

A Competency-Based Training Model for Red Crescent Rescuers and Relief Workers in Tehran, Iran

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Abstract

INTRODUCTION: This study aimed to provide a competency-based training model for the Red Crescent rescuers and relief workers.

METHODS: The present study was applied in terms of purpose and the required data were collected through mixed methods (quantitative and qualitative). In the qualitative section, the statistical population consisted of academic and organizational experts as well as experts in the field of education who were selected by purposeful sampling. Theoretical saturation was reached after interviews with 20 subjects. In the quantitative section, the statistical population consisted of all the rescuers and relief workers of the Red Crescent Society in Tehran province (335 people), Iran. The subjects were selected by stratified random sampling and surveyed using a researcher-made questionnaire that was scored based on a 5-point scale.

FINDINGS: In this section, quantitative data analysis was performed in SPSS and SmartPLS3 software in two areas of analysis (descriptive and inferential) and interpretation of results.

CONCLUSION: The results led to the identification of 25 components, 81 indicators, and 8 main dimensions of competency-based education. These dimensions include the educational environment (0.735), learners (0.623), execution of the educational program (0.615); competency needs assessment (0.563), educational design and planning (0.504), development of competency criteria (0.420), educational evaluation (0.397), and review and update of the educational process and program (0.341), in the order of priority.

Keywords: Competency-based Training; Training Program; Red Crescent Rescuers and Relief Workers.

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Introduction

Recognition and development of the capacities, competencies, and capabilities of human resources play a very decisive role in the survival of an organization in competitive environments. Any disregard for these capabilities and competencies of human resources as strategic resources and knowledge assets will lead to the deprivation of competitive advantage. Therefore, organizations that have a systematic and strategic plan for the development of their intangible assets can certainly produce more value for customers. This is one of the approaches towards the development of the

capacities and capabilities of human resources to produce the value of "competency-based training". In competency-based training, the competencies related to each of the occupations are determined and the factors, such as knowledge, skills, behavior, personal characteristics, related to each of the competencies are determined.

Among these, one of the basic steps of competency-based training is to have a competency model that can have wide applications for various purposes, such as selection and recruitment of employees, training, staff development, and performance management

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(2). In this training system, most curricula are based on a defined set of competencies or learning outcomes. Moreover, the content of courses, assignments, tasks, and exams are designed to achieve these competencies, and the development of learners is confirmed through individual assessment (3). The principles of this method are as follows:

A) Focus on Output: The first characteristic of competency-based training is its focus on specific outputs and their examination (which is related to the competencies required to perform a task). This focus on output is often in contradiction with many traditional approaches to input-oriented curricula (e.g., methods that focus on student/trainee selection, length of the course and curriculum, teacher-to-student ratio, and class size).

B) More connection with the work environment: According to previous studies, competency-based education pays more attention to the work environment than the content of educational programs. It is usually believed that institute-based courses focus on the application of theory or knowledge in the performance of tasks.

C) Outputs as observable competencies: The next goal of competency-based education is to express clear output and visible work performance (4).

The concern of the officials of most government organizations, especially the Red Crescent Society, is the growth of rescuers. One of the ways to help rescuers and relief workers grow is to train them. The main obstacles in the realization of the educational system in the Red Crescent Society can be listed as follows: lack of attention to educational management in its scientific and practical sense, focus on administrative and educational management and its conflict with decentralized management policies, failure to achieve educational goals in the form of decentralized policies of educational management due to poor structure of human resources of educational units in the regions, lack of the relationship of the systems of administration and human resources (e.g., salary and promotion) with the educational system, and lack of sufficient trust of senior managers in training as human capital and a tool for organizational transformation.

It also seems that dismissals and

employments in the Red Crescent Society are not based on a specific rule. It is unknown at this time to what extent a Red Crescent relief worker needs technical or perceptual and human skills, depending on their occupational position. Sometimes, focusing on technical skills and ignoring perceptual and human skills create several issues. There are more ambiguities and challenges in the field of education. Although there is currently training, job rotation, and promotion in this sector, it lacks coherence and a clear career path. Moreover, changes in factional management and its effect on the organization as well as favoritism in the Red Crescent are very common, and inexperienced people are used instead of qualified and experienced employees. This has made it difficult for the Red Crescent Society to provide services.

Given the importance of this issue, it is necessary to explore it and develop and explain an appropriate model for competency-based training of rescuers and relief workers in this area. Rescuers and relief workers, due to their serious duties, must have sufficient skills and abilities to provide better services. There are several ways to update the knowledge, skills, and attitudes of rescuers and relief workers. One of the training methods used to empower employees in most organizations is competency-based training. Therefore, according to the cases mentioned in this research, this study aimed to identify and rank the dimensions and components of the competency-based training model of Red Crescent Society rescuers and relief workers.

Evaluation of the effectiveness of the competency-based training model can be categorized in the group of effectiveness-based evaluation models. Just as a competency-based curriculum seeks to create and develop competencies, this model seeks to measure the extent to which competencies are developed and enhanced. The distinctive feature of this model is its emphasis on organizational competencies and, in other words, the establishment of a close connection between individual competencies and organizational performance. Therefore, this model is most useful for evaluating those training programs that are designed and implemented specifically for a specific organization and with a specific purpose. Hence, in this research, we designed a competency-

based education model.

According to previous studies, to prevent and reduce the human and financial losses of the victims, the rescue forces (rescuers and relief workers) should be continuously trained based on modern international methods. To reach this stage, efforts have been made to design an educational model based on the competencies of rescuers and relief workers. In this regard, this study aimed to take into account the previous learnings of these people and the experiences they gained from disaster areas based on the climate and type of disaster and different experiences that have occurred. Furthermore, it was aimed to transfer these experiences in the form of a training package to each other as a coherent structure. On the other hand, according to the previous research, the need for continuous learning is of special importance. However, it must be considered that accidents and disasters are not limited to natural disasters.

Currently, the amount of casualties and financial losses are based on the statistics of unnatural accidents. For example, in our country social harm is caused by irregular construction on faulty or dangerous roads; production of various types of vehicles that do not comply with international standards; destruction of mountains, forests, and pastures that cause a lot of damage to the ecosystem of the region; and wars and conflicts between countries that lead to multiple killings and bombings. The grief caused by natural and unnatural disasters is interminable, but it is possible to alleviate the pain and suffering of the damaged people with proper performance.

In accidents, people generally experience losses that have devastating psychological effects on them and take years to be alleviated. Therefore, the present study, with regard to the competencies of rescuers and relief workers, aimed to focus on their continuous training according to the principles of competency-based on knowledge, skills, innovation, and creativity. Moreover, the training included past experiences of the rescuers and relief workers which can increase its quality in different stages with an experiential view and specialized behavior. These expert views acquired during and after the operations increase their skills, knowledge, and awareness, which reduced the error rate in relief services provided for the injured and disaster

victims.

Rescuers and relief workers, by using science, knowledge, experience, confidence in their performance, and active and dynamic presence in accidents, alleviate the pain of the victims. Moreover, the satisfaction of the injured from the help of rescuers gives the operation team peace of mind (rescuers and relief workers). Therefore, the main goal of designing an educational model based on the competencies of rescuers and relief workers is to increase their level of awareness and insight and improve their decision-making ability. It should be considered that due to the diversity of natural and unnatural disasters, new technologies and up-to-date technologies should be used to train rescuers and relief workers.

In a study entitled “Designing the Competency Model of Educational Managers for Use in the Assessment and Development Center”, it was found that the components of the Competency Model of Educational Managers for use in the assessment center were knowledge competency, professional competency, personality competency, executive competency, leadership and guidance competency, communication competency, and perceptual competency. Each of these components includes subcomponents and indicators, most of which are common among the managers of schools and middle and higher education, while some of them can differ (1,2)

In a quantitative study entitled “Development of a Competency-Based Learning Tool to Introduce Vocabulary Exercises to Novice Language Learners”, two versions (word-based vs. character) were compared: changes of participants in terms of self-efficacy, excitement about learning, subjective estimation of workload, objective measurement of performance, and other voluntary comments of participants in the quantitative experiment, 77% of whom had never learned Japanese before. In terms of workload and technology adoption, the scores of subjects who used word-based exercises as their first step in learning Katakana were almost identical with those of the subjects who used the tool counterpart that targeted the character.

Qualitative interviews and indirect observations provided qualitative feedback on the understanding of participants of the nature of learning new characters through the practice of reading words, their interactions with versions,

and further suggestions for improvement. These results indicated that this tool, as a computer-like training tool, could be further developed and explored to help beginners learn Katakana effectively. In addition, further studies are required on the possibility of creating module-based learning concepts in this tool to suggest other designs for practicing computer-assisted word reading that may be less frightening for beginners (5)

The results of a study entitled “Development of Competency-Based on Outdoor Education Model for Primary School Students in Samarinda” indicated that the outdoor learning model is desirable and effective for primary school children. Moreover, they found that it can improve cognitive, psychological motor and emotional aspects by 94.19%, 91.86%, and 84.84%, respectively. In the aforementioned study, the rate of student attraction to the outdoor education model was 89.1% with excellent results, while the rate of teacher attraction to the outdoor learning model was 100% with excellent criteria (6)

As it was observed in previous studies, no research has been performed to identify and rank the dimensions and components of competency-based training of Red Crescent rescuers and relief workers. Moreover, this research is the first one conducted in the Red Crescent Society of Tehran province, Iran. Therefore, the objectives of the research are:

1. Identification of the dimensions and components of training based on the competency of Red Crescent rescuers and relief workers;
2. Ranking the identified dimensions and components of training based on the competency of Red Crescent rescuers and relief workers;
3. Design of a training model based on the competencies of Red Crescent rescuers and relief workers;
4. Validation of the training model based on the competency of Red Crescent rescuers and relief workers.

Methods

The present study aimed to identify and rank the dimensions and components of competency-based education of the Red Crescent rescuers and relief workers. The research method was retrospective in terms of the time of occurrence of the phenomenon, decision-oriented in terms of

results, applied in terms of purpose, deductive and inductive in terms of performance logic, cross-sectional in terms of the time of research, mixed (qualitative-quantitative) in terms of data type, library-based in terms of research environment, descriptive-correlational in terms of data collection method or the nature and method of research, and extensive in terms of the level of focus on the phenomenon.

In the qualitative part, it included experts familiar with education, and in the quantitative part, it included all Red Crescent rescuers and relief workers in Tehran province. The sample size was estimated according to theoretical saturation in the qualitative part (n=20) and based on Krejcie and Morgan table (1970) in the quantitative part (n=335). The samples were selected by purposeful sampling in the qualitative part and stratified random sampling in the quantitative part. Furthermore, the required data were collected using interviews in the qualitative section and a five-point scale researcher-made questionnaire in the quantitative part. The form and content validity of the questionnaire was confirmed by several experts. Moreover, the convergent validity was confirmed by the calculation of the mean of variance. Moreover, the divergent validity of the questionnaire was confirmed by the calculation of the square root of the average variance extracted (AVE). The reliability of the whole questionnaire was obtained at 0.968 by Cronbach's alpha. The data were analyzed using Cronbach's alpha, AVE, AVE root matrix, Kolmogorov-Smirnov test, and confirmatory factor analysis using Lisrel (version 8.80) and SmartPLS (version 10) software.

Based on the obtained data, the reliability of the dimensions is confirmed since Cronbach's alpha and composite reliability coefficient values were above 0.7 and $AVE > 0.5$. Convergent validity was confirmed since $CR > 0.7$, $CR > AVE$, $AVE > 0.5$. Furthermore, divergent validity was also confirmed as maximum shared squared variance $< AVE$ and average shared squared variance $< AVE$.

Findings

In this section, data analysis is performed using SPSS (version 22) and Smart PLS (version 3) software in two areas of analysis (descriptive and inferential) and interpretation of results.

Statistical description of research variables

This section and Table 1 present the demographic information as well as the description of research variables in terms of measures of central tendency, measures of dispersion, and measures of distribution.

According to the descriptive findings of the

study, 19% and 81% of the subjects were female and male, respectively. Moreover, 23%, 41%, 27%, 9%, 17%, 67%, and 16% of the subjects were younger than 30 years old, 30-40 years old, 40-50 years old, over 50 years old, younger than 10 years old, 10-20 years old, and older than 20 years old, respectively.

Table 1. Description of research variables

Structure	Dimension	Component	Mean	SD	Skewness	Kurtosis
	Development of competency criteria	Behavioral	3.14	0.84	0.25	-0.41
		Standard	3.30	0.80	0.00	-0.08
		Contingent	3.28	0.71	0.01	0.47
	Learners	Training course	3.23	0.75	0.14	0.22
		Post-training course	3.23	0.83	-0.22	0.17
	Educational environment	Incentive and motivational mechanisms	3.43	0.79	-0.23	0.13
		Availability of information and resources	3.17	0.76	0.10	0.51
	Competency needs assessment	Knowledge competencies	3.39	0.87	0.48	0.63
		Skill competencies	3.22	0.74	-0.09	0.22
		Attitudinal competencies	3.13	0.76	0.14	0.28
		Abilities	3.16	0.86	0.26	0.97
Competency-based training	Educational design and planning	Prepare a personal development plan	3.23	0.77	0.05	0.47
		Determination of educational goals	4.52	0.56	-1.72	0.01
		Content determination	4.46	0.57	-1.22	0.56
		Determination of educational activities	4.37	0.56	-1.62	0.77
		Development of a training plan	4.24	0.57	-0.61	-0.01
		Internalization of competency-based education culture	4.40	0.59	-1.33	0.17
	Execution of the educational program	Pre-training activities	4.41	0.57	-1.27	0.99
		Activities during training	3.46	0.85	-0.22	1.37
		Post-training activities	3.47	0.69	-0.62	0.88
	Educational evaluation	Determination of evaluation tools	4.00	0.16	-0.28	1.43
		Teacher evaluation	4.01	0.72	-1.11	-0.25
		Evaluate the content of education	4.10	0.59	-0.96	0.52
	Review and update of the educational process and program	Analysis and review of the feedbacks	4.88	0.36	-0.77	0.30
		Corrective program design	4.02	1.30	0.56	-1.56

Mean and standard deviation values of all components were provided. Moreover, according to Table 1, the elongation statistic in all components was between 5 and -5. This means that the data distribution was normal in this respect and the shape of the distribution was not too flat or long. Moreover, skewness statistic in all components was between 3 and -3 and even between 2 and -2, which means that the distribution of data is normal in this regard and it can be said that the shape of the distribution has no positive or negative skewness. Besides, according to Table 1, since the significance level was higher than 0.05, it can be stated at a 95% confidence interval that the assumption of the

normality of data is accepted.

Statistical inference of data

Research question 1: What are the components and dimensions of competency-based education of Red Crescent rescuers and relief workers?

Based on the findings of the Grounded theory, 81 indicators (items), 25 components, and 8 main dimensions were obtained that are the indicators, components, and dimensions of competency-based education of Red Crescent rescuers. The dimensions were the development of competency criteria, learners, educational environment, competency needs assessment, educational design and planning, execution of the educational

program, educational evaluation, review and update of the educational process and program.

Question 2: What is the basis of ranking the identified dimensions and components of competency-based training of Red Crescent rescuers and relief workers?

The ranking is based on the path coefficients obtained according to the modeling of structural equations. According to the path coefficients, the learning environment (0.735), learners (0.623), execution of the educational program (0.615), competency needs assessment (0.563), educational design and planning (0.504), development of competency criteria (0.420), educational evaluation (0.397), and review and update of the educational process and program (0.341) were the priority dimensions of competency-based training, in that order.

Moreover, the prioritization of the components was: for the dimensions of preparing the competency criteria (standard competency [0.82], contingent competency [0.63], and behavioral competency [0.61]), learners (post-training period [0.82] and training period [0.77]), educational environment (incentive and motivational mechanisms [0.87], availability of information and resources [0.83]), competency needs assessment (skill competencies [0.90], attitudinal competencies [0.87], knowledge competencies [0.79], and abilities [0.41]), educational design and planning (preparation of personal development plan [0.80], setting educational goals [0.77], determination of educational activities [0.72], determination of content [0.71], internalization of competency-based education culture (0.56), and development of training plan [0.53]), execution of educational program (activities during training [0.88], post-training activities [0.87], and pre-training activities [0.71]), educational evaluation (determination of assessment tools [0.85], teacher evaluation [0.74], and evaluation of training content [0.64]), and review and update of the educational process and program (analysis and review of feedback [0.76] and design of correctional program [0.38]).

Question 3: What are the components of the competency-based training model of Red Crescent rescuers and relief workers?

Based on previous studies, the competency-based training model of Red Crescent rescuers and relief workers is as follows:

Question 4: What is the extent of credibility of the competency-based training model of Red Crescent rescuers and relief workers?

Smart PLS (version 3) software was used to check the fit of the model.

The calculated goodness of fit values obtained in both models were greater than 0.36, which indicate the good fit of the research models. Moreover, all the path coefficients were significant, the explained variance was acceptable, and the internal consistency of the structures was above 0.05. Therefore, the conceptual model of the research had a good fit and was approved.

Discussion and Conclusion

The present study presented the issue of what model can be provided for competency-based training of Red Crescent rescuers and relief workers. Therefore, considering the review of theoretical foundations and interviews with experts, different dimensions of competency-based education of Red Crescent rescuers and relief workers were identified and the components affecting it were studied.

The dimensions obtained in this research for competency-based education are also supported by other researchers. In the related literature, various components, such as context and characteristics of society, characteristics of learners, pre-training period, training period, post-training period, formulation of competency model and determination of competencies, determination of competency levels (knowledge, skills, and attitude), competency gap analysis, preparation of personal development plan, setting educational goals, determination of the content, curriculum development, pre-teaching activities, activities during teaching, post-teaching activities, determination of evaluation model, determination of evaluation levels, teacher evaluation, evaluation of educational content, feedback analysis, and corrective program design were mentioned by Naderi et al. (2013), Arman and Khosravi (2013), Masoumi (2014), Kadkhodei et al. (2015), Biham (2002), Singla et al. (2005), Eiler Bush (2007), and Nawaz et al. (2013). In this respect, the results of this study were consistent with those of previous studies. Other studies have obtained some of these indicators, while a significant number of these indicators are specific to the present study according to the context of the study.

Table 2. Table of reliability and subscriptions

Dimensions and components	Average variance extracted	R ²	Composite reliability	Cronbach's alpha
Development of competency criteria	0.778	0.176	0.891	0.816
Learners	0.700	0.388	0.711	0.750
Educational environment	0.717	0.540	0.891	0.817
Competency needs assessment	0.755	0.317	0.873	0.781
Educational design and planning	0.709	0.254	0.871	0.778
Execution of the educational program	0.620	0.378	0.700	0.763
Educational evaluation	0.521	0.158	0.600	0.700
Review and update of the educational process and program	0.625	0.116	0.636	0.712
Behavioral	0.715	0.217	0.720	0.719
Standard	0.746	0.345	0.757	0.825
Contingent	0.682	0.057	0.711	0.831
Training course	0.824	0.238	0.830	0.861
Post-training course	0.964	0.173	0.970	0.728
Incentive and motivational mechanisms	0.636	0.265	0.657	0.739
Availability of information and resources	0.508	0.229	0.666	0.715
Knowledge competencies	0.510	0.093	0.716	0.800
Skills competencies	0.671	0.360	0.745	0.731
Attitudinal competencies	0.750	0.062	0.761	0.900
Abilities	0.633	0.191	0.895	0.843
Preparation of an individual development plan	0.787	0.219	0.905	0.857
Determination of educational goals	0.543	0.084	0.887	0.810
Content determination	0.746	0.170	0.936	0.898
Determination of educational activities	0.650	0.324	0.896	0.841
Development of a training plan	0.874	0.473	0.919	0.883
Internalization of competency-based education culture	0.842	0.148	0.916	0.878
Pre-training activities	0.730	0.390	0.952	0.924
Activities during training	0.807	0.077	0.926	0.900
Post-training activities	0.612	0.075	0.916	0.889
Determination of evaluation tools	0.743	0.091	0.914	0.889
Teacher evaluation	0.702	0.155	0.952	0.946
Evaluation of the content of education	0.677	0.129	0.946	0.933
Analysis and review of the feedback	0.734	0.303	0.966	0.963
Corrective program design	0.755	0.330	0.939	0.927
Mean	-	0.228	0.835	-

$$Gof1 = \sqrt{\text{communalities}} \times \sqrt{R^2} = \sqrt{0.835 * 0.228} = 0.436$$

effective presence, and maintain and develop their job position, prevent and control job risks, and increase their self-confidence and self-efficacy. Workplace requirements are a set of competencies that employees in the workplace must master and turn into their work habits.

The Workplace Requirements course consists of five competencies, including job searching skills, work environment, and human relationships, technology and work environment, work environment and laws, and safety and

health. Each of these competencies has sub-categories that are intertwined and interactive. In terms of content organization, this course will start from the competency component in the internal cycle for each macro competency and will be connected vertically to the competency component in the second cycle. Finally, the combination of the competency component in the first and second cycles for each competency will form its content.

The second stage that affected competency-

based learning was the dimension of learners with a path coefficient of 0.623. The results indicated that the instructor was able to identify, create, and share digital resources to support and enhance the training of paramedics, taking into account the specific learning goal, context, approach, and learning group. Moreover, it was found that the teacher can use learner-centered learning strategies and facilitate the active participation of learners in the learning process to help them be responsible for their own learning. The results showed that rescuers and relief workers of the Red Crescent Society consider post-training courses to be more important for improving their skills than the courses provided during their training. In other words, after the training period, the Red Crescent Society should have mechanisms in place to remind, repeat, and rehearse training for relief workers.

The third stage affecting competency-based education is the execution of the educational program with a path coefficient of 0.615. For the educational program to be implemented effectively, a suitable context must be provided for the learner. A very important issue is to pay attention to one's learning style. Training is effective when it is related to job responsibilities. Concepts, terms, and examples should come from the real world of the job, and abstract concepts should be avoided. A learning environment should be provided physically and emotionally and a person should not be in a state of worry and anxiety. Moreover, educational content should also be appropriate to the level of individuals in terms of difficulty. In addition, the feedback mechanism should be used appropriately. The results showed that the Red Crescent Society should pay more attention to the programs that are provided during the training. Accordingly, the rules and regulations of the training programs should be explained to the relief workers, useful educational content should be provided for them, and feedback should be received from the relief workers during the training program.

The fourth stage affecting competency-based education was the competency needs assessment factor with a path coefficient of 0.563. Undoubtedly, nowadays, organizations must compete for their maintenance and survival. Accordingly, in the current turbulent situation, each organization seeks to equip itself with resources and tools that protect it from peripheral

threats and also lead to superiority over competitors. One of the most effective factors in this regard is capable human resources, which is the most valuable asset. Accordingly, companies seek to develop this valuable and empowering capital and make the best use of the knowledge, expertise, skills, and experiences of this invaluable resource. The results showed that the Red Crescent Society should have a competency model in the educational system which can have various applications, such as assessment of the educational needs of individuals, preparation and evaluation of the educational program, evaluation of the efficiency and effectiveness of education, and finally development of plans for the growth and development of individuals.

The fifth stage affecting the competency-based training was the educational design and planning with a path coefficient of 0.504. In the organizational training cycle, after determining the training needs of employees and the organization, the policymakers should reach an agreement to meet these needs. Successful design and presentation of an educational project is a path that leads to meeting these needs. Nowadays, in-service training is widely used not only in educational organizations but also in all organizations that are constantly seeking to scientifically and professionally improve the quality and quantity of their services. In-service training programs are effective when they are based on the real needs of employees and the employees participate in them voluntarily. The type of needs and expectations of the participants is an important factor in determining the educational goals, the content of courses, teaching methods, method of implementation of the program, and evaluation method.

In organizations, educational design, as the practical realm that deals with the presentation of educational learning opportunities, plays an important role. Accordingly, some believe that "educational design is the heart of the educational process." If there is to be a change in education, the educational design must be recognized and valued as a scientific field. Moreover, there is a need to train educational designers. Therefore, our educational materials should be designed by experienced and efficient designers.

The sixth step affecting competency-based education was the development of the competency criteria with a path coefficient of 0.420. No matter

how optimistic an educational unit and its officials are, they have to accept the fact that due to limited financial and human resources, they cannot train all the people who need training within a certain period. However, the most logical way is to prioritize the training as much as possible and first train those who need it more than others. Now, if the number of people at the same level is high and it is not possible to train all of them at the same time, the education manager should select the required number with the help of their direct supervisor and invite them to participate in the course. This can be done by sending them special forms. Finally, the seventh stage affecting competency-based education was educational evaluation with a path coefficient of 0.397.

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Conflict of Interests

Authors have no conflict of interests.

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