Marceloa Castillo: Teachers workplace: Physical Activity and Sedentary Behaviour

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The high rate of global mortality due to non-communicable diseases has encouraged researchers to identify the major factors that are associated with increased prevalence of cardiovascular disease, diabetes and other preventable disorders. Lower levels of occupational physical activity, as well as other factors associated with modern life have increased habitual sedentary behaviour, despite the efforts made by governmental and non-governmental organisations to reverse this trend.

The working population spend nearly a half of their waking hours in the workplace making occupational settings an ideal environment to study physical activity and sedentary behaviours. While many occupations have been researched, primary school teachers' workplace physical activity has not been examined. Teachers are a large occupational group with the capacity to influence children, parents and the wider community's, medium- and long-term physical activity behaviours. The principle questions of this thesis included; Are teachers sufficiently active in their daily life? Do the teaching profession and the work environment allow teachers to be physically active? Does the work environment affect teacher's health? Do workplace conditions affect their work productivity? Does teachers' sedentary behaviour or physical activity influence their student's physical activity? Therefore, the aims of this thesis were: 1) to identify aspects that facilitate or impede New Zealand primary school teachers' involvement in physical activity; 2) to quantify physical activity and sedentary behaviour in teachers, and determine their cardiovascular health status; and 3) to determine the relationship between physical activity and sedentary behaviour of teachers and their students.

A mixed methods approach (qualitative and quantitative) was employed throughout this thesis, utilising a convenient sample of 103 primary school teachers and 131 of their students from 21 schools located in a variety of socioeconomic neighbourhoods in Auckland, New Zealand. Data were collected over two weeks at each school during February-November in 2011.

A qualitative approach was used to determine teachers' perception about their workload and the barriers that exist to being physically active at school. Voice recordings of semi-structured interviews (n= 8) conducted with teachers and principals from the participating schools were transcribed and coded using a thematic analysis approach. Physical activity and sedentary behaviour of teachers and children were measured using accelerometers (activPALTM & ActiCalTM) during 24 hours of monitoring on five consecutive days. Teachers self-reported their occupational, sport and leisure time physical activity using the Habitual Physical Activity Questionnaire and teachers' productivity was self-assessed using the Health and Work Performance Questionnaire. Teachers' cardiovascular health-status was determined from blood pressure, heart rate, anthropometric measures, demographic data and blood cholesterol, triglyceride and plasma glucose samples. The relationship between active and sedentary behaviour of the teachers and their student's time-matched (63-pairs of data) accelerometer-measured physical activity were also analysed.

The results of this thesis indicated that primary school teachers were more active at work than during out-of-work hours (65% of the energy expenditure was accumulated at work) and 57% of their time at work was spent sitting. In our sample, teachers were sufficiently physically active during school time to accumulate 30 min of moderate-vigorous activity daily. Teachers' cardiovascular health indicators appeared normal and predicted a low risk of developing cardiovascular disease in the next 10 years (<3%). Teachers with the lowest cardiovascular risk were those that were both more physically active and also interrupted their sedentary behaviour more than four times an hour throughout the day. Although no significant relationship between active and sedentary behaviours of teachers and their students was found, there was a trend for students of more active teachers to be more physically active and spend less time in sedentary behaviour than students of more sedentary teachers.

Using thematic analysis of written transcripts of the principals and teachers interviews it was determined that the two major barriers to teachers not engaging in physical activity at work were lack of time and high workload. Other factors such as weather, classroom space, and the number of children in each classroom, were also identified as barriers to engaging in workplace physical activity.

In conclusion, the work environment in New Zealand primary schools provided an opportunity for teachers to accumulate sufficient physically activity during school time to achieve the minimum daily moderate-vigorous activity recommendation. It is recommended however, that sedentary behaviour be interrupted more than four times an hour throughout the day to reduce the risk of cardiovascular disease among teachers. Further evidence is required to substantiate the recommendation of interrupting sedentary behaviour in the workplace.