

Review Article

Measurement properties of instruments that assess inclusive access to fitness and recreational sports centers: A systematic review

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Abstract

Background: Exercise is necessary for overall health and well-being for all individuals. For people with disabilities, fitness and recreational sports centers are reported to be generally inaccessible and not user friendly.

Objective: This review study aimed to identify instruments that assess access to fitness and recreational sports centers and to appraise the identified instruments' qualitative and quantitative attributes.

Methods: We systematically searched databases (AMED, CINAHL, EMBASE, MEDLINE, SCOPUS, SPORTDiscus and Web of Science for the years spanning 1950 to April 2012) and web-based search engines (Google and Google Scholar) to identify instruments, published in English that objectively assess the accessibility of fitness and recreational sports centers. Identified instruments were critically appraised using the qualitative attributes QAPAQ Checklist Part I and the COSMIN checklist for measurement properties.

Results: Seven instruments were included in this review: ADA Accessibility Guidelines Checklist for Buildings and Facilities (ADAAG); ADA Checklist for Readily Achievable Barrier Removal; Accessibility Instruments Measuring Fitness and Recreation Environments (AIMFREE); Community Health Environment Checklist – Mobility (CHEC-M); Removing Barriers to Health Clubs and Fitness Facilities (RBHCFF); Health Empowerment Zone Environmental Tool Shortened Environmental Checklist: Fitness Centre Survey (HEZEAT-FCS); Community Health Environment Checklist – Exercise Facilities (CHEC-Fit). Only the AIMFREE and CHEC-M have aspects of measurement properties evaluated.

Conclusion: We recommend that instrument developers consider conducting full psychometric assessment of their instruments using adequate sample sizes. We also recommend they consider scoring methods and respondent burden to provide scientifically robust instruments that are easy to administer. © 2014 Elsevier Inc. All rights reserved.

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People with disabilities (PwD) are amongst the most physically inactive groups in society.^{1–5} As such this population group is at high risk of developing secondary conditions which may impact negatively on their physical function and overall well-being.^{6–8} Participation in physical activity through recreation has substantial benefits to minimize secondary conditions.^{7,9} To enable PwD to become physically active, indoor fitness and recreational sports centers (defined by the North American Industry Classification System (NAICS)¹⁰ as, “establishments primarily engaged in operating fitness and recreational sports facili-

ties featuring exercise and other active physical fitness conditioning or recreational sports activities”) need to be easily accessible and provide inclusive, safe and supportive environments.¹¹ However, international evidence suggests that a large proportion of PwD do not use fitness and recreational sports centers.⁷ PwD repeatedly report poor “accessibility” and “usability” of these environments for them.^{12–17}

The term “accessibility” is an objective descriptor based around Iwarsson and Stahl's¹⁸ concept of “person–environment fit.” This entails a dynamic relationship between a person's functional capacity and a particular physical environment. “Usability” takes the notion of accessibility one-step further. It describes the perception of how an environment restricts or supports an individual.¹⁸ For example, an individual with a physical disability might be able to access and move around the building, but if they cannot make use of the equipment safely, then the fitness facility would not be usable to such an individual. Studies by

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Rimmer et al⁵ and Rolfe et al¹⁹ have explored barriers and facilitators of community fitness facilities by PwD. These authors have highlighted the importance of a structured means of measuring access to fitness and recreational sports centers for PwD.

Over the past twenty years the terms “accessibility” and “usability” have increasingly gained attention (at least in a theoretical sense), as policies and legislation have promoted equal opportunities for PwD to participate in an inclusive society.^{20,21} In many countries, building regulations (codes and standards) require that there be accessibility for all.^{21–23} In the United States of America (USA), the American Disabilities Act (ADA) 1991 is the law that underpins accessibility for all. The ADA prohibits discrimination against PwD for accessibility in all areas of life, including recreational exercise.^{24–27} Titles II and III of the document specifically refer to the provision of equal access to public facilities and set out the minimum legal standards for achieving accessible environments. Most community fitness and recreational sports centers fall under the umbrella of public facilities and therefore are required by USA law to provide equal access for PwD.^{1,7} Recent evaluation studies about the degree to which fitness and recreational sports centers in the USA comply with the ADA built environment domains (e.g. parking, entrances, restroom, access to equipment) for people with mobility impairments have, however, found no facility to be 100% compliant in any domain.^{1,21,28–31} Potential reasons include:

- i. The building regulation legislation are minimal standards of compliance^{23,32,33} which likely suits those who are either able bodied or are only minimally physically impaired.
- ii. The research was undertaken within existing buildings that were never built to code.^{1,28–31} Under ADA legislation, owners of existing buildings have to remove architectural barriers only if they are readily achievable (i.e. without much difficulty or expense)^{34–36} which means they are unlikely ever to achieve 100% compliance.
- iii. There appears to be a lack of knowledge and awareness by building owners, developers, designers, and builders about accessibility issues encountered by PwD.^{36–38}

Evaluating fitness and recreational sports centers for accessibility would allow PwD to become more self-efficacious in their decision-making about which fitness facility best meets their individual requirements. For health professionals, such knowledge would be helpful in introducing an individual with disability to a facility that best meets their needs in relation to person–environment fit. Furthermore, fitness center owners could benefit from using an instrument that accurately evaluates their facility to determine accessibility compliance and to identify potential barriers to the person–environment fit for PwD.

Instruments that assess accessibility of fitness and recreation sports centers need to be user friendly and psychometrically sound.^{39,40} The purpose of this paper was to:

- i) Systematically search the literature to identify instruments that can be used to assess accessibility of fitness and recreational sports centers
- ii) Critically appraise the instruments’ qualitative attributes (the instrument’s purpose, setting, construct, justification, target population, format, interpretability, feasibility and utility) using the Quality Assessment of Physical Activity Questionnaire (QAPAQ) Checklist Part 1⁴¹
- iii) Critically appraise the instruments’ psychometric measurement properties of reliability, validity and responsiveness using the COSensus-based Standards for the selection of health Measurement INstruments (COSMIN) checklist^{42,43}

We selected the QAPAQ Checklist Part 1 and the COSMIN checklist because there is no single checklist available to appraise qualitative attributes and measurement properties for instruments assessing accessibility of fitness and recreational sports centers. Terwee et al⁴¹ developed the QAPAQ Checklist Part 1 to appraise the qualitative attributes of physical activity questionnaires. The checklist generates descriptive information about an instrument’s qualitative attributes.⁴¹ Although the QAPAQ Checklist Part 1 has not undergone psychometric evaluation, it has been used in a number of recently published systematic reviews that have investigated measures of health status.^{44–50}

The COSMIN checklist was developed by a group of 43 experts in health status measurement across different health disciplines using a Delphic approach to classify psychometric measurement properties.^{42,43} The experts developed the COSMIN checklist originally to evaluate health-related patient-reported outcome (HR-PRO) questionnaires.⁴² However, the COSMIN developers also state their checklist is suitable for evaluating the psychometric properties of other instruments.⁴² Therefore, we considered it suitable to evaluate instruments that measure accessibility.

Methods

Search strategy

We systematically searched databases (AMED (Ovid 1985), CINAHL (via Ebsco), EMBASE (Ovid 1947), MEDLINE (Ovid 1950), SCOPUS, SPORTDiscus (via Ebsco), and Web of Science via Web of Knowledge for the years spanning 1950 to April 2012) and web-based search engines (Google and Google Scholar) using key words and synonyms for: recreation; environment; accessibility; instrument and evaluation. We eliminated duplicate instruments before screening them for eligibility. Included instruments (written in the English language) objectively measured accessibility of fitness and recreational sports centers.

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