training programs directed towards healthcare professionals. Both the trainees and trainers who plan and carry out the training benefit from program evaluation. Arguably healthcare professionals' (and students) learning is linked to trainers effective teaching and regular evaluation of their own performance [16]. The evaluation of the trainers needs to be done by the training group periodically followed by a comprehensive evaluation at the end of a course [17]. In academic setting, the evaluation of teachers has many implications including their promotion.

A review of pertinent literature suggests that data on evaluation of training courses especially from low- and middle-income countries is scarce while

course appraisals conducted in high income countries have predominantly assessed immediate impact as done in the present study. In a systematic review of 217 education studies from the developed world undertaken by "learning and teaching support network", only 8% had a followup assessment component. The rest of studies conducted course evaluation at a single time point usually post intervention or pre- and post-studies [5]. In another review, course evaluation focused more on knowledge, attitude and personal development [18]. According to the present study, there were improvements in knowledge and skills of trainees as described by Bates [19]. The findings of this study also suggest that "simulation and hands on skill based" training need to be incorporated in all the pre and in service continuous medical education.

This form of training should start from medical schools where young health professionals can attain skill-based competencies before real patient exposure [20,21].

This study also provided evidence that an interactive intervention, simulation, case studies, role play, and problem based learning contributed to knowledge improvement and skills development among studied trainees. A proportion of participants (95%) reported that the courses helped them improve their skills in cupping, 92.4% gained new skills and 89.4% completely changed their concept of cupping. Overall majority of the participants were satisfied with the method of teaching used in the training courses. These results are consistent with a study that reported simulation a very effective method for training undergraduate medical students in cupping therapy and acupuncture [22]. More than 94% of participants strongly agreed that the courses satisfy their expectations, 95.9% stated that information contained in the courses were pertinent to their work and 98% could recommend their colleagues to attend the training programs. These findings are comparable with the results of the Bulgaria – Serbia IPA Cross-border Program co-funded by the European Union irrespective of the nature of the training course and its components [23]. Undergraduate students and health professionals tend to mainly take information about CAM from relatives and friends followed by internet consistent with other studies [24,25]. Furthermore 92% of participants were very satisfied with the training scientific material and excellent handouts and overall outstanding courses, 89.5% contented with organization, 88.1% agreed that the given information new to them and 86.4% reported the amount of information was enough for them. All these notions of trainees' feedbacks clearly indicated the positive impact of the training courses on learning process and meeting the objectives of the training courses consistent with other studies [26,27].

After training and clinical practice of six month clinical, audits needs to be done in order to assess the improvement in healthcare delivery. World Health Organization proposed guidelines for developing a standard format when designing a training course and its evaluation [28] and our training courses for professionals' training in Al-Hijamah reflected these guiding principles. Notably the majority of participants' feedbacks appreciated awareness raising regarding

scientific basis of cupping safety and evidence based cupping [29,30], and discussion of wrong beliefs and misconceptions [31].

This study has some limitations. This research assessed the immediate effects of the training program. Ideally speaking, the longterm impact of these training programs on trainees need to be assessed when they will actually use information gained and skills acquired in their respective healthcare facilities. The strengths of this study are high response rate (94.9%) and the rigorous comprehensive assessment.

5. CONCLUSION

There was evidence in the participants' evaluation forms, that participants appreciated the value of the training courses presented to them. For most of participants it was the first exposure to formal training of this kind. The feedback received was most supportive of the training programs and appreciative of the trainers, the information provided and skills gained and the way in which it was delivered. There was positive feedback that the training program should be re-run for all health professionals providing health care services. Longterm evaluation of the programs is recommended.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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