Original Article

Psycho-Rehabilitation Method (Dohsa-hou) and Quality of Life in Children with Cerebral Palsy

Abolfazl Poursadoughi; Asghar Dadkhah*; Masoume Pourmohamadreza-Tajrishi; Akbar Biglarian
University of Social Welfare and Rehabilitation Sciences, Tehran, Iran

Objectives: This study aimed to evaluate the effectiveness of psycho-rehabilitation (Dohsa-hou) on improving the quality of life of 4-12 year old children with cerebral palsy.

Methods: The present research is a semi-experimental study with a pre-test - post-test design, follow-up and control group. The statistical population fully consists of children with cerebral palsy in Yazd. 30 male patients were selected using a convenience sampling method and were divided into the experiment and control groups. Before beginning treatment, parents filled out the quality of life questionnaire and at the end of the treatment period in the post-test and follow-up phase the same assessment was done. The treatment period in the experiment group was 12 sessions (three sessions per week) and the follow-up phase was done 50 days after the test.

Results: The results obtained from the analysis of covariance showed that psychological rehabilitation of children with cerebral palsy improves their quality of life and that this difference was persistent in the follow-up phase ($P < 0.001$).

Discussion: Since the rate of cerebral palsy is rising and the symptoms are wide, patients may have an increased need for rehabilitation in the future. Dohsa-hou as a psychological rehabilitation approach is an effective treatment to improve the quality of life of these patients.

Keywords: cerebral palsy, quality of life, psychosocial rehabilitation (Dohsa-hou)

Submitted: 12 March 2015
Accepted: 10 May 2015

Introduction

Physical disabilities, along with sensory, perception, cognition, communication and behavioral problems, lead to decreased motor activities, difficulty in interacting with others, increased dependence on others, less motivation, weaker social skills and a decrease in skills and competencies (1-4). In this regard, cerebral palsy is one of the most common childhood chronic disabilities, resulting in limitations in performing daily activities and social relationships that affect quality of life (5). Researchers argued that the lives of children with cerebral palsy can be associated with stress, especially when they feel they have an obvious defect which remains forever (6,7). It results in increasing rates of depression, psychological distress, anxiety, social dysfunction and reduced quality of life (8). Various treatments have been applied to these children. Non-drug methods in recent years have attracted much attention, and are considered as complementary therapies. Complementary therapies can be used along with other therapies. Some complementary therapies include yoga, acupuncture, massage therapy, etc. (9,10)

The review of recent research suggests that relaxation techniques have a role in improving the quality of life and reducing the symptoms of various chronic diseases. In this regard, Dohsa-hou is presented as a Japanese psycho-rehabilitation method. It is a holistic process that involves mental-internal activities of body movements. At first, Professor Gosaku Naruse studied it to improve the movement problems of children with cerebral palsy and argued that despite the fact that disabilities related to cerebral palsy are caused by physiological disorders, they are affected by mental activities as well (11). Also, the physiological and psychological processes are so interdependent that one cannot be considered without the other, and it is impossible to separate a human's mind from its body as a single

* All correspondences to: Asghar Dadkhah, email: < asgaredu@gmail.com >

organism (12,13). According to this view, physical complications may not happen without a psychological basis (physical complications have a physiological basis other than mental basis), and any mental disorders cannot be explained without taking into account the biological basis (14). Dohsa-hou is based on three elements: will, effort and motion (15). Accordingly, this method can be divided into two parts: the psychological part (including effort and will) and the physiological part (including body position and motion) (12,13).

Since previous researches focused on the effect of intervention on the psychological aspects of chronic illnesses or disabilities and little attention was paid to the quality of life of these children, the aim of this study is to investigate the influence of a Japanese psycho-rehabilitation approach (Dohsa-hou) on the aspects of quality of life in children with cerebral palsy.

Methods

The study is semi-experimental with pre-test and post-test, follow-up and a control group. The statistical population consists of children with cerebral palsy in Yazd in 2013-2014. Using the Convenience Sampling method, 30 boys suffering from cerebral palsy were selected. After their parents completed the questionnaire about the quality of life of children with cerebral palsy (CP QOL-Child), the children were randomly and equally divided into control and experiment groups (n = 15 per group). The mean and standard deviation of children's age were 12.10 and 0.76 respectively. Treatment sessions were held in Haj Ahmad Zarrabi Integrated Institution of Psychomotor in Yazd.

Having a severe mental disorder, suffering from other chronic disorders or sensory disorders that disrupt participation in the program, a lack of informed consent and being absent for more than 2 sessions: these are the exclusion criteria of the participants. Measuring instruments: quality of life questionnaire in children aged 4-12 with cerebral palsy (CP QOL-Child) includes subscales of social wellbeing and acceptance, participation and physical health, emotional well-being and self-esteem, functioning, pain and impact of disability, access to services and family health.

The reliability and validity of the questionnaire was conducted by Noubakht in Iran in 2011. The alpha coefficient for the correlation between the questionnaire items and the number of items in the measurement instrument was measured, and ranges from 0.74 to 0.92. The correlation coefficient of inputs for the subscale scores was calculated from 0.47 to 0.84 and the Cronbach's alpha coefficient for the subscales of the instrument ranges from 0.61 to 0.87 (16).

At the beginning of the treatment session, participants were asked to get into a comfortable position and they were also recommended to wear comfortable clothing. The group was weekly (3 sessions per week) and conducted individually under Dohsa-hou psychomotor relaxation therapy. Each session took 50 minutes, including 10 minutes of consultation to establish a relationship at the beginning of the session, 30 minutes of Dohsa-hou psychomotor relaxation exercise, and the remaining time was for relaxation. As described in table (1), the number of treatment sessions was 12 (17,18). After the treatment course, and quality of life questionnaire for children with cerebral palsy being filled in by parents of both groups, the children were studied. The control group did not receive any intervention. Also, after 50 days the follow-up test was completed by the parents.

Table 1. Dohsa-hou sessions for children with cerebral palsy

Session	Techniques
Sessions 1-3	1. The patient lying on the floor and above - hands down the subject with the help of a therapist (Oda-age) 2. Move shoulder the upper and lower (Kata-age) 3. Helping the patient to pull up the shoulders and upper back on a long stretch mode (Kukan-no-hineri) 4. Pulling shoulder back (Se-so-ra-se)
Sessions 4-6	1. Helping the patient to pull up the shoulders and upper back on a long stretch mode (Kukan-no-hineri) 2. Move shoulder upper and lower (Kata-age) 3. Pulling shoulder back (Se-so-ra-se) 4. Open and closed chest and shoulder cut (Mune-hiraki)
Sessions 7-9	1. Helping the patient to pull up the shoulders and upper back on a long stretch mode (Kukan-no-hineri) 2. Lift the upper front side into sitting position (Zai) 3. Open and closed chest and shoulder cut (Mune-hiraki) 4. The patient lying on the floor and above - hands down the subject with the help of a therapist (Oda-age)
Sessions 10-12	1. Helping the patient to pull up the shoulders and upper back on a long stretch mode (Kukan-no-hineri) 2. Lift the upper front side into sitting position (Zai) 3. Stand on both knees and hips move back (Hizatachi) 4. Stand on one knee and hips move (Kata-hizatachi)

Results

By analyzing the data collected, table (2) shows that the mean scores of the experiment group's pre-test and the control group's pre-test do not differ. However, the mean scores of the experiment group's post-test are significantly lower than the mean scores of the control group's post- test. The analysis of covariance test showed that the treatment has led to a significant increase in the mean scores of the quality of life and its subscales in experiment group; these results were also persistent in the follow-up test.

Table 2. Mean and standard deviation scores for quality of life

VARIANT	test	group	N	M	SD
Quality of Life	Pre-test	Experiment	15	344.20	29.75
		Control	15	348.26	32.47
	Post-test	Experiment	15	394.73	32.46
		Control	15	350.66	26.56
	Follow-up	Experiment	15	391.80	32.59
		Control	15	341.06	32.51

Table (3) indicates that the quality of life scores of the experiment group's post-test regarding the following variants has increased in comparison to the pre-test: social wellbeing and acceptance, participation and physical health, emotional wellbeing and self-esteem, functioning and family health. In terms of pain and disability dissatisfaction there is improvement, but the access to services variant has not changed at all. In the control group, there is no significant change in post-test scores in comparison to the pre-test scores. These results were sustained at follow-up test as well.

Table 3. Mean and standard deviation scores for variants of quality of life

group	VARIANT	N	Pre test		Post test		Fallow-up	
			M	SD	M	SD	M	SD
Experiment	Social wellbeing and acceptance	15	66.86	8.00	84.66	8.84	83.93	7.34
	Participation and physical health	15	55.26	6.45	65.33	5.05	64.00	7.43
	Emotional wellbeing and self esteem	15	28.53	5.31	36.06	4.07	35.60	2.69
	Functioning	15	65.93	10.98	81.20	8.45	80.13	8.29
	Family Health	15	18.93	3.89	24.00	3.56	23.80	2.93
	Pain and impact of disability	15	29.26	3.97	35.60	2.69	36.80	3.05
	Access to Services	15	65.00	10.08	59.86	7.92	60.73	8.31
Control	Social wellbeing and acceptance	15	68.66	5.66	67.80	4.41	68.66	7.86
	Participation and physical health	15	56.20	6.71	58.06	5.18	57.40	6.75
	Emotional wellbeing and self esteem	15	29.33	5.97	29.86	5.15	30.06	6.04
	Functioning	15	67.06	11.45	67.66	10.82	65.33	11.08
	Family Health	15	19.73	4.55	20.66	3.73	20.13	4.40
	Pain and impact of disability	15	29.80	5.25	30.06	6.04	30.73	4.26
	Access to Services	15	65.86	9.72	65.53	8.27	63.33	9.81

The results related to the homogeneity of variance assumptions in the scores of the students' quality of life are presented in table (4) according to variables studied in Levine test. It shows that the assumptions of homogeneity of variance have been approved, which indicates that there is no significant difference between the variance of the quality of life scores in the experiment group and the control group.

Table 4. The homogeneity of variance

VARIANT	P	df	F
group	0.491	28	0.486

As it is shown in table (5) and (6) there is a significant difference between the mean value of quality of life in post-test of the experiment group and the control group (P<0.001). The impact in post-test was (0.5). Furthermore, there is a significant difference between the mean scores of the experiment and control groups after removing the effect of the pre-test in subscales including social wellbeing and acceptance, participation and physical health, emotional wellbeing and self-esteem, functioning, family health and pain and impact of disability, but there is no significant difference in the access to services subscale.

Table 5. The results of the analysis of covariance, comparing post-test scores on quality of life

VARIANT	SS	df	MS	F	P	Eta
Quality of Life Pre-test	2026.09	1	2026.09	2.41	0.13	0.08
Group	16322.30	1	16322.30	19.48	<0.001	0.50
Error	22.614.17	27	837.56			
Total	39204.30	29				

Thus, according to the tables (5) and (6), it can be concluded that this psychosocial rehabilitation approach (Dohsa-hou) increases social wellbeing and acceptance, participation and physical health, emotional wellbeing and self-esteem, functioning, family health and reduces the amount of pain and dissatisfaction of disability in children with cerebral palsy.

Table 6. The results of covariance analysis, comparing post-test scores on quality of life sub scale

Quality of Life sub scale	SS	df	MS	F	P	Eta
Social wellbeing and acceptance	2080.68	1	2080.68	41.12	<0.001	0.60
Participation and physical health	409.61	1	409.61	15.67	<0.001	0.36
Emotional wellbeing and self esteem	307.38	1	307.38	15.44	0.01	0.36
Functioning	1429.18	1	1429.18	16.01	<0.001	0.37
Family Health	90.24	1	90.24	6.86	0.01	0.20
Pain and impact of disability	226.42	1	226.42	10.01	<0.001	0.27
Access to Services	219.38	1	219.38	3.69	0.06	0.12

Also it is shown in tables (7) and (8) that the significant difference between quality of life and its variants was persistent in the follow-up phase.

Table 7. Covariance analysis, comparing follow-up scores for the experiment group and control group

VARIANT	SS	df	MS	F	P	Eta
Quality of Life Pre-test	2934.22	1	2934.22	2.96	0.09	0.09
Group	21791.94	1	21791.94	22.00	<0.001	0.44
Error	26735.10	27	990.18			
Total	47973.46	29				

Table 8. Covariance analysis comparing follow-up scores for quality of life variants

Quality of Life sub scale	SS	df	MS	F	P	Eta
Social wellbeing and acceptance	1791.24	1	1791.24	30.68	<0.001	0.53
Participation and physical health	333.09	1	333.09	6.40	0/01	0.19
Emotional wellbeing and self esteem	225.38	1	225.38	9.96	0.04	0/27
Functioning	1729.93	1	1729.93	20.96	<0.001	0.43
Family Health	96.14	1	96.14	6.68	0.01	0.19
Pain and impact of disability	287.14	1	287.14	19.76	<0.001	0.42
Access to Services	49.36	1	49.36	0.57	0.45	0.02

Discussion

The findings of this study showed that psychosocial rehabilitation (Dohsa-hou) improves the quality of life of children with cerebral palsy aged 4-12; also, the results remain after a two-month follow-up. The results of the analysis of covariance test confirms this hypothesis as well. The findings of the present study are in line with researches confirming the effectiveness of psychosocial rehabilitation, and it is consistent with the Rigi Kouteh et al. (9), Yazdkhasti and Shahbazi (18), Dehkordi et al. (19), Dadkhah and Raufi (20), Malekshahi and Dadkhah (21), Kono and Ono (as quoted by Ghaffari et al.) (22), Rika (23), Konno (24) and Naoki (25) studies.

Kono and Ono (as quoted by Dadkhah) believed that the Dohsa-hou approach makes people emotionally stable and increases their social activities. Dohsa-hou significantly increases the quality of life in 4 to 12 year old children with cerebral palsy. Previously, there were no studies researching the effect of Dohsa-hou on the quality of life in children with cerebral palsy. However, it can be argued that when we want to move our body, the physical understanding happens due to our will. If you try your best to move, the movement will be understood and then it will happen. The process is a psychologically purposeful movement in order to conform known pattern of movement in the body to a determined pattern of motion. In other words, this issue is the self-regulation of individual's body movement by itself (26).

Dohsa-hou techniques help children with cerebral palsy to identify tensions that have emerged in different parts of their body. Then, by applying relaxation and physical movements, they fight against their main bodily tensions. In fact, by applying these techniques children learn how to reasonably control their former uncontrollable body tensions (23). Moreover, in this method, the bloodstream to the brain will be increased and by so doing, the tension will be decreased (27).

Dohsa-hou increases muscle mass in body movements, which encourages patients to do activities and also leads to a decrease in patients' disinterest. As a result, physical and psychological fatigue will be reduced. By doing movement activities, the client will pay attention to the sense of movement in his/her body and it makes him/her feel various changes, giving him/her a positive self-image (28). This is followed by exhilaration in the patient's body, causing the patient's attitudes towards life to change.

This approach enables children to seek reality through their body, and it is assumed that the understanding of the human body will be changed using this approach. Therefore, the self-cognition of the client has changed, which causes cognition of the subject, location and other people to change as well. These changes and replacements cause changes in the client. Due to this achievement, it can be said that doing physical activities with will and effort, balancing the emotions, sitting properly, increasing eye contact, improving social relationship, finding your position in each situation, being more social, controlling communications, changing behavioral patterns, improving abnormal behaviors, and strengthening the reinforcement are among the changes that occur after treatment (11). Malekshahi and Dadkhah's study is in line with these results.

Dohsa-hou plays an important role as a rehabilitation technique in people's lives. Naruse (12) believes that by relaxation and moderation of muscles, Dohsa-hou increases self-consciousness as well as helping people's understanding, resulting in improved social relationships and life satisfaction. In this method, individuals try to do the movements with purposeful effort; thus, new experiences of movement are gained by effort and willpower. Thus, not only will the client's mind be activated, but also a sense of collaboration will be motivated, and interpersonal relationships may be reinforced; life satisfaction will therefore be increased in individuals' lives (11). Tsuru (29) proposed that Dohsa-hou causes people to change their psychological status and alters failure processes and a sense of pessimism by improving physical balance and activating psychological processes (attempt and will). It also reduces negative psychological symptoms and increases the child's ability to manage the symptoms; as a result the child avoids social interaction less and communicates with others with high self-confidence and without fear of being labeled. The child will feel relaxed in social relationships, and that will result in an improved quality of life. Indeed, Dohsa-hou leads to better social relationships by training sensory and motor skills, resulting in improved family health, social interaction and quality of life (15).

It seems that the motivation for trying to do appropriate actions leads to enjoyment and self-satisfaction and that subsequently, an individual's attention will be drawn to changes in his/her body. Following these changes, individuals will experience greater life satisfaction and an improved quality of life. This study was limited to male children with cerebral palsy and generalizing the results to girls with cerebral palsy is restricted. Also, a lack of literature in this area is considered as another limitation of the study. It is suggested that this method be applied to treat other groups of exceptional children. It is also suggested that this method be used not only to reduce symptoms but also to prevent disorders and to promote mental health.

Acknowledgments

We gratefully thank Haj Ahmad Zarrabi's Integrated Institution of Psychomotor in Yazd and Yazd Exceptional Education and Training, which cooperated in this study.

References

1. Rosenbaum P, Paneth N, Leviton A, Goldstein M, Bax M, Damiano D, et al. A report: the definition and classification of cerebral palsy April 2006. Dev Med Child Neurol Suppl. 2007;109:8-14.
2. Bax M, Goldstein M, Rosenbaum P, Leviton A, Paneth N, Dan B, et al. Proposed definition and classification of cerebral palsy, April 2005. Developmental Medicine & Child Neurology. 2005;47(08):571-6.
3. Shevell M, Miller SP, Scherer SW, Yager JY, Fehlings MG. The Cerebral Palsy Demonstration Project: A Multidimensional Research Approach to Cerebral Palsy. Seminars in Pediatric Neurology. 2011;18(1):31-9.
4. Oskoui M, Joseph L, Dagenais L, Shevell M. Prevalence of cerebral palsy in Quebec: Alternative approaches. Neuroepidemiology. 2013;40(4):264-8.
5. Khanjani M, Hatamizade N, Hoseini M, Rahgozar M, Arjmand M. Effect of learning "how to care for children with cerebral palsy" Their quality of life of family caregivers. Journal of Rehabilitation. 2009;3(10):38-42.
6. Brossard-Racine M, Hall N, Majnemer A, Shevell MI, Law M, Poulin C, et al. Behavioural problems in school age children with cerebral palsy. European Journal of Paediatric Neurology. 2012;16(1):35-41.
7. Parkes J, White-Koning M, Dickinson HO, Thyen U, Arnaud C, Beckung E, et al. Psychological problems in children with cerebral palsy: a cross-sectional European study. Journal of Child Psychology and Psychiatry. 2008;49(4):405-13.
8. Janssens ACJW, van Doorn PA, de Boer JB, van der Meché FGA, Passchier J, Hintzen RQ. Impact of recently diagnosed multiple sclerosis on quality of life, anxiety, depression and distress of patients and partners. Acta Neurologica Scandinavica. 2003;108(6):389-95.
9. Kouteh B, Yazdkhasti F, Etemadifar M. The effectiveness of mental-physical relaxation (Dohsa-hou) On Depression, Anxiety and Stress in patients with Multiple Sclerosis (MS). International Journal of Humanities and Social Science Invention. 2013;2(5):4-11.
10. Sajedi F, Alizad V, eddin FA, Hadian M. Effect of Adding Swedish massage to Occupational Therapy on Muscle Tone of Spastic Cerebral Palsied Children. Journal of Rehabilitation. 2008;8(4):42-7.
11. Naruse G. Theatrical approach to Dohsa-hou training. Tokyo:Seishin shobo. 1985;2(4):73-81.
12. Naruse G. The clinical dohsa-hou as psychotherapy. Clinical Dohsalog. 1997;3:1-10.
13. Dadkhah A. The effect of dohsa-hou on body consciousness in disabled sportsmen. Japanese Psychological Research. 1998;40(3):134-43.
14. Ganji H. Mental health. Tehran Arasbaran; 2006.
15. Naruse G. Recent development of Dohsa-hou in Japan. Journal of Rehabilitation Psychology. 1992;19(3):7-11.
16. AkbarFahimi N, Rassafiani M, Soleimani F, Vameghi R, KazemNejad A, Nobakht Z. Validity and Reliability of Farsi Version of Cerebral Palsy-Quality of Life Questionnaire. Journal of Rehabilitation. 2012;13(5):73-83.
17. Naruse G. On the application of hypnosis to sport. Unesta LE, editor. Orebro, Sweden: Veje Forlag; 1975. 15-27 p.
18. Yazdkhasti F, Shahbazi m. The effect of Dohsa-hou psychic rehabilitation on reduction of attention deficit hyperactivity Disorder and increase of social skills among students with ADHD age 6 to 11. J Res Rehabil Sci. 2012;8(5):877-87.
19. Dehkordi A, Dadkhah A, Mehrdadfar F, Mohtashami T, Kordestani D. The effectiveness of Dohsa-hou psycho-rehabilitation on social interaction in children with cerebral palsy. Iranian Journal of Exceptional Children 2011;11(3):245-54.
20. Dadkhah A, Raoufi MB. A Japanese treatment used in major depressive disorder in adolescence. Percept Mot Skills. 2007;105(2):531-8.
21. Malekshahi F, Dadkhah A. The psycho-rehabilitative effect of japanese Dohsa-Hou on the depression of the aged people. J Sabzevar Univ Med Sci. 2002;8(2):4-11.
22. Ghafari S, Ahmadi F, Nabavi S, Memarian R. Effect of applying progressive muscle relaxation technique on fatigue in multiple sclerosis patients. Journal of Rehabilitation. 2008;8(2):73-80.
23. Rika M. The application of Dohsa-Hou to junior college student with bulimia nervosa. Journal of Rehabilitation Psychology. 2003;31(1):47-57.
24. Konno Y. Motor control method by lifting up arm for action change on a hyperactive child. Bulletin of Clinical and Consulting Psychology. 1978;24:187-95.
25. Naoki E. Process of emotional control by Dohsa-hou in a schizophrenia patient. Journal of Rehabilitation Psychology. 2003;30(2):21-9.
26. Dadkhah A, Harizuka S. The application of a Japanese Psychological Rehabilitation method in Iran. Journal of Rehabilitation Psychology. 2002;30:9-13.
27. Toshiro I. On the application of the Dohsa-hou (motor action therapy) for patients with panic attack disorder. Journal of Rehabilitation Psychology. 2001;29:1-10.
28. Sahebi A, Asghari A, Salari R. Validation of depression anxiety and stress scale for an Iranian population. Journal of Iranian psychologists. 2005;1(4):299-312.
29. Tsuru M. Theoretical consideration of Dohsa-therapy. The Journal of Rehabilitation Psychology. 1992;19:156-63.