Alberta Centre for Active Living
Research and education for the promotion of physical activity

Research UPDATE

A publication by the Alberta Centre for Active Living

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Summary

This article highlights a study that looks at the influence of a walking program and a fitness centre exercise program on the way middle-aged, overweight or obese people feel about their bodies.

Key Terms

The **ABSS (Adult Body Satisfaction Scale)** assesses aspects of body satisfaction such as satisfaction with one's body shape, weight, appearance, physical abilities, energy level, strength, endurance, and muscle tone.

BMI (body mass index) is used to classify people's weight. BMI is calculated by dividing a person's weight (kg) by the square of their height (m^2). According to the World Health Organization (2006), a BMI score below 18.5 is underweight, a score between 18.5 and 24.9 is a healthy weight, a score between 25 and 29.9 is overweight, and a score above 30 is obese.

Body satisfaction refers to how content we are with our body's physical appearance and abilities.

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Alberta Sport, Recreation, Parks & Wildlife Foundation
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Body Satisfaction Among Middle-Aged, Overweight and Obese Adults Over a 16-Week Walking or Fitness Centre Program

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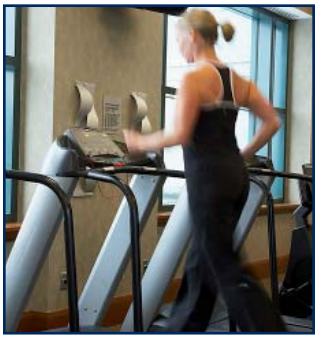


Body satisfaction can be viewed as how content we are with 'the picture that we have in our mind' of our body's appearance and abilities. Exercise psychology research has found that people who are more satisfied with their body are more likely to participate in physical activities (Sonstroem, Speliotis, & Fava, 1992).

For people who are overweight or obese, a psychological barrier to being physically active may be their satisfaction with their body. A low level of body satisfaction may discourage them from participating in exercise such as the typical physical activity prescription of exercising at a fitness centre three days a week.

We were interested in learning about the psychological impact of a walking program as an optional fitness program for overweight or obese middle-aged adults. This study looked at the influence of both a walking program and a fitness centre exercise program on the way middle-aged, overweight or obese people feel about their bodies.

What We Did

We examined multiple facets of body satisfaction among a group of men and women who participated in either a 16-week fitness centre exercise program or a 16-week walking program.

The participants in this study were unique in two ways. First, the group primarily included people who are overweight or obese. The average BMI (body mass index) of the participants who completed the study was 30.9 (the maximum BMI score for a healthy weight is 24.9). The second unique characteristic of this group was their age. Their average age was 44 years. Most body image research has been conducted among adolescents or young adults from university settings.

For one week all the participants counted how many steps they walked each day with a pedometer. Their average step count at this point was 5,036 steps a day. Then participants were randomly assigned to the walking program or the fitness centre program.

The fitness centre program consisted of cardiovascular training sessions three to four days a week. Participants were able to choose between the following cardiovascular exercise equipment: treadmill, recumbent or upright bikes, rowing machine, and elliptical machine. *(Continued on page 2)*

Body Satisfaction Among Middle-Aged, Overweight and Obese... *(Continued from front)*

Over the 16 weeks, the fitness centre program progressed in the time required to exercise, from 25- to 60-minute sessions, and from three to four times per week. The intensity of the exercise also increased. This group was asked to keep their daily step count outside the fitness centre sessions approximately the same as it was prior to beginning the program.

The walking program progressed by increasing the daily step count over the 16 weeks. Every four weeks, the daily step count increased by an additional 1,500 steps.

The two programs used the same amount of energy expenditure even as they progressed in time and intensity or number of steps. The energy expenditure calculation of the fitness centre participants included the energy expended in their sessions of exercise, observed with heart rate monitors, as well as their daily steps outside the fitness centre exercise sessions. The energy expenditure calculation for the walking group included the total daily steps of each participant.

At the initial recruitment time, participants answered a survey on basic demographic information (age, income, etc.) as well as a questionnaire called the Adult Body Satisfaction Scale (ABSS). Next a fitness assessment was performed. After eight weeks and 16 weeks of participating in one of the programs, the participants completed the same fitness assessment and the ABSS. Overall the participants completed four questionnaires and three fitness tests throughout the study.

Body satisfaction was measured four times within the study. Measures of body satisfaction included how satisfied people were with their body shape, strength, endurance, muscle tone, energy, weight, overall fitness, and physical abilities to carry out day-to-day tasks.

What We Found

Body satisfaction increased among all groups of participants (men, women, fitness centre participants, and walking participants). Participating in either a walking program or a fitness centre program was related to a person being more satisfied with his or her body's appearance and abilities. However, there were some differences in body satisfaction among men and women.

First, men had greater levels of satisfaction with their overall fitness, leg strength, and muscle tone throughout the study.

Second, women's satisfaction with their physical abilities was lower than men's at recruitment time. After eight weeks of a fitness centre or walking program, the women's body satisfaction scores were equal to the men's.

Third, men and women in the fitness centre group developed significantly greater satisfaction with their bodies by the eight-week mark and even greater satisfaction by the 16-week mark than the participants in the walking group. Therefore, both types of fitness programs can improve people's satisfaction with their body, but a fitness centre program results in significantly greater improvements.

Practical Implications for You

The results from this study suggest that exercise helps overweight and obese middle-aged adults increase their body satisfaction.

This result was seen in relation to both of the exercise programs in this study: cardiovascular exercise based out of a fitness centre three days a week and a walking program. However, greater increases in body satisfaction were observed in the fitness centre group than in the walking group.

Body satisfaction has been associated with positive physical and mental health. Therefore, an exercise program that includes walking and wearing a pedometer or going to a fitness centre may help people maintain or improve their physical and mental health.

References for this article are available at: http://www.centre4activeliving.ca/publications/research.html

About the Author

Christina Loitz is the research coordinator at the Alberta Centre for Active Living as well as a PhD candidate in the Faculty of Physical Education and Recreation at the University of Alberta.

Her research is in the area of exercise psychology from a social cognitive perspective, particularly physical self-concept, motivation, self-efficacy, and self-discrepancy theory.

The Impact of Physical Inactivity on Canadian Health Care

Nazmi Sari, PhD, Associate Professor, University of Saskatchewan Department of Economics and Faculty Researcher, Saskatchewan Population Health and Evaluation Research Unit (SPHERU)

Summary

This article highlights a study that estimates the impact of physical inactivity on the Canadian health care system. The study estimates how often health care services are being used in association with physical inactivity.

Key Terms

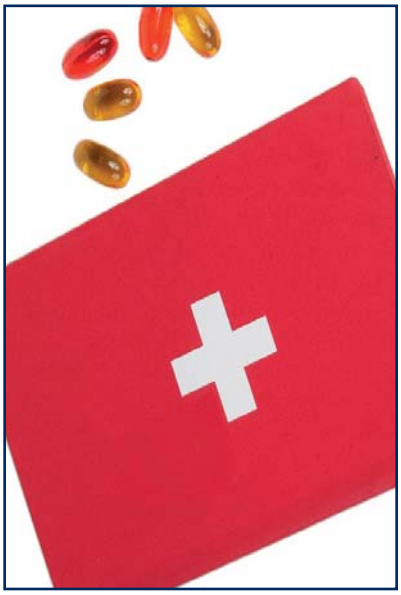
Count data models are a form of statistical analysis that uses non-negative integers. Examples include numbers of physician visits or hospital stays.

The **Canadian Community Health Survey (CCHS)** is administered by Statistics Canada and provides data on the lifestyle and health of Canadians.

Health determinants are factors that influence health such as income and social status, education, the physical environment, and personal health practices.

Social costs are the external financial and non-financial costs that unhealthy habits impose on everyone (e.g., increased public health care costs). In collectively funded health care, people with healthy habits who generally use fewer health care services indirectly subsidize those with unhealthy habits who generally use more health care services.

In spite of the known benefits of physical activity on health, people are spending more time in sedentary activities and becoming less active.



Hours in front of the TV have increased (Statistics Canada, 2006a). The rapid rise of Internet use has also contributed substantially to inactive lifestyles (Statistics Canada, 2006b). Ultimately, two-thirds of Canadians aged 20 and older are not physically active enough to meet the guidelines of *Canada's Physical Activity Guide* (Public Health Agency of Canada, 2008).

As a result, physical inactivity has become a major health issue in Canada and much of the developed world. Physical inactivity is consistently associated with chronic diseases such as diabetes, cardiovascular disease, and osteoporosis, and chronic diseases are a significant cause of premature death (Katzmarzyk & Janssen, 2004; World Health Organization, 2002). Also, people who are inactive often have a lower quality of life due to health problems.

Physical inactivity has negative consequences not just for inactive people, but also for society at large. Because physical inactivity contributes to health issues that require people to use more health care services, physical inactivity imposes extra costs on the publicly funded health care system. These external or social costs of inactivity are substantial.

What We Did

Using data from the Canadian Community Health Survey (CCHS), we estimated how often health care services are being used in Canada in association with physical inactivity.

The CCHS is administered by Statistics Canada. The survey is representative of the Canadian population and includes population-level information on health determinants, health status, and use of health care services.

The CCHS also includes information on Canadians' total daily energy expenditure from all leisure-time physical activities. Using this data, the survey categorizes people as active or inactive.

We used count data regression models to examine the use of health care services by active and inactive people as categorized by the survey. We used this approach rather than an unadjusted comparison between active and inactive people because physical activity is not the only factor that affects how often people use health care services.

People with different physical activity levels could have different socio-economic and demographic characteristics as well as differences in their physical and mental health. These differences may also affect their demand for health care services. We controlled these factors with count data regression models in order to estimate the use of health care services associated with physical inactivity. *(Continued on page 4)*

The Impact of Physical Inactivity on Canadian Health Care *(Continued from page 3)*

What We Found

On average, active people use significantly fewer health care services compared to inactive people. Physical inactivity imposes substantial social costs in the form of increased hospital stays and increased use of physician and nurse services.

The results show that, compared to an active person, an inactive person:

- spends 38% more days in hospital
- uses 5.5% more family physician visits
- uses 13% more specialist services
- uses 12% more nurse visits

On an annual basis, additional use of health care associated with insufficient physical activity is about:

- 2.37 million family physician visits
- 1.33 million other physician visits
- 0.47 million nurse visits
- 1.42 million hospital stays

These are the estimates of social cost for the publicly funded health care system in Canada.

Practical Implications

Regular physical activity is an effective preventive care for several chronic diseases (Hughes, Seymour, Campbell, Whitelaw, & Bazzarre, 2009; Warburton, Nicol, & Bredin, 2006). Ultimately, increased physical activity improves people's health and has the potential to reduce expensive health care services.

If a health promotion effort was successful in eliminating physical inactivity in Canada, it might create substantial savings through less use of expensive health care procedures and services.

This is currently an under-researched area. It is hoped that studies such as this will provide a solid foundation for further research. Ideally, this research will enhance our understanding of the implications of physically active lifestyles on the use of health care services as well as the factors that affect people's lifestyle decisions.

Full details of this study were recently published in *Health Economics* (Sari, 2009).

About the Author

Nazmi Sari, PhD, is an associate professor in the Department of Economics at the University of Saskatchewan. After receiving his PhD in economics from Boston University, he worked as an assistant professor in the School of Policy and Management at Florida International University. He has taught graduate and undergraduate courses on health economics and quantitative analysis.

Dr. Sari's current work concentrates on the economics of health promotion and prevention, specifically the economics of smoking, physical inactivity, and youth suicides. His research interests include: economics of health promotion and prevention; economics of suicide prevention programs; competition, health care quality, and cost in hospital markets; health care financing and provider reimbursements; and human resource projections in health care markets.

About the Organization

The **Saskatchewan Population Health and Evaluation Research Unit (SPHERU)** is a bi-university research unit with offices located across Saskatchewan in Regina, Prince Albert, and Saskatoon. SPHERU engages in population health research, which is the study of social factors that contribute to the well-being of various groups within the population. Working across various disciplines, SPHERU researchers collaborate with communities, other academics, and policy-makers to undertake this critical research.

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