

Comparison Between the Effectiveness of Group Hope Training and Neuro-Linguistic Programming (NLP) on Hope and Quality of Life among Children with Cancer

Sanaz Aghakhani^{1*}, Farshad Bahari^{2,3}

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1. Department of Psychology, Khomein Branch, Islamic Azad University, Khomein, Iran

2. Department of Psychology, Khomein Branch, Islamic Azad University, Khomein, Iran

3. Department of Student Health Education and Monitoring, Ministry of Health and Medical Education, Tehran, Iran

*Corresponding Author:

Sanaz Aghakhani, M.A.

Address: Department of Psychology, Khomein Branch, Islamic Azad University, Khomein, Iran

Tel: + 98 9128302536

Email: sanaz_aghakhani@yahoo.com

ABSTRACT

Background: This study was conducted to determine the effectiveness of group hope training and neuro-linguistic programming (NLP) on hope and quality of life among children with cancer.

Methods: This study aimed to determine the effectiveness of group hopefulness and group training of psycho-neurological programming (NLP) on the level of hope and quality of life of children with cancer. This was a quasi-experimental study with pre-test, post-test, and follow-up with a control group. The study participants include all literate 7-18-year-old girls and boys with cancer treated at Amirkabir Hospital (Central Province Children's Cancer Hospital) and Tabassum Cancer Association (Central Province Cancer Association) in 2016. In total, 60 people were selected by the available sampling method and randomly divided into three groups: group hope training (20 people), NLP (20 people), and a control group without any therapeutic intervention (20 people). The Children's Quality of Life Questionnaire and the Snyder Children's Hope Scale were used. Multivariate and one-way analyses of covariance were applied to analyze the data.

Results: There was a significant difference between group hope training and the NLP group. Both interventions had almost the same effect on the quality of life, while group hope training had a higher effect on dependent variables. Results showed that LNP group training led to increased quality of life and hope, predicting 70% and 40% of their variances. In addition, findings showed the effectiveness of group hope training on increased quality of life and hope and could predict 53% and 84% of their variances, respectively. The findings showed that NLP training and group hope training increased quality of life and hope.

Conclusion: According to the findings from this study, LNP group training and hope group training can increase the quality of life and hope. Based on the findings of the present study and the results of previous studies, it can be concluded that group hope and group training of neuro-linguistic programming, based on their basic principles and techniques and changing beliefs and attitudes of individuals and hope for learning, helps children with cancer change the way they react to these events, thus reduce their stress and frustration, and set specific goals for the future that inspires them. These studies show that these psychological interventions lead to positive changes and increase hope and quality of life of children with cancer.

Keywords: Group Hope Training, Neuro-Linguistic Programming (NLP), Hope, Quality of Life, Children with Cancer

INTRODUCTION:

According to conducted studies, there is a relationship between hope competency in many life scopes such as education [5], using adaptive coping strategies, positive and flexible thoughts [6], and positive appraisal of stressful events in life [7]. Hope is a variable that may impact life satisfaction levels. According to the study conducted by Adams and Jackson (2000), the hope rate can predict changes in life satisfaction in the following years. Ong et al. [8] showed an effective relationship between hope and well-being.

Snyder (2003) defined hope as a thought subjected to a goal in which the person has perceived ability and motivation to find solutions to achieve their goal [6]. According to Lopez, Snyder et al. [9] and Hope Theory, hopeful people believe in their good performances to generate hopeful thoughts, effective ways to achieve their goals, protect their thoughts, and provide enough motivation to follow their goals and remove barriers. According to hope therapy principles, people seeking treatment may have experienced problems that reflect one or more hope components such as thought related to objective solutions, willpower, and barriers. According to the basic principles of hope therapy, hope therapy techniques have been designed to help therapists identify patients' strengths and increase their competencies [10].

Furthermore, quality of life is complicated. Quality of life is the best criterion used to evaluate the ability of a person to adjust to the challenges of the real world. In this regard, the environment of work, home, and leisure time are evaluated. There have been various definitions of quality of life in general and specialized references at an extensive range from "life satisfaction" to "practical performance of person" Some concepts are used to grasp the quality of life, including satisfaction and dissatisfaction, life conditions, happiness and unhappiness, life experience, and some factors such as comfort, performance situation, socio-economic status, independence, and environmental circumstances [11].

A person's quality of life is an essential indicator of how they feel about their health situation. Quality of life is

now one of the major concerns for health experts and is recognized as an index to measure health status in health studies. Accessibility to data related to the quality of life leads to effective treatments and future progress and promotes supportive programs and rehabilitation measures [12]. Several factors influence optimal quality; social support is one of them. Generally, social support is perceived as assistance obtained from others during difficult circumstances.

NLP is one of the supportive services provided for children with cancer since these children suffer from higher mental pressure, depression, and disappointment compared to normal children. In the opinion of Kaplan and Sadock [2001], depression and mental pressure show some signs such as decreased interest, increased crying, a sense of uncertainty, and lost energy that can be seen among disappointed individuals. Hence, interventions can improve hope and decrease depression and stress [13]. Tusi, Mytsun, and Michael (2005) believe that NLP is a communicative model about individuals' internal representation of experience and making relationships with themselves and others; this model also concentrates on the mental experience of individuals and the concept of reality [14]. Harris (1999) explains that NLP provides people with methods to believe their thoughts, feelings, and actions and be optimistic in life to achieve better results. NLP pays attention to effective communication [15]. On the other hand, some researchers emphasize that NLP teachings lead to happiness and a sense of personal and interpersonal satisfaction [16].

NLP aspects are as follows:

Neurological aspect: the specific role of neurons in generating imagination and functioning of mind and thought is important. In fact, cognitive functioning aspects of the mind are considered in this case.

Verbal or linguistic: this part consists of two sections: 1- second language that is imagination power; 2- verbal language and its application in making a relationship with self and others. The second part has severe effects on the first part. In fact, verbal language can affect imagination language used for mental programming.

Considering the research principles, hope can be con-

sidered a significant factor in cancer treatment. Furthermore, it seems that there is a research gap. Hence, this study was conducted to fill the gap. Accordingly, this study was conducted to investigate the effect of group hope training and NLP on the hope and quality of life of children with cancer.

Methods:

During an advertisement in the Children's Cancer Medical Center (Amirkabir Hospital) and the Cancer Association (Tabassum), the counselor held a series of group hope section, group training, and group training in neuro-linguistic planning for patients of 7-18 years. In the advertisement, a brief introduction to the topics of the group hope sessions and group training of neuro-linguistic planning were offered to patients aged 7 to 18, such as techniques to help people find hope in itself, like the application of solution-oriented techniques to familiarize people with the six stages of goal setting, removing mental barriers to hope, strengthening the components of hope, and communication skills, managing conflicts, maintaining hope in people and as well as the conditions of people being able to participate in these treatment sessions.

In the same advertisement, the date of the preliminary interview of the patients was determined. The interview was semi-structured (based on the selection criteria and explanation of the structure of the sessions). Experimental groups (group 1: group hope training) (group 2: NLP group training) and the control group (20 people in each) were determined. First, a pre-test was taken from all three groups. The intervention stage was performed from the first to the eighth session for the experimental group. Three days after the last intervention, a posttest was taken from both groups at the end. It should be noted that a therapist was present in all sessions. The intervention steps were performed based on the practical description of hope therapy sessions by Snyder et al. and Washington (quoted in Bahari, 2009). The intervention steps were performed based on the practical description of neuro-linguistic planning sessions Lerogrender method (1979, quoted by Diltz 203). The topics were addressed during a pre-session and eight sessions of 1.5 hours once

a week (stated in the appendices).

The research sample included 60 children with cancer randomly selected from those referred to Amirkabir Hospital and Tabassum Cancer Association. There were 20 children in the control group, 20 in the hope education group, and 20 in the neuro-linguistic programming education group.

First, a pre-test was performed. Then, based on purposive sampling, children with a hope score of 9 or less were included in the 15% low hope. Their scores were at least 1 standard deviation from the total average. Children whose quality of life was below the cut-off point of 104 were selected, from which 3 groups were selected by random sampling.

After 8 sessions of NLP training (on experimental group 1) and 8 sessions of group hope training (on experimental group 2), the tests of hope and children and quality of life of children have performed again on the members of the groups in the last session. Then, after 1 month of post-test, the same tests were performed to evaluate the durability of the effect of education on children in experimental groups 1 and 2.

The research plan was as follow:

Table 1. Research plan

Groups	Pre-test	Independent variable	Post-test	Follow-up
E1	T1	X	T2	T3
E2	T1	Y	T2	T3
C	T1	-	T2	-

Data Collection Tool

The documentary-library method was used to study books, papers, and studies to prepare a theoretical framework to respond to the research question. The data were collected within a field study based on the survey method. For this purpose, Snyder's Children's Hope Scale (1991, quoted from Snyder and Peterson, 2000) and Children's Quality of Life Questionnaire (Keenaghan, 2005; Jenhilroe, 2008) - that was used by The KIDSCREEN Group Europe (2005)- were used. At the operational level, the theoretical part of the study was completed by the

respondents in experimental and control groups within pre-test, post-test, and follow-up steps to introduce experimental fields. A double-blind study was conducted to prevent the halo effect. Thus, false positive and negative effects on responses were controlled.

NLP Protocol

NLP is a training program based on theoretical principles, communicational methods, and NLP treatment. Children with cancer were trained in eight 45-minute sessions twice a week. Totally, 10 sessions were held, including one pre-session and one follow-up session.

First session: introduction, analysis of children's hope scale, quality of life questionnaire, and training. Second session: introducing NLP, analysis of hope and quality of life scales. Third session: paying attention to the inner world of individuals. Fourth session: learning how to represent the system. Fifth session: syntax training and Meta Model. Sixth session: introduction to sub-sensory elements, mental experience, working on annoying disease memories. Seventh session: teaching swish technic and perceptual situation. Eighth session: changing the belief and making a new image of self.

Hope: this program consisted of eight 45-minute sessions for children with cancer twice a week. The intervention was taught in each session. Then, the effectiveness of tasks was presented at that session, at home, or the next session. In fact, 10 sessions were held, including one pre-session and one follow-up session.

First session: training start, introduction, analysis of children's hope scale and quality of life questionnaire. Second session: introducing hope and cognitive principles of it. Third session: introducing quality of life and its components, hope bonding in patients. Fourth session: purposeful thinking and set goal. Fifth session: teaching thinking method to achieve goals and strengthening progression power. Sixth session: teaching causal thinking and developing willpower. Seventh session: creating and protecting willpower. Eighth session: summarizing subjects, determining the effective rate of hope-based interventions, and finishing them.

Children's Hope in Life Scales Scale

This is a 30-item scale designed by Snyder (2006) for chil-

dren and adolescents. This scale consists of 6 subscales of hope, school homework, family, safety, and entertainment [17]. A continuum was considered from 1 [never] to 6 (always) to respond to children's hope subscale questions. For other subscales, responses were rated from 1 (strongly false) to 6 (strongly true). Hope score is determined by summing scores of 6 subscales. Therefore, the sum of scores will range from 36 to 180 [18]. This is a 6-item scale that measures children and adolescents' willpower, progression, and general hope. Some researchers introduce it as one of the most used scales for measuring hope among adolescents with clear definitions that obtains elements of progressive and causal thinking [19]. This scale was first designed for children aged 7-16, but further validating studies showed that it could be used for young people at 19. Golzari [2007] conducted a study on 660 female students in Tehran in which the reliability of the Snyder's Hope Scale was examined using internal consistency, and the Cronbach's alpha coefficient was 0.89 [6].

Hope Scale is highly correlated to the scales measuring similar psychological processes. For instance, scores of the hope scale are correlated with Sheer and Carver's Optimism Scale at a rate range of 0.50-0.60. Moreover, this scale's scores negatively correlate to Beck's depression scale (0.42-0.51). In the opinion of clinical experts, the validity of this scale has been confirmed using the content validity method [17]. Marco, Pi-Rebio, and Lopez (2007) examined psychometric and structural properties of the Portuguese version of CHS and obtained its mean, standard deviation, and Cronbach's alpha to 24.10, 4.01, and 0.81, respectively [20]. The reliability of this instrument was obtained to 0.85 using Cronbach's alpha in this research.

Children's Quality of Life Questionnaire (who)

The children's quality of life questionnaire was designed based on KID SCREEN 52 method. This questionnaire explained and generalized the initial results of psychoanalysis related to the quality of life questionnaire and public health situation of KID SCREEN 52 among children and adolescents. This questionnaire consists of 52 questions and 10 components, including physical/finan-

cial welfare (5 questions), mental welfare (6 questions), moods and motivations (7 questions), self-perception (5 questions), self-autonomy (5 questions), relationships between parents and life conditions (6 questions), social support and friends (5 questions), school's environment (6 questions), social acceptance (3 questions), and financial resources (3 questions). Each question is scored based on a 5-point Likert scale. All scores are converted to 4-20 for each dimension, and a higher score indicates better quality of life [21].

Analysis of psychometric properties was done using Cronbach's alpha, indicating a correlation coefficient of 0.77-0.89 between experimental dimensions of KINDLR and KID SCREEN 52 that was a high value ($r= 0.51-0.68$). All dimensions of KID SCREEN 52 implied the gradient related to socioeconomic status, and the majority of dimensions showed the gradient of lack of mental health. Internal consistency of KID SCREEN 52 was calculated using Cronbach's alpha scale. Constant alpha coefficients of 0.7 and above were accepted. Constant correlation coefficients between 0.1 and 0.3 were low values while 0.31-0.5 were considered average values and more than 0.5 considered high values. 15-20 minutes calculated as duration to complete children's quality of life questionnaire of KID SCREEN 52 [22].

Data Analysis

To analyze data, mean value was considered as central index; standard deviation was considered as dispersion parameter; Skewness and Kurtosis coefficients and normal distribution chart were used to ensure the normality of scores distribution; Levin test was used to ensure the equality between variance and covariance of mean scores among control and test groups; Bivariate analysis of covariance was used for data analysis, a p-value of less than 0.05 was considered statistically significant.

Implementation Method

The consultant hung a poster in medical centers for children with cancer (Amirkabir Hospital) and Cancer Association (Tabasom) announcing a group hope training and NLP training meetings for patients aged 7-18. The titles of group hope and NLP training sessions provided to 7-18-year-old patients were briefly described in the

poster. The titles consisted of some technics to help people to improve hope, such as solution-based methods, introduction to 6 steps for setting a goal, removing mental barriers to hope, strengthening hope elements and communicational conflicts, handling conflicts between individuals, keeping hope in people. Additionally, the eligibility for participation in these sessions was explained. An initial semi-structured interview was held with patients. Then, 60 members were selected and assigned to three groups, including two experimental groups (group hope training group and NLP training group) and a control group (20 members in each group). First, three groups were pre-tested. Then, the intervention step was performed from the first to the eighth session for the experimental group. Then, two groups were post-tested 3 days after the last intervention. It should be noted that a therapist was present in all sessions. Intervention steps were performed based on the practical description of hope therapy sessions and the method of Snyder et al. and Vershington (quoted from Bahari, 2009). Then intervention steps were performed based on practical description of the NLP session and Bendler & Grindler method (1979, quoted from Diltz, 2003). The subjects addressed in pre-session and 8 sessions once a week (1 hour and a half per session) are explained in appendices.

3. RESULTS:

Demographic characteristics (average age of the respondents)

This study consisted of two experimental and one control group (20 members in each). The mean age of respondents in three groups is presented in Table 2.

Table 2. Age average of respondents in two experimental and one control groups.

Variable	Mean	Standard deviation
Experimental group [hope training]	10.30	2.36
Experimental group [NLP]	10.65	2.34
control group	10.45	2.32

As shown in Table 2, the age average of the NLP group was higher than other groups. MANCOVA was used

to examine the difference between the effects of group hope training and NLP on the hope rate and quality of life of children with cancer. Results are shown in Table 3.

the two intervention methods regarding their effects on hope, so the group hopes training method had a higher effect on hope than the NLP method.

Table 3. Results of MANCOVA

Test	Value	F	Hypothesis df	Error df	Sig	Eta Square	Test power
Pillai's Trace	0.555	21.836	2	35	0.0001	0.555	1.000
Wilks' Lambda	0.445	21.836	2	35	0.0001	0.555	1.000
Hotelling's Trace	1.248	21.836	2	35	0.0001	0.555	1.000
Roy's Largest Root	1.248	21.836	2	35	0.0001	0.555	1.000

Groups were compared based on basic assumptions of MANCOVA. According to the results obtained from the analysis of covariance, the smooth variable effect was significant indicating effect of pre-test at least on changes in one of the dependent variables. One of the main properties of ANCOVA is neutralizing this effect. According to results obtained from MANCOVA (Wilks' Lambda= 0.445, F = 21.836, p<0.0001) [Table 3], the group hope training and NLP were statistically significantly different. Both intervention methods had an almost equal effect on the quality of life, while group hope training had a higher effect on dependent variables (difference rate = 0.465). Therefore, there is a significant difference between group hope training and NLP on hope rate and quality of life of children with cancer. Hope training had a higher effect.

Univariate analysis of covariance was used to determine whether there were significant differences between groups on dependent variables.

According to Table 4, there was a difference between

Discussion and Conclusion:

This study examined the effect of group hope training and NLP training on hope and quality of life among children with cancer. Our results showed a significant difference between hope training and NLP. Both intervention methods had a similar effect on the quality of life. At the same time, the group hope training method had a higher effect on dependent variables (the difference rate was 0.46). Therefore, there was a significant difference between group hope training and NLP training on hope and quality of life of children with cancer, and the effect of group hope training was higher than NLP. This finding is in line previous studies [31, 32].

This finding is in line with the results of some studies indicating that NLP improves self-efficacy, reduces anxiety, and leads to academic achievement among students [23]. Some other studies have indicated that NLP can affect progress and academic achievement among students [17]. In addition, Bijari conducted a study entitled “the effectiveness of hope therapy-based group training

Table 4. Results of effects between respondents

Changes resource	Dependent variable	Sum of squares	df	mean squares	F value	Sig.	Effect size
Group	Quality of life	149.792	1	149.792	1.359	0.251	0.036
	Hope	743.716	1	743.716	31.231	0.0001	0.465
Error	Quality of life	51432.036	108	476.223			
	Hope	4500.364	108	41.670			
Total	Quality of life	3131229.000	110				
	Hope	392400.000	110				

on the life expectancy of women with breast cancer” and found that hope-based group therapy significantly reduced depression and increased life expectancy among respondents. A study entitled “comparison between pharmacotherapy and hope therapy on patients’ quality of life with essential blood pressure” indicated that hope therapy led to more significant changes in the psychological and social aspects of life quality among patients with essential blood pressure than pharmacotherapy [24]. Quality of life is a health concept with various aspects such as being multi-dimensional, dynamic, and covering different physical, mental, social, etc. scopes. Quality of life consists of objective factors (physical, mental, and social functioning) and subjective factors (inner well-being) that emphasize life satisfaction, while objective factors are concentrated on physical needs and engagement in interpersonal relationships and activities. These factors include education level, income level, job status, marital status, security, economic and social status.

According to the effectiveness of group training in quality of life, it can be stated that hope prevents mental disturbance in case of problems, pains, and life incidents. A life without hope is empty, full of meaningless effort, anxiety, and depression. Hope therapy helps the patient set goals, choose the best solutions, stimulate themselves to look for goals, and cope with challenges. People have a mental image of their situation reflected in their minds. It is created by personal experiences, outer world, constant environment, self, and relationship with others. Life issues are evaluated based on such images.

According to research findings, group hope therapy and NLP training can be used for children with cancer to help them find and model their health modes. These methods are based on their basic principles and technics affecting the relationship of the patient with others regarding an effective relationship and changing attitudes and beliefs at different mental levels using Metamodel and NLP technics [25]. Modes, affections, and thoughts of such patients directly affect their health, creating a real world in their minds.

These patients can change their perceptions by changing methods they use to show their feelings and design

their inner world using representation systems and side features. This action makes them able to choose and control their health status. Children with cancer may not change their life events but can change their reactions to such events to reduce their disappointment and stress. The methods in this research use conformance and understanding skills to help patients make close relationships with others, change their minds, and set goals through manipulating hope and quality of life of children with cancer.

This study proved that psychological interventions led to positive change increased hope and quality of life among children with cancer.

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