



Case report

The effect of hypnotherapy on the hospital anxiety in three children with cancer: A case report



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ABSTRACT

Introduction and importance: The cancer-related psychological stress may causes anxiety in patients. The present study aimed to determine the effect of hypnotherapy on the hospital anxiety in children with cancer.

Case presentation: This is a case report, in which a total of 3 female children with cancer were recruited using voluntary response sampling. Classical hypnotherapy was conducted for patients in eight treatment sessions with a one-month post-intervention follow-up. Participants completed the Hospital Anxiety and Depression Scale (HADS) at five stages including before the intervention, third, fifth and eighth hypnotherapy sessions, and one month after the intervention. Data analysis was conducted using a statistical report on the recovery rate and effect size.

Clinical discussion: The results showed that hypnotherapy had a significant and positive effect on the hospital anxiety, in the treatment and follow-up stages.

Conclusions: Based upon the results, it can be stated that hypnotherapy is a promising approach in reducing the hospital anxiety in children with cancer.

1. Introduction

Many studies have shown that chronic health conditions, especially cancer, are associated with psychological stress [1–3]. The cancer-related psychological stress may causes anxiety in patients, so failure to reduce and treat these complications can lead to a longer hospital stay, disruption of medical treatment, and a fall in survival rate. In cancer patients, high levels of anxiety not only do not reduce the number of natural killer cells but also lessen the effect of these cells. Psychological stress also disrupts the activity of white blood cells and weakens the immune system [4,5].

Hypnotherapy has been used as a common approach to psychotherapy from the seventh century onwards [6]. Hypnosis is associated with a state of concentration and acceptance, which simultaneously consists of three components or combinations with different amounts and sizes of rupture, high attention or fascination and indoctrination and all three parts need to be applied together [7]. Therefore, concerning the

lack of studies in this area, especially in children with cancer, the main question of the present study is whether hypnotherapy is effective on the hospital anxiety in children with cancer? This case report was reported according to the SCARE 2020 Guidelines to ensure the quality of reporting [8].

2. Case presentation

2.1. Participant A

The first participant was a 12-year-old girl. She suffered from a leg swelling about 2 years ago, which caused severe pain, especially at night. After several doctor's visits, she was diagnosed with tibial torsion and physiotherapy was prescribed for her. At the time, a radiologist suggested having a biopsy after the Magnetic Resonance Imaging (MRI). Based upon the biopsy results, the child's disease was diagnosed and treatment was started. At first, the child and her parents were referred to

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the hematology ward once a week. Chemotherapy was also conducted for the patient.

2.2. Participant B

The second participant was a 9-year-old girl. It was about 3 years ago when the child's mother realized that a part of her baby's hair had fallen out and that part had been completely bald. This hair loss began to worsen day by day and the child's forehead gradually became swollen. After referring to a hospital, doctors took a sample of the area and found out that the child had leukemia. After the diagnosis, chemotherapy began immediately. After several days of treatment, the child showed up to have internal bleeding and went into a coma for 21 days. She was hospitalized in the Intensive Care Unit during this period.

2.3. Participant C

The third participant was a 12-year-old girl. She caught a severe cold about 2 years ago that had led to the appearance of skin spots. After visiting a doctor and having several tests, an exact diagnosis of cancer was made for her. Treatment began and the child was referred to the hospital for conducting chemotherapy every 35 days. She was prescribed with IV chemotherapy every 3 months.

2.4. Intervention

This study was conducted in 2019 at Motahari Hospital, Urmia, Iran. Regarding the limited number of the target population, a total of 3 female children with cancer were recruited using voluntary response sampling. Data were collected using a demographic questionnaire and the Hospital Anxiety and Depression Scale (HADS). The HADS is a 14-item questionnaire including two sub-scales of anxiety and depression, each of which consists of seven items. In this study, participants only completed the anxiety sub-scale. All items of the HADS are scored on a 4-point Likert Scale, so the overall score of each subscale ranges from 0 to 21. The validity and reliability of the Persian version of HADS have been examined and confirmed by Kaviani et al. using Cronbach's alpha coefficient, which was obtained to be 0.78 [9]. In this study, the correlation coefficient between the anxiety subscale and the clinical quantitative evaluation was shown to be 0.53. The reliability of the scale was also assessed using the test-retest method and the reliability coefficient of the anxiety sub-scale was calculated to be $r = 0.81$. In this study, participants first completed the HADS three times and then received hypnotherapy. Then participants re-completed the scales after the first, fourth, fifth, and eighth treatment sessions and the mean scores of the outcome variables were re-assessed at the same measurement time points (Table 1). For this purpose, the researcher tried to deepen patients' level of trance by indoctrination. Then the patients were provided with mental imagery for 10 min. At first, this imagery was in pleasant and relaxing areas, while at the end, the mental imagery was provided about sleep and the indoctrination on conditioning participants was repeated. After entering the patients' trance and deepening the indoctrination, they were indoctrinated on increasing the desired physical feeling. Moreover, hand anesthesia was practiced using direct indoctrination of cooling and ice numbing. Patients also received a pleasant feeling and mindfulness practices to manage and relieve their pain. Patients were conditioned to count to 10 and take three deep and slow breaths. Patients were also recommended to conduct these conditionings before bedtime or during early awakening to gain peace, relieve stress and anxiety.

2.5. Data analysis

The recovery rate formula was also used to analyze the results. The recovery rate formula is one of the methods used to measure the progress of clients in tackling target problems. The effect size was also used to

Table 1
Hypnotherapy program.

Session no.	Session content
1st session	The researcher became acquainted with patients and their parents and expressed the study objectives to them. Then patients' medical history was taken and their misunderstandings of hypnotherapy were addressed. They were also provided with explanations on how to conduct the procedures. A pretest was performed so that participants and their parents were asked to complete the OPS and the HADS.
2nd session	Participants were provided with complete explanations on hypnosis and trance and how to do it. Besides, they were explained about the changes they should expect in these few treatment sessions. Then, in order to begin the treatment, they were given general training on relaxation.
3rd session	First, the researcher tried to deepen patients' level of trance by further indoctrination. Then the patients were provided with mental imagery for 10 min. At first, this imagery was in pleasant and relaxing areas, while at the end, the mental imagery was provided about sleep and the indoctrination on conditioning participants was repeated.
4th session	After entering the patients' trance and deepening the indoctrination, they were indoctrinated on increasing the desired physical feeling. Moreover, hand anesthesia was practiced using direct indoctrination of cooling and ice numbing. Patients also received a pleasant feeling and mindfulness practices to manage and relieve their pain.
5th session	Patients received training about the impact of the disease on various dimensions of their lives, increasing their life expectancy, and improving their quality of life and life satisfaction using muscle relaxation, mental visualization, and mindfulness.
6th session	Hypnotic indoctrination was accompanied by indoctrination-related mental images to improve tolerance and resilience. So it was tried to promote the effectiveness of hypnotherapy.
7th session	Patients were conditioned to count to 10 and take three deep and slow breaths. Patients were also recommended to conduct these conditionings before bedtime or during early awakening to gain peace, relieve stress and anxiety.
8th session	The content of previous sessions was reviewed. Patients were gradually progressed in the training areas and a disease-free life was visualized. Patients re-completed the scales as a posttest.

analyze the effectiveness of the intervention. Various studies have suggested the value of 0.41 as a small effect size, 1.15 as a medium effect size, and 2.70 as large effect size. Another advantage of effect size is that it can be interpreted by the mean percentile gain.

3. Discussion

The mean and standard deviation of the hospital anxiety, in the first, third, fifth, eighth, and follow-up sessions are presented in Table 2. The hospital anxiety mean scores of participant "A" had a decreasing trend after all post-intervention measurement time points including third, fifth, eighth, and follow-up sessions (Fig. 1). The hospital anxiety mean scores of participant "B" had a slightly decreasing trend compared to the baseline mean score. Nonetheless, this decreasing trend stopped at the follow-up stage so that the level of hospital anxiety increased and was found to be higher than that in the fifth and eighth sessions but still less than that at the baseline and third session (Fig. 1). For participant "C", the recovery rate in the intensity of hospital anxiety for this participant was indicated to be significant at the treatment (94%) and the follow-up stage (81%). Therefore, it can be stated that the recovery rate of participant "C" was significant in the intensity of hospital anxiety at the treatment and follow-up stages (Table 3). The effect size of the intensity of hospital anxiety was indicated to be small in all three participants (Table 4).

In line with the results of our study, Jafarizadeh et al. showed that hypnosis was an effective method for reducing the anxiety caused by burns dressing change [10]. Fathi et al. indicated that hypnosis significantly reduces death anxiety [11]. Daitch et al. found that both cognitive-behavioral therapy and cognitive hypnosis were effective in reducing anxiety [12]. Glaesmer et al. concluded that hypnotherapy reduces the anxiety caused by dental procedures, especially tooth

Table 2
Mean and standard deviation of outcome variable.

Variable	1st session		3rd session		5th session		8th session		Follow-up session	
	M ^a	SD ^b	M ^a	SD ^b	M ^a	SD ^b	M ^a	SD ^b	M ^a	SD ^b
Hospital anxiety	7	2.65	6.33	2.51	2.66	1.15	2	1	3	2

^a Mean.

^b Standard deviation.

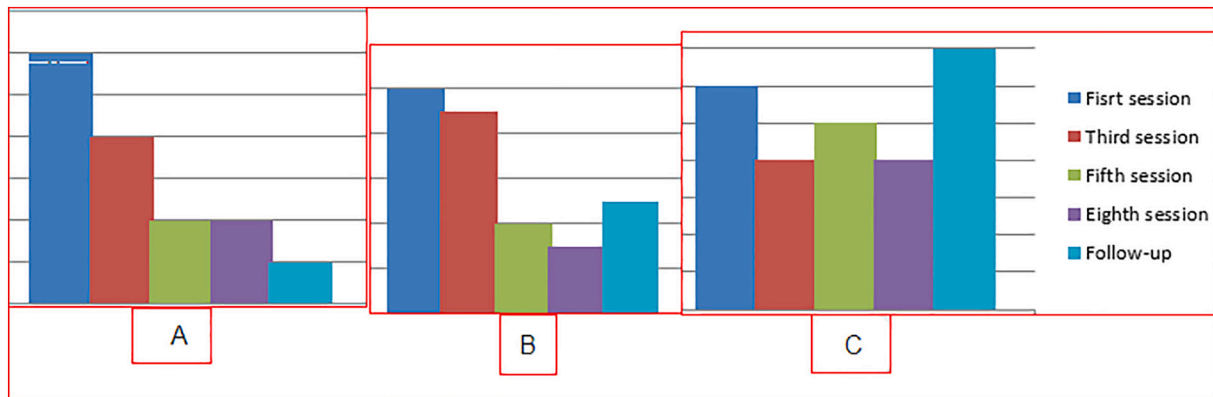


Fig. 1. The hospital anxiety mean scores of three participants at measurement time points.

Table 3
Participants' recovery rate in outcome variable.

Variable	Participant A		Participant B		Participant C	
	Treatment	Follow-up	Treatment	Follow-up	Treatment	Follow-up
Hospital anxiety	92%	66%	72%	57%	94%	81%

Table 4
The effect size of the outcome variable.

Variable	Participant	Baseline mean score	Post-intervention mean score	Baseline SD ^a	Post-intervention SD ^a	Overall SD ^a	Effect size
Hospital anxiety	A	3.50	2.66	3.49	1.15	2	0.42
	B	6.50	5.33	3.53	3.21	3.11	1.31
	C	4	3	1.41	2.64	2.07	0.48

^a Standard deviation.

extraction [13].

4. Conclusion

Based upon the results of this study, it is concluded that hypnotherapy is a promising approach in reducing the hospital anxiety in children with cancer. Therefore, it is recommended to employ experienced and skilled psychologists and use hypnotherapy along with pharmacological treatments to reduce the discomfort and anxiety of children with cancer.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Provenance and peer review

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Ethical approval

All ethical principles were considered in conducting this case report. All patient information kept confidential.

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CRediT authorship contribution statement

Rasoul Goli: Study concept, data collection, writing the paper and making the revision of the manuscript following the reviewer's

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Declaration of competing interest

None.

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