

# The Effect of Happiness Training on Psychological Well-Being in Patients with Thalassaemia Major

## A quasi-experimental study

Mohammad S. Sargolzaei,<sup>1</sup> Milad G. Shirsavar,<sup>2</sup> Jaseem Allahyari,<sup>3</sup> Ali Bazi,<sup>4</sup> \*Abolghasem P. Nasirabady<sup>5</sup>

**ABSTRACT: Objectives:** This study aimed to determine the effects of happiness training on the psychological well-being of thalassaemia major (TM) patients. TM is a chronic haematological disease that can have profound effects on patients' mental health and psychological well-being. **Methods:** This quasi-experimental study with a pre/post-test design was performed on 52 patients with TM attending the thalassaemia care centre of Imam Khomeini Hospital in Zabol city, Iran, from August to December 2020. The patients were randomly categorised into experimental and control groups. In the experimental group, happiness training was performed in eight sessions, each for 60 minutes. The control group received routine care. The data collection tool employed was the Ryff's Scale of Psychological Well-Being. Data were analysed by SPSS 16 using descriptive (mean  $\pm$  standard deviation) and inferential (paired and independent t-test) statistics. **Results:** Regarding the psychological well-being score at the pre-test stage, there was no statistically significant difference between the intervention ( $74.92 \pm 6.36$ ) and control ( $74.57 \pm 5.83$ ) groups ( $P = 0.83$ ). After the intervention, however, a statistically significant difference was observed between the two groups in terms of psychological well-being ( $P < 0.001$ ). Additionally, a statistically significant difference was seen one comparing the psychological well-being score between the pre- and post-intervention phases in the experimental ( $P = 0.01$ ) but not control ( $P = 0.12$ ) group. **Conclusion:** The results of this study showed that happiness training improved TM patients' psychological well-being. Therefore, this type of training can be used as an appropriate educational strategy to improve the psychological well-being in these patients.

**Keywords:** Happiness; Education; Mental Health; Thalassaemia; Iran.

### ADVANCES IN KNOWLEDGE

- According to the results of this study, happiness training may improve the psychological well-being of TM patients.

### APPLICATION TO PATIENT CARE

- Happiness training, as an easy, accessible and safe method, can improve patients' psychological well-being and, thus, the quality of patient care.

THALASSAEMIA IS A COMMON INHERITED haematological disease.<sup>1</sup> Thalassaemia major (TM) is characterised by either the lack of or reduced production of globin chains.<sup>2</sup> Around 200,000 TM patients are currently seeking treatment worldwide.<sup>3</sup> The prevalence of TM is particularly high in the central Asia, Middle East, India, southern China, Mediterranean countries and central Africa.<sup>4</sup> Iran is also among the countries with a high prevalence of TM, with more than 26,000 registered patients.<sup>5</sup> The chronic nature of thalassaemia affects different aspects of patients' lives, including physical and social activities, familial relationships, educational performance, leisure activities and communication with other people. Furthermore, there is an increased risk of psychological problems such as anxiety and depression in these patients.<sup>6,7</sup> The psychosocial problems experienced by these patients can severely affect their psychological well-being, quality of life and, finally, the disease's course.<sup>8</sup>

Psychological well-being reflects the desired psychological performance and refers to the experienced quality of life. People with psychological well-being are satisfied with their health and success, improving their quality of lives.<sup>9</sup> Psychological well-being includes dimensions such as self-acceptance, positive relationships with others, independence, environmental dominance, having a purpose in life and personal growth.<sup>10</sup> The Ryff model is one of the most prominent models in the psychological well-being field, which considers psychological well-being as an attempt to grow, progress and accomplish one's potential capabilities.<sup>11</sup> Ghorbani *et al.* reported that patients with thalassaemia had low levels of psychological well-being.<sup>12</sup>

Among the factors that seem to be effective in controlling and coping with chronic diseases are happiness and cheerfulness.<sup>13</sup> Happiness is a necessary element for a better quality of life and is considered by the World Health Organization (WHO) as an

<sup>1</sup>School of Nursing and Midwifery, Sabzevar University of Medical Sciences, Sabzevar, Iran; <sup>2</sup>Student Research Committee, School of Nursing and Midwifery, Iran University of Medical Sciences, Tehran, Iran; <sup>3</sup>Zahedan University of Medical Sciences, Zahedan, Iran; <sup>4</sup>Faculty of Allied Medical Sciences, Zabol University of Medical Sciences, Zabol, Iran; <sup>5</sup>Student Research Committee, School of Nursing and Midwifery, Zabol University of Medical Sciences, Zabol, Iran

\*Corresponding Author's e-mail: Pahlevan1377@gmail.com

important and vital component of mental health and a part of the overall concept of health.<sup>14</sup> One of the ways to increase happiness is to train it through the Fordyce happiness programme. Fordyce describes happiness as a positive thrill or a feeling that is characterised with satisfaction and well-being. Fordyce employed an educational approach which included both cognitive and behavioural aspects. In the cognitive dimension, the role of specific thoughts and behaviours in creating happiness is deeply discussed. In the behavioural dimension, a variety of techniques and solutions resulting from cognitive and behavioural therapies are indicated.<sup>15</sup> Research supports the fact that psychological well-being leads to better lifestyle choices, such as avoiding fatty foods and drug abuse and helps cope with conflicts or negative emotions without perpetrating drug abuse or self-destructive behaviours. On the other hand, the likelihood of such negative health-related behaviours increases in those exposed to stress or psychological distress.<sup>16</sup> Moreover, psychological distress can have direct negative effects on certain immunological responses and increase the release of cytokines, thus facilitating chronic inflammatory responses that, in turn, promote depression or anxiety disorders.<sup>17</sup> In a study, Sobhani *et al.* reported a positive relationship between happiness and psychological well-being.<sup>18</sup>

Multiple studies have shown that cognitive behavioural training through the Fordyce happiness programme significantly increases happiness and quality of life.<sup>19,20</sup> In the study of Fayazi *et al.*, they noted that the Fordyce happiness programme improved psychological well-being in people with physical and skeletal disabilities.<sup>21</sup> Moreover, Ekrami *et al.* concluded that happiness training affected the psychological well-being and positive and negative emotions of housewives.<sup>22</sup>

Although advances in therapeutic approaches have improved TM patients' longevity and quality of lives, studies on mental health status indicate a relatively high prevalence of psychological problems in these patients, impairing their psychological well-being. Considering the important role of education in improving and reducing TM patients' psychological problems, the aim of the present study was to determine the effect of happiness training on the psychological well-being of TM patients.

## Methods

This quasi-experimental study was conducted with a pre/post-test design from August to December 2020. The study population included TM patients who were

referred to the thalassaemia care centre of Imam Khomeini Hospital of Zabol city, Iran. Sampling was performed in a continuous mode. The patients were randomly divided into the intervention and control groups using the table of random numbers. Inclusion criteria were definite diagnosis of TM, age above 12 years, having no cognitive problems or physical disability and willingness to participate in the study. Missing one of the training sessions, unwillingness to continue participation and the patient's death were regarded as exclusion criteria.

Considering a confidence interval of 95%, power of 80%, the means of psychological well-being scores reported by Ghazavi *et al.* and finally regarding the possibility of a ratio of sample loss, sample size was determined as 26 subjects per group giving a total sample size of 52.<sup>23</sup>

The data collection tool included the Ryff's Scale of Psychological Well-Being (RSPWB). Demographic data including age, gender, marital status, occupation, education, economic status, parents' consanguineous marriage, number of blood transfusions per month and having other affected family members were recorded as well.

In this study, a short 18-question version of this scale with six subscales (three statements per subscale) was used. In Iran, Khanjani *et al.* translated the scale and assessed its psychometrics.<sup>24</sup> The subscales included self-acceptance (items 2, 8 and 10), positive communication with others (items 3, 11 and 13), independence (items 9, 12 and 16), having a purpose in life (items 5, 14 and 15), personal growth (items 7, 17 and 18) and environmental dominance (items 1, 4 and 6). The score of each subscale ranged from 3 to 18. The participants responded to the questions on a 6-point scale from complete disagreement (score 1) to complete agreement (score 6). The total score of psychological well-being was calculated by summing up the scores of the subscales (ranging from 18 to 108, a higher score indicating a better psychological well-being).<sup>11</sup> The internal consistency of the 18-item scale was assessed, showing the Cronbach's alpha coefficients of 94% for the whole questionnaire and 63–89% for the subscales.<sup>21</sup> Van Dierendonck confirmed the reliability of this questionnaire with the Cronbach's alpha of 90%.<sup>25</sup> In the present study, by calculating a Cronbach's alpha coefficient of 77%, the reliability of the questionnaire was also approved.

Patients attending the care centre were then recruited for the study. After an introductory explanations were provided, written consent was obtained and patients were allocated into their study groups, RSPWB was completed by the patients at

**Table 1:** The distribution of demographic variables of patients with thalassaemia major in the control and experimental groups (N = 52)

Variables	n (%)		P value
	Experimental (n = 26)	Control (n = 26)	
<b>Age in years</b>			<b>0.40*</b>
<18	11 (42.3)	14 (53.8)	
>18	15 (57.7)	12 (46.2)	
<b>Gender</b>			<b>0.57*</b>
Male	15 (57.7)	13 (50)	
Female	11 (42.3)	13 (50)	
<b>Marital status</b>			<b>1*</b>
Single	24 (92.3)	24 (92.3)	
Married	2 (7.7)	2 (7.7)	
<b>Education</b>			<b>0.69*</b>
Illiterate	3 (11.5)	1 (3.8)	
Lower than diploma	16 (61.5)	17(65.4)	
Diploma and higher	7 (26.9)	8 (30.8)	
<b>Occupation</b>			<b>0.94*</b>
Self-employment	6 (23.1)	5 (19.2)	
Unemployed	7 (26.9)	6 (23.1)	
Housewife	3 (11.5)	4 (15.4)	
Student	10 (38.5)	11 (42.3)	
<b>Economic status</b>			<b>0.09*</b>
Poor	9 (34.6)	5 (19.2)	
Moderate	11 (42.3)	9 (34.6)	
Good	6 (23.1)	12 (46.1)	
<b>Number of transfusions per month</b>			<b>0.94*</b>
1	5 (19.2)	6 (23.1)	
2	18 (69.2)	17 (65.4)	
3	3 (11.5)	3 (11.5)	
<b>Parents' consanguineous marriage</b>			<b>0.53*</b>
Yes	18 (69.2)	20 (76.9)	
No	8 (30.8)	6 (23.1)	
<b>Having another affected family member</b>			<b>0.56<sup>†</sup></b>
Yes	11 (42.3)	8 (30.8)	
No	15 (57.7)	18 (69.2)	

\*Calculated using the Chi-squared test. <sup>†</sup>Calculated using Fisher's exact test.

the pre-test stage. To avoid sharing of information between the two groups, first the control group and then the experimental group was studied.

Happiness training based on the cognitive-behavioural Fordyce happiness training protocol was performed for the experimental group in eight sessions of 60 minutes (once a week) in groups of five to six people.<sup>26</sup> These programmes covered the following topics in each session:

Session one: After introducing and acquainting the members with each other, explanations were provided about the protocol (i.e. the number and time of sessions). The importance of happiness in life was highlighted by presenting some evidence in this regard. The technique of how to be more active was taught to the patients. At the end of this session, feedback was taken from the participants. Session two: The techniques of boosting social communications and increasing intimacy were explained. Session three: The technique of increasing creativity was discussed. Session four: It was explained how to have better planning and organisation. Session five: Discussions were presented about how to cope with and stop thinking about worries and concerns. Session six: This session focused on how to have lower expectations and be oneself. Session seven: The techniques of developing positive thinking, being optimistic and living in the present. Session eight: Expressing emotions and appreciating the value of happiness.

The content of the programme was presented by lectures along with questions and answers and expressing the participants' experiences. In each session, a 15-minute rest period was given. No intervention was performed for the control group. For the post-test, the questionnaire was completed by the members of both groups one month after training. After this, the training booklet was provided to the control group as well.

Data analysis was performed in SPSS software, Version 16, (IBM Corporation, Armonk, New York, USA) using descriptive (mean  $\pm$  standard deviation) and inferential (Chi-squared, Fisher's exact test and independent and paired samples student t-test) statistics. One-way ANCOVA was used to adjust post-intervention well-being score for the effects of the pre-intervention score and age covariates. The statistical significance level was considered at  $P < 0.05$ .

After approval by the ethics committee of Iran University of Medical Sciences, Tehran, Iran, (IR.IUMS.REC.1398.815) and receiving a referral letter, Imam Khomeini Hospital in Zabol, Iran, was contacted and permission to conduct the study was acquired from the hospital's authorities.

## Results

The mean age of the participants in the study was  $20.52 \pm 6.04$  years old ( $P = 0.40$ ). Overall, 42.3% and 53.8% of patients in the experimental and control groups, respectively, were <18 years old. There were no significant differences between the two groups regarding demographic and disease-related variables ( $P > 0.05$ ) [Table 1].

**Table 2:** The psychological well-being score in the experimental and control groups before and after happiness training

Group	Mean ± SD			P value <sup>†</sup>
	Pre-intervention	Post-intervention*	Mean difference	
Experimental	74.92 ± 6.36	80.7 ± 6.47	5.69 ± 10.47	0.01
Control	74.57 ± 5.83	71.13 ± 8.32	3.34 ± 10.77	0.12
P value <sup>§</sup>	0.83	<0.001	0.003	

SD = standard deviation.

\*One-way ANCOVA was used to adjusted for age and pre-intervention well-being score; <sup>†</sup>Calculated using the paired samples student t-test; <sup>§</sup>Calculated using the independent samples student t-test.

**Table 3:** The scores of psychological well-being dimensions in the experimental and control groups before and after happiness training

Dimension	Mean ± SD		P value*
	Before intervention	After intervention	
<b>Self-acceptance</b>			
Experimental	13.53 ± 1.98	14.53 ± 1.63	0.06
Control	12.57 ± 2.51	11.50 ± 2.21	0.14
P value <sup>†</sup>	0.13	<0.001	
<b>Positive communication with others</b>			
Experimental	12.30 ± 2.09	13.65 ± 2.93	0.08
Control	11.88 ± 2.43	11.57 ± 2.35	0.62
P value <sup>†</sup>	0.5	0.007	
<b>Independence</b>			
Experimental	12.34 ± 1.46	12 ± 2.28	0.001
Control	11.76 ± 1.81	11.65 ± 1.76	0.88
P value <sup>†</sup>	0.21	0.54	
<b>Purposefulness</b>			
Experimental	10.73 ± 2.70	10.26 ± 2.16	0.42
Control	11.50 ± 1.65	11.84 ± 2.64	0.5
P value <sup>†</sup>	0.22	0.02	
<b>Personal growth</b>			
Experimental	12.73 ± 1.3	14.73 ± 1.84	<0.001
Control	13.80 ± 1.52	12.11 ± 2.55	0.002
P value <sup>†</sup>	0.009	<0.001	
<b>Environmental dominance</b>			
Experimental	13.26 ± 2.64	15.42 ± 2.23	0.007
Control	13.03 ± 2.19	12.53 ± 2.38	0.47
P value <sup>†</sup>	0.73	<0.001	

SD = standard deviation. \*Calculated using the paired samples student t-test; <sup>†</sup>Calculated using the independent samples student t-test.

There was no statistically significant difference between the two groups comparing the psychological well-being score at the pre-test stage ( $P = 0.83$ ). However, a statistically significant difference in the psychological well-being score was observed between the experimental and control groups after the training ( $P < 0.001$ ). Furthermore, a statistically significant difference was observed comparing the pre- and post-test psychological well-being scores in the experimental ( $P = 0.01$ ), but not the control group ( $P = 0.12$ ) [Table 2]. Considering psychological well-being subscales before and after the intervention, statistically significant differences were noticed in the self-acceptance, positive communications with others, purposefulness, personal growth and dominance dimensions in both groups ( $P < 0.05$  each). However, there was no statistically significant difference regarding the independence dimension in both groups ( $P = 0.54$ ) [Table 3].

## Discussion

The present study was conducted to assess the effect of a happiness training programme on the psychological well-being of patients with TM. Data analysis showed a significant difference comparing the mean psychological well-being scores between the experimental and control groups after the happiness training intervention. The results of the current study also showed the positive effects of happiness training on the dimensions of self-acceptance, positive communications with others, purposefulness, personal growth and environmental dominance, as well as the total psychological well-being score of patients with TM. On the other hand, the impact of this training programme on the independence dimension was not statistically significant.

These findings were consistent with the results of a study by Babaei *et al.*, who showed that stress management and resilience training improved the

psychological well-being of TM patients.<sup>27</sup> Dustkafi *et al.* assessed the effectiveness of positive psychotherapy training on the psychological well-being of women with lung cancer and showed that this training programme improved the psychological well-being of these patients.<sup>28</sup> Furthermore, Khayeri *et al.* showed that happiness training improved depression, stress, anxiety and fatigue in patients with multiple sclerosis.<sup>29</sup> According to another study by Samadzadeh *et al.*, happiness training improved the quality of lives of the cancer patients undergoing haemodialysis.<sup>20</sup>

The effectiveness of happiness training on the psychological well-being of patients with TM can be explained by a number of reasons or mechanisms. Happiness training and rational thinking can help patients understand their problems and then learn strategies to cope with and adapt to these problems. This, in turn, increases their self-esteem and psychological well-being. From the perspectives of the people who feel happier in life, unpleasant experiences and problems are valuable and meaningful. Additionally, these people believe that they have appropriate resources to deal with problems and the ability to use these resources to manage stressful situations.<sup>30</sup> In this regard, Hoseini Abdkhodaei reported that the Fordyce happiness training programme increased the feeling of happiness and psychological consistency in diabetic patients.<sup>31</sup> Happiness training, by influencing personal thoughts, beliefs and feelings, would free people from norms and social pressures and improve personal growth (through learning) and self-acceptance (via creating a positive attitude towards oneself and the past history).<sup>32</sup>

Patients with TM, due to the nature of their disease, are exposed to several physical and psychological problems.<sup>33</sup> Because happiness training based on the Fordyce approach has a cognitive-behavioural aspect, it can help these patients to first identify their uncomfortable thoughts and behaviours and then employ cognitive-behavioural management programmes to change the situation. In addition, focusing on life's negative aspects and persistent emotional unhappiness can have destructive effects on the body's physiological system and disrupt the immune system functionality.<sup>21</sup>

Limitations of the present study included the limited space used for the training and the fact that the study was conducted in a single centre. In addition, continuous sampling, which is a non-random method, may compromise the generalisability of the results. Another limitation of this study was the simultaneous measurement of the psychological well-being of adolescents and adults; therefore, it is suggested to examine these age groups separately in future studies.

Considering the positive impact of happiness training on the psychological well-being of TM patients, it is recommended that care centres and supportive associations pay special attention to the important role of psychological interventions and counselling sessions in improving TM patients' psychological well-being. Furthermore, these patients should be more frequently provided with exciting and entertaining programmes.

## Conclusion

According to the results of the present study, it seems that happiness training can improve TM patients' psychological well-being. Considering that this type of training is safe and accessible to patients and their families and is easy to be implemented, it is recommended that psychologists, nurses and mental health specialists and officials use this strategy to improve the psychological well-being of these patients.

## AUTHORS' CONTRIBUTION

MSS and APN conceptualised and designed the study as well as the sampling process. MSS, APN, AB and MGS drafted the manuscript. JA and AB analysed the data. MGS provided critical revision of the manuscript. All authors approved the final version of the manuscript.

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## CONFLICT OF INTEREST

The authors declare no conflicts of interest.

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