



Screening of physical activity in health care

Mika Venojärvi

About the AUTHOR

Institute of Biomedicine,
Exercise medicine, University
of Eastern Finland, Kuopio,
Finland

Contact:
Mika Venojärvi
mika.venojarvi@uef.fi

Introduction

Physical inactivity and obesity are one of five leading global risk factors for mortality in the world (1). Physical inactivity rises in many countries and it is estimated as being the principal cause for e.g. approximately 30% of ischemic heart disease burden (2). It increases the risk of cardiovascular diseases, breast and colon cancers, dementia and depression and type 2 diabetes (3).

Physical activity (PA) is a modifiable lifestyle-related risk factor and evidence shows that PA has health benefits (4;5). During treatment and consultation of inactive patients, the health care personnel should advice on the benefits of increased levels of PA (2) and screenings of patients who do not meet the guidelines on PA is important (6). In a recent systematic review, Helmenhorst and co-workers present a comprehensive list of physical activity questionnaires (PAQ) for different age groups with a focus on reliability and validity of the PAQ (7). This review is helpful in selecting an appropriate PA screening method for different focus groups. PAQ are the most common applications in large populations for the assessment of PA as well as clinical practice (8;9).

PA screening in health care

Primary care can be a cornerstone for PA promotion as well as PA screening. In USA, Approximately 78% of people consult their general practitioner (GP) at least once a year (9). Primary care is a good place to promote PA or screen of PA for several reasons: in developed countries large population consult their GP, health promotion of integral part of patients having non communicable disea-

ses and simple screening questionnaires have been available to record PA in primary care (10). In addition GPs are reliable sources of advice (9).

In worldwide medical schools, residency, and fellowship training programs should prepare physicians to recommend exercise (11). Currently mostly physicians in the primary care provides individual services as counseling on PA to patients and in most countries primary care offers PA counseling to a minority of the patients (12). One significant and important thing, which is easily put into practice, is the identification of patients who do not meet current physical activity PA guidelines. Unfortunately, PA is not regularly assessed in clinical settings (13).

There are several techniques for assessment of PA, like behavioral observation, questionnaires and calorimeters, heart rate monitors or motion sensors (e.g., pedometers or accelerometers) (8). Uses of objective assessment methods of PA are more frequent use in nowadays. In comparison to alternative methods (e.g. objective methods of assessing PA), PAQs are short, easy to administer, and require minimal resources and hereby makes it a quick tool for screening in the health care system (8). In addition, PAQ are still the most feasible and practical method for screening PA, even though questionnaires have limitations as measurement error and misreporting (7).

PA screening questionnaires

It would be ideal if PQAs can rank patients into four categories: active, moderately active, moderately inactive and inactive (14). The PA screening method should also give information about type,



location, domain and context of the PA (7). Also it is important that PAQs are reliable, valid and sensitive (7;15). Based on Helmenhorst's systematic review, most PAQs appear to have acceptable reliability while the validity is moderate at best (7). Also it should be stated that PAQs are subjective methods and the results dependent on the respondent's cognition. In addition, questionnaires should not focus only on leisure time PA but also occupational PA.

International Physical Activity Questionnaire (IPAQ) is one type of questionnaire, which can be used to obtain comparable estimates of physical activity and its short version is suitable for quick screening in large populations, but it mostly focus on leisure time PA and requires complex mathematical calculations (9). Stanford Brief Activity Survey (SBAS) can be used for a quick assessment of the usual amount and intensity of the physical activity a person performs throughout the day (16), and Taylor-Piliae and co-workers have shown that SBAS is a valid and reliable PAQ in older adults (17).

General Practice Physical Activity Questionnaire (GPPAQ) is one example of a validated and reliable questionnaire, which focuses on both leisure time PA and occupational PA. Recent studies show that GPPAQ is acceptable for use in general practice by all focus group participants and most health care professionals considered that they can use GPPAQ in their routine work. Self-completion by patient of GPPAQ paper-copy before entering a GP consultation was the best method to screen patients PA. (14). This method can be one of the most suitable PA screening methods for use in primary care. Another useful short questionnaire is the 4-level Saltin-Grimby Physical Activity Level Scale (SGPALS) (18) and its modernized version (19). In addition SGPALS is associated with cardiovascular risk factors and the most inactive subjects have the highest risk factor profile (19).

Conclusions

There is still a need for accurate and reproducible PA screening methods in health care. Short questionnaires require minimal resources, which would be ideal as a quick screening tool for PA in health care. But as Helmenhorst's review showed, while the questionnaire often are reliable their validity is often only moderate.

In the future, more research is needed about finding the most suitable PA screening method in health care and the best timing of completing the PAQ during patients visit in the primary care.

References

- (1) World Health Organization. Global health risks: mortality and burden of disease attributable to selected major risks. Report of a WHO Study Group. Geneva: WHO 2009.
- (2) World Health Organization. Global Recommendations on Physical Activity for Health. Geneva, World Health Organization, 2010.
- (3) Walsh NP, Gleeson M, Shephard RJ, et. al. Position statement. Part one: Immune function and exercise. *Exerc Immunol Rev.* 2011; 17:6-63.
- (4) Pedersen BK, Saltin B. Evidence for prescribing exercise as therapy in chronic disease. *Scand J Med Sci Sports.* 2006; 16 Suppl 1:3-63.
- (5) Warburton DE, Nicol CW, Bredin SS. Health benefits of physical activity: the evidence. *CMAJ.* 2006; 174:801-9.
- (6) Prochaska JJ, Sallis JF, Long B. A physical activity screening measure for use with adolescents in primary care. *Arch Pediatr Adolesc Med.* 2001; 155:554-9.
- (7) Helmenhorst HJ, Brage S, Warren J, Besson H, Ekelund U. A systematic review of reliability and objective criterion-related validity of physical activity questionnaires. *Int J Behav Nutr Phys Act.* 2012; 9:103.
- (8) Westerterp KR. Assessment of physical activity: a critical appraisal. *Eur J Appl Physiol.* 2009; 105:823-8.
- (9) Vega-López S, Chavez A, Farr KJ, Ainsworth BE. Validity and reliability of two brief physical activity questionnaires among Spanish-speaking individuals of Mexican descent. *BMC Res Notes.* 2014; 7:29.
- (10) Williams Nefyn H. Promoting physical activity in primary care *BMJ* 2011; 343:d6615.
- (11) Fletcher GF, Balady G, Blair SN, et. al. Statement on exercise: benefits and recommendations for physical activity programs for all Americans. A statement for health professionals by the Committee on Exercise and Cardiac Rehabilitation of the Council on clinical Cardiology, American Heart Association. *Circulation.* 1996; 94:857-62.
- (12) Vuori IM. Role of primary health care in physical activity promotion. *Dtsch Z Sportmed.* 2013; 64:176-182.
- (13) Ma J, Urizar GG Jr., Alehegn T, Stafford RS. Diet and physical activity counseling during ambulatory care visits in the United States. *Prev Med.* 2004; 39:815-822.
- (14) Heron N, Tully MA, McKinley MC, Cupples ME. Physical activity assessment in practice: a mixed methods study of GPPAQ use in primary care. *BMC Fam Pract.* 2014; 15:11.
- (15) Shephard RJ. Limits to the measurement of habitual physical activity by questionnaires. *Br J Sports Med.* 2003; 37:197-206.
- (16) Taylor-Piliae RE, Haskell WL, Iribarren C, et al.. Clinical utility of the Stanford brief activity survey in men and women with early-onset coronary artery disease. *J Cardiopulm Rehabil Prev.* 2007; 27:227-32.
- (17) Taylor-Piliae RE, Fair JM, Haskell WL, et. al. Validation of the Stanford Brief Activity Survey: examining psychological factors and physical activity levels in older adults. *J Phys Act Health.* 2010; 7:87-94.
- (18) Saltin B, Grimby G: Physiological analysis of middle-aged and old former athletes Comparison with still active athletes of the same ages. *Circulation* 1968; 38:1104-1115.
- (19) Rödder L, Jonsdottir IH, Rosengren A, et. al. Self-reported leisure time physical activity: a useful assessment tool in everyday health care. *BMC Public Health.* 2012; 12:693.