



Health Improvement Plan to Increase Physical Activity in Children from ethnic minority and lower socio-economic class (SEC) in London Borough of Ealing, UK- A theory-based solution

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Abstract

Low levels of physical activity and high levels of sedentary behaviour London Borough of Ealing are primary drivers of high levels of preventable chronic conditions. In the last two decades, the government has invested heavily to increase PA levels. However, these initiatives have not reached target groups such as low income and ethnic minorities. Children from this group face number of social, environmental and cultural barriers to engaging in PA. The article presents a health improvement intervention plan to improve PA of children aged 8-12 years from ethnic minorities and lower SEC living in the London Borough of Ealing using Socio-ecological Theory.

Theory-Based Solution: Let's Get Fit Ealing is underpinned in a socio-ecological approach focusing on multi-level factors that can provide a comprehensive solution to increased PA in ethnic minorities children from deprived parts of Ealing. It is a six-week school-based intervention to influence children's behaviour to engage in national guidelines of daily 60 minutes of MVPA. Components are 30 minutes policy of MVPA during otherwise sedentary times in school hours such as recess.

Discussion: Low SEC ethnic children who have limited access to PA facilities and environmental factors outside of school deters them from engaging in PA. Additionally, low SEC in London finds neighbourhood constraints as one barrier for children to engage in PA. However, the solution uses school and its after school component as a setting for the delivery of the health-promoting intervention for children as it has an advantage due to its universal attendance, a significant amount of time spent in school and access to PA facilities and PE staff. The additional component includes providing information to parents about national guidelines and health benefits about PA to support their children in the most common languages used in Ealing.

Conclusions: The socio-ecological framework offers a comprehensive approach to increasing levels of PA in children from ethnic and low SEC backgrounds of Ealing because it addresses not only the individual characteristics but also social and environmental influences. With many inactive children residing in this borough and high levels of preventable chronic conditions such as childhood obesity, the solution presents an excellent opportunity to increase PA in children based on previous successful school-based research.

Introduction

Low levels of physical activity, and high levels of sedentary behavior London Borough of Ealing are primary drivers of high levels of preventable chronic conditions (London Borough of Ealing, 2018) [1]. In the last two decades, government has invested heavily to increase PA levels. However, these initiatives have not reached to target groups such as low income and ethnic minorities (Gov.uk, 2019) [2]. Children from this group face number of social, environmental and cultural barriers to engage in PA [3]. The article presents a health improvement intervention plan to improve PA of children aged 8-12 years from ethnic minorities and lower

SEC living in the London Borough of Ealing using Socio-ecological Theory (Bronfenbrenner, 1981) [4].

In 2015, only 22% of children aged 5-15 met the national guidelines of engaging in sixty minutes of moderate to vigorous activity (MVPA) (NHS England, 2016) [5]. Moreover, only 42% of the children from low SEC children engaged in PA compared to 54% of children from high SEC (England, 2019) [6] and highest level of inactivity was found in Black, Asians and other ethnic minority children (England, 2019) [6]. In London Borough of Ealing, similar social and ethnic gradient was found in PA adherence to national

guidelines with further low engagement in PA (London Borough of Ealing, 2018) [1].

Physical inactivity is fourth leading cause for global mortality and a risk factor for over 20 chronic conditions, including obesity, coronary heart disease, type 2 diabetes, stroke, cancer and mental health problems (London Borough of Ealing, 2018) [1]. There is a rising trend of childhood obesity (20.7 per cent in 2009/10 to 23.3 per cent in 2014/15), a consequence of physical inactivity, in the deprived parts of Ealing with high proportion of Black, Asian and other ethnic minorities (London Borough of Ealing, 2018) [1]. To address lack of PA and its resulting consequences, current Ealing council's strategy is to encourage and provide opportunities to those identified as not participating in enough exercise (London Borough of Ealing, 2018) [1].

Theory Based Solution

A cross-sectional analysis of Millennium study found clear socioeconomic and ethnic differences in children's PA levels (Love et al., 2019) [7]. Factors influencing low levels of PA were access to inadequate PA opportunities, cost barriers, parental perceptions of ethnic minority children about PA and lack of home and family support to engage in PA (Love et al., 2019) [7]. This implies that apart from individual characteristics of children, numerous social and environmental factors contribute towards children engaging in PA (Spence and Lee, 2003) [8]. Deprived parts of Ealing chosen for this report have high levels of income deprivation affecting children (Ealing Council, 2004) [9], low levels of parent education-attainment levels and also constitute a large proportion of Asian, Black and other ethnic minorities (London Borough of Ealing, 2018) [1]. This area also has poor access to facilities and above London average crime rates and violence (Ealing Council, 2004) [9]. A socio-ecological approach focusing on multi-level factors can provide a comprehensive solution to increased PA in ethnic minorities children from deprived parts of Ealing. Numerous literature reviews have supported this approach to intervention design aimed at increasing PA levels in children from this group [10,11,12,13,14,15]. However, multi-level interventions that involve individual, environment and policy can sometimes be difficult to put in practice in 'real-life' settings due to poor implementation [16]. The article discusses dimensions of RE-AIM model for program planning, implementation and evaluation in order to offer mitigating strategies to potential challenges that may arise in "non-controlled" settings [17,18,19]. This article outlines a school-based health promoting intervention "Lets Get Fit Ealing" to increase PA targeted at ethnic minority children from the deprived area of Ealing using socio-ecological framework.

Lets Get Fit Ealing Health Promoting Intervention:

It is a six weeks school-based intervention with the aim to influence children's behaviour to engage in national guidelines of daily 60 minutes of MVPA. Components are 30 minutes policy of MVPA during otherwise sedentary times in school hours such as

recess [20] and 30 minutes of structured PA in an After School Program (ASP) [15].

Discussion

School as a setting for health promoting intervention for children has an advantage due to its universal attendance, large amount of time spent in school and access to PA facilities and PE staff. This may be especially helpful for low SEC ethnic children who have limited access to PA facilities [21] and environmental factors outside of school that deters them from engaging in PA [22,23]. School leaders can help to shape PA culture and integrate PA throughout the school day as in case of Health Promoting Schools (HPS) using Active schools program [8-24]. It used policy guidelines that gave flexibility to schools to adhere to duration and frequency of program components according to individual school's timetables [14]. Although, despite program's flexibility in implementation, standardised definitions and measurements could help in process evaluations and development of school-based techniques [14]. However, only modest success was found to promote engagement in PA when delivered only during school times [25,26]. This could be due to academic curriculum demands and school's limited influence on children after school hours [27,28]. There is a potential risk of widening existing health inequalities despite improving PA across the population in policy driven in-school-based program as uptake by schools is voluntary [29,30]. Children who are naturally motivated towards PA will tend to make the voluntary change as was in case of other health promotion programs like water fluoridation [31]. Additionally, children with disability would also be unable to participate in the PA exasperating inequalities. However, staff training provided will help to deal with students with disability and poor motivation using Weiss's Ten commandment format [32] and a reward system for children [33].

After-school programs (ASPs) are cost effective and promising venues for increased PA in children due to more flexible schedules than schools, high nationwide enrolment, participation of primarily low-income and minority youth at high risk for low engagement in PA [28-36]. Additionally, qualitative study by Rawlins, et al. of African and South Asian communities from low SEC in London found neighbourhood constraints as one of the barriers for children to engage in PA. Parents reported road safety as well as 'stranger danger' in the local parks as a concern. Cost was another barrier to PA cited by low SEC parents who were unable to pay for activities such as swimming lessons outside of school. Hence, as previously researched a school environment offering structured PA opportunities in school and in ASP can have a positive influence on PA in children [11].

However, school as a mere opportunity may not be enough to determine that children will engage in PA as this behaviour requires child's motivation and subsequent decision to partake in the activities offered at school despite providing an enabling environment. Social cognitive variables such as self-efficacy,

motivation, self-esteem, and enjoyment are key to decisions to engage in PA [38]. As previously found, these are fostered through peers, parent and staff creating a positive social environment [39]. Children who feel supported in multiple settings such as home as well school are more likely to engage in PA [28-42]. Barriers to self-efficacy can be overcome through verbal persuasion by PE teachers through rewards and incentives [43]. Parental modelling and attitude towards healthy behaviour also has a strong influence on children adopting health behaviours [44,45]. Hence, a positive physical and social environment can help to engage children in PA.

Additionally, increased shared decision-making and increased participant engagement has also found to reduce inequalities especially in the targeted low SEC groups [46]. However, there may be a possibility that parents with low education level in this group in Ealing may not be able to fully support their children due to lack of understanding and comprehension because of language barriers and exacerbate inequalities. A study conducted in Switzerland with culturally heterogeneous ethnic target group provided information to parents about national guidelines and health benefits in ten different languages found a positive impact on migrant community [47].

This intervention offers information about PA to support their children in most common languages used in this area of Ealing.

However, it has also been found parental involvement in motivating children to increase their PA is difficult and challenging despite mitigating language barriers [48-49]. Barriers to direct parental involvement include parents own health beliefs and beliefs about control about matters such as weather, lack of time and distance from work and school [50]. A qualitative study found that when child's health status is provided to the parents through regular feedbacks, providing wide range of potential PA benefits for the whole family and careful consideration for the family structure was taken into account, parents encouraged their children to engage in PA [51].

Thus, social support of family, staff and peers targeting at low SEC children from ethnic minorities in a safe physical environment of school and ASP will hope to reduce inequalities that would have been created if we had taken a stand alone universal approach to the intervention [52]. And these social influences will help to increase children's perceptions in physical competencies and motivation, encouraging them to engage in PA [11, 28]. Ecological frameworks using school setting and social influences to increase children's PA levels could face ethical challenges. Children in school setting are generally approached as a group as a means to encourage participation and peer influence is known to affect decision-making [53]. Some children may feel pressurised to partake in PA due to peers participating or some children may feel singled-out whose parents haven't given consent for intervention participation [53]. To mitigate this challenge, staff will be encouraged to offer alternate activities to non-participating children in a manner that these are not perceived as a punishment but rather an attractive proposition

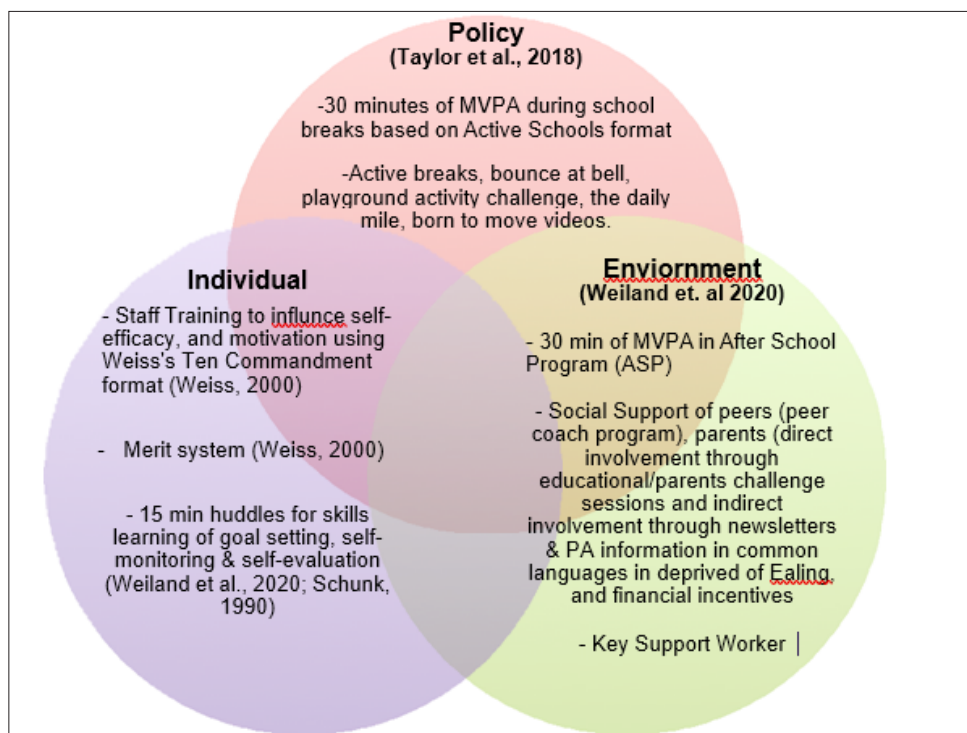
[53]. Verbal persuasion by staff could make participating children vulnerable threatening their autonomy [54]. And incentives to children could be considered ethically inappropriate. However, there is no consensus of this ethical concern in research [55]. A merit system as incentives used for this intervention is not overly large and hence not seen as unduly coercive [56,57]. Financial incentives to parents have been successful especially for low SEC in influencing health promoting behaviours as in case of immunisations [58]. Hence, rewards offered in the form of financial incentives and merits are considered as potential benefit of the plan and no harm is considered to themselves or others removing ethical challenges [53].

Although, socio-ecological framework minimises the sole responsibility of the children about their health by not over-emphasising the role-played by child's behaviour and considers social influences, it could result in coercion [59]. Some writers have argued that physical inactivity is considered as a risk of poor health by social factor influences resulting in invading child's or their families volition [60]. In order to minimise the risk of coercion, active involvement of the children and their parents in defining the problem through educational sessions, giving consent to send their children to ASP and goal-setting of the targets by the children themselves during huddles may present a more ethical solution [15]. As previously researched, skills learning of goals setting, self-monitoring and self-reaction fosters self-efficacy resulting in greater autonomy [61,62,63]. Another ethical dilemma may be stigmatisation [8] as personal health status of child will be used to encourage parental involvement. This can be minimised by keeping all identified information absolutely confidential and addressed through informed consent process.

Implementation and Evaluation

The intervention in schools can be delivered through School Sports Partnership (SSP), a key organisation of Ealing Community Sport and Physical Activity Network (CSPAN) whose commitment is to increase participation in sport and physical activity in Ealing borough and to encourage people to lead healthier lifestyles [64]. CSPAN and SSP have successfully improved standards in physical education between 2003 and 2010 through various links between schools and increased community involvement in primary and secondary schools. Although, future of SSP is somewhat fragmented in some parts of the country due to budget cuts, it has shown positive impact in increasing physical activity in children and adults in Ealing through various program such as Lets Go South all [64,65]. Intervention and control groups will be matched according to number of children, playground and ASP usage before the start of the program. And PA levels will be measured prior to the observation method SOPLAY [66] to measure activity of children as sedentary, walking or very active. Using the RE-AIM framework (Table 1), this article outlines a theoretical process of Lets Get Fit Ealing from its inception to end of the intervention period.

Table 1:



Reach

All schools in the deprived areas of the Ealing Borough will be invited to participate. After receiving consent from parents of the children in participating schools, children will be given the pre and post intervention questionnaires. These have been used previously for PA promotion [67]. Some of the challenges using this questionnaire could be inaccurate completion by the children as self-reporting is vulnerable to recall biases and social desirability [72]. To mitigate this challenge, PA questionnaire can adapt using the guidelines offered in Alice et. Al, designing and testing questionnaires for children [68].

Effectiveness

Children who are already active may be more motivated to further increase their PA levels [15] and present a barrier towards effectiveness to reach our target population. A combination of direct observations through SOPLAY and accelerometer will help us determine the intervention effectiveness [66]. Direct observations will offer assessment of pattern, frequency and intensity of behaviour as well as contextual information on PA behaviour of children, but this method is time consuming [69]. This will be coupled with use of accelerometers offering assessment strategy to consider and identify factors such as proportion of populations for whom behaviour change versus stability of targeted outcome [15]. Participation in PA during out of school hours are considered to be low due to low parental buy-ins and parental concerns of safety of the areas in low SEC [14]. This is mitigated through parental involvement into the intervention plan and the ASP component to the intervention plan [14-70].

Adoption

Schools are also busy places and may not have the capacity to support research activity such as helping children complete the questionnaires or attend staff training [71]. As previously found in school-based PA promotion research (Verjans-Janssen et al., 2018), reasons for non- participation could include other ASP program already running in schools, already active PA policy, more children to teacher ratio or schools may think the children are already active enough. In a study by Janssen et al., these were mitigated by initial collaborative meetings with other health programs and combining efforts [72]. In the same study, reasons for lack of adoption for non-participating were top down decisions by head teachers without teachers involvement [72]. Hence, teacher involvement meetings during developmental stages could mitigate this challenge. Benefits of intervention to children in terms of either change in behaviours, costs-benefit analysis and clear role descriptions and incentives for staff involvement will be given [73].

Implementation

Although school staff were given the flexibility to implement PA components when it best suited their school or class, teacher burden relating to planning and implementation may present as a barrier for in-school component of the intervention [14]. Management buy-ins and teacher professional development training to implement the intervention in school as well as training and support to be provided in ASP could help to mitigate this challenge [74]. Additional support could be offered providing by a key support person to help support staff implement the intervention [72].

Maintenance

Funding is an important factor in maintenance of an intervention plan and can become a challenge to sustain the intervention in the long-term [75]. A physical environment that is conducive to engaging children in increased PA such as well-kept playgrounds, replacing faulty PA equipment and any other material needed to support PA activities during school and in the ASP, requires funding. As found in previous research, partnership working with funding bodies such as Ealing Council in collaboration with SSP and CSPAN can increase knowledge, skills and resources of the schools [75]. Previous research has shown that presence of a student intern or a key worker from school were facilitating factors in continuing the intervention in the long run that also requires funding [72-78].

Conclusion

Socio-ecological framework offers a comprehensive approach to increasing levels of PA in children from ethnic and low SEC background of Ealing because it addresses not only the individual characteristics but also social and environmental influences. With a large proportion of inactive children residing in this borough and high levels of preventable chronic condition such as childhood obesity, the solution presents a great opportunity to increase PA in children that is based on previous successful school-based research. Re-Aim framework used in this report provides a systematic and methodical approach to potential barriers and offers mitigating strategies. Caveats to implementation and evaluation include support in the form of resources and funding will be available because of local authority and school management buy-ins to deliver this intervention. Additionally, it is assumed that PA measurements through accelerometer are based on true sedentary time [15]. Limitation of this intervention is that it does not consider biological differences such as gender previously known to impact PA levels. Overall, Lets Get Fit Ealing offers a theory-based solution to increase PA activity in children.

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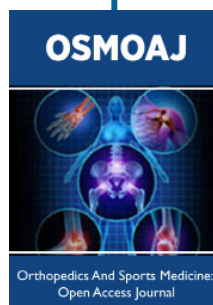
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