

Barriers to Physical Activity in Adolescents

A Synthesis Project

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Nicole Vojtisek

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STATE UNIVERSITY OF NEW YORK
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Read and Approved by: Melanie Perreault
Melanie Perreault, Ph.D.

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Cathy Houston-Wilson

12/15/19

Dr. Cathy Houston-Wilson
Chairperson, Department of Kinesiology,
Sport Studies, and Physical Education

Date

Abstract

Physical activity is an important component to living a healthy lifestyle; however, adolescents' physical activity levels are often very low. Thus, the purpose of this synthesis was to examine barriers adolescents face when it comes to being physically active and find out how they can be prevented or overcome. The critical mass revealed several internal and external barriers that adolescents face. These include lack of motivation/interest, lack of resources, and increased screen time. Since the research is examining adolescents, parents also played a large role in the studies. In order to address some of the barriers, strategies focused on increasing motivation, providing adequate social support, and redirecting screen time should be implemented. Future research should look further into trying to prevent barriers, especially internal ones that adolescents have more control over. If barriers are prevented, then adolescents will hopefully be more physically active and live a healthy lifestyle.

Keywords: Barriers, adolescents, physical activity

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Introduction

Routine physical activity is essential to living a healthy life. Routine physical activity in children and adolescents improves cardiorespiratory capacity, muscle tone, bone health, cardiovascular and metabolic health biomarkers, body composition, and low risk of depression (Damian, Oltean & Damian 2018). Other benefits with routine physical activity include optimal growth, development, function, as well as reduction in risk factors for chronic disease (Wojcicki & McAuley, 2014). Warburton, Nicol, and Bredin (2006) reviewed health benefits of physical activity, stating regular physical activity helps prevent several chronic diseases such as: cardiovascular disease, diabetes, cancer, hypertension, obesity, depression, osteoporosis and premature death.

There are many more health benefits to living a physically activity lifestyle that is important for adolescents and parents to be aware of. It will provide more positive social feedback and recognition from peer groups and will lead to an improvement in one's self-image (Kirkcaldy, Shephard, & Siefen, 2002). Regular physical activity improves strength, reduces stress, has a positive effect on one's self-esteem, body image, and may improve immune system. Studies show that a progressive moderate intensity exercise program may have beneficial effects on interleukin -2/natural killer cell system (Sothorn, Loftin, Suskind, Udal, & Blecker, 1999). In the same study it was found that regular physical activity improves glucose metabolism in patients with type 2 diabetes. In another study it was proven that anxiety symptoms and panic disorder improve with regular physical activity (Paluska, & Schwenk, 2000).

Despite health benefits of physical activity, adolescents are not sufficiently active (James et al., 2017). According to the Centers for Disease Control and Prevention Children (2015), youth ages 5-17 should be getting an average of 60 minutes of physical activity a day, eventually progressing to 90 minutes a day. Ideally students should get 300 minutes of physical activity 5 out of the 7 days a week. That would mean they would have to be physically active outside the school day. In 2012 about 24.8% of U.S. youth engaged in moderate to vigorous physical activity, including activities both in school and outside of school for at least 60 minutes a day (Fakouri, 2012). EU Sports and Health Working group estimated that up to 80% of school-aged children engaged in physical activity only at school (Damian, Oltean, & Damian, 2018). Janz et al. (2015) found that more than 50% of children between the ages of 6-11 and more than 90% of adolescents between the ages of 12-19 are not active enough to optimize the health benefits of physical activity (Janz et al., 2015).

Consequences of inactivity can lead to obesity, impairment of health and implicitly as well as the quality of life (Damian, Oltean, & Damian, 2018). There are many medical conditions obesity can cause, fatty liver disease, sleep apnea, type 2 diabetes, asthma, cardiovascular disease, glucose intolerance and insulin resistance, skin conditions, menstrual abnormalities, impaired balance, and orthopedic problems (Sahoo et al., 2015). Obesity levels in U.S. children and adolescents have more than tripled over the past 40 years (Bassett, John, Conger, Fitzhugh, & Coe, 2015). Overweight and obese adolescents have been associated with poor academic performance and a lower quality of life, they are often bullied, stereotyped, discriminated, and social marginalized (Sahoo et al., 2015). Even with the many health factors

of living a sedentary lifestyle we still have 63% of youth at risk or overweight (Gray, & Smith, 2003).

Statement of the Problem

The purpose of this synthesis project is to find out what deters adolescents from being physically active. Even though we know physical activity is beneficial for adolescents, we are seeing a decline and it could have potential harmful consequences. Determining why adolescents are choosing to not participate in physical activity is very important, thus the purpose of this synthesis is finding out what is causing adolescents to live a more sedentary lifestyle and ways to overcome those barriers.

Operational Definitions

Adolescence- The period of adolescence is defined as the period between childhood and adulthood, characterized by dynamic physical development and significant changes in the cognitive, emotional and social development (Kalac, Gontarev, & Velickovska, 2014)

Physical Activity Barriers- Obstacles preventing one to being physically active (Rajaraman et al., 2015)

Scope of Synthesis

The synthesis will find research studies on all the different barriers adolescents are facing when trying to be physically active. The focus of this study is strictly on the barrier's adolescents face, not adults. The study will focus on internal, external, parental, and screen time barriers adolescents face when it comes to physical activity.

Methods

Search Process

Articles I gathered for my critical mass were from the Brockport library using the SPORTdiscus database. The process of starting the initial search began with “physical activity” as my first key word using SPORTDiscus which yielded 28,414 academic journal articles, to narrow down the search my next key word was “adolescents”, which still provided 2,112 articles. After that I searched “barriers to physical activity” using SPORTdicus which provided 267 articles and lastly, I searched “effects of screen time in physical activity” which gave me 33 articles.

Inclusion Criteria

Articles were chosen because they all contained valuable components to my synthesis: a. physical activity b. youth and adolescents c. barriers. The articles chosen for my critical mass were issued in peer-reviewed journals. It was necessary to use articles that were published after 2000 so there would be more up to date research. The articles I used range from 2000-2019, research is always updating so it is best to use current research so you can have the most accurate information. For my synthesis project I used a total of 11 articles for my critical mass.

Data Analysis

Once I picked the articles that met the criteria for inclusion in this synthesis, an article grid was completed to review and organize the resources (Appendix A). The article grid summarizes each article in my critical mass and provides the reader with the purpose, methods, analysis, findings, and recommendations of each article. The results in the research

were compared, and several themes occurred during the analysis process. The results will explain the findings of all articles used in the critical mass for this synthesis.

Results

Information in this chapter will discuss the different barriers that adolescents currently face for participating in physical activity that were discovered in the critical mass. Barriers included in this section are categorized as either internal or external.

Internal Barriers

This section focuses on the internal barriers that were discovered in the critical mass. Internal barriers are those that relate to an individual's thoughts and feelings and are under the individual's control. These include lack of interest, lack of motivation, and increased screen time.

One prominent reason adolescents do not participate in physical activity is because they have little interest in physical activity. For example, researchers surveyed 348 students from 14-19 years old to understand why some adolescents do not participate in physical activity (Pandolfo et al., 2016). In order to get the results an instrument consisting of 12 statements was used. The main internal barrier to why students are not being physically active was that they would rather be doing other things. Similarly, another study looked at the different barriers adolescents encounter when it comes to physical activity (Gunnell et al., 2015). Information was collected via self-report scales using exploratory and confirmatory factor analyses. This study consisted of 507 adolescents with a mean age of 12.40 years old. Results showed that the most common internal barrier adolescents deal with is they're simply not interested in physical activity.

Another common reason adolescents do not participate in physical activity is because they are not motivated. Kalac, Gontarev and Velickovska (2014) studied current exercise habits and perceived barriers to physical activity of 847 Macedonian adolescents using a survey with 18 items representing barriers to physical activity. The main internal barrier that adolescents reported was lack of motivation (Kalac et al., 2014). Likewise, another study with 38 focus groups consisting of students in grades second through eleventh discovered their main internal barriers were lack of energy and motivation (O'Dea 2003). Moreover, Borhani, Sodeghi, Shojaeizadeh, Hardandi, and Vakili (2017) found that lack of motivation was a main barrier adolescent girls faced in addition to be self-conscious about their looks.

A final internal barrier that was found in the literature is increased screen time. Research shows that high school students who engage in less than two hours of screen time a day are more likely to participate in at least one hour of after school activities (Meddaugh, 2016). Unfortunately, many adolescents are spending an average of three or more hours of screen time, such as watching television, playing video games, and being on the computer or phone (Joshi, Cole, & Overton 2016). In a three-year study consisting of 755 adolescents, researchers wanted to see how much screen time influenced physical activity levels (Lizandra et al., 2019). They found that adolescents are devoting more time on screen media activity than moderate to vigorous physical activity. Another study was done to see if screen time influenced adolescent's physical activity time (Meier et al., 2007). For this study two groups of adolescents, 5-12-year old and 13-18-year old, wore pedometers and were allowed to watch television. The results revealed that the 5-12-year group had less screen

time and more physical activity than the 13-18-year-old group who showed more interest in screen time than physical activity.

External Barriers

This section focuses on the external barriers that were discovered in the critical mass. External barriers are those that relate to the environment and are not under the individual's control. These include the physical activity context, lack of resources, and parental influence.

Some external barriers identified in the literature related to the physical activity context. For example, Rajaramen et al. (2016) conducted 13 focus group discussions with South Asian adolescent boys and girls of different nutritional status and socioeconomic status in India and Canada to understand perceived benefits, facilitators, disadvantages, and barriers for physical activity. Adolescents said that a major barrier they faced when it came time to being physically active was that they had no safe place to play. Adverse weather conditions was also a barrier adolescents faced in the physical activity context. In one study, researchers surveyed 377 public high-school students in grades 10th, 11th, and 12th to understand the problem of physical activity decline among adolescents (Pandolfo et al., 2016). One of the most common external barriers reported was the weather. Climate instability impairs physical activity practice, especially in the winter making it difficult to practice outdoors, which negatively interferes with physical activity.

Lack of adequate resources was another external barrier adolescents faced when it came to physical activity. In a study by Gunnell et al. (2015), adolescents indicated that they did not participate in physical activity because they did not have the proper equipment needed for the activity. Without the proper equipment, it is difficult to participate in many

physical activities. In addition to the cost of equipment, James et al. (2017) found that adolescents in the UK reported a lack of participation due to the cost of local facilities. Lack of time was also an issue for many adolescents when it came to resources. In a study examining the current exercise habits and perceived barriers to physical activity of 847 Macedonian adolescents, one of the main external barriers adolescents faced was lack of time (Kalac et al., 2014). O’Dea et al. (2003) found similar results in their study of second through eleventh graders.

Parents play a significant role in their child’s life and can have a large influence on their child’s physical activity behavior. When parents do not provide sufficient support and role modeling, they can become a barrier for their child’s physical activity. For example, Rajaramen et al. (2015) found multiple parent barriers to adolescent physical activity. These included parents who prioritize other activities, being raised in a family that does not care about being physically active, and having a mom who felt it was too unsafe to walk alone. Moreover, they found that girls were less likely than boys to be interested in physical activity and girls’ participation in India was further limited by societal restrictions.

Summary

Overall, the critical mass indicates that adolescents are facing multiple barriers to physical activity. These include both internal (e.g., lack of motivation/interest) and external barriers (e.g., lack of resources), which cannot always be easily controlled. The following section includes recommendations for how adolescents can overcome these barriers in order to live a healthy lifestyle.

Discussion

The critical mass used for this synthesis gives us some insight to why adolescents are not as physically active as they should be. Throughout the research that was gathered, adolescents knew the importance of being physically active, but barriers got in the way. Barriers that came up in the research were both internal and external and internal. Although many of the external barriers are difficult for adolescents to control, the internal barriers could be overcome with increased motivation, social support, and redirected use of screen time.

Increased Motivation

A prominent framework that can be used to help increase motivation is self-determination theory, which is an empirically based theory of human motivation, development, and wellness (Deci & Ryan, (2008). There are three components when using this theory: (1) autonomy—understanding that one has a choice on what one wants to do, (2) relatedness—caring about what one is doing and feeling cared for, and (3) competence—feeling challenged in the activity one is performing (Singer, 2016).

The need for competence can be supported in several ways. For example, giving adolescents the resources they need to understand the importance of living a physically active lifestyle can give them the competence to achieve their goals. In one study, O’Dea (2003) found that when participants were given the necessary information needed to understand all the benefits of physical activity, they said they felt better socially and it enhanced their psychological status, physical sensation, and sports performance. Another way to promote competence is to track an individual’s progress toward a goal. Goal setting is most beneficial when individuals are provided with specific, difficult but attainable goals (Lunenburg,

2011). One way to track progress is through the use of a self-evaluation checklist (Palmer & Bycura, 2014). For each factor on the checklist, individuals place a question mark in the box if they did not know how to do something, a zero if they did not do something yet, an X if they were getting better at something, or a plus sign if they were performing the proper technique. This type of checklist could be used for any activity. For example, if an adolescent was trying to exercise more, s/he could create a weekly checklist of everything s/he wanted to be able to accomplish.

Educators need to be able to develop effective interventions to promote physical activity by giving individuals the choice on what they want to do and encouraging them when they choose to be physically active (Aleksavska-Velickovska, Gontarev, & Ruzdija, 2019). In a study by Schneider and Schmalbach (2015), the goal was to find out the level of exercise intensity adolescents enjoy when they choose to be physically active. Adolescents voluntarily chose to engage in exercise of an intensity that would be expected to positively impact fitness. The study confirmed the findings among adolescents that when given the choice, they will choose an intensity of exercise that is likely to generate health benefits when they are encouraged to select a level of exertion that feels good.

Social Support

Social support is also an important consideration when overcoming barriers to physical activity. It is essential that parents are involved in helping their children understand the importance of being physically active. For example, Blackshear (2019) examined father involvement in African American girl's lives. Results showed that when a father or father figure was involved in the girl's life, their physical activity levels increased, and when there were low

levels of father involvement, physical activity levels decreased. It is very eye opening that something so simple as parental involvement in a child's life can influence their physical activity participation. Parents can further support physical activity participation by observing and offering feedback to their children when performing an activity, so they know if they are on the right track to achieving their goal. To improve physical activity levels as a family, family movie night could be replaced by bowling or miniature golf (Rajaraman et al., 2015). Children can also be encourage to walk the family dog. These small adjustments in behavior can have beneficial effects over sedentary activities.

In addition to parents, peers can provide social support for physical activity participation. In a study about parental and peer influence on leisure time physical activity in young adolescents, 904 students with a mean age of 13.3 years old took part in a health behavior survey, which included questions regarding physical activity. The findings indicated that, by serving as models and supporters, significant others have an important impact in promoting physical activity in young adolescents (Anderssen & Wold 1992).

Redirected Screen Time

Increased screen time has played a recent role in sedentary lifestyles. In order to help control and lower the obesity epidemic, research says to limit screen time to no more than 2 hours a day (Ghose, 2013). However, *redirected* screen time can have positive effects on physical activity behavior. For example, a study by Wagner-Greene et al. (2017) demonstrated that Pokémon GO significantly increased participants' physical activity levels. Before downloading the game only 31% of the participants met the recommended activity levels while 75% met the levels after starting the game. Another study examined the

effect of exergaming on physical activity participation and body composition of 3rd – 5th grade students (Zan & Ping, 2014). Participants engaged in 30 minutes of exergaming-based activities 3 times per week. The results showed that the participants had increased physical activity levels as well as positive attitudes. Nintendo Wii and Xbox connect also have some games that could be used as components of an exercise program since most of the games achieve a moderate level intensity of exercise (Ashley et al., 2016).

Limitations and Future Research

One limitation of the critical mass was a lack of research on gender differences. This is an important consideration in that males and females may differ on the barriers that impact their physical activity levels. Another limitation is that the critical mass included studies from several different countries; thus, the findings may not generalize to populations outside of those countries. Although there was a lot of information on the different barriers that adolescents face when trying to be physically active, there was not a lot of recommendations on how they can overcome those barriers. Thus, future research should examine interventions directed at reducing certain barriers to increase physical activity levels.

Conclusions

Studies show that adolescents have internal and external barriers that make it difficult for them to be physically active. However, strategies to increase motivation, provide social support from family and friends, and redirect screen time can help overcome some barriers to increase physical activity levels. Even though within the critical mass, I found a lot of good information and became more aware of the barriers adolescents are facing, it would be helpful

if there were more studies focused on how adolescents can overcome barriers they face, allowing them to live a healthy, physically active lifestyle.

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Appendix A
Article Grid

Author	Title	Source	Purpose	Methods & Procedures	Analysis	Findings	Recommendations
Borhani, M., Sodeghi, R., Shojaeizadeh, D., Harandi, T. F., & Vakili, M. A. (2017).	Teenage girls' experience of the determinants of physical activity promotion	Electronic Physician	Find out how we can change patterns of inactivity.	Focus group discussions and semi structured in depth interviews of 48 girls, ages 15-18	Theory driven qualitative content	High self-efficacy plays an important role in the promotion of physical activity in teenagers.	Teachers/parents /coaches need to take the time to get to know each individual and understand what methods can help increase physical activity levels.
Gunnell, Katie & Brunet, Jennifer & Wing, Erin & Bélanger, Mathieu. (2015)	Measuring Perceived Barriers to Physical Activity in Adolescents	Human Kinetics	To try to better understand what barriers adolescents are facing that is making them not want to be physically active	Physical activity was accessed using a 2-item moderate to vigorous physical activity screening scale. Perceived barriers to moderate to vigorous physical activity were assessed using 18 items drawn	Cross-sectional analysis of data collected in 2013	Participants engaged in 4.85 days of moderate to vigorous physical activity per week. They categorized barriers in two groups, internal and external	Look more specifically at external and internal barriers

				from the QUALITY study 507 adolescents with a mean age of 12, 225 boys, 282 girls.			
James, M., Christian, D., Scott, S., Todd, C., Stratton, G., McCoubrey, S.,...Brophy, S. (2017).	Active children through individual vouchers-evaluation (ACTIVE): protocol for a mixed method randomized control trial to increase physical activity levels in teenagers	Journal of physical activity & health	To find out how important physical activity is to our health and well being.	Participants were selected via school recruitment. Trials are done in 7 different secondary schools	Cooper run test, physical activity measurements via Actigraph GT3X accelerometers, exercise motivation questionnaire, and blood pressure measurements	Fitness levels improved greatly with the study, proving that physical activity has a positive effect on our health.	Continue to examine ways in improving cardiovascular fitness, arterial physiology and general health, which in hopes reduces a sedentary lifestyle.
Joshi, P., Cole, K., & Overton, M. (2016)	Trends in Sedentary behaviors among high school students: analysis of television and other screen time activities	Journal of Physical Education & Sport	To access the trends of sedentary behaviors of high school adolescents in the United States.	Data received from the Center of Disease Control & Prevention Youth Risk Behavior	YRBS, Lenar regression models and Pearson chi squares	Computer screen time has significantly increased over the years, television time has decreased.	High school students need to decrease the amount of screen time and start getting the daily recommended amount of physical activity.

				Survey high school students grades 9-12 from years 2007-2015 in the United States.			
Kalac, R., Gontarev, S., & Velickovska, L. A. (2014).	Perceived Barriers to Physical Activity among Macedonian Adolescents.	Physical Education, Sport, & Health	To fins out the barriers to physical activity Macedonian adolescents face	847 adolescents of Macedonian nationality were studies using a Likert scale, responding to 18 items	ANOVA Statistical Package for Social Sciences Software	Adolescents weren't physically active due to lack of time, too busy, too many responsibilities at school, and lack of interest & motivation	When developing strategies and educational programs for physical activity, barriers should be considered.
Lizandra, J., Devís-Devís, J., Valencia-Peris, A., Tomás, J. M., & Peiró-Velert, C. (2019)	Screen time and moderate-to-vigorous physical activity changes and displacement in adolescence: A prospective cohort study	European Journal of Sport Science	To see if adolescents are spending more time in MVPA or SMA	755 adolenscents participated in a cohort study over a 3-year period	SEM analysis	More time was spent on SMA than MVPA	Parents should limit SMA
Meier, M. D., Hager, R. L., Vincent, S. D., Tucker, L. A., & Vincent, W. J. (2007)	The Effects of Leisure-Based Screen Time	American Journal of Health Education	To see if screen time plays a factor in physical activity levels in adolescents	94 families participated in a 6-week study	Pedometers were worn by individuals	5-12-year olds lowered screen time and increased physical activity levels	At home promotion of physical activity could decrease screen time and increase physical activity levels

O'Dea, J. A. (2003)	Why do kids eat healthful food? Perceived benefits of and barriers to healthful eating and physical activity among children and adolescents	<i>Journal of the American Dietetic Association</i>	To find out what barriers adolescents face when trying to eat healthy and be physically active	Group discussions and tape, recorded interviews	Content analysis	Adolescents understood the importance of being physically active and eating healthy but barriers got in the way	Try to get through barriers, to be able to live a healthy life
Pandolfo, Maccarini, Minuzzi, Tatiane, Machado, Righes, Lopes, Luís Felipe Dias, Azambuja, Cati Reckelberg, & Santos, Daniela Lopes dos. (2016)	Perceived barriers to physical activity practice in high school students	Systematic Scholar	To identify perceived barriers to physical activity practice among public high school students.	348 students aged 14-19 years, 46.8% females and 53.2% males, 29 (7.7%) did not participate.	A 12 question questionnaire was used to collect data in the form of a Likert scale	Girls showed higher percentage of inactivity at 53.1% compared to boys 36.8%. Top barriers faced were “I have many tasks to do”, “lack of time”, and “adverse weather conditions	Practices must be encouraged, supported and made possible within the school context, searching for actions able to reduce the barriers that may hinder the involvement of adolescents in PA
Rajaraman, D., Correa, N., Punthakee, Z., Lear, S. A., Jayachitra, K. G., Vaz, M., & Swaminathan, S. (2015)	Perceived benefits, Facilitators, Disadvantages, and Barriers for Physical Activity amongst South Asian adolescents in	Journal of Physical Activity & Health	To help understand the perceived benefits, facilitators, disadvantages, and barriers for physical	Thirteen focus group discussions with South Asian adolescent boys and girls	Microsoft Excel spreadsheets were used, data was charted by category NVivo 9.2 was used to	Main finding was parents did not want girls involved in exercise, fewer sports for girls, lack of interest, and lack of	Need to prioritize stronger societal support and access for South Asian adolescent girls' physical activity.

	India and Canada.		activity amongst South Asian adolescents in India and Canada.		code interviews	female role models.	
Wagner-Greene, V. R., Wotring, A. J., Castor, T., Kruger, J., Dake, J. A., & Mortemore, S. (2017)	Pokémon GO: Healthy or Harmful?	American Journal of Public Health	To see if the Pokémon GO game is more helpful or harmful to players	Random internal study conducted at Microsoft	Examined data from wearable sensors and user's internet searches	31% met the recommended physical activity levels before playing the game. 75% met the levels after starting the game	Be safe, use common sense when playing the game