

EVALUATION THE EFFECT OF CHILD HEALTH CARE CENTER ON PHYSICAL ACTIVITY OF CHILDREN

A Systematic Review

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Abstract: Introduction: Child health care center is one of the interventions that have been commonly used to increase physical activity in children. Methods: We identified articles through databases searching: EbscoHost, PubMed, published between (2008-2018). Results: fifteen articles were analyzed and selected from 1000 journal articles found for this systematic review. Conclusions: the studied evaluated that child health care center are recommended for the children to increase their physical activity in home, school, and community setting. However, many of these studied still lacked of intervention length, method and sample size. So we suggest to do further research by using more RCT, with good preparation in all aspect, to succeed the implementation and application of the program.

1 INTRODUCTION

Good physical activity during the early period of life is a crucial requirement for prevent of overweight and obesity in children under 5 years. Physical activity participation among preschoolers in center based childcare facilities has been consistently reported as low. Unfortunately, these trends could have potentially devastating impacts on the health and development of young children.

Physical activity has been identified as positively impacting cardiovascular health, and is associated with improved weight status and better psychosocial and cognitive development. Canadian physical activity guidelines recommend the accumulation of 180 min of physical activity (at any intensity) per day among this young population, moving towards 60 min of MVPA (moderate to vigorous physical activity) by the age of 5 years.

Child care settings have recently become a focus for environmental intervention efforts. The implementation of physical activity interventions in center based childcare services has been recommended to improve child health. In recent years, the number of children attending childcare services has escalated with the majority of children

in developed countries now attending some sort of formal childcare each week (OECD, 2016).

A variety of interventions have been made to increase physical activity in children, one of the intervention that has been use is child care centers in community area. The Institute of Medicine in 2012 identified increasing physical activity in child care settings as a key strategy for accelerating progress in obesity prevention (Institute of Medicine, 2012). Centers based childcare environment influenced physical activity.

2 METHOD

We identified articles through database searching: Proquest, Science Direct, EbscoHost, PubMed, published between (2008-2018), search terms include various combination of the terms "Physical Activity", "Childcare", "Preschool", and "Children". We found fifteen articles that suitable with our inclusion criteria. Our inclusion criteria are all kind of child health care intervention in the form of any kind of child health care programs ranging from education about the benefit child health care centers that given an impact on physical activity on children

ages 1-3 years. All articles using the English language. We exclude the articles if the target population focused on adults or society.

3 RESULT

Fifteen journals that have been collected, analyzed and scored, obtained the following results. Research conducted by Trost et al (2009) is aimed to summarize and critically evaluate the extant peer-reviewed literature on the influence of child care policy and environment on physical activity in preschool aged children, on the results obtained that the results demonstrated that a simple, relatively inexpensive modification to the playground environment that requires little if any teacher/provider training can increase physical activity in preschool children. Although impressive, the study would have been strengthened if the authors had continued to monitor physical activity after removing the portable equipment. After the introduction of the portable play equipment, children significantly decreased time spent in sedentary activities (57,1% to 41,2%) and significantly increased time spent in light (30,6% to 34,1%), moderate (9,8% to 17,6%), and vigorous-intensity (2,3% to 7,0%) physical activity. The availability and quality of portable play equipment, not the amount or type of fixed play equipment, significantly influenced MVPA levels.

Research conducted by Kiyah et al (2014) aimed to know assess state regulations promoting physical activity (PA) in child care and compare regulations to national recommendations. The average number and range of regulations in centers and homes was 4,1 (standard deviation [SD], 1,4; range, 0-8) and 3,8 (SD, 1,5; range, 0-7). Nearly all states had regulations consistent with providing and outdoor (centers, 98%; homes, 95%) and indoor (centers, 94%, homes, 92%) environment "with a variety of portable play equipment and adequate space."

Study of Patricia et al (2017) aims to examine the effectiveness of the SPACE (Supporting Physical Activity in the Childcare Environment) intervention on preschoolers' physical activity levels and sedentary time during childcare hours (compared to standard care). The result showed the intervention did not significantly impact LPA (light physical activity). MVPA (moderate to vigorous physical activity) was significantly greater among children in the experimental group when comparing post-intervention to pre-intervention ($p= 0,0005$),

but no intervention effects were evident at 6 or 12 month follow up.

Research of Alkon et al (2014) aims to address the public health crisis of overweight and obese preschool age children with the objective of improving child care provider and parent nutrition and physical activity knowledge, center level nutrition and physical activity policies and practices, and children's body mass index (BMI). The results of the study showed significant increases in providers' and parents' knowledge of nutrition and physical activity based on 209 children in the intervention and control centers at both pre and post intervention time points. Research of Bell et al (2015) aims to describe children's physical activity levels during childcare and associations with modifiable characteristics, the results of the study showed step counts were significantly higher in centers that had a written physical activity policy ($p=0,03$).

Research conducted by tucker et al (2016) aims to know improve the physical activity levels of preschoolers during childcare hours, the results of the study showed the low levels of physical activity observed within childcare centres. Research conducted by Wolfenden et al (2016) aims to evaluate the efficacy of scheduling multiple periods of outdoor free play in increasing the time children spend in moderate to vigorous physical activity (MVPA) during childcare, results of the study supporting physical activity in early childhood is a recommended strategy to reduce the community health burden of inactivity, as physical activity in childhood persist over time.

Research of Rice (2013) aims to know objectively measure the physical activity (PA) levels of children attending family day care programs. Results of the study showed boys exhibited significantly higher levels of PA than girls. Among healthy weight children, 4 and 5 year olds exhibited significantly higher levels of PA than 2 and 3 year olds. Research of Finch et al (2010) the aims of the study is to assess the effectiveness and acceptability of a multicomponent physical activity intervention, delivered by childcare service staff, in increasing the physical activity levels of children attending long day care services. Results of the study showed there is a clear need for intervention studies to extend research regarding the effectiveness of interventions to increase physical activity behaviours of young children attending childcare.

Research of Hinkley et al (2016) aims to determine if differences existed in preschool children's physical activity during care hours

compared with outside care hours and to examine a comprehensive range of potential center based correlates of physical activity for preschool boys and girls. The research results showed that boys and girls were less active during care than outside care hours ($p < 0,0001$). Research of Tomayko et al (2017) aims to increase physical activity and related behaviors in setting serving a high proportion of children from underserved groups in recognition of significant disparities in obesity and challenges meeting physical activity recommendations in low resource settings. Overall minutes of teacher led physical activity increased to $61,5 \pm 29,0$ min ($p < 0,05$)

Research of Peden et al (2017) aims to investigate the relationship between the childcare environment and physical activity and sedentary behavior of toddlers and preschoolers. The results of this study showed toddlers who attended high EPAO (Environment and Policy Assessment Observation) services sat more (8,73 min) and stood less (-13,64 min) than those who attended low EPAO services.

While research of Ellis et al (2017) aims to report patterns of sitting, standing and physical activity (PA) and compliance with Institute of Medicine (IOM) recommendations for sedentary behavior (SB) and PA among children aged 1 to 5 years at childcare, and examine sociodemographic variations. Data showed toddlers (<3 years) spent significantly more time in PA compared to preschoolers (≥ 3 years) ($p < 0,001$).

The research of Battista et al (2014) aims to determine if child care centers in rural, Western North Carolina met recommendations for nutrition and physical activity. The results showed over 95% of the centers met all recommendations, however post intervention indicated significant improvement across center types in five out of 37 nutrition and seven out of 17 physical activity standards following the intervention ($p < 0,05$).

The research of Vanderloo et al (2014) aims to measure the physical activity levels of a sample of preschoolers during childcare hours and to assess which attributes within center based childcare environments influenced physical activity. Data showed participants engaged in 1,54 min/h of moderate to vigorous physical activity and 17,42 min/h of total physical activity.

4 DISCUSSION

The study examined in this Systematic Review is about child health care center to support physical activity among preschoolers. The setting of the

selected environment are at center based childcare at community. The problem of lack of physical activity in children need to get special attention. Center were able to strengthen current nutrition and physical activity policies, they were able to exceed the best practice standards as a result of their participation. The availability of equipment to promote physical activity is important in improving physical activity participation. Best practice guidelines recommend play equipment should be available, accessible, and easily transported to various locations. Equipment type and amount is often varied at centers (McWilliams et al, 2009). Discovering low cost ways to disseminate new information to child care centers regarding nutrition and physical activity or determining potential local collaborations with health agencies may be warranted. A focus on policy creates a supportive environment and provides incentives for positive behaviors (Sallis et al, 1998).

5 CONCLUSION

The study evaluate the effect of child health care centers on physical activity and nutrition of children. The fifteenth journals that retrieved ten of the journals indicates that the child care centers influence physical activity, nutrition. The three other journal showed an increase in the physical activity but not supported by statistical data. Two article shows variability in physical activity and sedentary behavior also health professionals specifically trained in a nutrition and physical activity intervention in child care.

RECOMMENDATION

Based on research from the fifteenth journal examined, the majority showed significant positive effects on physical activity in child health care centers, the critical role the childcare environment plays in supporting physical activity among preschoolers. Future expected should explore other aspects of centers, such as what children actually do while they are outside, and broader potential influences on children's behavior including social, cultural and policy contexts within which centers operate. Childcare physical activity interventions should consider including strategies to encourage written physical activity policies and support structured staff led physical activities. In additions the validity and reliability measuring instrument

must also be improved. RCT studies also should continue to be done to find out the actual effect and to avoid bias in research.

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