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SCHOOLS AS PROMOTERS OF ACTIVE LIFESTYLES: A REVIEW

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Abstract

Living an active lifestyle is one way to living a healthier life. The purpose of this review was to analyse empirical studies that show how schools can effectively promote active lifestyles for their students. Using online databases, a total of 15 empirical studies were found, all published from 2012 to 2022. The findings of this review highlight effective practices for active lifestyle promotion such as school-wide policies, interventions, encouraging participation in extracurricular sports, and increasing physical education time. This review also provides insight into some current issues that are present and how promoting active lifestyles in New Zealand schools can help address these.

Keywords

Active lifestyles; physical activity; health promotion; health education

Introduction

The promotion of active lifestyles during childhood and adolescence has gained global visibility as a major need for schools to address. Research in this field shows that the promotion of physical activity and active lifestyles for students in school has many benefits for all aspects of student well-being and is an effective strategy for reducing obesity rates (Messing et al., 2019). However, obesity isn't the only risk associated with low levels of physical activity. Dobbins et al. (2013) highlight that physical inactivity is estimated to contribute to approximately 15% of breast, colon, and rectal cancer, as well as type 2 diabetes. A further 22% of coronary heart disease is estimated to be connected with physical inactivity (Dobbins et al., 2013). In New Zealand, obesity rates for youth aged two to fourteen have increased by 9.5% since 2020 (Ministry of Health, 2022). Currently, 12.7% of New Zealand youth are obese and the rates are higher for New Zealanders aged 15 and up, where one in three adults is classified as obese (Ministry of Health, 2022). To be classified as obese, a person must have a body mass index (BMI) level of 30 or above, which is slightly adjusted for age, ethnicity, and sex (Ministry of Health, 2022). Whilst promoting active lifestyles is an effective strategy for addressing obesity, it is important to note that leading an inactive lifestyle doesn't directly correlate to being obese, nor does leading an active lifestyle directly correlate to not being obese. These statistics demonstrate that promoting physical activity is important for youth in New Zealand.

Contextualising this review of literature

The majority of the research in this field in the last 10 years has focused on physical activity levels in school. For example, Dobbins et al. (2013) conducted a systematic review that aimed to summarise the effectiveness of physical activity interventions based in schools. Research that focuses on physical activity in school ranges from early childhood education to high school, with many analysing all school ages (Dobbins et al., 2013; Messing et al., 2019). One common theme found in active lifestyle promotion research is the effectiveness of physical activity interventions for promoting higher levels of physical activity in school (Dobbins et al., 2013; Messing et al., 2019). Another common theme that is persistently identified in the research is that on average, students are not meeting the minimum physical activity recommendations (Dobbins et al., 2013; Messing et al., 2019). Other themes consistent throughout prior research include the role that physical education (PE) classes and departments play in

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facilitating adequate physical activity levels (Messing et al., 2019). Research has also highlighted the importance of parents and caregivers, and the role they play in facilitating students' physical activity levels (Messing et al., 2019).

Similar to other research in this field, this review will identify how schools can effectively promote physical activity. However, in contrast to the research previously mentioned on physical activity, this review will have a specific focus on active lifestyles related to a New Zealand perspective. The key aspect of this study that contrasts other research in this field, is that this review has a focus on the results both at school and beyond school time. This is important because for the promotion of active lifestyles to be successful, it needs to be achieved in all aspects of a person's life, not just at school. For the purpose of this review, the term "school" is inclusive of not only primary, secondary, and area schools, but also early childhood education (ECE) centres. Whilst the studies analysed come from internationally based research, the findings and discussion will be related to a New Zealand school context and focus towards the *New Zealand Curriculum* (Ministry of Education, 2007). The Health and Physical Education (HPE) section of the *New Zealand Curriculum* has a major focus on movement and the benefits being physically active can provide for a person's well-being (Ministry of Education, 2007).

Defining active lifestyles

There is no clear consensus on the definition for an active lifestyle. A similar term that is commonly used is a "non-sedentary lifestyle". Sedentary behaviour relates to any waking behaviour in a sitting or lying position that involves low level energy expenditure (Mayorga-Vega et al., 2018). Thus, non-sedentary behaviour is the opposite and involves being physically active. Recommended physical activity levels for New Zealand youth (aged five to seventeen) are one hour exercising at a moderate to vigorous physical activity (MVPA) level a day (Ministry of Health, 2022). This is based on the World Health Organisation (WHO) physical activity recommendations which suggest 60 minutes of MVPA (World Health Organisation, 2022). MVPA is commonly measured using accelerometer data, which is collected via sensors, measuring acceleration and movement. By replacing the term *physical activity* with the term *active lifestyle*, it shifts the focus from achieving the recommended physical activity levels in PE lessons or classes, to how students lead active lives beyond the classroom. Active lifestyles include extra-curricular commitments such as sports, recreation, and leisure, as well as shifting a focus to how active students are at home. For students living in the 21st century, an active lifestyle may be harder to achieve with the ease of internet and screen access for many and the popularity of online gaming. Other potential limitations for students may include transport to school, safe environments, social expectations, and access to resources.

For the purpose of this review, an active lifestyle is defined broadly as achieving recommended physical activity levels in and out of the school environment. School activities could be PE lessons and/or play time. Outside of school activities may include participating in sporting, recreation, or leisure activities, play time at home, or the type of transport they use to get to school (walk or bike).

Methods

Based on the knowledge gained from background research into this field of study and the rationale, the purpose of this review is to analyse empirical studies on how schools can effectively promote active lifestyles for their students. The research question guiding this review is how can schools be effective promoters of active lifestyles for students? This is a topic I am passionate about as an early-career health and physical education (HPE) kaiako and researcher in Aotearoa New Zealand. I am of Pākēhā (New Zealand/European) descent and identify as a cis-gender, heterosexual male, which may be important to understand the perspective I have approached this review from.

Aspects of a systematic search were used to guide this review, which included both qualitative and quantitative studies. The three steps involved in conducting this review were identifying the data sources, creating criteria to assess the quality of the studies identified in the search, and finally,

analysing the studies and constructing the findings. It is important to note that this is a small-scale review, which is not claiming to be a comprehensive systematic review.

Criteria for assessing the quality of the studies

The databases searched for this review included Scopus, Taylor and Francis Online, ProQuest Central, PubMed Central, Sage Journals Premier, and Wiley Online Library. The search string used was “active lifestyle*” *or* “healthy lifestyle*” *or* “non sedentary” **and** “secondary school” *or* “high school” *or* school” *or* “primary school” **and** promot* *or* encourag* *or* support *or* initiative *or* intervention **and** PE *or* “physical education”. Initially, a total of 1241 articles were returned through the database searches. Studies were then considered against the inclusion criteria. The inclusion criteria required articles to be original peer-reviewed studies published between January 2012 and December 2022 in journals in the English language (literature reviews and commentaries were excluded). They must report on studies based in a school context and must include the keyword of “lifestyle” in the title, key terms, or abstract. The inclusion criteria reduced the total number of studies; however, this wasn’t its only purpose. The date range was selected for the last 10 years for relevance, to give a better idea of how schools have recently been promoting active lifestyles. Only including peer-reviewed studies resulted in more reliable studies, as peer-reviewed studies go through a review process to ensure academic and scientific merit. Even with the search string requiring school-based results, many of the initial results were based in a pre-school or tertiary context, hence the need for a school-based inclusion criteria. Lastly, much of the research in this area focuses on physical activity which is why the last criterion required “lifestyle” to be included in the title, key terms, or abstract. By requiring the keyword “lifestyle”, my results were focused more on the bigger picture of healthy living, rather than only focusing on physical activity levels. After applying the criteria to my search, the final number of articles was 15.

Data presentation and analysis

The analysis of the data collected from the studies were organised into two phases. This process utilised aspects of thematic analysis (Braun & Clarke, 2006). I applied a theoretic approach to the thematic analysis, which was initially at a semantic level. A theoretic approach is driven largely by the researcher’s analytic interest in the area and provides a more detailed analysis of the relevant aspects of the data (Braun & Clarke, 2006). In this case, the interest comes from my research questions, which became the two major themes. Viewing the data at a semantic level signifies that I initially analysed the surface level data, before looking for meanings beyond the explicit results (Braun & Clarke, 2006). The thematic analysis used to guide this methods section followed the six-step process from Braun and Clarke (2006).

- Becoming familiar with the data
- Generating the initial codes
- Searching for the codes in the data
- Reviewing the themes that have become apparent
- Defining and naming the themes
- Producing the report

After locating and becoming familiar with the 15 articles, I identified the initial descriptive data from the studies. This included analysing the geographic location of the studies, study purpose, sample size and participant age, research methods, key findings, and research theme. The second part of the analysis focused on the themes and sub-themes found in the data (see Table 1). Based on the relevant data collected, my prior knowledge and experience in the field, and by using the thematic analysis approach, themes and sub-themes were identified. To be considered a sub-theme, an idea had to be supported by at least two studies.

Table 1. Reviewed Studies by Theme and Sub-Themes

Theme	Sub-themes	Relevant citations supporting the sub-themes
Effective ways to promote active lifestyles (AL) for students (Solmon, 2015; Sutherland et al., 2017)	Encouraging participation in sport	(Shull et al., 2020; Wojtyła-Buciora et al., 2014)
	Self-determination theory (SDT)	(González-Cutre et al., 2018; Sánchez-Miguel et al., 2020; Trigueros et al., 2019; Wang & Wang, 2018)
	Participating in PE	(Martins et al., 2018; Mayorga-Vega et al., 2018; Mizdrak, 2021; Wood & Hall, 2015)
	Having a school-wide policy that involves wider community	(Cale et al., 2016; Harris et al., 2021; Sutherland et al., 2016)

Findings and discussion

This review analysed 15 studies published between January 2012 and December 2022. The 15 studies were based in the following countries: England (20%), Australia (20%), Spain (20%), United States of America (13%), New Zealand (7%), Portugal (7%), China (7%), and Poland (7%). When grouped into continents, eight of the studies were based in Europe (53%), four were based in Australia/Oceania (27%), two in North America (13%), and one in Asia (7%). Two studies (13%) focused on teachers as participants, whereas 13 (87%) had student participants between ages five to eighteen. As for the research methodology, a majority of the studies utilised a qualitative approach (60%). Three studies used a quantitative approach (20%) and three used a mixed method approach (20%). Of the qualitative or mixed method studies, five used surveys to gather data (45%), two used questionnaires (18%), and four used a type of interview (36%). The measurement of accelerometer data was most common from the quantitative or mixed method studies, with a total of six studies measuring in this way (75%). The other quantitative method of measurement was physiological (body) measures, which were used by two studies (25%).

The thematic analysis process highlighted one major theme directly related to the research question of how schools can effectively promote active lifestyles for their students. Of the 15 studies, seven articles focused on effective ways schools can promote active lifestyles (44%). Furthermore, eight studies had a focus that included both effective promotion strategies and what is currently happening in schools. The findings show that when studies reported on current school practice to promote active lifestyles, they would also identify effective solutions as to how a school can address the current issues they face. The following sections first describe schools' current approaches to promoting active lifestyles. Following this, the major theme of "effective strategies to promote active lifestyles for students" will be addressed with relevant contributing sub-themes detailing multiple strategies schools can implement to promote active lifestyles.

Current promotion of active lifestyles

Based on the 15 studies from English-speaking countries that were examined, it seems that many schools are not promoting active lifestyles effectively for their students. Many of the studies that focused on effective strategies for promoting active lifestyles also reported that schools are currently

not promoting active lifestyles effectively (Cale et al., 2016; Martins et al., 2018; Mizdrak, 2021; Sánchez-Miguel et al., 2020; Shull et al., 2020; Wojtyła-Buciora et al., 2014; Wood & Hall, 2015). This further highlights the importance of the major theme identified in this review. If many schools are currently not promoting active lifestyles effectively, teachers and schools may need to reflect and reassess the strategies (if there are any) that are in place. In an Aotearoa New Zealand context, Mizdrak (2021) highlighted that many of the current policies are not effective, and a solution for increasing physical activity is increasing the amount of time spent in physical education.

Effective strategies to promote active lifestyles for students

Of the studies reviewed and analysed, all 15 studies provided strategies that were effective at promoting active lifestyles for students. These strategies are not all based in a schooling context but do require the facilitation of teachers and school. Additionally, several of these strategies benefit from the support of parents and caregivers to aid with this facilitation. The effective strategies are recognised as supporting themes below. These include encouraging participation in sport, interventions based in the self-determination theory, participation in physical education programmes, and school-wide policies. Each subsection includes findings and a discussion of those findings presented together. It is important to note that two of the fifteen studies (Solmon, 2015; Sutherland et al., 2017) support the major theme of this review; however, they are not relevant in regard to the following sub-themes specifically.

Encouraging participation in sport and recreation

Encouraging students to participate in sport or other physically active extra-curricular activities was a strategy found in two studies (Shull et al., 2020; Wojtyła-Buciora et al., 2014). Both studies identified that physical activity levels increased when students participated in sport or extra-curricular activities that were physically active. This is partly due to the increase in physical activity from time spent in training and games; however, an increase in physical activity outside of any organised training was observed as well (Shull et al., 2020; Wojtyła-Buciora et al., 2014). By providing students with enjoyable physical activity experiences, sports participation influences students to spend their own time outside of organised sport in a more active way (Shull et al., 2020). Shull et al. (2020) aimed to examine the associations between sport participation and the time spent in sedentary behaviour in South Carolina, USA. This was measured through accelerometer data used to measure physical activity, as well as questionnaires intended to highlight lifestyle behaviours. Shull et al. (2020) found that students who consistently engaged in sport lead significantly more active lifestyles than their peers not participating. Wojtyła-Buciora et al. (2014) aimed to determine the physical activity behaviours of students in Poland through surveys completed by students. Similar to the previous study in South Carolina, Polish students who were participating in extra-curricular activities reported higher levels of physical activity and lead more active lifestyles (Wojtyła-Buciora et al., 2014). Another finding from this study was that students are reportedly *not willing to participate* in physical activity outside of school, making it reasonable to infer that these students *have opportunities to participate* in physical activities outside of school, they just lack the motivation to do so (Wojtyła-Buciora et al., 2014). This supports the strategy identified in this sub-theme: if teachers, schools, and parents or caregivers encourage students to participate in sports or other physically active extra-curricular activities, they will lead more active lifestyles.

Discussion

From a teacher's perspective, encouragement can be challenging. A way physical education teachers can encourage participation in sports is by introducing students to a variety of different sports in their lessons. For many students, being introduced to new sports can spark new interest in an area they enjoy. There are many alternative sports that students can be involved in to achieve the desired physical activity requirements. Furthermore, as a teacher, it is important to acknowledge all types of physical activity and encourage students to participate in a sport (or sports) they enjoy. In terms of encouragement from a school-wide approach, policies and systems are the key to encouraging

participation in sport. Strategies from a school-wide and community level include expanding the current sports programmes, providing a greater variety of sporting opportunities, and including more social (non-competitive) programmes for students (Shull et al., 2020). By expanding the sports programmes that are currently in place, this creates opportunities for new participants to join and will provide more opportunities to those already part of the programmes.

Similar to teachers providing a greater variety of sports in lessons, schools have the ability to provide a greater variety of sports available to students which will accommodate for the needs of more students and result in more students participating. By providing non-competitive programmes, this will encourage students who have been discouraged by the competitive nature of sport. Non-competitive programmes have a greater focus on participation and fun, which is crucial for encouraging students to participate in sport. Previous research in this field shows that encouragement and support from parents or caregivers can have significant positive impacts on a student's physical activity levels and participation in sport (Messing et al., 2019). It must be noted that there are potential barriers to the type of support parents or caregivers can provide, such as socio-economic resources, location, time, or work commitments.

Self-determination theory (SDT) interventions

Four studies conducted on high school students aged between 12 and 18 identified the effectiveness of interventions that used the self-determination theory (SDT) as a base (González-Cutre et al., 2018; Sánchez-Miguel et al., 2020; Trigueros et al., 2019; Wang & Wang, 2018). Self-determination theory “is an approach to human motivation and personality that uses traditional empirical methods while employing an organismic metatheory” (Ryan & Deci, 2000, p. 68). This approach highlights three essential needs for facilitating the optimal functioning of growth, personal well-being, and constructive social development (Ryan & Deci, 2000). To relate this more to promoting active lifestyles, González-Cutre et al. (2018) define SDT as the satisfaction of humanity's three basic psychological needs (competence, autonomy, and relatedness), which leads adolescents to gain more autonomous motivation towards physical education and physical activity. Two studies used qualitative methods (questionnaires) to assess the results of their SDT interventions (González-Cutre et al., 2018; Trigueros et al., 2019). The other two studies researching SDT interventions used both quantitative and qualitative measures, such as physiological data, accelerometer data, and interviews to measure the results (Sánchez-Miguel et al., 2020; Wang & Wang, 2018). Studies using both methods reported an increase in physical activity levels after students completed the SDT intervention. Whilst the other three studies focused on a SDT approach, Wang and Wang (2018) designed their intervention around the idea of teaching games for understanding (TGfU), which is an inquiry approach to teaching physical education to students, based on the idea of SDT.

Discussion

The SDT interventions used in the studies focused on improving motivation and developing intrinsic motivation towards physical education classes. This was achieved through the implementation of motivational strategies. Developing students' ability to form their own intrinsic motivation for physical activity is a crucial aspect of promoting active lifestyles. If students are only ever motivated extrinsically by teachers, peers or parents, once these extrinsic factors disappear (e.g., leaving school or leaving home), so will their motivation. Developing an understanding of why movement is important for a person's well-being and creating intrinsic motivation for physical activity leads to an active lifestyle which will benefit them long after leaving school. The effectiveness of interventions for promoting physical activity has been reported in other research (Dobbins et al., 2013; Messing et al., 2019). This prior research on physical activity supports the results of this review on active lifestyles; however, more research on the effectiveness of other evidence-based interventions for promoting active lifestyles is needed.

Participating in PE and increasing PE time

Four studies identified that participating in PE classes and increasing the time spent in PE is an effective strategy for promoting active lifestyles (Martins et al., 2018; Mayorga-Vega et al., 2018; Mizdrak, 2021; Wood & Hall, 2015). This may seem like a self-explanatory finding; however, Mizdrak (2021) highlighted that there are low levels of school-based PE in New Zealand. Similarly, other studies found that participation in PE significantly decreased inactivity and sedentary behaviour levels (Mayorga-Vega et al., 2018). In primary school, it was found that PE lessons are more effective for increasing physical activity levels than play time (Wood & Hall, 2015). Two studies adopted quantitative methods to gather data, through accelerometers (Mayorga-Vega et al., 2018; Wood & Hall, 2015). The other two studies used qualitative methods to gather data by conducting interviews and surveys (Martins et al., 2018; Mizdrak, 2021).

Discussion

Participating in PE and increasing the time spent in PE promotes active lifestyles because it provides more opportunities for students to be active and achieve the recommended physical activity levels. The next step is analysing what is being taught in the lessons and how they are delivered to maximise the benefits they can have for students' physical activity levels. For instance, developing lessons based in the self-determination theory to facilitate intrinsic motivation is an imperative way of effective promotion as discussed above (González-Cutre et al., 2018; Sánchez-Miguel et al., 2020; Trigueros et al., 2019; Wang & Wang, 2018). A study that addressed the pedagogy of PE teachers showed that to encourage and promote active lifestyles, teachers must adopt friendly, supportive, and professional pedagogy, as this improves student experiences of the subject which results in an increased likelihood of students developing active lifestyles (Martins et al., 2018). Similarly, creating a positive learning environment in PE has similar implications (Martins et al., 2018). Whilst increasing time spent in PE promotes active lifestyles, it is important to make effective use of the current time students have through pedagogies that facilitate promotion.

School-wide policies involving wider community

Three of the 15 studies identified that an effective strategy for promoting active lifestyles is having school-wide policies involving the wider community (Cale et al., 2016; Harris et al., 2021; Sutherland et al., 2016). The wider community referred to includes parents/caregivers, but not only them. An example of a school-wide policy includes one that utilises an ecological framework. Within a school context, this would include incorporating the individual, environmental, and sociocultural factors that influence the physical activity of students (Cale et al., 2016). Another aspect of effective school-wide policies involves having appropriate professional development programmes that fulfil the needs of teachers (Harris et al., 2021). Sutherland et al. (2016) identified the effectiveness of a school-wide strategy approach that targets the curriculum, the school environment, parents, and the community. These findings show the importance of involving all parties when developing policies. This is consistent with previous research in this field that identifies the importance of involving parents and caregivers in facilitating active lifestyle promotion (Messing et al., 2019). Two studies conducted their research with teachers through interviews and questionnaires (Cale et al., 2016; Harris et al., 2021), and one study assessed the effectiveness of a school-wide intervention which involved students and teachers (Sutherland et al., 2016).

Discussion

The positive impacts a school-wide approach can have for students are significant. As previously discussed, current approaches towards active lifestyle promotion usually have this situated as only the PE department's responsibility, which is not ideal (Cale et al., 2016; Wojtyła-Buciora et al., 2014). A potential challenge with implementing school-wide policies may be the buy-in from other teachers and

parents, who see active lifestyle promotion as PE's responsibility. For teachers in New Zealand, promoting the well-being of students is a code of professional commitment (Education Council, 2017). Whilst the *New Zealand Curriculum* identifies the promotion of physical activity as a key learning area, there is a disconnect between this policy and practice. It must be noted that there are potential barriers to the type of support or policies that schools can implement, such as expertise, resourcing through time, equipment, space, and indoor facilities.

Implications for practice and future research

The findings of this review have highlighted many implications for both teachers and schools, which will be discussed below. For teachers in Aotearoa New Zealand, there is a legal and ethical commitment to learners which explicitly states the promotion of learner well-being in *Our Code Our Standards* (Education Council, 2017). This review provides insight into many effective pedagogical strategies that will promote active lifestyles and facilitate an increase in physical activity levels for students. These are mostly directed towards HPE teachers, as this is where the responsibility currently lies (Cale et al., 2016; Wojtyła-Buciora et al., 2014). From a policy level in New Zealand, physical activity is a key learning area of the HPE in the *New Zealand Curriculum* (Ministry of Education, 2007). These policies demonstrate the requirements and commitments that teachers have to students; promoting physical activity is an aspect of this requirement and commitment.

For schools, the implications this review identifies are focused on some policies schools can implement to effectively promote active lifestyles. These policies identified in this review provide a base for schools to approach the promotion of active lifestyles from a school-wide view. The whole school needs to be responsible, not just the PE department (Cale et al., 2016; Wojtyła-Buciora et al., 2014).

There is a lack of research completed on the promotion of active lifestyles and physical activity in a New Zealand context. This review only found one study based in New Zealand. This is an area where more research is needed (Mizdrak, 2021). As this review has previously discussed, the *New Zealand Curriculum* is currently receiving a refresh, providing another imperative future research area to assess whether the new refresh will adopt strategies to promote active lifestyles and physical activity for students. In New Zealand, our curriculum is a description of what the government expects to happen in schools. But ultimately, the final say is with a school's leadership, board of trustees, and community.

An important deficit about the research in this field (and thus, this review) is the lack of research highlighting Indigenous perspectives on promoting active lifestyles. This review was dominated by Western perspectives and theories (except for one study completed in Asia). As stated at the beginning of this review, 12.7% of children are obese in New Zealand. Thirty-five point three per cent of children that are of Pasifika ethnicity are classified as obese, and 17.8% of Māori children (Ministry of Health, 2022). In comparison, 10.3% of European/Other children are classified as obese (Ministry of Health, 2022). Health promotion strategies from a Māori perspective have shown significant benefits for addressing obesity in children (Boulton et al., 2011). The major difference in this approach is the emphasis on a collective effort to address this issue, which involves empowering the whole family, combined with appropriate stakeholder support, resulting in improved self-esteem and positive lifestyle changes (Boulton et al., 2011). This provides a small scope into the potential benefits that a promotional strategy from a Māori perspective could have.

Conclusion

Future research into the promotion of active lifestyles has the ability to make a positive impact for all children in New Zealand, whilst demonstrating to an international audience the importance of alternative approaches to active lifestyle promotion. This review provides insight into many ways that schools can be effective promoters of active lifestyles. This, paired with the Māori health promotion strategies highlighted by Boulton et al. (2011) provides potential for students in New Zealand to experience benefits to their health and well-being through living active lifestyles.

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