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A school-based intervention program in promoting leisure-time physical activity

Submission date
25/10/2017

Recruitment status
No longer recruiting

Registration date
26/10/2017

Overall study status
Completed

Last Edited
16/12/2022

Condition category
Nutritional, Metabolic, Endocrine

[_] Prospectively registered
[X] Protocol
[_] Statistical analysis plan
[_] Results
[_] Individual participant data
[_] Record updated in last year

Plain English summary of protocol

Background and study aims
Regular participation in moderate-to-vigorous physical activity plays an important role in managing obesity. Physical education (PE) plays an important role in promoting lifelong participation in physical activity. However, it was found that the provision of compulsory school physical activity (e.g., PE lessons) in childhood is not linked with physical activity participation, fitness or overweight levels in adulthood. These inconsistent findings raise questions about the value of the school-based programs on improving fitness through physical activity. School-based interventions targeting benefits and barriers associated with physical activity have been identified as effective approaches to promote young people's leisure-time physical activity. However, the impact of a cost-effective school-based intervention on health outcomes such as the body mass index has not been examined. Therefore, this study aims to investigate whether a school-based intervention program targeting benefits and barriers will promote secondary students' participation in moderate-to-vigorous physical activity during leisure-time and reduce the body mass index of overweight students.

Who can participate?
Secondary school students in Singapore

What does the study involve?
PE lessons take place twice a week over 4 weeks in both the control and intervention periods. The intervention period begins after the control period ends. In the control phase, PE teachers encourage students in PE lessons to participate in physical activity during leisure-time without delivering persuasive messages in PE lessons. Before the intervention period, PE teachers are trained on how to deliver persuasive messages through a 3-hour workshop. During the workshop, PE teachers are encouraged to express their concerns about delivering persuasive messages, and investigators address those concerns to assist PE teachers to conduct the intervention. The persuasive messages target the benefits and barriers associated with physical activity. Salient benefits and barriers are identified based on the results of surveys conducted in the control period. In the intervention period, PE teachers deliver the persuasive messages that target the benefits and barriers associated with physical activity at the last 5-10 minutes of each PE lesson. After PE teachers deliver the persuasive message, students are asked to answer a question about the message in each lesson.

What are the possible benefits and risks of participating?
The persuasive messages may be useful for participants to understand and maximize the benefits of doing physical activity by overcoming possible barriers. Furthermore, overweight participants might be able to reduce their body mass index through doing more physical activity during leisure time. Participants are asked to attach an accelerometer on his/her non-dominant wrist for one week in order to objectively measure their physical activity level. Although there are no foreseeable risks in participation beyond the risks of everyday living, the attachment of the accelerometer might cause slight discomfort. To minimize the discomfort, participants are requested to attach it in a comfortable manner.

Where is the study run from?
Nanyang Technological University (Singapore)

When is the study starting and how long is it expected to run for?
May 2015 to December 2018

Who is funding the study?
National Institute of Education (Singapore)

Who is the main contact?
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Contact information

Type(s)
Scientific

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Additional identifiers

EudraCT/CTIS number

IRAS number

ClinicalTrials.gov number

Secondary identifying numbers

OER 24/15 MK

Study information

Scientific Title
Effects of school-based intervention programs in promoting moderate to vigorous physical activity during leisure time

Study objectives
The present study aims to examine whether a school-based intervention program that targets salient benefits and barriers grounded on the theory of planned behavior is useful to promote secondary school students' moderate-to-vigorous physical activity during leisure-time and reduce the body mass index (BMI) of overweight students.

The trialists hypothesize that compared to the control condition:
1. Students will participate more in moderate-to-vigorous physical activity during leisure-time during intervention and post-intervention periods (H1)
2. Overweight students will exhibit a decrease in BMI after the intervention period (H2)
3. Students' attitudes and perceptions of control towards leisure-time physical activity will mediate the effects of the intervention program on physical activity intentions, behavior, and BMI (H3)

Ethics approval required
Old ethics approval format

Ethics approval(s)
1. Nanyang Technological University Institutional Review Board, 14/03/2016, ref: IRB-2016-01-032
2. Amendments to the original study protocol approved 18/07/2017, ref: IRB-2016-01-032-01

Study design
Within-subjects non-randomized trial

Primary study design
Interventional

Secondary study design
Non randomised study

Study setting(s)
School

Study type(s)
Quality of life

Participant information sheet
Not available in web format, please use the contact details to request a patient information sheet

Health condition(s) or problem(s) studied

Physical activity promotion; obesity management

Interventions
PE lessons were conducted twice a week over 4 weeks in both control and intervention conditions. An intervention program was implemented after the control period was over. In the control condition, PE teachers encouraged students in PE lessons to participate in physical activity during leisure-time without delivering persuasive messages in PE lessons.

Prior to the intervention condition, PE teachers were trained on how to deliver persuasive messages through a 3-hour workshop. During the workshop, PE teachers were encouraged to express their concerns about delivering persuasive messages, and researchers addressed those concerns to assist PE teachers to conduct the intervention at a sufficient level of proficiency. The persuasive messages targeted salient information related to benefits and barriers associated with physical activity. Salient benefits and barriers were identified based on the results of surveys conducted in the control condition.

In the intervention condition, PE teachers delivered the persuasive messages that targets the salient benefits and barriers associated with physical activity at the last 5-10 minutes of each PE lesson. After PE teachers delivered the persuasive message, students were asked to answer a question about the message in each lesson. Investigators evaluated PE teachers' fidelity of the interventions based on a checklist.

Intervention Type
Behavioural

Primary outcome measure
1. Participant's body mass index (BMI) was calculated based on their height and weight, measured across three occasions in each of the conditions: Pre-Baseline, Post 1 (6-weeks after Pre-Baseline) and Post 2 (4-weeks after Post 1) in the control condition; Pre-Baseline, Post 1 (5-weeks after Pre-Baseline) and Post 2 (4-weeks after Post 1) in the intervention condition
2. Participant's physical activity level was measured objectively with GENEActiv accelerometers across three occasions in each condition: Baseline (1-week after Pre-Baseline), Post 1 (4-weeks after Baseline) and Post 2 (4-weeks after Post 1). Participant's physical activity level was also measured subjectively with the International Physical Activity Questionnaire across four occasions in each condition: Pre-Baseline, Baseline (1-week after Pre-Baseline), Post 1 (4-weeks after Baseline) and Post 2 (4-weeks after Post 1)
3. Participant's leisure-time physical activity participation was measured with a Leisure-Time Questionnaire across four occasions in each condition: Pre-Baseline, Baseline (1-week after Pre-Baseline), Post 1 (4-weeks after Baseline) and Post 2 (4-weeks after Post 1)
4. Participant's attitudes, intentions, subjective norms and perceived behavior control towards leisure-time physical activity were measured with a questionnaire based on the constructs from the theory of planned behavior across four occasions in each condition: Pre-Baseline, Baseline (1-week after Pre-Baseline), Post 1 (4-weeks after Baseline) and Post 2 (4-weeks after Post 1)

Secondary outcome measures
1. Participant's prioritized intention, determination and willingness to engage in the other activity to vigorous physical activity during their leisure-time was measured with a questionnaire, measured at Pre-Baseline in both the control condition and intervention condition
2. Participant's goal conflict and facilitation were assessed through a questionnaire, measured across four occasions in each of the condition: Pre-Baseline, Baseline (1-week after Pre-Baseline), Post 1 (4-weeks after Baseline) and Post 2 (4-weeks after Post 1).

3. Participant's age and gender and their family's socio-economic status were measured with a questionnaire, measured at Pre-Baseline in the control condition
4. Physical education teachers' fidelity of the interventions was evaluated by researchers based on a checklist in every PE lesson during the 4-weeks intervention phase

Overall study start date
27/05/2015

Completion date
31/12/2018

Eligibility

Key inclusion criteria
Secondary school students were included in the study if:
1. They had physicians' permission to participate in physical education classes
2. Written permission for participating in the study was obtained from them and their parents /guardian

Participant type(s)
Healthy volunteer

Age group
Child

Sex
Both

Target number of participants
170

Key exclusion criteria
Secondary school students were excluded from the study if:
1. They could not obtain physicians' permission to participate in physical education classes
2. Written permission for participating in the study was not obtained from them and their parents/guardian

Date of first enrolment
01/04/2016

Date of final enrolment
27/12/2016

Locations

Countries of recruitment
Singapore

Study participating centre
Nanyang Technological University
Physical Education and Sports Science Academic Group
National Institute of Education
1 Nanyang Walk
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637616

Sponsor information

Organisation
National Institute of Education

Sponsor details
Office of Education Research
Nanyang Technological University
1 Nanyang Walk
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Sponsor type
University/education

Website
https://www.nie.edu.sg/research/research-offices/office-of-education-research

ROR
https://ror.org/02e7b5302

Funder(s)

Funder type
University/education

Funder Name
National Institute of Education

Alternative Name(s)
NIE

Funding Body Type
Private sector organisation

Funding Body Subtype
Universities (academic only)

Location
Singapore

Results and Publications

Publication and dissemination plan
The trialists intend to publish the study protocol and statistical analysis in BMC Public Health. Planned publication of results in a high-impact peer reviewed journal.

Intention to publish date
31/12/2023

Individual participant data (IPD) sharing plan
The data sharing plans for the current study are unknown and will be made available at a later date.

IPD sharing plan summary
Data sharing statement to be made available at a later date

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Protocol article	protocol	02/04/2018		Yes	No