

Role of the Physiotherapist in General Schools - A Review

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Abstract:

Introduction: According to the World Confederation of Physiotherapy (WCPT), “Physical therapists provide services that develop, maintain and restore people’s maximum movement and functional ability. They can help people at any stage of life, when movement and function are threatened by ageing, injury, diseases, disorders, conditions or environmental factors”.

The Physiotherapist not only renders the service in various health care settings, they can also play a significant role in various community settings such as industries, schools, geriatric homes in providing health promotion.

Objective: To review and summarize the key role of the physiotherapist in general schools that in turn would create awareness about the significance of physiotherapy in school children.

Method: A review was conducted with key words Physiotherapy in school children. The review search was conducted in electronic database such as Pub med, Google, Google scholar and Pediatric Physical Therapy Journal.

Conclusion: The Physiotherapist has a significant role in general schools. The role of physiotherapist in general schools has been listed in different studies but no single study has been done uniquely to analyze the role of Physiotherapist in general schools.

Key words: Physiotherapy, school children, general schools.

INTRODUCTION:

*“It’s easier to take a small action **now**
Instead of a big action someday”*

The word ‘now’ in the above quote refers pediatric age group. The root cause of many disease/disability originates from pediatric age.

The physiotherapist plays a significant role in providing health care and it is a highly recognized profession globally. The Physiotherapist is a healthcare professional dealing with human functions, movement and maximizing potential. They work in wide-areas including hospitals, clinics, industries, elderly homes and special schools.

Physiotherapy is certainly far more than fixing musculoskeletal sports injuries, although that is perhaps the most common perception of the profession. It uses physical approaches to promote, maintain and restore physical, psychological and social well-being¹.

Physiotherapist is considered to play a significant role in tertiary care, but the real fact is the physiotherapist can play a significant role in primary and secondary level of health care delivery. In early days the scope of physiotherapist is limited to clinical and hospital settings, but now the physiotherapist can play significant role in various community settings such as schools, sports clubs, and geriatric home.

Diane² the school is an opportune location for health-promotion work because it is where children and young people gather: where they spend the greatest part of their growing up years outside the home environment: and it is, effectively their workplace. A paradigm shift to a social model of health across all departments, agencies, and professions is needed in order to improve child and adolescent health.

Patricia J Ohtake³ Physical therapists are health care professionals who contribute to the health of individuals and

communities through their roles as practitioners, educators, scientists, consultants, and administrators. Physical therapists serve as consultants by sharing their professional advice or opinion with patients, other health care providers, businesses, schools, and other organizations including government agencies.

OPERATIONAL DEFINITION:

In this study the word Physiotherapist and Physical therapist is used interchangeably.

General school:

According to this study, the term general school refers to the school that doesn't have physically challenged (disabled) or mentally challenged (disabled) children. It includes both primary school and secondary school.

NEED FOR THE STUDY:

The scope and role of physiotherapist in general schools have been discussed by various experts in various text books, journals and in media statements. So far, no single study aimed to compile the role of the physiotherapist in general schools. Moreover if the significant role of the physiotherapist in general schools is identified and consolidated in a study will give a glimpse to the policy makers to consider the appointment of physiotherapist in general schools.

METHOD:

A review was conducted with key words: physiotherapy ,school children in various electronic database such as Google, Google scholar, Pub med and Pediatric Physical Therapy journal.

ROLE OF PHYSIOTHERAPIST IN SCHOOL CHILDREN:

The role of Physiotherapist is discussed under various headings.

1. Posture education/correction:

Claudia Jehle⁴ Studies indicate that the number of school-children with postural imbalances has increased in recent decades.

As a result of the lack of exercise in the daily routine, the prevalence of insufficient motor fitness, postural disorders and overweight has increased during the last decades. (Brettschneider et al., 2006; Graf et al., 2006; Opper et al., 2005)⁴

Depending on the kind of study and statistics, between 40–65% of growing children and adolescents show postural and motor developmental deficits (Hollmann and Hettinger, 2000; Ketelhut and Bittmann, 2001)⁴.

Toma⁵ Screening in school aged children is of major importance in detecting and correcting physical deficiencies and parents and children must be aware of the importance of preventive factors that help children in maintaining a right attitude in classroom. Programs to detect and recover any deficiencies must be established by qualified personnel, doctors and physical therapists.

Goodgold⁶ Physical therapists should assume leadership in school-based backpack safety programs, follow-up evaluation is essential in assessing initial outcomes as well as the maintenance of program benefits.

2. School Ergonomics:

Mohd Azuan et al.,⁷ also indicated that school-related factors such as backpack and school furniture had been identified as a common risk of musculoskeletal disorder and back pain.

Adila et al.,⁸ In their study proved that School workstation is mismatched for students body size. An ergonomic intervention is needed to improve working posture, work performance and level of comfort.

Drzal et al⁹ Children should be educated on ergonomics by teachers, physiotherapist or nurses, including instructions on carrying a backpack and the effects of disregarding the basic rules on body posture, as part of their school curriculum.

Lorna¹⁰ believes the principles of good ergonomics should apply in the classroom as in the workplace to minimize the risk of developing common conditions associated with computer use and prolonged sitting in young people. These include: Comprehensive workstation risk assessments, changes to workstations where necessary and appropriate information and training on safe computer use - including posture, changes in activity and breaks. These effective principles, simple in practice, can then be applied to situations

3. Physical fitness

The developmental tendency in the health and fitness status of the next generation is, according to experts, increasingly becoming a cause for concern⁴.

The prevalence of child obesity is increasing rapidly worldwide (**WHO 1998**)¹¹.

Obese children of school-prepuberty age have high prevalence to remain obese in adulthood (**Biro & Wien, 2010, Whitaker et al., 1997; Serdula et al., 1993**).Percentage of children aged 6-11 years who are overweight in the U.S. has increased from 7% to 20% in 2008, tripled compared to the 1980¹².

S.A. Goodgold¹³ Schools are an ideal site for physical therapists to assume a leadership role in promoting increased participation in physical activity.

Roya Kelishadi¹⁴ conducted a systematic review on controlling childhood obesity. The findings suggest that among

different types of interventional programs for management of childhood obesity, a multidisciplinary approach in schools in which children's family are involved, can be the most feasible and effective approach. As teachers and parents are the best role models, it will be easier to accustom children with healthy dietary, Physical activity, and behavioral habits.

Wagner¹⁵ Intervention in schools by physical therapists and nutritionists may be effective in decreasing physical, social and emotional consequences in overweight and at risk middle school students.

V. Burke et al.,¹⁶ conducted a Controlled Trial of Health Promotion Programs in 11-Year-Olds Using Physical Activity "Enrichment" for Higher Risk Children. This article was relevant to pediatric physical therapists, especially those in the school system working with preadolescent children. Physical therapists can recommend to children at higher risk of cardiovascular problems to be physically active to reduce their future risk. Physical therapists can also follow through on their recommendations by implementing programs to increase children's physical activity.

4. Back care

Today already one third of all primary school children have back pain (**Opper et al., 2005; Prätorius and Milani, 2004**)⁴. School children back pain is a great health problem needs more effort and attention from health professionals¹⁷. Nearly one third of all primary school children have back pain (**Opper et al., 2005; Prätorius and Milani, 2004**)⁴.

Inmaculada Calvo-Muñoz¹⁸ conducted a meta-analysis on Preventive physiotherapy interventions for back care in children and adolescents. The purpose of this study was to review the empirical evidence regarding preventive physiotherapy interventions for back care in children and adolescents, and to ascertain the most efficacious treatments, in what way and under which circumstances. The combined

treatment of postural hygiene with physiotherapy exercise has been proven to be the most efficacious in relation to the two outcome variables: behaviours and knowledge. The treatments were successful in significantly increasing the behaviours and knowledge acquired both in the posttest and in follow-up.

Few studies related to back care programme in schools are listed below:

Back on Track¹⁹: a school-based back care education programme evolved as a collaborative with a physiotherapist in England. A comprehensive school in Port Talbot was willing for 'Back on Track' to be piloted with Year 8 pupils aged 12/13 years who had participated in the initial questionnaire. In the spring/summer term 2013, pediatric physiotherapists delivered 'Back on Track' to 106 pupils as part of their pastoral care curriculum. The programme started with interactive feedback sessions to educate the pupils on anatomy as well as key risk factors associated with back problems. The pupils participated in four short practical workshops in small groups addressing the following: • Lifting and your spine; • Daily activities and your spine; • School bags and your spine; • Posture and your spine. On completion, pupils had a quiz and a questionnaire to complete. A total of 69% gave a rating of 4/5 or 5/5 for how much they enjoyed the programme, and 60% gave a 4/5 or 5/5 for how interesting they found the sessions; 80% stated they would like to learn more about keeping their back healthy. Overall, 'Back on Track' has been successful in raising awareness of the importance of back care education in school children

Dolphens et al.,²⁰ investigated the long-term effectiveness of a spine care education programme conducted in 9 to 11-year-old schoolchildren. The study sample included 96 intervention subjects and 98 controls. Intervention consisted of a 6-week school-based back education programme

(predominantly biomechanically oriented) and was implemented by a physical therapist. Self-reported outcomes on back care knowledge, spinal care behaviour, self-efficacy towards favorable back care behavior, prevalence of back and neck pain during the week and fear-avoidance beliefs were evaluated by the use of questionnaires. Post-tests were performed within 1 week after programme completion, after 1 year and after 8 years. Whereas the educational back care programme resulted in increased back care knowledge up to adulthood ($P < 0.001$), intervention did not change spinal care behavior or self-efficacy. Pain prevalence figures increased less in the experimental group compared to the controls over the 8-year time span, yet statistical significance was not reached. Dropout analysis revealed spinal pain prevalence rates to be different in both groups throughout the study, including at baseline. Back education at young age did not reinforce fear-avoidance beliefs up to adulthood. Predominantly biomechanical oriented back education in elementary schoolchildren is effective in improving the cognitive aspect of back care up to adulthood, yet not in changing actual behavior or self-efficacy. The current study does not provide evidence that educational back care programme have any impact on spinal pain in adulthood. The true long-term impact of school-based spinal health interventions on clinically relevant outcome measures merits further attention.

5. Others:

Apart from the above mentioned common, well-known role of physiotherapist, few uncommon but significant roles of them are identified and enumerated below.

a. Management of constipation:

Constipation is a commonly encountered symptom in school-aged children. Chronic constipation is one of the more common, yet challenging conditions encountered in pediatric practice²¹.

Marieke L van Engelenburg et al.,²² designed a two-armed multicentre randomized controlled trial. Children with functional constipation according to the Rome III was included. The control group received standard medical care, involving at least three contacts during five months, whereas the experimental group received standard medical care plus pelvic physiotherapy, with a maximum of six contacts. The study duration was six months from randomisation, with a three-year recruitment period. The primary outcome is the absence of functional constipation according to the Rome III criteria.

b. Motor skills²³ :

Studies have shown that 10-15 % of Danish children have unstable motor skills, when they start school. As developed gross motor skills and fine motor skills are essential for kids to be able to do everyday tasks such as playing ball, drawing, eating with a fork and a knife, and establishing social relations. Children's physiotherapist, Louise Hærvig, the local school, and bObles initiated the project. The test project focused on children in two kindergarten classes, which all had their motor skills tested before the project started. The two classes were divided into a "test class" and a "comparison class". In the test class all chairs were replaced with the bObles Worm, while the comparison class continued using normal classroom chairs. The goal of the study was to test if the test class using the bObles Worm as chairs were able to develop their gross and fine motor skills faster and better than the other class, within 26 weeks.

The results show that the children in the test class have developed their fine motor skills significantly within two tests; playing different ball games and testing the dynamic balance. They believe this is because the children have obtained a better sitting balance and postural stability by sitting on the Worm, as it allows them to be in movement while sitting. Another benefit of the Worm is that the time the children could stay seated and listen to the teacher, had increased significantly. The results

show that the children were able to stay concentrated for much longer while seated in class, because they are naturally moving while sitting on the Worm.

6. Role of physiotherapist for teachers:

The role of Physiotherapist in general schools doesn't stop with children. A review related to the physiotherapist role for school teacher is identified and mentioned below.

Jefferson Paixão Cardoso²⁴ studied the prevalence of musculoskeletal pain according to socio-demographic and occupational variables among elementary school teachers. A cross-sectional study included all 4,496 school teachers of the municipal elementary education network of Salvador, Bahia, Brazil. There was a high prevalence of musculoskeletal pain in lower limbs (41.1%), upper limbs (23.7%) and back (41.1%). The overall prevalence of musculoskeletal pain related to any of the three body segments was 55%.

Figl-Hertlein A²⁵ Classroom teaching contributes to a range of occupational health issues related to general health as well as ergonomics that can be prevented or addressed by physiotherapists.

Cluster randomized pilot study using a convenience sample was performed to explore the potential effects of a physiotherapy-directed occupational health programme individualized for school teachers in eight Austrian regional secondary schools. Schools and their teachers were recruited and allocated to an intervention group (IG, $n = 26$ teachers) or a control group (CG, $n = 43$ teachers). Teachers were eligible to participate if they reported no health issues that compromised their classroom responsibilities.

The IG participated in an individualized physiotherapy-directed occupational health programme (six 30-minute sessions) related to ergonomics and stress management conducted over a 5-month semester. The CG had a pseudo-intervention of one oral education session.

Primary outcomes included scores from the physical and mental components and health transition item of the Short-Form-36 Health Survey questionnaire (SF-36), and emotional well-being and resistance to stress items from the work-related behavior and experience patterns questionnaire. Data were collected before and after one semester. The primary outcome measure, the SF-36 physical component score, showed a reduction in the CG and no change in the IG, meaning that the CG deteriorated over the study semester while the IG did not show any change. A physiotherapy-directed occupational health programme may prevent deterioration of physical health of school teachers in one semester (proof of concept). This pilot study provided valuable information to inform the design of replication and extension studies related to this work.

7. Physiotherapy in high school curriculum:

A study that explored about the inclusion of physiotherapy as a subject in secondary curriculum has been identified in the literature search has been mentioned below.

Abd. Razak Zakaria et al.,²⁶ investigated the need for change in the Malaysian secondary school curriculum. The study involved 30 experts in physiotherapy and the experts were chosen through purposive sampling. The Delphi Technique was used to build items for the need of introducing the physiotherapy subject in the secondary school curriculum. The findings clearly show that the Ministry of Education (MOE) in general and the Curriculum Development Centre (CDC) in particular must revise the existing curriculum in all secondary schools by introducing the physiotherapy curriculum.

DISCUSSION:

This study is one among the pioneer study attempted to consolidate the role of the Physiotherapist in general schools. It

depicts the need, scope and various role of physiotherapist in general schools.

According to this review, the physiotherapist can prevent and manage the postural deficiencies in school children. The Physiotherapist can play a significant role in school based back pack safety programme and in school ergonomics.

The sound knowledge and expertise of physiotherapist in body mechanics, postural assessment and Occupational ergonomics makes them competent in the management of postural deficiencies and provision of good ergonomics for school children.

In this study it has been highlighted that Physiotherapist can play a lead role to combat child obesity, which is a sprouting global issue. The Physiotherapist knowledge and skills in exercise prescription; fitness management can aid them to manage child obesity at school levels.

This study has also given an insight about the various back care programme such as back on track, spine care education programme. The above mentioned programmes are the Physiotherapist implemented back care programme in school children. The various obscure role of physiotherapist in schools such as pelvic physiotherapy as a remedial measure for functional constipation, replacement of conventional chairs with bobbles to enhance faster gross and fine motor skill has been explored in this review.

There is a myth prevailing globally that Physiotherapist play a indispensable role in the tertiary level of management. But in this review it has been highlighted that the Physiotherapist can implement various health promotion programme to increase the physical activity to reduce the risk of cardiovascular problems in higher risk children in schools. This role of Physiotherapist reassures that the physiotherapist can also play a role in primary level of management.

The role of physiotherapist in general schools doesn't stop with children. This review has enlightened the Physiotherapist directed occupational programme can forestall the deterioration of the physical health of school teachers.

Interestingly, this literature search has identified a study that investigated the need of inclusion of Physiotherapy subject in the curriculum of secondary schools. In future, if the Physiotherapy subject introduced in secondary school curriculum, the role of Physiotherapist will be magnified further. They may play a role of academician in addition to the existing role of clinician in order to deliver the physiotherapy subject to the school students.

In spite of theoretical background and practical experiences suggest that physiotherapist can also play a considerable role in Sports training, Foot wear modification, and Prevention of chronic non – communicable diseases. There is no adequate study to explore or investigate the scope of the Physiotherapist in the above mentioned areas.

In summary, research evidence supports the significant role of physiotherapist in the school setting. Physical therapists need to share the evidence supporting the effectiveness of physiotherapy intervention in the school system with clients, educators and funding agencies.

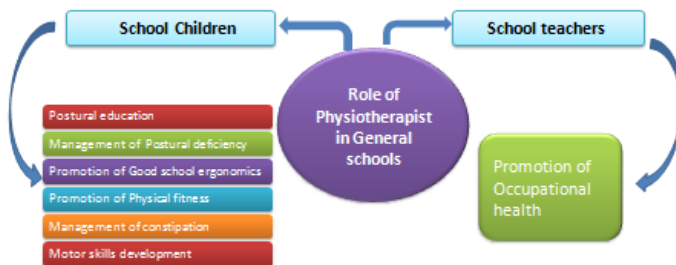


Figure 1: Summarise the role of the Physiotherapist in general schools based on the current review.

LIMITATIONS OF THE STUDY:

The major limitation of this study is lack of adequate evidences. Only few studies have been done precisely related to this topic. So far, no single review or RCT including all the components of the study title is performed.

RECOMMENDATIONS:

- ❖ Further research is recommended to evaluate, identify and summarise the role of Physiotherapist in the general schools.
- ❖ Analyze the role of physiotherapist rather than the clinical setting.
- ❖ Appointment of Physiotherapist in general schools can be considered.

CONCLUSION:

The Physiotherapist has a significant role in general schools. But only few roles of Physiotherapist in general schools are researched.

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