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EFFECT OF HEALTH PROMOTION INTERVENTION IN IMPROVING THE QUALITY OF LIFE AMONG PHYSICALLY CHALLENGED CHILDREN: A SCHOOL BASED INTERVENTIONAL STUDY

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ABSTRACT

Children living with disability are often at increased risk for the development of secondary conditions that can lead to further decline in functional status, health status and overall quality of life. The aim of this study was to evaluate the effectiveness of health promotion intervention in improving the quality of life among physically challenged children. The total 120 samples were selected through purposive sampling technique from selected special schools, out of which 60 were in experimental and 60 were in control group. The experimental group received health promotion intervention for the duration of 36 weeks, but the control group remained without this. The quality of life was assessed using quality of life questionnaire at baseline, 12th, 24th and 36th week. There was statistically significant and very highly significant difference found at 12th week (p=0.04), 24th week (p= 0.001), and 36th week (p= 0.001) in physical wellbeing, psychological wellbeing, social wellbeing and overall quality of life values between the experimental and control group. Hence health promotion intervention is cornerstone in improving the quality of life among physically challenged children.

KEY WORDS: Health promotion intervention, Quality of life, Disability and Physically challenged children.

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INTRODUCTION

Children are one third of our population and the disabled children are also a part of this community.[1] Worldwide, 120 to 150 million children and young people are living with disability.[2] India has about 2.68 crore disabled people. Among them, 35.29% are disabled children with different kinds of disabilities. The prevalence of locomotor disability among different kind of disabilities is highest in the country. Polio is one of the major cause of locomotor disability and contributing to 28.9% cases.[3] The World Health Organization has defined Quality of Life as the broad ranging concept affected in a complex way by the person's physical health, psychological state, levels of independence, social relationships, personal beliefs and their relationship to salient features of their environment.[4] Numerous recent research study findings indicate that children with disability are often at increased risk for the development of secondary conditions and most commonly reported problems are progressive muscle weakness, joint pain, contractures, fatigue, cold intolerance, malnutrition, poor oral health, constipation, mood state disturbances, low self esteem, poor social relationship, and negative societal attitude etc. [5- 8] Health promotion intervention is a person's sustained participation in managing their health in a way that creates the necessary self-efficacy to achieve physical, psychological and social wellbeing. It includes intake of healthy diet, maintenance of personal hygiene, regular performance of exercises, encouragement and continuous capacity building to operate and recuperate properly from a disability. Reviews of current literature study suggest that regular practice of health promotion intervention may have various physical, psychological and social benefits such as prevention of physical deformities, maintenance of movement of the joints and tone of muscles, protection from various systemic diseases, promotion of self esteem, team spirit and social integration etc. along with reduction of occurrence in secondary conditions due to disability. [9-11.] Despite the increase in quality of life research in adults, quality of life in children is relatively neglected and there is critical need of evidence based health promotion intervention for maintaining and improving overall quality of life. [12, 13] Therefore, the present study aimed to evaluate the effectiveness of health promotion intervention in improving the quality of life among physically challenged children.

MATERIALS AND METHODS

This was a quantitative quasi-experimental study with time series design conducted from April 2013 to March 2014 in selected special schools at Ludhiana and Hoshiarpur district of Punjab. The sample size was determined based on the results of a pilot study and was computed by power analysis. The total sample for the study comprised of 120 physically challenged children, out of which 60 were in experimental and 60 were in control group. The sample were selected through non-probability purposive sampling technique. The inclusion criteria for sample selection included: physically challenged children in the age group of 10 to 19 years suffering with locomotor disability and had I.Q >70. The exclusion criteria included: physically challenged children suffering with multiple disabilities. The study protocol was approved by institutional review board and institutional ethical committee of SRM University Kattankulathur, Tamil Nadu, India. To execute the study, the researcher obtained official written permission from directors of selected schools and written informed assent/consent from study sample and their parents after explaining the study purpose and assuring for confidentiality and anonymity. The self structured tool was used for data collection and it consisted of two sections. Section A: Demographic variables of physically challenged children. It consisted of 12 demographic variables. Section B: Quality of life questionnaire. It consisted of 40 questions which have 70 items from three domains of quality of life (Physical wellbeing – 40 items, Psychological wellbeing – 15 items, social wellbeing –15 items) to find out how much of a problem each one has undergone during the past one month to assess the quality of life. Each item was scored against four points from 1 to 4. The total score of the items in each category was added to yield a total raw score.

Total raw score was ranging between 70 to 280 and it was interpreted in terms of quality of life as very poor (≤ 40%), poor (41-60%), fair (61-80%) and good (≥ 81%). Health promotion intervention consisted of health teaching on diet, personal hygiene and supervised exercise programme. The content validity of tool and intervention was obtained from the eight experts in the field of medicine, nursing and physiotherapy and reliability of tool was checked by inter-rater method and it was found 0.87, hence tool was considered reliable for data collection. The pre-test observation was conducted before initiation of intervention for both the experimental and control group to collect baseline data. After pre-test, the experimental group received the health teaching on diet and maintenance of personal hygiene provided by investigator himself and study subjects were reinforced to practice these healthy life habits for the duration of 36 weeks. To perform exercises intensively the sample of experimental group were divided into two groups (30 in each). For each sample, range of motion (10 minutes), stretching (10 minutes) and strengthening (10 minutes) exercises were administered by a qualified physiotherapist and assisted by investigator himself for 30 minutes/day thrice in a week for the duration of 24 weeks then for the next 12 weeks the study subjects were motivated to practice these exercises by their own. A diary was maintained to confirm regular practice of health promotion intervention. The sample of control group did not participate in the intervention program; however, on completion of the study, they also received health teaching on diet, maintenance of personal hygiene and regular habit of performing exercises. The post-test observations were conducted at 12^{th} week (post-test-1), 24^{th} week (post-test-2), and 36^{th} week (post-test-3) by using the same questionnaire. The collected data was tabulated and analyzed in accordance with objectives of the study by using descriptive and inferential statistics with the help of Statistical Package for the Social Sciences version 16 software (SPSS Inc., Chicago, IL, USA) and Instat.

RESULTS

The baseline values were not significantly different between experimental and control groups for all the demographic variables including age (p=1.00), gender (p=1.00), education (p=0.70), father's education (p=0.80), mother's education (p=0.97), family income (p= 0.44), type of family (p=0.61), residential area (p=0.32), category of locomotor disability (p=0.08), level of locomotor disability (p=0.61), duration of locomotor disability (p=0.71), mobility aid used (p=0.91). At baseline, majority of physically challenged children i.e. 66.7% in the experimental group and 63.3% in the control group had fair quality of life and only 30.0% in the experimental group and 25.0% in the control group had good quality of life. There was no statistically significant difference in baseline quality of life values between the experimental and control group (p=0.79). In the experimental group, at 12^{th} week, almost half i.e. 45.0%, at 24^{th} week majority i.e. 60% and at 36^{th} week most of i.e. 80% of physically challenged children had good quality of life after practicing health promotion intervention for 12, 24 and 36 weeks respectively. In the control group, majority of physically challenged children i.e. 66.7% at 12^{th} week, 66.6% at 24^{th} week and 65.0% at 36^{th} week had fair quality of life after 12, 24 and 36 weeks respectively. There was statistically significant and very highly significant difference found at 12^{th} week (p=0.04), 24th week (p= 0.001), and 36^{th} week (p= 0.001) in quality of life values between the experimental and control group. Similar kinds of results were also found in physical wellbeing, psychological wellbeing and social wellbeing domain of quality of life between the experimental and control group (Table 1).

Table 1
Comparison of levels of quality of life among physically Challenged children between group 1and 2

N = 120

Levels of Quality of life		Group				Chi square test
		Experimental (n=60)		Control (n=60)		
		n	%	n	%	
Baseline	Very poor	0	0.0%	0	0.0%	$\chi 2$=0.45 p=0.79
	Poor	8	13.3%	7	11.7%	
	Fair	40	66.7%	38	63.3%	
	Good	12	30.0%	15	25.0%	
12th week	Very poor	0	0.0%	0	0.0%	$\chi 2$=6.27 p=0.04*
	Poor	4	6.7%	6	10.0%	
	Fair	29	48.3%	40	66.7%	
	Good	27	45.0%	14	23.3%	
24th week	Very poor	0	0.0%	0	0.0%	$\chi 2$=14.07p=0.001***
	Poor	1	1.7%	4	6.7%	
	Fair	23	38.3%	40	66.6%	
	Good	36	60.0%	16	26.7%	
36th week	Very poor	0	0.0%	0	0.0%	$\chi 2$=35.07p=0.001***
	Poor	0	0.0%	4	6.7%	
	Fair	12	20.0%	39	65.0%	
	Good	48	80.0%	17	28.3%	

Notes: * = significant at p < 0.05 level *** = Very highly significant at p < 0.001 level.
Abbreviations: QOL, quality of life; group 1, experimental group; group 2, control group.

At baseline mean scores of physical wellbeing (t=0.13 p=0.89), psychological wellbeing (t=0.11 p=0.91), social wellbeing (t=0.17 p=0.85) and overall quality of life (t=0.18 p=0.85) were not statistically significantly different between experimental and control group. At 12th week mean scores of physical wellbeing (t=4.86 p=0.001), psychological wellbeing (t=2.21p=0.02), social wellbeing (t=1.98 p=0.05) and overall quality of life (t=4.64 p=0.01) were statistically significantly different between experimental and control group. At 24th week mean scores of physical wellbeing (t=9.34 p=0.001), psychological wellbeing (t=6.08 p=0.001), social wellbeing (t=4.84 p=0.001) and overall quality of life (t=11.62 p=0.001) were very highly statistically significantly different between experimental and control group. At 36th week also mean scores of physical wellbeing (t=10.61 p=0.001), psychological wellbeing (t=6.88 p=0.001), social wellbeing (t=5.75 p=0.001) and overall quality of life (t=12.62 p=0.001) were very highly statistically significantly different between experimental and control group (Table 2). Visit wise difference of mean scores of physical wellbeing (F=351.17 p=0.001), psychological wellbeing (F=139.28 p=0.001), social wellbeing (F=158.17 p=0.001) and overall quality of life (F=338.8 p=0.001) was statistically very highly significant among physically challenged children in experimental group. Whereas among physically challenged children in control group visit wise difference of mean scores of physical wellbeing (F=2.02 p=0.10), psychological wellbeing (F=2.08 p=0.18), social wellbeing (F=2.24 p=0.14) and overall quality of life (F=2.14 p=0.6) was statistically non significant ((Table 3).

Table 2
Comparison of QOL mean scores among physically challenged children between group 1and 2

N = 120

Quality of life	Visit	Group				Student Independent t-test
		Experimental (n=60)		Control (n=60)		
		Mean	SD	Mean	SD	
Physical	Baseline	131.57	9.33	131.82	11.55	t=0.13 p=0.89
	12th week	140.87	8.53	131.90	11.44	t=4.86 p=0.001***
	24th week	147.63	6.07	132.05	11.40	t=9.34 p=0.001***
	36th week	149.57	5.74	132.28	11.23	t=10.61 p=0.001***
Psychological	Baseline	41.05	7.83	41.22	7.69	t=0.11 p=0.91
	12th week	44.32	6.57	41.45	7.58	t=2.21p=0.02*
	24th week	48.52	4.75	41.58	7.44	t=6.08 p=0.001***
	36th week	49.23	4.12	41.72	7.39	t=6.88 p=0.001***
Social	Baseline	41.38	6.40	41.58	5.80	t=0.17 p=0.85
	12th week	43.70	5.54	41.70	5.54	t=1.98 p=0.05*
	24th week	46.22	4.81	41.90	4.95	t=4.84 p=0.001***
	36th week	47.12	4.69	41.98	5.07	t=5.75 p=0.001***
Overall	Baseline	214.00	20.08	214.62	15.78	t=0.18 p=0.85
	12th week	228.88	17.32	215.05	15.25	t=4.64 p=0.1**
	24th week	242.37	11.51	215.53	14.93	t=11.62 p=0.001***
	36th week	245.92	10.81	215.98	14.85	t=12.62p=0.001***

Notes: * = Significant at p < 0.05 level ; ** = Highly significant at p< 0.01 level ; *** = Very highly significant at p < 0.001 level .
Abbreviations: QOL, quality of life; group 1, experimental group; group 2, control group.

Table 3
Comparison of QOL mean scores among physically challenged children with in group 1and 2

N = 120

Group	Quality of life	Baseline		12th week		24th week		36th week		Repeated measures ANOVA F-test
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	
Experimental (n=60)	Physical	131.57	9.33	140.87	8.53	147.63	6.07	149.57	5.74	F=351.17 p=0.001***
	Psychological	41.05	7.83	44.32	6.57	48.52	4.75	49.23	4.12	F=139.28 p=0.001***
	Social	41.38	6.40	43.70	5.54	46.22	4.81	47.12	4.69	F=158.17 p=0.001***
	Overall	214.00	20.08	228.88	17.32	242.37	11.51	245.92	10.81	F=338.8 p=0.001***
Control (n=60)	Physical	131.82	11.55	131.90	11.44	132.05	11.40	132.28	11.23	F=2.02 p=0.19
	Psychological	41.22	7.69	41.45	7.58	41.58	7.44	41.72	7.39	F=2.08 p=0.18
	Social	41.58	5.80	41.70	5.54	41.90	4.95	41.98	5.07	F=2.24 p=0.14
	Overall	214.62	15.78	215.05	15.25	215.53	14.93	215.98	14.85	F=2.14 p=0.6

Notes: *** = Very highly significant at p < 0.001 level
Abbreviations: QOL, quality of life; group 1, experimental group; group 2, control group.

visit wise difference of mean scores of sub-domains of quality of life i.e. integumentary, oral, eye, gastrointestinal, neuromuscular, mood state, perceived control, life outlook, social relationship, social support, participation in socio-cultural activities and societal attitude problems were also found to be statistically significant different between experimental and control group. Mean gain score from baseline till 36th week among physically challenged children in experimental group was 18.0 (13.7%) for physical wellbeing, 8.18 (19.9%) for psychological wellbeing, 5.74 (13.9%) for social wellbeing and 31.92 (14.9%) for overall quality of life, however in control group was 0.46 (0.3%) for physical wellbeing, 0.50 (1.2%) for psychological wellbeing, 0.40 (1.0%) for social wellbeing and 1.36 (0.6%) for

overall quality of life. Hence in control group not much difference was observed in mean gain score for overall quality of life and its domains when compared with the experimental group.

DISCUSSION

Quality of life of the physically challenged children has been the subject matter of study by various researchers throughout the world. Functional limitations and lack of access to health services has resulted in associated problems over and above the primary disability.[2] Quality of life improvement has become a pre-eminent goal of rehabilitation and a key outcome measure in ascertaining the effectiveness of interventions and rehabilitation programmes.[14] The results of present study showed that by regular practice of health promotion intervention for the duration of 12, 24 and 36 weeks, physical wellbeing, psychological wellbeing, social wellbeing and overall quality of life was significantly improved and also mean gain score from baseline till 36th week was high for overall quality of life and its domains among physically challenged children in experimental group in comparison with control group. These findings are consistent in line with findings of the study reported by Werven V.I. that health and hygiene school program initiative result in an increased health and hygiene awareness as well as changes in behaviour related to food intake and hygiene among students [15] Similarly Ilika AL et al and Dongre AR also reported that with practice of a health promoting school based intervention there was significant improvement in personal hygiene practice and reduction in hygiene-related morbidity among the disadvantaged children.[16,17] Oncu J and Oncii J revealed that regular aerobic exercise decreases fatigue, improves functional capacity and quality of life in post-polio syndrome at least in short-term period especially when performed under supervision.[18,19] A meta-analytical study conducted by Biddle S J H found that physical activity has potential beneficial effects on reducing anxiety, depression and improving self esteem and cognitive performance among children and adolescents but the evidence base is limited, Intervention designs are low in quality.[20] Likewise Hassmen P study results also indicate that the individuals who exercise at least two to three times a week experienced significantly less depression, anger, cynical distrust, stress and higher levels of sense of coherence and a stronger feeling of social integration than those exercising less frequently or not at all.[21]

CONCLUSION

The regular practice of health promotion intervention for the duration of 36 weeks was found to be very highly effective in reducing the occurrence and severity of physical, psychological, social problems and improving overall quality of life among physically challenged children. No adverse events were reported. This is a simple, appropriate and affordable intervention and can be practiced regularly. Health care professionals, parental and teacher training and motivation are necessary for their role in effective implementation of this intervention among physically challenged children in hospital, community, home and school settings.

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CONFLICT OF INTERESTS

Declared none

REFERENCES

1. Ministry of Statistics and Programme Implementation. “Children in India 2012 – a statistical appraisal”. Govt of India, Accessed on “27 January 2015”. http://mospi.nic.in/mospi_new/upload/Children_in_India_2012.pdf
2. World Health Organization. “Chapter 2 Disability – a global picture - World

Health 2011". Accessed on "28 January 2015". www.who.int/disabilities/world report/2011/chapter2.pdf

3. Office of the registrar general and census commissioner, New Delhi, India. "Census of India 2011 data on disability". Govt of India, Accessed on "28 January 2015". http://www.languageinindia.com/jan2014/disabilityinindia2011data.pdf
4. WHO. "Measuring quality of life". WHO, Geneva, Accessed on "28 January 2015". http://www.who.int/mental_health/media/68.pdf
5. Dr. Saini KS., Gagandeep S., Manveerjit D, Priyanka S., Sandeep K., Sharmilee P. A descriptive study to assess the prevalence of disability and its impact on individual and family in Dhanas village, Chandigarh. Journal of Nursing Research Society of India, 5(2): 67 -75, (2013)
6. Takemura J., Saeki S., Hachisuka K., Aritome K. Prevalence of post-polio syndrome based on a cross-sectional survey in Kitakyushu, Japan. Journal of Rehabilitation Medicine, 36 (1):1-3, (2004)
7. Tak M., Nagarajappa R., Sharda A., Asawa K., Tak A., Jalihal S. Comparative assessment of oral hygiene and periodontal status among children who have poliomyelitis at Udaipur city, Rajasthan, India. Med Oral Patol Oral Cir Bucal, 17(6): 969–976, (2012)
8. Małkowska A., Mazur J., Woynarowska B.Level of perceived social support and quality of life in children and adolescents aged 8-18 years. Med Wieku Rozwoj, 8 (3): 551-566, (2004)
9. World Health Organisation. "Health and development through physical activity and sport". WHO Geneva, Accessed on "2 February 2015". http://whqlibdoc.who.int/hq/2003/WHO_NMH_NPH_PAH_03.2.pdf
10. Liusuwan RA., Widman LM., Abresch RT., Johnson AJ., McDonald CM. Behavioral intervention, exercise, and nutrition education to improve health and fitness in adolescents with mobility impairment due to spinal cord dysfunction. J Spinal Cord Med, 30(1): 119-126, (2007)
11. Carmona RH., Cabe J., McCabe J. Improving the health and wellness of persons with disabilities: a call to action. Psychiatric Rehabilitation Journal, 29 (2): 122-127, (2005)
12. Bullinger M., Schmidts., Petersen C. Assessing quality of life of children with chronic health conditions and disabilities: A European approach. Int. J Rehab Res, 25(3): 197, (2002)
13. Hughes RB. Achieving effective health promotion for women with disabilities. Fam Community Health, 29 (1): 44-51, (2006)
14. Rejeski WJ., Mihalko SL. Physical activity and quality of life in older adults. Journal of Gerontology: A Biological Science Medicine, 56: 23–35, (2001)
15. Werven V.I. Health and hygiene school program initiative for adolescents in Dhaka, Bangladesh. The Journal of Gender and Water, 1(1): 34-36, (2012)
16. Ilika AL., Obionu CO. Personal hygiene practice and school-based health education of children in Anambra State, Nigeria. Niger Postgrad Medical J, 9(2): 79-82, (2002)
17. Dongre AR., Deshmukh PR., Garg BS. Health promoting school initiative in ashram school of Wardha district. Natl Med J India, 24(3):140–143, (2011)
18. Oncu J., Durmaz B., Karapolat H. Short-term effects of aerobic exercise on functional capacity, fatigue, and quality of life in patients with post-polio syndrome. Clinical Rehabilitation, 23: 155–163, (2009)
19. Oncii J. Role of aerobic exercise on functional capacity, symptoms and quality of life in patients with post-polio syndrome. J Rehabil Med, 49: 38, (2011)
20. Biddle S J H., Asare M. Physical activity and mental health in children and adolescents: a review of reviews. Br J Sports Med, 45: 886–895, (2011)
21. Hassmen P., Koivula N., Uutela A. Physical exercise and psychological wellbeing: A population study in Finland. Preventive Medicine, 30: 17-25, (2000).