ENCYCLOPEDIA
on Early Childhood
Development

Environmental/Family/Psychosoci Influences on Physical Activity in Young Children

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April 2012

Introduction

For many years, parents and researchers believed that “young children are naturally physically active.”[1] Recent evidence suggests that this is not the case with studies showing that young children spend around 80-85% of their time being sedentary, very little time being active[2-3] and between two and four hours a day watching television.[2, 4-6] Recommendations for physical activity vary between countries. The U.S. recommends that young children participate in at least two hours of physical activity each day,[7] while the more recent Australian and U.K. recommendations suggest three or more hours per day.[8-9] Recent estimates of compliance with the physical activity recommendations suggest that the majority of children (up to 95%) fail to achieve the recommended amount.[2,10] Recommendations for screen-based entertainment (television, computer, electronic games) vary between age groups and countries but consistently suggest that children younger than two years should participate in no screen-based entertainment.[8,11] In Australia, children aged 2-5 years are recommended to participate in no more than one hour per day,[8] while in the U.S. no more than two hours is recommended for that age group.[12] Recent

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estimates of children meeting these guidelines vary between about 22%[2] and 34%.[4] Studies in children younger than three years of age are sparse however these suggest that low levels of physical activity[13] and high levels of screen-based entertainment[5] might also be evident in infants and toddlers. These behaviours are important to investigate and understand as evidence shows that they are associated with health and other outcomes, including obesity,[14-15] bone mineral content[16] and cognitive and behavioural outcomes.[17-18]

Subject

Given the small number of young children achieving the recommended amount of physical activity and screen-based entertainment, it is important to investigate and identify the factors, or correlates, that might support or constrain those behaviours. In so doing, it may be possible to identify targets for intervention to support healthy levels of physical activity during early childhood.

Problems and Research Context

There exist several challenges to measuring physical activity and screen-based entertainment and their correlates during the early childhood period. Young children cannot self-report how much time they spend in such behaviours and it may also be difficult for parents to estimate as their children may spend many hours each day in non-parental care, for instance in preschool or childcare. Objective measures of physical activity, such as activity monitors (*accelerometers*) are available and commonly used, however, objective measures of screen-based entertainment, although available, are seldom used.

Many studies investigating potential correlates of physical activity and screen-based entertainment during the early childhood period have focused on the preschool years, that is, roughly three to five years of age. Subsequently, there is very little understanding of children's behaviours during the period from birth to two years of age. Importantly, knowledge of behaviours and their correlates during the preschool period may not be transferrable to younger children.

Studies investigating correlates of physical activity and screen-based entertainment have also typically measured only a few correlates, such as parental factors[19-20] or variables in the preschool/childcare[21] or home[22] environments. Because of this, there is little understanding of how the correlates might be associated with each of the behaviours when considered in their

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broader context. That is: how might parental factors such as self efficacy be associated with young children's physical activity or screen-based entertainment when environmental factors such as availability of equipment in the home or access to parks in the neighbourhood are also considered?

Key Research Questions

Key questions in this field include identifying the domains of correlates of behaviour during early childhood. That is, are there correlates at the individual, social and physical environment levels that might be associated with young children's behaviours? It is also important to identify what the key correlates in each of those domains might be as these can then be used as targets in programs to support healthy behaviours in young children.

Recent Research Results

Correlates of young children's physical activity and screen-based entertainment, mostly in three- to five-year-olds, have previously been reported across several studies. Correlates are evident in different domains – that is, individual (sex, age, individual preferences), social (parental factors) and physical environment (home, preschool, neighbourhood factors) correlates appear to be associated with young children's physical activity[23] and screen-based entertainment.[24] For instance, across many studies, boys are consistently reported to be more active than girls, even in this young age group[2,21,23] however there appears to be no difference in time in screen-based entertainment between boys and girls.[24] Associations between age with physical activity or screen-based entertainment are less clear. Some studies report that older children are less active than young children in this age group[2,25-26] and participate in more screen-based entertainment,[27] while others report that there is no difference in behaviours between older and younger children during the early childhood period.[22,28-30] Differences in findings may be attributable to different sample characteristics, such as social or geographical considerations, or sizes, or methods of measuring behaviours or correlates. There appears to be no association between socioeconomic position and physical activity or screen-based entertainment during early childhood.[23-24] Virtually nothing is known about children's innate preferences to be active or engage in other behaviours and these may also be important considerations.

Social correlates such as parental physical activity[19,23,26] and supporting their child to be active[31] have been shown to be associated with physical activity in young children. For screen-based

entertainment, parental rules restricting such entertainment are associated with children spending less time in those behaviours.[20,22,32] Parents who spend more time in screen-based entertainment themselves appear to also have children with higher levels of participation.[33] However little is known about many other social factors that may be potential correlates of these behaviours (e.g. sibling influence or interaction, and interaction with other people such as grandparents who increasingly play more prominent roles in young children's lives).

While many potential correlates of physical activity and screen-based entertainment have been investigated in the physical environment, most have only been explored in one or two studies, so it is difficult to draw overall conclusions.[23-24] However more time spent outdoors[23] appears to be consistently associated with higher levels of physical activity in young children. Conversely, the amount of play equipment in the home has been shown to have no association with how active young children are[34-35] and an intervention designed to increase physical activity by introducing new play equipment into the preschool environment found no change in physical activity.[36] For screen-based entertainment, having the television constantly on in the home appears to be associated with higher levels of television viewing in young children.[20,32] Other factors in the physical environment, such as access to facilities, require further investigation.

Research Gaps

Many gaps exist in the current knowledge base around the correlates of physical activity and screen-based entertainment in young children. Specifically these include very limited knowledge about the level of physical activity and screen-based entertainment in children younger than about three years[13] or of any potential correlates that might be associated with those behaviours during that period.

While many correlates have been investigated, studies have primarily looked at only a small number of potential correlates or have investigated only correlates in one domain, such as individual or social level correlates.[23-24] Research therefore needs to investigate a larger number of correlates, across multiple domains simultaneously, to gain a more comprehensive understanding of how specific factors may be associated with physical activity and screen-based entertainment in their broader contexts. One study that did this for physical activity found that correlates were mainly at an individual level but varied between boys and girls.[35] However, the number of correlates that the study investigated was quite small and further investigation is required. Evidence supporting differences or similarities in correlates between boys and girls is

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also required.

Correlates in the physical environment have typically shown little association with physical activity or screen-based entertainment during early childhood and are generally measured by parent report. Objective measures of such correlates, including availability and accessibility of facilities, aesthetics in the neighbourhood environment, and safety, may provide further insight into factors which may support healthy behaviours during the early childhood period. Additionally, interventions aiming to change correlates and observe subsequent change in physical activity or screen-based entertainment during this period are sparse, and as they provide stronger evidence than the cross-sectional studies typically undertaken to date, would be a valuable addition to the literature.

Conclusions

Recommendations for participation in physical activity and screen-based entertainment during the early childhood period (birth to five years) are now available in several countries, including the U.S. and Australia.[7-8,11-12] However, young children still largely fail to achieve the recommended amount of physical activity and the majority of children exceed recommendations for screen-based entertainment. Identifying the correlates of these behaviours is therefore crucial for the development of programs to support healthy levels of physical activity and screen-based entertainment during the early childhood period, which, in turn, support healthy outcomes for children. Although few individual correlates have shown consistent associations with young children's behaviours, parental correlates appear to be important across studies. Given the amount of time and input parents have in their young children's lives, this is hardly surprising. Supporting parents is therefore important in achieving the ultimate goal of providing healthy environments for children's development.

Implications for Parents, Services and Policy

From a policy perspective, it is important to disseminate information about health behaviours, including recommended levels of physical activity and screen-based entertainment. Such dissemination enables parents and service providers to be aware of how much time young children should spend in these behaviours. Additionally, dissemination of information about the health outcomes of excessive screen-based entertainment or inadequate physical activity would provide parents and service providers with further evidence to support decisions regarding

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children’s opportunities to be active or engage in screen-based entertainment.

Service providers such as preschools, childcare centres, and health providers, should be required to undertake training in provision of physical activity during the early childhood period. Ensuring that children have several hours outside during the day may also be important to support adequate opportunities to be active. Given young children spend so much time in screen-based entertainment, removal of such opportunities from preschools and childcare centres may be warranted. Service providers are also often a point of reference and information for parents of young children, and as such, have a responsibility to be able to provide evidence-based information to those parents for the care of their children.

Parents require information, advice and support about what the optimal levels of a range of behaviours, including physical activity and screen-based entertainment, are for their young children, and this role falls primarily with policy makers and service providers. However, parents also have an important role to play in modelling healthy behaviours to their children, ensuring their children have adequate opportunities for outdoor play and minimising opportunities for screen-based entertainment.

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