The Effectiveness of Positive Psychotherapy on the Self-Efficacy and Psychological Wellbeing of Children with Thalassemia

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Abstract

Background: thalassemia affects a patient's psychological state and exerts adverse effects on the mental health of patients and their families. The chronic nature of thalassemia transforms varied aspects of patients' lives, including their self-efficacy. Thus, this study aimed to evaluate the effectiveness of positive psychotherapy on self-efficacy and psychological wellbeing of children with thalassemia **Methods:** A quasi-experimental, single-group, pre- and post- test design was applied to accomplish the study objective. The study was conducted at an outpatient clinic at Menoufia University hospital in Shebin Elkom in Egypt. **Sample:** A purposive sample of 60 thalassemic children was selected from the above mentioned environment. Data were gathered via two tools: the psychological wellbeing scale for children (PWB-c) and the self-efficacy for managing chronic disease 6-item scale. Additionally, socio-demographic data were collected, and therapy sessions were conducted. **Results:** a positive and significant correlation was found between the self-efficacy and psychological wellbeing of the studied children immediately after and one month following the intervention. A highly statistically significant improvement was noted in the total mean scores of both the self-efficacy and psychological wellbeing of studied children immediately after and 1-month after the intervention at p-value (<0.001**). Conclusion:** The implementation of positive psychotherapy proved constructive in enhancing the self-efficacy and psychological wellbeing of children with thalassemia. **Recommendations:** First, positive psychotherapy should be applied in specialized disease centers to increase the self-efficacy and psychological wellbeing of clinic workers as well as thalassemic children. Second, the scope of positive psychotherapy should be expanded to all treatment levels

Keywords: Positive psychotherapy, children with thalassemia, self-efficacy, psychological wellbeing

Introduction

Thalassemia is a genetic and congenital disease of the blood. Global statistics report that 5% of the population of the Mediterranean and Southeast Asian countries carry the gene of this chronic illness that causes severe physical, socio-psychological, and economic effects on patients and their families **(Elzaree FA, et al., 2018)**. Physical problems and repetitive and long-term unpleasant treatments can significantly influence the quality of life of patients **(Chordiya K, et al., 2018)**,**(Nashwan AJ, et al., 2018)** Thalassemia is a hereditary disease characterized by quantitative defects in globin chain synthesis. The consequent absence of hemoglobin production leads to variable degrees of microcytic anemia **(Hesham, M. et al., 2018).** Thalassemia poses a health problem for patients and their families; it is also immensely costly for the public healthcare system because patients require regular blood transfusions, the excretion of excess iron from the body, and frequent hospital admissions, **(Borimnejad L, et al., 2018; Adam S. 2019).**

The concept of self-efficacy is also essential in patients with thalassemia because it relates to their ability to achieve certain important goals while ensuring psychological wellbeing **(Sadek EH, et al., 2020)**.

Self-efficacy may be defined as the judgment of one's ability to engage in behaviors believed to yield specific desired outcomes **(Bandura A. 1997)**. In the case of chronic disease, self-efficacy reflects a person's beliefs, abilities, and motivation to integrate

behavioral, social, psychological, and cognitive skills to cope more effectively with the disease and to tolerate its complications **(Javadipour S, et al., 2014)**. Self-efficacy is a valuable factor for the enhancement of the quality of life **(Gong G and Mao J. 2016)** and the self-management of chronic diseases **(Willis E. 2016)** such as thalassemia. Self-efficacy is aptly described as beliefs about the individual ability to act in a manner that can facilitate the achievement of goals. Patients with higher self-efficacy and a stronger belief in their capacity to handle their everyday tasks are more likely to perform better to attain their objectives**(Huang L, et al., 2013)**. Bandura's hypothesis that self-efficacy is influenced by four principal sources of information: performance accomplishment, vicarious experience, verbal persuasion, and physiological and emotional arousal **(Bandura A. 2021)**.

Everyday existence becomes very difficult for those who have to cope with chronic diseases. Such patients confront innumerable challenges to retain an acceptable level of health and maintain their physical, mental, and social functions. Like any chronic disease, thalassemia is associated with wide-ranging and severe serious psychological and clinical difficulties. Thalassemia affects the psychological state of patients and exercises an adverse impact on their mental health as well as the psychological wellbeing of their family members. The disease produces several long-term issues for patients, their families, and the health system of their country. Adolescents with thalassemia are more likely to display symptoms of depression and experience a lower quality of life compared to patients with short-term injuries **(Nikmanesh Z and Azaraein S. 2017; Parvaniyan Nasab A, et al., 2013).** Social and interpersonal relationships represent significant sources of emotional support by helping thalassemia patients fight feelings of loneliness, buffering their difficulties, diminishing their perceived threats, and promoting coping strategies **(Torres-Ortuño, A., et al., 2017).**. Psychological and social support systems are hence crucial aspects of comprehensive plans for the clinical management of thalassemia. A new scientific and practical approach labeled positive psychology has developed over the last decade, attempting to highlight the positive facets of human life, such as emotion regulation and self-efficacy **(Ghiasi SE, et al., 2016)**. The physical problems of thalassemia patients can cause numerous mental and psychological problems. Thus, effective psychological wellbeing must be contemplated, and necessary strategies must be deployed to encourage the sense of self-efficacy in such patients SO, this aimed to evaluate the effectiveness of positive psychotherapy on self-efficacy and psychological wellbeing of children with thalassemia

Significance of the Study

Thalassemia occurs in 4.4/10,000 live births and is the most common global hereditary hemoglobinopathy. In the developing world, most thalassemia children die before the age of 20 years **(Kadhim, K. et al., 2017).** Hemoglobinopathies denote the most common monogenic diseases in the world and result in many health problems worldwide. In Egypt, thalassemia is the most common cause of chronic hemolytic anemia and is correlated with significant morbidity and mortality **(Youssry, I., et al., 2018).**

Thalassemia is the most prevalent genetic disorder of hemoglobin across the world. This disease is marked by the reduced generation of hemoglobin specific chains and severe anemia. Approximately 80% of the people affected by thalassemia belong to the age group under 18 years. Almost 240 million people in the world suffer from thalassemia major, and 100 thousand children are born with thalassemia major every year **(Kermansasavi F, et al., 2018).**. It is estimated that 1000 thalassemia patients per 1.5 million people are born annually in Egypt **(Hesham, M. et al., 2018).**

Thalassemia is considered a major problem in contemporary societies. Its severity decreases the perception of psychological wellbeing and quality of life of the children and diminishes the mental health of the community. Self-efficacy and psychological wellbeing studies elucidating the effects of positive psychotherapy programs on children with thalassemia are poorly understood.

The aim of the Study

The aim of this study was to evaluate the effectiveness of positive psychotherapy on the self-efficacy and psychological wellbeing of children with thalassemia.

Methodology

Research Hypothesis

The study hypothesis may be stated as the application of positive Psychotherapy will improve self-efficacy and psychological wellbeing in children with Thalassemia

Research Design

The study utilized a single-group pre- and post- test quasi-experimental design to accomplish its stated objective.

Research Setting

The data were collected from outpatient clinics thalassemia unit at pediatric department, Menoufia university hospital in Shebin Elkom in Egypt. The outpatient clinics were contained a two-floor building with separate sections offering therapeutic services for patients with thalassemia every day of the week, except for holidays.

Subjects

A Purposive sample of 60 thalassemic children was selected from the chosen setting. The sections that follow outline the inclusion and exclusion criteria.

Inclusion Criteria

- Children diagnosed with thalassemia by a physician
- Either biological sex
- Able to read and write
- Able to participate in the program
- Medical records of the past year available at the center

Exclusion Criteria

- Refusal to participate in the study or training sessions
- Inconducive clinical circumstances that could cause the patient's withdrawal from the program
- Undergoing disease-related training by the center
- Specific mental health problems

Tools of the Study

This study utilized the following three tools:

Tool (1): structured interviewing questionnaire.

It includes demographic characteristics including: child's age, sex and duration of the disease.

Tool (2): The psychological wellbeing scale for children (PWB-c) [21]

This tool was inspired by the original psychological wellbeing scale **(Ryff, C. 1989)** to measure children's psychological well-being, and its items were adapted to suit 8- to 12-year-olds because the original scale was too abstract for use with children **(Opree, S. J. et al., 2018)**. Psychological wellbeing (PWB) is generally measured through the six dimensions of environmental mastery, personal growth, purpose in life, self-acceptance, autonomy, and positive relations with others. The PWB-c comprises 36 items encompassing the abovementioned six dimensions. It was translated into Arabic by the researcher and was tested for validity and reliability. Responses were rated on a 4-point Likert-like scale ranging from 1 = "almost never" to 4 = "very frequently." High values indicated elevated psychological wellbeing.

Scoring system:

The score ranges and their classifications are provided below:

- 36–54: no psychological wellbeing
- 55–89: low psychological wellbeing
- 90–125): good psychological wellbeing
- 126–144): high psychological wellbeing

Tool (3): Self-efficacy for managing chronic disease 6-item scale (Lorig KR, et al., 2001)

This tool was developed for the study of chronic disease self-management study and was derived from several self-efficacy scales. It incorporated several common domains among many chronic diseases and included aspects such as symptom control, role function, emotional functioning, and communication with physicians. It was translated into Arabic by the researchers, and its content validity and reliability were tested. The tool comprises six items rated on a 4-point Likert-like scale spanning the responses "not at all confident" (1) to "totally confident" (4). High values indicated higher self-confidence.

The scoring system for the total self-efficacy is outlined below:

6–9: no self-efficacy

10–15: low self-efficacy

16–21: good self-efficacy

22–24: excellent self-efficacy

Tools Reliability

The internal consistency of the tools was tested by the researcher as a measure of reliability through the administration of the instruments to the same subjects under similar conditions on one or more occasions and comparing the answers obtained from the repeated testing (test-re-test reliability). Reliability was confirmed at 0.83 for PWB-c and 0.90 for the 6-item self-efficacy scale.

Validity of the Tools

The tools were tested for content validity by a jury of five psychiatric mental health nursing and pediatric nursing experts who subsequently confirmed the cogency of the content.

Procedure

Ethical Consideration

Ethical approval was obtained from the ethical research committee of the Faculty of Nursing at Menoufia University. Official approval was attained from the Dean of the Faculty of Nursing at Menoufia University in Egypt and from the director of the Menoufia University hospital after the due elucidation of the study purpose and the questionnaires used in the study by the researcher. Informed oral consent from mother of thalassemic children was obtained after complete description of the aim, nature and confidentiality of the study at the time of the initial interview. The subjects were assured of the confidentiality of their information. They were also apprised that their participation in the study was voluntary and that they could withdraw from the study or could refuse to participate in the study. They were further informed that there were no costs to their participation in the study.

Pilot Study

A pilot study was conducted with five children with thalassemia before beginning the data collection to assess the clarity, applicability, and time required to complete the instruments. The necessary modifications were accomplished after a review of the results of the pilot study. The pilot study sample was excluded from the final study analysis.

Data Collection

The study was executed over a period of three months, from the beginning of October 2019 to the end of December 2019. Its implementation occurred in three phases: pre-assessment, implementation, and evaluation. All subjects satisfying the inclusion criteria were encompassed in the study and were categorized into six groups, each containing ten patients. The researchers met with each group once every week between 10 a.m. to 12 noon. The researchers led the interventions and informed the groups that they would attend eight sessions in two months. A post-test was performed immediately after the positive psychotherapy sessions were accomplished, and a follow-up test was conducted one month later.

Pre-Assessment Phase

The researchers inform mothers about the date of meeting with their children. A comfortable and private space was selected for the interviews.

An orientation session was performed to familiarize the children with the names of the researchers and the study's purpose, significance, and contents. The subjects were

then interviewed individually in the rooms in which their pre-assessment was accomplished using the PWB-c and the 6-item self-efficacy scale as well as a demographic questionnaire.

Implementation Phase:

As noted above, the study hypothesized that the application of positive psychotherapy would improve the self-efficacy and psychological wellbeing of children with thalassemia. The group interventions were conducted via eight consecutive weekly sessions of approximately two hours each. Several educational tools were employed, including lectures, discussions, brain storming, demonstration, re demonstration giving examples and modeling. Data show and video were utilized to facilitate understanding in the participating children. Summarization, feedback, and clarifications were performed at the end of every session to ensure the inculcation of the imparted content.

The researchers provided mothers with information about positive psychotherapy sessions and allow them to attend sessions to help them deal effectively with their children.

The conducted positive psychotherapy sessions are detailed below:

Session 1:

- An atmosphere of familiarity and affection was required to be created among the children to relieve anxiety and tension and increase their motivation to participate in the program
- Children were asked to mention their names, the nature and purpose of the study were clarified, and the children were convinced that the therapy session was extremely important
- Informed oral consent was obtained from children who agreed to participate in the therapy sessions, and agreement was achieved on the total number of sessions as well as their timing and durations
- Children were oriented to the therapy sessions, the privacy and confidentiality of research information were confirmed, and a consensus was established about the rules that would have to be followed: commitment to session dates and time, not interrupting when others were speaking, not expressing sarcasm and avoiding negative reactions to the opinions of others, and applying themselves to the essential activities held in every session
- Pre-assessment was accomplished via the PWB-c and the self-efficacy scale, and the socio-demographic questionnaire was administered
- The children were asked to overview their personalities, hobbies, desired outcomes, the goal they would like to achieve, and the significance of the goals to their lives
- The participants were asked to reflect on and write down their strengths

Session 2:

- The characteristics of a positive personality were overviewed
- Each participant's life objectives were discussed
- The value of the treatment in imparting a positive meaning to life was determined, the strengths of each member were discussed
- Methods of using the strengths were shared with the participants
- The participants were then encouraged to write down three positive life events to identify their personal capabilities
- Participants were assigned the task of searching for their personal strengths and weaknesses

Session 3:

- The children were accorded with the insight that human beings can achieve numerous meanings for their existence and can enjoy life even in the worst conditions
- They were encouraged to accept themselves and use their abilities and talents to overcome the burden of disease conditions
- Each child was assigned the task of self-description through the use of a group of words or sentences that also depicted the positive significations of their life experiences

- The session ensured that children were able to attain a positive goal and inculcate confidence in their ability to be happy and satisfied with life and enjoy their existence
- Participants were assigned the task of writing down their happy experiences

Session 4:

- A complete clarification was offered about the steps of deep breathing exercises to relieve tension and bear the burden of suffering
- The children were physically or orally taught by the researchers how to inhale and exhale slowly and more deeply:
  1. Sit comfortably with your back straight. Put one hand on your chest and the other on your stomach.
  2. Breathe in through your nose. The hand on your stomach should rise. The hand on your chest should move very little.
  3. Exhale through your mouth, pushing out as much air as you can while contracting your abdominal muscles. The hand on your stomach should move in as you exhale, but your other hand should move very little.
  4. Continue to breathe in through your nose and out through your mouth. Try to inhale enough so that your lower abdomen rises and falls. Count slowly as you exhale.

Session 5:

- The children were advised to accept themselves as they were at the present moment
- The experience of enjoying the moment was discussed by teaching them to focus on and enjoy the present moment
- Positive personal properties reflecting optimism, enjoyment, and pleasure in life were discussed
- The positive personal characteristics reflecting their ability to take responsibility for their selves and methods of taking ownership of their lives were discussed
- The positive movements of the children toward taking responsibility and overcoming shocks to achieve enjoyment in their existence were appreciated
- Each child was encouraged toward self-acceptance, forbearance with tensions, and the search for positive significations in life experiences
- Each child was assigned the task of stating personal strengths and weaknesses
- Methods of being thankful were discussed, and the children were asked to write thank-you letters to friends to generate positive emotions

Session 6

- The treatment group was informed of the importance of other people in their lives
- Active/ constructive responsiveness and interaction with others was deliberated to improve relationships
- The importance of social communication and the essence that life is full of value was discussed
- The importance of other people such as family members, friends, and acquaintances was contemplated, along with the ways in which helping others could enhance their lives with more meaning
- It was explained that all situations and events in their lives were related to other people and that the meaning of life could only be achieved in supportive social contexts
- Each child was assigned the task of citing examples of people who had influenced their social lives

Session 7:

- Participants were asked to state their primary problems concerning their thinking process and to discuss them with other children to offer solutions
- They were taught that they could transcend their thoughts about personal problems by adopting another issue that took primacy in their thinking
- The researchers clarified the steps the children could take to modify their negative thoughts:
  1. Write down and identify negative thoughts that cause sadness
  2. Write down on a fresh sheet the opposite of all the negative thoughts that were previously inscribed
  3. Ignore the negative thoughts by trivializing them as much as possible and do other things such as exercise, tear the negative thoughts sheet, and repeat this step of jotting negative beliefs on paper and discarding them

4. Read positive beliefs aloud daily, especially before bedtime
5. Stop complaining about adverse personal luck
6. Keep thinking about the goal, not fears and doubts, and remain convinced that things will go well

- The participants were asked to practice these steps daily with every thought that contributed to their negative emotions and behaviors

Session 8:

- Values that the children desired in the future to increase hope were conferred
- Positive ways in which they could present their abilities were discussed
- The children were asked to analyze positive thinking, select a favorite exercise from those presented in the previous sessions, and discuss content mentioned in earlier sessions
- The previous sessions were comprehensively reviewed
- The researchers appreciated the children for their participation and completion of the sessions
- The post-test was administered to the participants
- The mothers were informed about the date and time of the follow-up test (one- month later)

Evaluation Stage

As noted above, the post-test was administered via the PWB-c and the self-efficacy scale immediately after implementation of positive psychotherapy and was performed again one month later as a follow-up measure to evaluate the effectiveness of positive psychotherapy on the self-efficacy and psychological wellbeing of children with thalassemia

Statistical Analysis

The collected data were evaluated using the IBM statistical package for social sciences (SPSS, Chicago, IL) version 20.0. The qualitative data were described as frequency and percentage, and the quantitative data were expressed as mean ± standard deviation and range. The paired t-test was employed to compare two subsequent measurements, while the student t-test was deployed to test the differences between independent groups. X^2 was utilized to compare the qualitative data, and Pearson correlation was applied for quantitative data. A p-value lower than (0.05) was defined as statistically significant.

Results

Table 1 displays that the mean age of the studied children was 10.7 ± 1.44, 51.7% of the participants were female, and the duration of the disease in the children ranged between 7 and 11.5 years.

Figure (1) showed that, there is highly significant improvement in self-efficacy levels of studied children immediately after and 1-month after intervention compared with before intervention.

Table 2 reveals the highly statistically significant improvement in the total mean scores of the self-efficacy of the studied children immediately after the intervention (21.82 ± 1.81) in comparison to the scores observed (11.73 ± 2.02) before the intervention. A highly statistically significant improvement was also noted in the total mean scores of self-efficacy in the participants in the evaluation performed one month after intervention (20.22 ± 1.62) in comparison to both the pre-intervention and immediate post-intervention scores.

Figure (2) showed that, there was highly significant improvement in psychological wellbeing levels of studied children immediately after and 1-month after intervention compared with before intervention.

Table 3 shows the highly statistically significant improvement in the total mean scores of psychological wellbeing in the studied children immediately after the intervention (126.22 ± 9.42) in comparison to the average scores achieved (70.73 ± 13.73) before the intervention. A highly statistically significant improvement was also observed in the total mean scores of psychological wellbeing in the studied children one month after the intervention (119.38 ± 9.35) compared to both the pre-intervention and immediate post-intervention scores.

Table 4 presents the positive but not significant correlation observed before the intervention between the self-efficacy and psychological wellbeing of the participants. However, a positive and significant correlation was found between the self-efficacy and psychological wellbeing of the participating children immediately after the intervention as well as one month afterward. Thus, self-efficacy levels may be asserted to increase or decrease in congruence with psychological wellbeing.

Table 5 exhibits the absence of a statistically significant relationship between the self-efficacy and the biological sex of the studied children before, immediately after, and one month after the intervention. A positive but non-significant correlation was noted before, immediately after, and one month after the intervention between the self-efficacy of the participants and their age as well as the duration of the disease.

Table 6 illustrates the lack of a statistically significant association before, immediately after, and one month after the intervention between the psychological wellbeing and biological sex of the participants. A highly statistically significant positive correlation was, however, discovered before, immediately after, and one month after the intervention between psychological wellbeing and the age as well as the duration of the disease of the studied children.

Table 1. The distribution of the demographic characteristics of the studied children (N=60):

	The studied group N = 60	
Age Mean ±SD Range	10.7 ± 1.44 8–12	
	No	**%**
Sex Male Female	 29 31	 48.3 51.7
Duration of the disease Mean ±SD Range	9.96 ± 1.49 7–11.5	

SD = Standard deviation

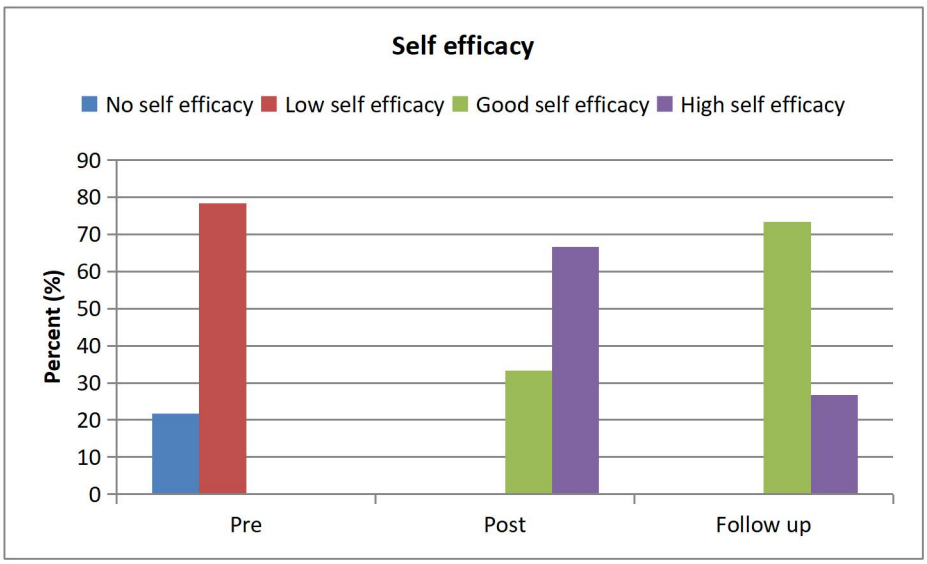

Figure (1): Comparison between self-efficacy levels of studied children before, immediately after and 1-month after intervention (N =60)

Table 2. The comparison of the total mean scores of the self-efficacy of studied children before, immediately after, and one month after the intervention (N=60)

	The studied group N = 60			Paired t-test	P-value
	Before intervention	**Immediately after intervention**	**One month after intervention**		
Total score				40.96	<0.001[1]
Mean ±SD	11.73 ± 2.02	21.82 ± 1.81	20.22 ± 1.62	35.60	<0.001[2]
Range	8–15	16–24	16–22	16.72	<0.001[3]

1 = pre-intervention and immediately-after-intervention assessment comparison
2 = pre-intervention and one month follow-up evaluation comparison
3 = immediately-after-intervention and one month follow-up evaluation comparison

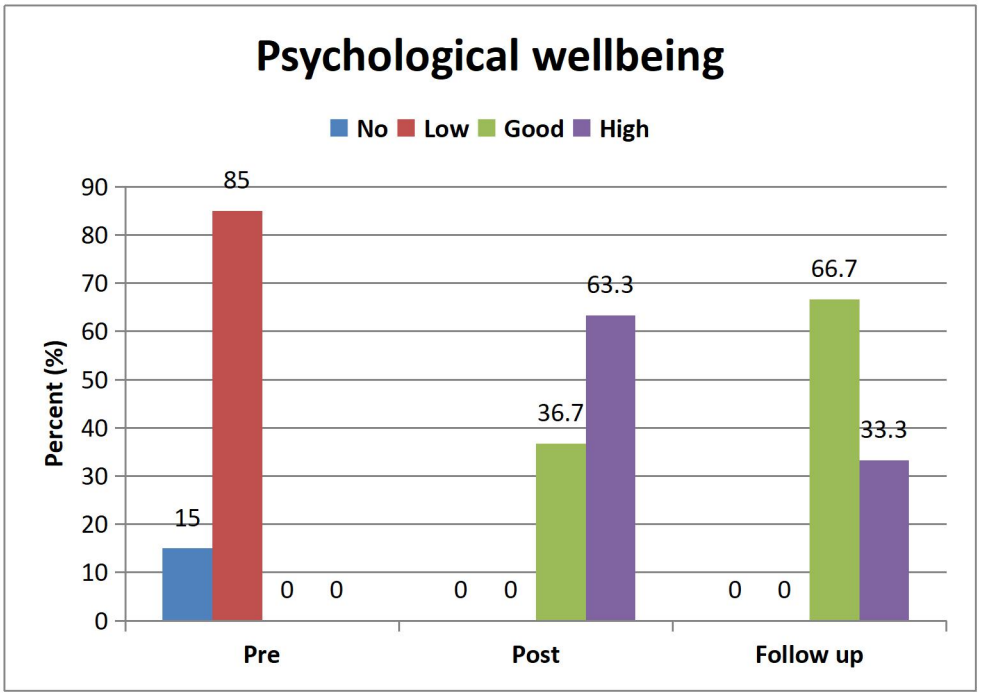

Figure (2): Comparison between psychological wellbeing levels of studied children before, immediately after and 1-month after intervention (N =60)

Table 3. The comparison of the total mean scores of the psychological wellbeing of the studied children before, immediately after, and one month after the intervention (N =60)

	The studied group N = 60			Paired t-test	P-value
	Before intervention	**Immediately after intervention**	**1-One month after intervention**		
Total score				25.82	<0.001[1]
Mean ±SD	70.73 ± 13.73	126.22 ± 9.42	119.38±9.35	22.69	<0.001[2]
Range	37–89	100–140	95–130	3.99	<0.001[3]

1 = pre-intervention and immediately-after-intervention assessment comparison
2 = pre-intervention and one month follow-up evaluation comparison
3 = immediately-after-intervention and one month follow-up evaluation comparison

Table 4. The correlation between the self-efficacy and psychological wellbeing of the studied children before, immediately after, and one month after the intervention (N=60)

	Self-efficacy					
	Before intervention	**Test (p-value)**	**Immediately after intervention**	**Test (p-value)**	**One month after intervention**	**Test (p-value)**
Psychological wellbeing	R	P-value	R	P-value	R	P-value
Before intervention	0.05	0.70	0.14	0.29	0.23	0.08
Immediately after intervention	0.36	0.005	0.36	0.005	0.36	0.005
One month after intervention	0.38	0.003	0.34	0.007	0.35	0.007

Table 5. The relationship between the self-efficacy and demographic characteristics of the studied children (N=60)

	Self-efficacy					
	Before intervention	**Test (p-value)**	**Immediately after intervention**	**Test (p-value)**	**One month after intervention**	**Test (p-value)**
Sex						
Male	11.90±2.09	0.60	21.76 ± 1.79	0.24	20.28 ± 1.53	0.27
Female	11.58 ± 1.98	(0.55)	21.87 ± 1.85	(0.81)	20.16 ± 1.71	(0.79)
	R	P-value	r	P-value	r	P-value
Age	0.22	0.08	0.20	0.11	0.25	0.06
Duration of the disease	0.25	0.06	0.21	0.10	0.26	0.047

SD = Standard deviation

Table 6. The relationship between the psychological and demographic characteristics of the studied children (N= 60)

	Psychological wellbeing					
	Before intervention	Test (p-value)	Immediately after intervention	Test (p-value)	One month after intervention	Test (p-value)
Sex						
Male	69.83±13.73	0.49	125.24±9.15	0.77	118.96±9.31	0.33
Female	71.58±13.89	(0.63)	127.13±9.72	(0.44)	119.77±9.51	(0.74)
	Before intervention		Immediately after intervention		One month after intervention	
	R	P-value	R	P-value	R	P-value
Age	0.80	<0.001	0.45	<0.001	0.46	<0.001
Duration of the disease	0.79	<0.001	0.47	<0.001	.0.46	<0.001

SD = Standard deviation

Discussion:

Thalassemia is a chronic disease that causes an excessive psychological and emotional burden on children and their family members, elicits feelings of hopelessness, and makes social integration difficult. The manifestations, treatment, and complications of thalassemia exert a substantial psychological impact on the suffering children, who harbor negative ideas about their life and experience guilt, increased anxiety, and low self-esteem **(Economou, et al., 2006).** Positive psychotherapy is a therapeutic approach broadly based on the principles of positive psychology. Positive psychological interventions effectively enhance mental and physical wellbeing **(Schotanus- Dijkstra, M. et al., 2015)**. Positive psychotherapy facilitates

positive emotions and enables patients to increasingly display adaptive behaviors in coping with difficult situations **(Zeykani, M., & Nikmanesh, Z. 2018).**

The high prevalence of psychological disturbance caused by thalassemia has made the mental health of thalassemia patients a significant issue, especially for health professionals aiming to treat psychiatric disorders and enhance the psychosocial adaptation of children with thalassemia toward the chronic disease **(Koutelekos, J., & Haliasos, N. 2013).** Thus, psychotherapy that emphasizes self-efficacy is pivotal for the control and management of the mental problems of thalassemia patients. Self-efficacy can help individuals develop knowledge and skills they can use in their daily practices. **(Graham, S. 2011).** Therefore, the current study evaluated the effects of positive psychotherapy on the self-efficacy and psychological wellbeing of children with thalassemia.

The results of this study revealed a highly statistically significant improvement in total mean scores of the self-efficacy of studied children immediately after (21.82 ± 1.81) and one month after (20.22 ± 1.62) the intervention in comparison to the pre-intervention scores (11.73 ± 2.02) (Table 2). Positive psychotherapy is centered on supporting children to use internal resources to overcome challenges. It also helps them understand and identify growth areas, focus on flexibility, and work toward enhancing their sense of wellbeing. The findings of this study highlighted the efficacy of the positive psychotherapy method in increasing the total mean scores of self-efficacy in the studied thalassemic children. This approach emphasizes the elevation of positive emotions and the identification and evolution of individual strengths, abilities, and competencies. This outcome is aligned to the results obtained by previously conducted studies **(Albuye, G., et al., 2015 ; Dhirar, N., et al., 2016; Ahmadi, M., & Poormansouri, S. 2016)** that positive psychotherapy ameliorated hope and wisdom, improved interpersonal relationships, and produced a beneficial atmosphere in classroom environments. In addition, it effectively heightened academic achievement, self-esteem, and some subscales of self-concept. In sum, positive psychotherapy was reported to result in superior work performance, creativity, marital satisfaction, and conducive social relations.

The present study also found a highly statistically significant improvement in the total mean scores of psychological wellbeing of studied children immediately after (126.22 ± 9.42) and one month after (119.38 ± 9.35) the intervention compared to the pre-intervention scores (70.73 ± 13.73) (Table 3). This outcome could be attributed to the fact that positive psychotherapy sessions encourage children to discuss any negative feelings, challenges, or symptoms freely using oral and written means of communication. Children are then asked to focus on their positive personality traits and determine the people who support them and who they can support, which significantly increases their ability to develop personal relationships. This result reinforces earlier findings **(Amonoo HL, et al., 2018)** that positive psychological interventions denote a new approach that can potentially enhance favorable psychological structures such as optimism or the effects of positive affection with varying health outcomes. Also, the current result supports previous findings of the positive impact of cognitive treatments on amplifying the ability of patients to cope with their disease **(Adegbola, M. 2011; Mazzone, L., et al., 2009).**

Positive psychology offers personal supportive resources and can also neutralize long-term negative emotions **(Sohrabi F, Javanbakhsh A. 2009).** It also encourages environmental mastery and ultimately leads to a better sense of psychological wellbeing according to Seligman's postulation that psychological wellbeing was based on five axes of living: pleasant, enjoyable, engaged, meaningful, achieving, and relationally positive. To experience these aspects, one must apprehend both personal strengths and weaknesses to grow, flourish, and progress through positive psychotherapy **(Lyubomirsky, S., et al., 2005).** Indeed, positive interventions can reduce depression, increase happiness, and enhance the psychological wellbeing of individuals by exciting and amplifying constructive emotions, thoughts, and behaviors and by satisfying the fundamental human needs

of autonomy, love, and communication **(Lyubomirsky, S., & Layous, K. 2013).** Positive psychotherapy thus emphasizes human abilities and advantages and bolsters the success of individuals and societies **(Peterson, C., Park, N. 2016).**.

The study's findings evinced a positive and significant correlation between self-efficacy and the psychological wellbeing of the studied children, both immediately after the intervention and one month later. Thus, self-efficacy levels increase and decrease in tandem with the degrees of psychological wellbeing. This result could be assigned to the similarities of the pre-intervention self-efficacy levels of the study's participants because most of them suffered from low levels of self-efficacy. In congruence with these outcomes, previous studies **(Siddiqui, S. 2015).** have discovered the positive and significant effects of self-efficacy on the psychological wellbeing of undergraduate students. Consequently, a high level of self-efficacy contributes to increased engagement and life satisfaction; psychological wellbeing diminishes if self-efficacy is low; it is boosted if self-efficacy is high.

The current study's findings were also consistent with extant studies **(Beiranvand, M., et al., 2019).** that have demonstrated the increase of self-efficacy and emotion regulation from pre-intervention levels after participants attended positive thinking training. Positive thinking programs trigger the advancement of individual impressions of claim increments: people can acknowledge and fully apprehend their responsibilities toward their legitimacy. Researchers accept that positive thinking is imperative in the handling of disturbing life occurrences **(Sang, G., et al., 2010).** Positive individuals command certainty and steadfastness when confronted with challenges. Thus, positive psychotherapy sessions can exercise a beneficial influence on the self-efficacy and psychological wellbeing of children with chronic diseases such as thalassemia.

The current study revealed the absence of statistically significant associations between self-efficacy and biological sex before, immediately after, and one month after the intervention. This result of similar self-efficacy may be explained by the equivalent exposure of the participating male and female children to the psychological pressures and the circumstances of the illness they confront or because of the small sample size. Previous studies have reported similar outcomes **(Sawari, S. & Mansor, N. 2013).** Of no correlations between general self-efficacy and gender. Conversely, the current finding contradicts the results obtained by a study **(Huang, C. 2013)** that reported gender-related differences in academic self-efficacy. According to that study, females displayed higher language arts self-efficacy than males, while males exhibited higher degrees of self-efficacy than females in mathematics, computer studies, and the social sciences. Boys have always presented with higher self-efficacy in the domains of science than girls. Researchers have asserted that the gender differences found in self-efficacy may be due to personal academic strengths **(Stoet, G., & Geary, D. 2018).** Other studies have related this difference to differential developmental levels. This contradiction could also be attributed to variations in sample sizes.

Additionally, the current study found a positive but not significant correlation before, immediately after, and one month after the intervention between self-efficacy and the age of participants as well as the duration of the disease. Perhaps, as children grow older and mature, they acquire the art of dealing with anger, become better at decision-making, and try to act to alleviate difficult situations, which in turn enhances their independence and helps them attain a healthy sense of self-efficiency.

This study also did not find a statistically significant connection between psychological wellbeing and gender differences before, immediately after, and one month after the intervention, perhaps because both biological sexes confront the same psychological pressures and disease-related conditions or because of the small sample size. This result was congruent with another study **(Behdani, F., et al., 2015)** that did not find a significant difference between males and females regarding the psychological aspects of suffering from thalassemia.

Also, the present study discovered a highly statistically significant positive correlation

before, immediately after, and one month after the intervention between psychological wellbeing and the age of the participants as well as the duration of the disease. This result was aligned with the findings of a study **(Mettananda, S., et al., 2020)** that confirmed the association between socio-demographic factors and abnormal psychological symptom scores in patients with thalassemia. That study reported a significant relationship between clinical manifestation and psychological status. It is widely known that chronic diseases exert a psychological impact, which is extraordinarily significant for children. Youngsters suffering from persistent and incurable physical ailments exemplified by thalassemia are vulnerable to emotional and behavioral difficulties. Thus, every pediatric developmental stage ushers unique problems. The expanding life span of children with thalassemia because of advances in medical technologies has brought psychological problems to the fore. Several scholars have reported that up to 80% of children with thalassemia are likely to display psychological problems.

Conclusion

The current study's findings revealed that a highly statistically significant improvement in the self-efficacy and psychological wellbeing of the participating children with thalassemia immediately after the positive psychotherapy program as well as one month after the intervention (follow-up test).

Limitations of the study

The present study admits to the drawback that the psychotherapy protocol intervention by the researchers only involved children within the limited age range of 8–12 years.

Recommendations

- Similar studies should be conducted on other diseases
- The application of positive psychotherapy should be offered at centers for specialized diseases to enhance the self-efficacy and psychological health of the people who work in these clinics as well as the patients
- The scope of positive psychotherapy should be expanded to all treatment levels

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