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# Effectiveness of the application of an educational program based on the Theory of Planned Behavior (TPB) in adopting preventive behaviors among mothers who have thalassemia children in Iran: a randomized controlled trial

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## Abstract

**Background** Thalassemia is one of the most common chronic diseases, which cause many problems for the patients, families, and health system. The aim of this study was to evaluate the effectiveness of the application of an educational program based on the Theory of Planned Behavior in adopting preventive behaviors from thalassemia.

**Methods** This randomized controlled trial study was associated with the participation of 160 mothers of children suffering from thalassemia major, who were divided into two groups including intervention and control. Demographic information, knowledge, and data related to the constructs of the Theory of Planned Behavior were collected. Data were analyzed using SPSS16 software and descriptive and analytical tests.

**Results** The mean scores of perceived behavioral control, behavioral intention, and behavior in the intervention group in the pre-intervention phase were  $9.83 \pm 1.45$ ,  $9.1 \pm 21.32$ , and  $2.1 \pm 18.42$ , respectively. The stage after the intervention was increased to  $12.00 \pm 0.00$ ,  $11.51 \pm 0.59$ , and  $5 \pm 0.37.95$ , respectively, and the difference of the means in the two stages was significant ( $P$  value  $< 0.0001$ ). But no significant change was observed in the control group ( $P$  value  $> 0.05$ ).

**Conclusion** The results of the study showed the effect of the training intervention based on the Theory of Planned Behavior on the promotion of preventive behaviors in mothers of children suffering from thalassemia major.

**Keywords** Theory of Planned Behavior, Thalassemia major, Health education

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## Introduction

Sistan and Baluchistan Province with a population of over 2 million and 700 thousand people is located in the south of Iran, as 3200 patients of this city are suffering from thalassemia major [1]. Most of the people born with thalassemia in this province belong to Iranshahr city [2]. Thalassemia is more prevalent in the border of the Caspian Sea, Persian Gulf, Oman Sea, Sistan and Baluchistan, Khuzestan, Fars, Esfahan, and Kerman provinces with a prevalence of 8–10% [3]. The prevalence of thalassemia is relatively high in Southeast Asia. For example, the reported prevalence ranges from 1.25% to 1.66% in India but is approximately 2.21% in China [4]. Thalassemia rates range from 0.5% in Myanmar to 12.8% in Malaysia [5]. In the Middle East, the prevalence of thalassemia is traditionally high due in part to a high carrier rate and a cultural preference for consanguineous marriages. However, the introduction of prevention programs in many countries in this region has led to a decrease in prevalence over the last decades [6].

This disease is one of the most common chronic diseases in the world, which cause many problems for the patient, family, and health treatment system [7]. The thalassemias are among the most common genetic disorders worldwide, occurring more frequently in the Mediterranean region [8, 9]. Patients suffering from thalassemia face many physical and psychological problems that reduce their quality of life. Therefore, thalassemia major can be considered one of the biggest chronic physical disorders [10, 11].

Researchers have used different models and theories to teach preventive behaviors. These patterns are useful for program designers because they suggest specific aspects of the educational interventions. Therefore, choosing a health education model is the first step in the process of planning an educational program, and effective health education depends on mastering toward the use of the most appropriate theory and strategies for each event [12]. The Theory of Planned Behavior is one of the most complete and appropriate theories for the study of behavior. The basis of this theory was developed by Ajzen and Fishbein in 1987 to predict and explain behavior with the argument that: (a) people choose their behavioral decisions based on a reasonable and logical review of available information and (b) people evaluate the results of their performance before making decisions. This theory suggests that behavioral intention (a person's intention to perform a behavior in the near future) is the strongest determinant of behavior and is influenced by three factors: (a) attitude, which is a person's positive or negative evaluation toward performing a behavior; (b) subjective norms that refer to social pressures caused by important people (friends,

family, colleagues, etc.) in performing or not performing a behavior; and (c) perceived behavioral control, which is a degree of a person's voluntary control feeling over performing or not performing a behavior. According to the Theory of Planned Behavior, when there is no type of restriction to accept a certain behavior, the person may have complete control over the behavior, and on the contrary, there may be no control over the behavior, because that behavior probably requires factors such as resources, facilities, skills, etc. that a person lacks them [13].

The Theory of Planned Behavior has been used in studies such as choosing the type of delivery in pregnant women [14], physical activity among girls [15], prevention of AIDS among drug addicts [16], and the behavior of housewives in separating household waste [17], and its effectiveness has been proved.

Therefore, considering the importance of factors related to preventive behaviors of thalassemia, no study has been conducted in this field so far, and for this reason, this study aims to determine the effect of educational intervention based on the Theory of Planned Behavior in promoting preventive behaviors of thalassemia in the mothers of children suffering from thalassemia major.

## Materials and methods

### Study design and setting

The present study was a randomized controlled trial investigation. The population of this study included mothers affected by thalassemia whose children suffering from thalassemia major. These groups of mothers referred to the health service centers in Iranshahr.

### Study participants and sampling

Inclusion criteria included the desire of the participants in the study to get pregnant. Couples who were immigrants were excluded from the study. In this study, based on the results of Hosseini Surand et al. [18] and according to the formula of comparing the average scores in two communities ( $\alpha=0.05$ ,  $\beta=2$ ,  $S1=4.8$ ,  $S2=5.8$  and  $d=2.5$ ), the minimum sample size was estimated to be 71 people considering the possible drop of 10% and the attitude that the target group is mothers of children affected by thalassemia major. Therefore, the sample size in each group was considered to be at least 80 people, which means a total of 160. It is necessary to explain that in this study,  $\alpha$  is the first type error,  $\beta$  is the second type error,  $S1$  is the average preventive behavior in the pre-intervention phase,  $S2$  is the average preventive behavior in the post-intervention phase, and  $d$  is the accuracy of the study.

$$n = \frac{\left(Z_{1-\frac{\alpha}{2}} + Z_{1-\beta}\right)^{\alpha} (\delta_1^{\alpha} + \delta_{\alpha}^{\alpha})}{(\mu_1 - \mu_{\alpha})^{\alpha}}$$

The sampling method was simple random sampling. For fulfilling the purpose of this study, first the list of households with children suffering from thalassemia major was collected from the prevention and care section of non-communicable diseases, and in the next step, 160 households (among 647 households with children affected by thalassemia major) out of 23 health service centers were selected by random sampling.

### Data collection tool and technique

In order to collect information, a researcher-made questionnaire based on the Theory of Planned Behavior structures was used. This questionnaire consisted of three parts: the first part of demographic questions included age, marital status, number of children affected by thalassemia major, and education level. The second part included knowledge questions, and the third part included questions related to the constructs of the Theory of Planned Behavior. In order to measure knowledge, 10 questions including 3 options (yes, no, I don't know) were designed, and each option was given a score such as 2, 1, and zero for the correct, I don't know and wrong answers, respectively. In order to measure the constructs of attitude, perceived behavioral control, and behavioral intention, 10, 4, and 4 questions were designed in the form of a three-choice Likert scale (agreed, no opinion, and disagreed), respectively; as well, each option was given a score such as 3, 2, and 1 for agreed, no opinion, and disagreed answers, respectively. In order to measure the preventive behaviors, eight 2-choice questions (yes, no) were designed, and the correct option was given a score of one; as well, the wrong option was given a score of zero. The Content Validity Index (CVI) was evaluated based on the items such as relevance, clarity, and simplicity. Therefore, CVI for the questions of knowledge, attitude, behavior, behavioral intention and perceived behavioral control are: 0.89, 0.80, 0.79, 0.81, and 0.82, respectively, and the content validity ratio (CVR) was evaluated based on necessity, and then, the questionnaires were collected and modified. Therefore, CVR for the questions of knowledge, attitude, behavior, behavioral intention, and perceived behavioral control is: 0.88, 0.86, 0.80, 0.90, and 0.90, respectively. Also, in order to confirm the reliability, the questionnaire was distributed among 20 people from the target group who did not participate in the study. In addition, their opinions were collected, and the necessary changes were applied. Therefore, Cronbach's alpha for the questions of knowledge, attitude, behavior, behavioral

intention, and perceived behavioral control is: 0.91, 0.88, 0.81, 0.99, and 0.83, respectively.

After confirming the validity and reliability of the questionnaire questions, the necessary arrangements were made with Iranshahr University of Medical Sciences and the health service centers, and the pre-intervention stage questionnaires were distributed among the target group (who referred to the health service centers to receive health care) after receiving their consent by researchers through interviews. After completing the questionnaires, the data were inserted into SPSS version 16, and then, the data were analyzed. The educational content was prepared based on the analysis of the information obtained from the questionnaires distributed in the first stage (pre-test). The educational tool used in this study is a 20-min educational video on thalassemia with the topics such as reliable and safe methods to prevent pregnancy, the importance of prenatal diagnosis and the social, economic, and psychological consequences for couples and families following the birth of a child with thalassemia major. Also, after watching the educational video, a session of discussion and question and answers was held with the attendees, and at the end, the educational pamphlet was provided to the target group. After passing the waiting period (1 month), the same questionnaire was completed again by the thalassemia couples. It is necessary to explain that the educational program implemented for the intervention group was designed based on the constructs of the Theory of Planned Behavior. For example, to change behavior, behavioral intention, perceived behavioral control, educational video, to increase knowledge, lecture with distribution of educational pamphlet, and to change the attitude the question and answer session were used (Table 1).

### Statistical tests

The data obtained from the questionnaire were analyzed through SPSS 16 software using descriptive (frequency and percentage) and analytical (paired *t*-test and paired *t*-test). ( $P < 0.05$  was considered as significant values).

### Results

According to the findings of the present study, 2.5% of the subjects in the intervention group were under 20 years old, and 61.2% of the subjects in the control group were between 20 and 40 years old. Also, 83.8% of the participants in the intervention group had one child suffering from thalassemia; as well, in the control group, 17.5% of them had 2 children suffering from thalassemia. Table 2 shows the frequency distribution of the demographic characteristics of the participants in the study.

Table 3 shows the comparison of the mean and standard deviation of the knowledge and perceived behavioral

**Table 1** Details of sessions and training content

| Construct  | Intervention duration  | Strategy                               | Educational content   | Participants (for each session) | Total number of sessions |
|--|------------------------|--|---|---------------------------------|--------------------------|
| Knowledge  | One session for 30 min | Lecture with distribution of pamphlets | Training content about:<br>Preventive behaviors symptoms<br>Complications of thalassemia major<br>The appropriate time to perform the first and second tests<br>Definitive treatment methods of thalassemia benefits of timely diagnosis of thalassemia during pregnancy  | 20 participants                 | 4 sessions               |
| Behavior, behavioral intention, perceived behavioral control | One session for 20 min | Educational video                      | An educational video about reliable and safe methods to prevent pregnancy, the importance of prenatal diagnosis and the social, economic and psychological consequences for couples and families following the birth of a child with thalassemia major was shown to the participants in the meeting   | 20 participants                 | 4 sessions               |
| Attitude   | One session for 20 min | Question and answer session            | In order to create a correct attitude and overcome negative attitudes and strengthen positive attitudes about the preventive behaviors of this disease, peers (couples with a child with thalassemia who had appropriate preventive behaviors) were used that these people discussed and exchanged opinions with other members of the group about the positive effect of preventive behaviors | 10 participants                 | 8 sessions               |

control score during the pre- and post-intervention within two groups such as intervention and control ones. The average score of knowledge in the intervention group in the pre-intervention stage was  $12.28 \pm 2.44$ , and in the post-intervention stage, it was increased to  $19.97 \pm 0.22$ . Also the difference between the averages in the two stages was significant ( $P$  value  $< 0.0001$ ). But no significant change was observed in the control group ( $P$  value  $> 0.05$ ).

The mean score of perceived behavioral control construct in the pre-intervention stage in the intervention group was  $9.83 \pm 1.45$ , which increased to  $12.00 \pm 0.00$  in the post-intervention stage as this difference was significant in these two stages ( $P$  value  $< 0.0001$ ). But in the

control group, the difference of the mean scores in these two stages was not significant ( $P$  value  $> 0.05$ ).

Table 4 shows the comparison of the mean and standard deviation of the attitude score during the pre- and post-intervention within two groups such as intervention and control ones. The average score of attitude in the intervention group in the pre-intervention stage was  $25.18 \pm 1.99$ , and in the post-intervention stage, it was increased to  $29.38 \pm 0.46$ . Also, the difference between the averages in the two stages was significant ( $P$  value  $< 0.0001$ ). However, the difference between the mean scores of the attitude in the control group was not significant before and after the intervention ( $P$  value  $> 0.05$ ).

**Table 2** Frequency distribution of demographic characteristics of the participants in the study

| Variable                                |                            | Intervention group |         | Control group |         | P value |
|---|----------------------------|--------------------|---------|---------------|---------|---------|
|   |                            | Number             | Percent | Number        | Percent |         |
| Age                                     | Under 20 years             | 2                  | 2.5     | 0             | 0       | 0.27    |
|   | 20–40 years                | 52                 | 65      | 49            | 61.2    |         |
|   | More than 40 years         | 26                 | 32.5    | 31            | 38.8    |         |
| Education                               | Illiterate                 | 44                 | 55      | 24            | 30      | 0.07    |
|   | Primary                    | 13                 | 16.2    | 25            | 31.3    |         |
|   | Guidance                   | 12                 | 15      | 17            | 21.2    |         |
|   | High school and academic   | 11                 | 13.8    | 14            | 17.5    |         |
| Marital status                          | Married                    | 68                 | 85      | 76            | 95      | 0.08    |
|   | Divorce                    | 6                  | 7.5     | 3             | 3.8     |         |
|   | Widow                      | 6                  | 7.5     | 1             | 1.2     |         |
| The number of children with thalassemia | Less than 2 children       | 67                 | 83.8    | 66            | 82.5    | 0.07    |
|   | More than 2 children       | 13                 | 16.2    | 14            | 17.5    |         |
| Household incomes                       | Less than 4 million tomans | 77                 | 96.2    | 78            | 97.5    | 0.35    |
|   | More than 4 million tomans | 3                  | 3.8     | 2             | 2.5     |         |
| Occupation                              | Housekeeper                | 76                 | 95      | 79            | 98.7    | 0.38    |
|   | Employed                   | 3                  | 3.7     | 0             | 0       |         |
|   | Unemployed                 | 1                  | 1.3     | 1             | 1.3     |         |

**Table 3** Comparison of the mean and standard deviation of the knowledge and perceived behavioral control score before and after the intervention in the intervention and control groups

| Variable           | Knowledge                          |                                      |                                     |                                      | Perceived behavioral control      |                                      |                                     |                                      |
|--------------------|------------------------------------|--------------------------------------|-------------------------------------|--------------------------------------|-----------------------------------|--------------------------------------|-------------------------------------|--------------------------------------|
|                    | Pre-intervention                   | Post-intervention                    | Paired t-test                       | Difference of means                  | Pre-intervention                  | Post-intervention                    | Paired t-test                       | Difference of means                  |
|                    | M ± SD                             | M ± SD                               |                                     |                                      | M ± SD                            | M ± SD                               |                                     |                                      |
| Intervention group | 12.2 ± 28.44                       | 19.0 ± 97.22                         | t = -28.09<br>df = 79<br>P < 0.0001 | 7.2 ± 68.44                          | 9.1 ± 83.45                       | 12.0 ± 0.00                          | t = -13.30<br>df = 79<br>P < 0.0001 | 2.1 ± 16.45                          |
| Control group      | 12.2 ± 3.45                        | 11.2 ± 31.43                         | t = -1.00<br>df = 79<br>P = 0.32    | 0.0 ± 1.11                           | 9.1 ± 91.11                       | 9.1 ± 95.01                          | t = -0.59<br>df = 79<br>P < 0.55    | 0.0 ± 03.56                          |
| Independent t-test | t = -0.032<br>df = 158<br>P = 0.97 | t = -28.00<br>df = 158<br>P < 0.0001 | -                                   | t = -28.02<br>df = 158<br>P < 0.0001 | t = -0.36<br>df = 158<br>P < 0.71 | t = -18.01<br>df = 158<br>P < 0.0001 | -                                   | t = -12.19<br>df = 158<br>P < 0.0001 |

**Table 4** Comparison of the mean and standard deviation of the attitude score before and after the intervention in the intervention and control groups

| Group              | Pre-intervention<br>M ± SD      | Post-intervention<br>M ± SD          | Paired t-test                       | Difference of means                  |
|--------------------|---------------------------------|--------------------------------------|-------------------------------------|--------------------------------------|
| Intervention group | 25.1 ± 18.99                    | 29.0 ± 38.46                         | t = -19.98<br>df = 79<br>P < 0.0001 | 4.2 ± 65.08                          |
| Control group      | 25.1 ± 16.98                    | 25.1 ± 13.96                         | t = -1.42<br>df = 79<br>P < 0.15    | 0.0 ± 1.11                           |
| Independent T-test | t = -0.07<br>df = 158<br>P 0.93 | t = -20.81<br>df = 158<br>P < 0.0001 | -                                   | t = -20.03<br>df = 158<br>P < 0.0001 |

The average score of behavior in the control group in the pre-intervention stage was  $2.1 \pm 21.46$ , and in the post-intervention stage, it was increased to  $2.46 \pm 1.03$ ; as well, no significant difference was observed between the later stage and the pre-intervention one ( $P$  value  $> 0.05$ ); however, the difference of the mean scores in the intervention group was significant in the pre- and post-stages of intervention ( $P$  value  $< 0.0001$ ). Table 5 shows the comparison of the average and standard deviation of the behavior score in the intervention and control groups in the stages before and after the intervention.

In Table 6, the average score of behavioral intention in the intervention group in the pre-intervention stage was  $9.1 \pm 21.32$ , which increased to  $11.51 \pm 0.59$  in the post-intervention stage, and the difference of the mean scores within two stages was significant ( $P$  value  $< 0.0001$ ). In the control group, the average score of this construct in the pre-intervention phase was  $9.06 \pm 1.12$ , which reached  $9.02 \pm 1.21$  in the post-intervention phase, which was not statistically significant ( $P$  value  $> 0.05$ ).

## Discussion

The aim of the present study was to investigate the effect of educational intervention on preventive behaviors of thalassemia among mothers of the children affected with thalassemia major. The average knowledge score in the intervention group increased in the post-intervention stage compared to the pre-intervention stage, and the average difference between these two stages was significant, while the difference of the average knowledge score in the control group was not significant. The increase in knowledge in the intervention group was due to the training conducted by the researchers. Various studies confirm the effect of educational intervention on increasing people's awareness and knowledge about various health behaviors. The findings of the studies done by Elnour et al. [19], Abiodun et al. [20], Ozoemena et al. [21], and Mardhiyah et al. [22] showed that training has a good effect on increasing the level of knowledge of partners in the intervention group compared to the control group in health programs.

Attitude is considered as a mental process that determines potential and actual actions, which is a predictor of behavior. In fact, according to researchers, having knowledge is not enough to adopt preventive behaviors,

**Table 5** Comparison of the mean and standard deviation of the behavior score before and after the intervention in the intervention and control groups

| Group              | Pre-intervention<br>M $\pm$ SD          | Post-intervention<br>M $\pm$ SD         | Paired t-test                           | Difference of means                      |
|--------------------|---|---|---|--|
| Intervention group | 2.1 $\pm$ 18.42                         | 5.0 $\pm$ 37.95                         | $t = -21.87$<br>df = 79<br>$P < 0.0001$ | 3.1 $\pm$ 18.30                          |
| Control group      | 2.1 $\pm$ 21.46                         | 2.1 $\pm$ 46.03                         | $t = -1.25$<br>df = 79<br>$P < 0.21$    | 0.1 $\pm$ 25.78                          |
| Independent t-test | $t = -0.109$<br>df = 158<br>$P = 0.812$ | $t = -18.5$<br>df = 158<br>$P < 0.0001$ | –                                       | $t = -11.89$<br>df = 158<br>$P < 0.0001$ |

**Table 6** Comparison of mean and standard deviation of behavioral intention score during the pre- and post-stages of intervention in the intervention and control groups

| Group              | Pre-intervention<br>M $\pm$ SD        | Post-intervention<br>M $\pm$ SD          | Paired t-test                           | Difference of means                      |
|--------------------|---------------------------------------|--|---|--|
| Intervention group | 9.1 $\pm$ 21.32                       | 11.0 $\pm$ 51.59                         | $t = -12.41$<br>df = 79<br>$P < 0.0001$ | 2.1 $\pm$ 3.65                           |
| Control group      | 9.1 $\pm$ 06.12                       | 9.1 $\pm$ 02.21                          | $t = -0.77$<br>df = 79<br>$P < 0.44$    | 0.0 $\pm$ 03.43                          |
| Independent t-test | $t = -0.77$<br>df = 158<br>$P = 0.44$ | $t = -16.48$<br>df = 158<br>$P < 0.0001$ | –                                       | $t = -12.20$<br>df = 158<br>$P < 0.0001$ |

but the way of thinking and attitude about a disease or unhealthy behavior is an important factor in preventive behaviors. Many women in Baluchistan society do not believe in the benefits of using temporary contraceptives such as contraceptive pills, IUDs, condoms, etc., or permanent contraceptives such as tubectomy and vasectomy, and sometimes they use traditional or old contraceptive methods which causes the failure of these methods, and subsequently unwanted pregnancy occurs, and due to cultural beliefs, they are rarely satisfied with abortion (even if thalassemia major is confirmed). In this study, the attitude of the intervention group increased significantly after the intervention. This increase can be attributed to the formation of question and answer training sessions, which improved the attitude of the intervention group. The results of the study by Jadgal et al. [23], De Lugt-Lustig et al. [24], Janssens et al. [25], and Roopa et al. [26] confirm the findings of the present study.

The above research has promoted the preventive behaviors of thalassemia among couples of a child affected with thalassemia major, which is the ultimate goal of the educational intervention. As well, this study agrees with the Cheng et al. [27] and Saeedi Kia et al. [28] Balochistan society is a society with a limited culture, and a large number of mothers participating in the study prevent themselves from aborting fetuses with thalassemia major due to negative attitudes such as fear of their husbands or religious issues. In addition, the absence of a reference laboratory in Iranshahr as well as passing long distances to reach the nearest laboratory, which is about 500 km away, is a problem that many women do not perform prenatal tests on time.

Another construct of the planned behavior theory is perceived behavioral control. Perceived behavioral control means a person's understanding toward to what extent his/her behavior is under his/her voluntary control. If people believe that they do not have enough resources or facilities to perform a behavior, they will probably not have a strong intention to perform that behavior even if they have a positive attitude toward doing that behavior [29]. In this study, the average score of perceived behavioral control in the intervention group increased significantly after the intervention. In the current study, since most of the women participating in the study were illiterate and did not have a good financial status, so the health behaviors such as doing prenatal tests, going to counseling centers, and fetal screening are less performed by them, and after considering the intervention, the effect of this structure of Theory of Planning Behavior has been significantly improved. The results of the study by Mohammadi Zaidi et al. [30], Barfi et al. [31], and Pooreh et al. [32] show the significant change of perceived behavioral control after intervention in the

elementary students of the intervention group which is consistent with the findings of the present study.

Another construct of the Theory of Planned Behavior is behavioral intention. Intention plays a central role in the Theory of Planned Behavior. Intentions contain motivational factors affecting behavior and indicate how strongly people want to perform the behavior and how toughly they strive for it [29]. In the present study, the average score of the behavioral intention of the intervention group increased significantly after the intervention. The average score of behavior score in the intervention group increased in the post-intervention stage compared to the pre-intervention stage, and this increase was statistically significant, while in the control group, the difference between the average scores of the two stages was not significant. The findings of studies done by Ezzati et al. [33], Peyman et al. [34], Shafieinia et al. [35], and Delshad Nougabi et al. [36] are consistent with the present study.

#### **Strengths and limitations**

Implementing the educational model and the type of the study can be regarded as the strengths of the present study. However, this research also had limitations, such as the limited place for training, self-report questionnaires, the dispersion of research samples, and the long time it took to complete the questionnaires in the pre-test and post-intervention phase. Non-attendance of educational sessions for mothers due to not having a vehicle is another limitation of the research.

#### **Conclusion**

The results of the present study showed the effect of training intervention based on the Theory Planned Behavior on promoting preventive behaviors in mothers of children affected with thalassemia major. Therefore, it can be said that the application of this theory can improve the attitude, perceived behavioral control, and behavioral intention of mothers of children affected with thalassemia major regarding thalassemia preventive behaviors. Considering the effectiveness of programs based on the Theory of Planned Behavior in this study, it is suggested that this theory of behavior change be used in other parts of the country.

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#### **Author contributions**

IZ and ZOA researched literature and conceived the study. ZOA and MSJ involved in protocol development, gaining ethical approval, patient recruitment, and data analysis. HA and JHZ wrote the first draft of the manuscript. All authors reviewed and edited the manuscript and approved the final version of the manuscript.

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**Availability of data and materials**

Available upon request.

**Declarations****Ethics approval and consent to participate**

This study is the result of a research project with the code of ethics IR.ZAUMS.REC.1400.369 in the Research Ethics Committee of Zahedan University of Medical Sciences. The informed consent was obtained from all human participants orally.

**Consent for publication**

The authors certify that all data collected during the study are as presented in this manuscript, and no data from the study have been or will be published elsewhere separately.

**Competing interests**

There are no conflicts of interest.

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