

Original Research



Effectiveness of an operating room master of science program based on Kirkpatrick's model

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Abstract

Background: Evaluation is one of the most critical issues in the training process. Kirkpatrick's model is one method in educational evaluation that can accurately evaluate programs. This study aimed to evaluate the effectiveness of an operating room master of science (MS) program based on Kirkpatrick's model.

Methods: This descriptive, cross-sectional study was conducted using convenience sampling with 46 students and graduates from the operating room MS degree at the Shiraz University of Medical Sciences in the academic year 2020-2021. A valid and reliable questionnaire with 47 items in three levels of reaction, learning, and performance was used to evaluate the opinions of graduates and students. The survey was sent to their email addresses and returned to the researcher after completion.

Results: Kirkpatrick's evaluation model showed that the overall evaluation of the operating room program was 70.97 ± 9.32 , which can be considered a moderate level. Students' satisfaction with the program was moderate (68.00 ± 14.97); their learning (84.54 ± 15.69) and performance (84.30 ± 9.28) were evaluated to be at a reasonable level.

Conclusion: Considering the average effectiveness of the whole program, it is suggested that the educational managers of the operating room department plan and attempt to increase their indicators by considering the weaknesses and strengths of the program.

Introduction

Higher education is one of essential components of the educational system and a critical element of human development in any country.¹ The quality of training programs is one of the chief concerns of the university system, and promoting quality requires evaluation.² In the medical education system, the evaluation of programs is of particular importance due to the need for training an experienced workforce to provide health services and treatment with the desired quality³; the curriculum is considered valuable when valid evidence and information confirm its effects at both individual and societal levels.⁴

The field of the operating room is a branch of medical sciences in which graduates direct the structure, equipment, and operating room processes; participate in optimal surgical performance and care before, during, and after surgery; and share their learning in research, service, and educational fields with the community.⁵ The

operating room MS program is newly established. Due to the interactive, dynamic, and challenging nature of training in the operating room, such as teamwork and interdisciplinary collaboration, instantaneous emergence of risk in the operating room, exposure to acute and busy situations, close and constant interactions, and simultaneous tasks of team members in surgery, there is a need to evaluate this novel program.⁶

Evaluation is an essential source to obtain reliable information and assess it correctly; it provides beneficial information about how to plan and implement programs and is a crucial tool in evaluating the performance of educational centers.⁷ If program evaluation is carried out correctly, expectations for both decision-makers and end-users will be clearer⁷; both the current and the desired situation are depicted; a balance is provided between output and input, and opportunities and threats are identified. In addition, the possibility of maximizing returns on costs

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the factors of participants' dissatisfaction.¹³ However, Mohammadi et al reported that student satisfaction with a nursing doctoral program was at a reasonable level,⁴ which can be related to the different nature of a specialized doctoral program compared to a master's program and the differences between learners in these two programs.

The evaluation of the second level of Kirkpatrick's model also showed that the participants reported their level of learning increased after the program, and was reported to be at a reasonable level. In line with the current study, the results of other studies have shown that the changes in learners' level of knowledge and skills were effective after passing the program.^{4,13-16} Contrary to the present study, and according to Ahanchian et al, the internship program for undergraduate nursing students did not have the necessary efficiency in improving their technical and communication skills.⁹ However, given that undergraduate nursing students in this program may not have the opportunity to perform or repeat many clinical skills, may not accurately estimate their skills.

Lee and Song, based on Kirkpatrick's model, found that despite high academic achievement, high employment rate, and high satisfaction with the program, undergraduate and postgraduate nursing students reported a lack of preparation for clinical situations.¹⁷

In the present study, the study's findings of the changes in the behavior and performance of the participants of this program (Level 3 of the Kirkpatrick model) also showed that the program's learners were at a reasonable level. In other words, the participants felt they had achieved both the general and specialized competencies of the program. In line with the present study, Mohammadi et al demonstrated that Ph.D. students in nursing were at a reasonable level in terms of performance.⁴ Bijani et al also found that more than half of nurses scored well after a continuous training program to prevent needle stick occupational exposure.¹⁵ Heydari et al observed a significant difference in participants' performance before and after a workshop on the new teaching and learning methods.¹⁶ Shayan and Nowroozi Rad, which also evaluated the effectiveness of the program on staff behavior using 360-degree evaluation from different perspectives (supervisors, peer colleagues, less experienced colleagues, patients, and the participant in the study), found that the program was effective at the performance level so that the knowledge and skills learned in the workplace were used from the perspective of all groups.¹³

One of the strengths of this study was the use of Kirkpatrick's model as well as the views of students and graduates. Failure to implement the fourth stage of Kirkpatrick's model was one of the limitations of the present study, as it was not possible to examine the program's results in the community and natural environments in this time frame. On the other hand, there was no similar study to evaluate this training program to compare the results. In addition, the researchers compared

the results of the present study in terms of satisfaction, learning, and performance only with other educational studies that used Kirkpatrick's model. Therefore, it is suggested that the researchers use Kirkpatrick model to determine the effectiveness of programs in similar studies.

Conclusion

The results of the study showed that the MS operating room program was moderately effective among learners; however, it is suggested that the operating room department's training supervisors plan to achieve higher performance indicators in this program, especially in student satisfaction, since learners' satisfaction may increase their motivation to learn. The findings of this study can help professors and heads of departments in the faculties and universities gain a realistic insight into the operating room master's program and pave the way for necessary changes to increase the program's productivity. Moreover, heads of departments and managers of hospitals and operating room staff can be aware of the results of this study in order to gain more knowledge about the effectiveness of the program in the operating room in the field of management and treatment and take steps to facilitate staff training at the master's level.

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Authors' contribution

ZB, MA and MM designed the study. ZB and MA collected and analyzed the data. SH and ZR drafted the work. SY, ZB, MM and MA revised it critically.

Ethics approval

Ethics Committee approval was obtained from the Jahrom University of Medical Sciences (IR.JUMS.REC.1398.040). The participants signed the written.

Competing interests

The authors declare no competing interest.

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