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Review Article

Childhood obesity and parks and playgrounds: A review of issues of equality, gender and social support

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Abstract

The childhood obesity has been a growing concern over the last decade all over the world. Built environmental characteristics such as parks and playgrounds serves as a reference point for physical activity in children. The equality issues related to ethnicity, Social Economic Status (SES), gender and social support have been related with both physical activity and presence and quality of parks and playgrounds. However, only limited studies have addressed these issues in children. The current paper is a general enumerative review that would discusses the above issues with respect to obesity in all age groups, giving particular emphasis to childhood obesity. The importance of this review is to further explore the importance and highlight the findings related to these issues, so that future original studies could be planned keeping these associations in mind.

KEYWORDS: Childhood Obesity, Parks, Playgrounds, Gender, Social support.

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Child hood Obesity

The childhood obesity has been a growing concern over the last decade in developed countries such as Canada, US and European countries.[1-2] However, in developing countries such as middle eastern countries of Saudia Arabia, Kuwait, Iran and Bahrain and Asian countries of India and Philippines the obesity rates in children and adolescents is also constantly increasing.[3] The epidemiological review conducted recently has shown the obesity rates of 10.1% and 14% in adolescents in Iran.[3] The increase of the prevalence of childhood obesity is harmful not only in childhood but also into adulthood, as one of the leading factors for diabetes, hypertension, myocardial infarction, stroke, etc.[4,5] This increasing prevalence of pediatric obesity is mainly due to imbalance between calories intake and expenditure that is decreasing physical activity levels.[6]

Childhood obesity in general means an excess of body fat.[6] However, most of the previous studies have defined childhood obesity on the basis of either Centre for Disease Control and Prevention (CDC) or International Obesity Task Force Criteria (IOTFC). CDC defines childhood obesity as at or above the 95th percentile of BMI for age and sex and "over-weight" as between 85th to 95th percentile of BMI for age and sex.[7] The International Obesity Task Force (IOTF), defines obesity using cutoff points of 25 kg/m^2 and 30 kg/m^2 for adult overweight and obesity, respectively.

Physical Activity and Obesity

Control of obesity will require exploration of factors present in the built environment such as parks and playgrounds.[8] Many epidemiological studies based on cross-sectional surveys, correlational studies and prospective preventive, management studies have concluded an essential role for physical activity in weight-loss maintenance.[9-14] Further studies have also shown a lack of physical activity as

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one of the main contributors of obesity. This may be explained by the positive effect of physical activity on BMI (Basal Metabolic Index) and body fat.[15,16]

Built Environment

Built environment refers to the man-made structures and surroundings and includes roads, neighborhoods, recreational facilities such as parks and playgrounds, food sources, building and houses in which people live and perform activities of eating, playing educating and working.[17] Parks and playgrounds serves as a reference point for all the children and provide opportunities in which to engage in and perform physical fitness activities, playing and social interactions.[18,19] Studies have shown that children have limited access to parks and playgrounds.[19] In addition to access, factors such as perception of accessibility and usability, park area, facilities, equipment and services, safety and overall quality are important constituents of parks and playground use that have been associated with equality issues, gender differences and social support. The article will discuss each of these issues related (not only to childhood but also general obesity in all age groups) with parks and playgrounds visits and use.

Equality Issues Associated With Park and Playgrounds Access and Usage

Although ample studies have investigated the complexity of the issues around racial and ethnic disparities[20] and explored linkage between environmental justice and park access and usage but their results are still controversial.[21] Many studies have reported disparities in distribution of parks and access to playgrounds across ethnic groups.[22] However, according to others they are evenly distributed across different minorities, ethnic groups and socio economic statuses (SES).[23-25] Perhaps, these differences are setting and context-related where these studies were performed and also by the variables selected when defining SES and minorities.

Timpiero et al found no difference in distribution of park area across different socio economic groups in Australian children.[24] This difference in access may also be related to the difference in levels of physical activities patterns of minorities and lower SES.[26] However, Wolch et al conducted a study in California, US and found that less park area is distributed between the more deprived communities.[27] Studies have shown higher physical activity among high SES as compared to lower SES.[28-31]

This difference in minorities is mainly due to SES itself as one of the study showed no difference in ethnic groups when SES was kept constant. Studies have reported various reasons and factors for this association.[32] Many factors such as fees associated with parks and gymnasiums, fees in utilizing their facilities, safety, drug abuse, gangs and crime rates in the parks and playgrounds along with their neighborhoods are some of the main reasons for low usage of parks and playgrounds in low SES communities.[33] Although studies have shown cost of utilizing recreational facilities as an important contributor to lack of utilization by lower SES communities, few studies have reported less "free for use" centres and facilities in lower SES areas and communities as compared to higher SES. For example, Estabrooks et al reported that low SES has fewer facilities access that are free-for-use resources as compared to higher SES.[34] This finding was also supported by Moore et al who showed less free for use resources in lower SES areas as compared to higher SES.[35]

Children from higher SES usually consist of two parents who can involve and take part in the physical activities along with their children due to less financial burden and normal working hours.[2,36] Moreover, two-parent families usually include fathers who are the most important role model for physical activity in young children.[37] Children from higher SES families have also more access to other healthy foods and can participate in costly physical recreational activities and resources.[38-40]

Gender Differences in Usage of Parks and Playgrounds, and Physical Activity

Many studies have reported differences in gender preferences and using parks, playgrounds and recreational areas. A study found

an association between physical activity and built environment in girls but not boys.[41] Ries et al have shown that only 54% of young women reported using parks compared to 66% of young men. The study also showed differences in physical activity which was less in females than males.[42] These results were consistent to another study by Eaton et al that found lower levels of PA among females than males.[43] However, Cohen et al showed more usage of parks in females as compared to males.[44] This was interesting as there is overwhelming evidence of boys participating in physical activities more than girls.[29,45-46] These gender differences in activity participation may be best explained by the parental physical activity patterns, as studies have shown that parental influence in physical activity is greater in girls than boys.[30] More interestingly studies have also showed a decline in participation in sports and exercise from childhood to adolescence and this is greater for girls than boys mainly due to strengthening in belief that participation in sports is a masculine activity.[29]

Role of Social Support in Physical Activity and Usage of Parks and Playgrounds

Environmental perceptions do affect children behaviour, although their influence on active commuting remains unclear.[47] The study by Wilson and Dollman has shown that social support is a consistent correlate of youth physical activity but few studies have examined this in relation to both physical activity and parks and playgrounds.[48] Cradock et al have shown that residing in area with greater social cohesion is directly related to PA irrespective of other confounding factors.[49] Gesell et al have also shown that social support significantly predicted physical activity among children.[50] King et al have shown that social support is significantly associated with adolescents perception and engagement in physical activity.[51] Martinez et al while identifying barriers to physical activity have reported social support to be among those barriers in addition to other personal, social and environmental barriers.[52] Temperio et al has shown that physical activity and environmental stimuli in a home are important targets for preventing over weight status among children.[27]

Parental support

Studies have shown that parents' participation in physical activity is positively related to activity among children and adolescents.[53] Chang et al also proved social support as motivating factors for physical activity.[54] Specifically, support by mothers is a consistent predictor of physical activity.[48] However, Savage et al reported that perceived encouragement for physical activity from fathers, but not mothers, is significantly associated with adolescent physical activity levels. The study also concluded that fathers by influencing physical activity behavior, may play a pivotal role in adolescents' body image satisfaction.[55] Few studies such as the study by Haerens et al, while assessing physical activity has showed that factors such as social support are not significant mediators of physical activity.[56] Similarly, Hamilton and White also showed that social support is not associated with physical activity.[57]

Although parental role in the development of behavior of the child is thought to be a vital factor, but little information is known whether there is any parental role in the development of youth behavior. The childhood physical activity patterns are associated with parental physical activity, as parental encouragement and motivation of physical activities and sports are important factors that predetermine and modify children's physical activity levels. Thibault et al found that odds of being an obese adolescent increases with obesity, sedentary behavior and decreased physical activity of their parents.[58] The study concluded that parent's active lifestyle is associated with a lower risk of overweight in their adolescents. Children's use of parks is mainly under the influence of their parents; therefore, parental preferences are important factors that predetermine the use of these spaces for physical activity.[59] Panter et al has shown that parental attitudes and safety concerns are related to physical activities such as walking and cycling in children.[47] Also, parents

who are aware of importance of physical activity are more likely to create an environment that promotes physical activity by encouraging their children to be active and by enrolling their children in sporting events and games.[60,61]

Friends and peer support

Martin and McCaughtry has shown social support from friends to be the main predictor of physical activity in children.[62] The study by Lown and Braunschweig has shown that social support from friends are significant predictors of physical activity in addition to parental support.[63] Even a study has found that sports participation of friends is more important factor than sport participation of family members in a particular sport or game. This influence is greatest for same sex peers; however, more in adolescents than children, as peer relationship is more important in adolescents than at the young age.[64,29]

Conclusion

The review of the childhood obesity in relation to issues of equality, gender and social support has shown an influential role on built environmental aspects such as parks and playgrounds visits and physical activity. Although, very few studies have discussed these issues in terms of childhood obesity, but considering the fact that childhood physical activity is strongly related to parental physical activity and the issues that would affect adult physical activity would also impact the childhood physical activity and in turn obesity. Further original studies should be conducted in order to explore the effect of each of these issues with childhood physical activity and parks and playgrounds.

Conflict of Interests

The authors has no conflict of interests.

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