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Ellen Freiburger¹ · Nanna Notthoff²

¹ Institute for Biomedicine of Aging, Friedrich-Alexander-Universität Erlangen-Nürnberg, Nuremberg, Germany

² Faculty of Sport Science, Leipzig University, Leipzig, Germany

Wording in the area of mobility and physical activity—the challenge of perception for researchers and older persons

Introduction

The demographic changes pose a challenge on individual and societal levels. Especially the percentage of people over 85 years is predicted to rise the most. In Europe, a person aged 60 years in 2018 could expect to live an additional 20 years, on average (Eurostat, 2020). Unfortunately, this rise in life expectancy is not congruent with healthy life years. In Europe, the Eurostat data show that in 2019, the number of healthy life years at birth was estimated at 65.1 years for women and 64.2 years for men; this represented approximately 77.5% and 81.8% of the total life expectancy for women and men, respectively (Eurostat, 2021).

The concept of healthy ageing (WHO, 2015) is defined as a “process of developing and maintaining the functional ability that enables wellbeing in older age. Healthy ageing thus reflects the ongoing interaction between individuals and the environments they inhabit” (WHO, 2015).

Although physical activity benefits physical health, cognitive performance, and psychological well-being into old age (Warburton, Nicol, & Bredin, 2006), many older people do not accumulate the recommended amount of physical activity (Sato, Du, Inoue, Funk, & Weaver, 2020; Watson et al., 2016). Therefore, physical activity promotion for health benefits in older persons has gained importance and is a public health goal.

Framing of health messages is important, as essentially identical information can have different effects on an older person's choice and action. Physical activity promotion connects different health professionals and is often interdisciplinary, ranging from medical personnel to social workers. The different conceptualizations of expertise guiding these promotion activities sometimes generate some pitfalls (Wray, 2017). The changing language of lay older persons adds further complications. Older persons in Germany, for example, were educated in their youth with the terms “Leibeserziehung” or “Turnen” but the term “Sport” has become more popular later in life as a synonym for physical activity (Burkhardt & Schlobinski, 2009). Therefore, awareness about the usage of wording or terms is one important aspect for being able to address older persons in physical activity promotion.

The objective of this short commentary is to highlight the impact of definitions and terms in science and research regarding the framework of physical activity and health-promoting behaviors. Furthermore, the different perceptions of wording by lay older people are discussed.

The concept of “physical activity” and sedentary behavior from a scientific approach

Physical activity is a means of preserving health, well-being, and independence in old age. It even plays an important role for survival into late life and the public health care systems with regard to health care costs (Lee et al., 2012; Sato et al., 2020). Various international recommendations and longitudinal studies therefore addressed different intensities and types of physical activity. Outcomes of research interest were maintaining or improving different health aspects, in addition to quality of life. Maintaining independence and functioning in older persons are also well investigated research topics (Bonk, 2010; Chodzko-Zajko et al., 2009; Gudlaugsson et al., 2012; Nelson et al., 2007; Pahor et al., 2006; Park et al., 2010).

Due to some inconsistency in reports of physical activity interventions—which might be attributed to differences in the understanding of terms and underlying constructs along with different target populations—types of interventions, or measurement methods (Fiatarone Singh & Sutton, 2002; Keysor, 2003), there is a need for transparency of the terminology used in different disciplines.

For sport science, it is not new that the first definition of physical activity (PA) was provided by Caspersen, Powell, and Christenson (1985) in the 1980s.

This framework was later adopted by the WHO in their physical activity recommendations (2009; and the update: WHO, 2020). Caspersen and colleagues (Caspersen et al., 1985) defined physical activity “as any bodily movement produced by skeletal muscles that results in energy expenditure” (p. 126). In accordance, the WHO defines “physical activity as any bodily movement produced by skeletal muscles that requires energy expenditure.” In conclusion, the term PA often is used as an umbrella term including several subcategories, for example, sport, which is characterized as a range of activities performed within a set of rules and undertaken as part of leisure or competition, and exercise, which is characterized as planned, structured, repetitive PA (WHO, 2020).

The term sedentary behavior has only recently emerged in aging research due to the negative effects on mortality and health outcomes (Pate, O’Neill, & Lobelo, 2008; Tremblay et al., 2017) and the need for differentiation from inactivity. Sedentary behavior (SB) is defined as “any waking behavior characterized by an energy expenditure ≤ 1.5 metabolic equivalents (METs), while in a sitting, reclining or lying posture” (Tremblay et al., 2017).

The differentiation within subcategories is often unnoticed by other health professionals as well as by older persons. Especially, the subcategory of exercise as a planned, structured, repetitive program is often used interchangeably with PA. There are many overlaps between PA and exercise, but they are not the same in practice. As much as the definition of PA and the subcategories are well understood in movement science, nevertheless very often—even in systematic reviews—a mix of terms can be found. For example, calling a systematic review “Effects of physical activity on ...”, and then the included studies actually provided exercise programs and not “just PA” (Vanderlinden, Boen, & van Uffelen, 2020; Hamer & Chida, 2009).

Especially with regard to the decreasing percentage of older persons meeting the recommended PA level, but increasing percentage with high levels of SB, it is necessary to look at the two sides of the coin (PA vs. SB) in older persons.

SB results in a higher risk of disability. The updated new recommendation by the WHO (2020) addressed this important aspect, considering both sides: PA and SB.

The impact of different wordings of “physical activity” in research

In addition, it is important to take into account which category of PA is investigated, e.g., Chase reported in 2013 “only 28–34% of adults age 65 and older participate in any leisure time PA” (Chase, 2013). In contrast, Sun, Norman, and While (2013) reported a range of 2.4–83% based on the terms being applied, e.g. recommended PA level, whereas in the same review, the prevalence of leisure time PA ranged between 6.23 and 67.51%. Furthermore, the length of PA bouts being included varied from 10 minute bouts to 30 minute bouts, having another detrimental impact on the results (Sun et al., 2013). For Germany, a recent longitudinal report stated that 75% of women in Germany did not meet the recommendations of 150 min/week of “aerobic PA”, and 50% of women and men over 65 years engaged in less than one day per week of “aerobic PA” (Manz et al., 2018). Although national data are of importance, especially longitudinal data, the wording of the obtained variable is crucial. Besides aerobic PA, the WHO recommendation for older persons with functional limitations includes strength and balance components (WHO, 2009; WHO, 2020). (WHO, 2009; WHO, 2020).

Overall, with the urgent need to increase PA levels in the entire population, these different usages of terms and approaches are currently posing a huge barrier for the implementation process. Recently, a recommendation by the American Heart Association for assessing and screening of PA into routine health care was published (Lobelo et al., 2018).

Perception of PA or exercise in lay older persons

With regard to the perception of physical activity in lay older persons, it is interesting that this population is not lining

up to participate in provided physical activity/exercise classes. Several barriers regarding engagement and uptake have been investigated, and they have included individual perceptions and beliefs of older adults (Åhlund, Öberg, Ekerstad, & Bäck, 2020; Bauman, Merom, Bull, Buchner, & Fiatarone-Singh, 2016; Freiburger, Kemmler, Siegrist, & Sieber, 2016; Notthoff & Carstensen, 2014; Baert, Gorus, Mets, Geerts, & Bautmans, 2011; Yardley, Donovan-Hall, Francis, & Todd, 2007). Notthoff and Carstensen (2014) investigated the aspect of framing messages to recruit older persons into a walking program. Yardley et al. (2007) investigated beliefs and attitudes of older persons.

One issue in the perception of physical activity is the diversity of older persons with regard to function, attitudes, and emotional as well as cognitive characteristics, which influence the perception of the older person. For example, the advice for an older person “you should walk more” might not be well accepted by a healthy and tough older person (having a perception of “walking is boring”). Whereas, for a frail older person, this advice “of walking more” might seem like a joke as this person may barely be able to move around his/her apartment (having a perception “I will never be able to do this”).

Our own research in older community-dwelling persons—on the broad functional range including “only” mobility limitations to frailty or sarcopenia—supported the importance of perception and attitudes on the side of the target population. Using the term “sport intervention” (or being offered in a sports environment, e.g., sport club) posed a tremendous barrier as the older individuals did have the perception “of not being good enough/not having enough functional skill/functional ability to participate”, whereas it attracted the fit older persons expecting real “sports activity” (Freiburger et al., 2012). In the first intervention (Enhancing Balance; Freiburger et al., 2012), the exercise classes were provided at the Institute of Sport Science and Sports of the FAU Erlangen-Nuremberg which led to questions/actions of buying sport shoes

and sport clothes by the prospective participants. Therefore, the use of the appropriate framing defines the success of the recruitment process.

Another important aspect to recognize with regard to PA or exercise are the attitudes of the older persons. Attitudes like “at my age, it is too late to change anything/I am not that old but my neighbor should take part” also posed an interesting challenge in recruiting the right participants. In addition, especially in the frailer and older prospective participants, it led to concerns about harms or possible injuries during the exercise intervention, which is also supported by the Åhlund et al. (2020) article. In a qualitative study, Åhlund et al. (2020) reported that the frail participants stated a balance between meaningful PA to them, but also harms to their aging body.

Perception of PA or exercise in instructors

Adding to the complexity in the area of PA in older persons is the perception of the instructors with regard to PA or exercise promotion. There is evidence indicating that instructors play a key role in older persons' uptake or adherence to PA or exercise classes (Chatters et al., 2018; Hawley-Hague et al., 2014; Hawley-Hague, Horne, Skelton, & Todd, 2016). Especially in Germany, where this area is linked to sport science or sport club activities, this historical origin is posing a barrier. Instructors coming out of the “Sport Science” area are often not used to the complex and challenging context and challenge of integrating frail older persons into their programs. Problems start with the terms used, e.g., “sport intervention”, and continue to the problems of providing transportation or access for this population and cumulate in the challenge of providing the appropriate level of intensity in the classes (Freiberger et al., 2016; Freiberger, Sieber, & Kob, 2020).

Our own ongoing educational experience showed that sport or exercise instructors are often not familiar with the physical or medical problems of their participants, creating difficult situations in the intervention. When younger instructors were given the chance to change roles

by using an “Agesman Suit”, they experienced some of the problems in a simple daily activity, e.g., chair rise, or were barely able to get up from the floor. This experience is important for the perception and acknowledgement that a simple functional exercise as the chair rise exercise (integrated in nearly all effective exercise programs for frail or sarcopenic older persons) is very effective.

In conclusion, the experience with older persons who are not “sports oriented” poses a challenge on the instructor level. The understanding of the older persons' complexity (being afraid of injuries due to exercise or experiencing pain in daily movements or not having positive attitudes for PA/exercise) requires different skills on the instructor level. Research has demonstrated the importance of positive framing already in the recruitment process (Gallagher & Updegraff, 2011).

The concept of “mobility”

Although at present, there is no gold standard definition of mobility in older persons, in most concepts and models, mobility is understood as “one's ability to move independently around their environment” (Mitchell, Johnson-Lawrence, Williams, & Thorpe, 2018). Mobility is defined by Webber et al. in a broad framework as “the ability to move oneself (either independently or by using assistive devices or transportation) within environments that expand from one's home to the neighborhood and to regions beyond” (Webber, Porter, & Menec, 2010). Problems related to inconsistent definitions of “mobility” have been outlined in a review (Chung, Demiris, & Thompson, 2015). The theoretical framework by Webber et al. (2010) includes multiple determinants of mobility covering transportation/environmental aspects, cognitive, physical, as well as financial, psychosocial, cultural, and gender aspects. The included determinants demonstrate the need for holistic approaches in the area of mobility in older persons. As the interaction of these domains is dynamic across the aging process, it is crucial that biology, medicine, and population science work together for a better understanding

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E. Freiberger · N. Notthoff

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Abstract

When promoting physical activity (PA) to older persons, perceived wording is of importance and mostly not congruent with the scientific approach. The differentiation within physical activity subcategories is often unnoticed by other health professionals as well as by older persons. Especially, the subcategory of exercise as a planned, structured, repetitive program is often used interchangeably with PA. This short communication addresses the different perceptions in wording between health care professionals, sport scientists, and lay older persons with the goal to enhance the awareness of wording for professionals, which is a prerequisite for designing appropriate messages.

Keywords

Aging · Perception · Physical activity · Mobility · Walking

standing of the life course of mobility (Ferrucci et al., 2016).

In contrast to the underlying framework of mobility of Webber et al., in nursing care science, mobility includes daily activities, e.g., dressing, toileting, but also bed mobility, e.g., turning from one side to the other. This is replicated in the recently published German Expert Standard on mobility and can only be seen in the context of nursing care dependency, whereas in sport science, mobility would not necessarily include “bed mobility.”

The concept of mobility described here underlines the importance of the mobility concept for maintaining independence and quality of life for older persons. Ferrucci et al. even stated that mobility is a “hallmark of aging” and an important pillar for independent status (Ferrucci et al., 2016). In older persons, mobility limitations are increasingly prevalent, affecting about 35% of persons aged 70

and the majority over 85 years (Musich, Wang, Ruiz, Hawkins, & Wicker, 2018). In a recent narrative review, age-related changes in mobility have been discussed, including more “movement-related” topics as the impact of neuromuscular and cognitive/emotional dimension on mobility (Freiberger et al., 2020).

Nevertheless, the prevalence of self-reported mobility limitations varies due to different concepts and models in different scientific approaches (nursing, psychology, geriatrics, and sport science).

In conclusion, mobility, especially in older persons, unfortunately has been investigated discipline (e.g., medical, transportation, or therapy related) and domain specific (e.g., walking with or without device; use of public transportation). There is an urgent need for an interdisciplinary approach with regard to mobility in older persons.

Perception of mobility in lay older persons

In a metasynthesis, Goins et al. (2015) summarized different themes of the perception of mobility in older persons. They extracted three major themes in the perception of mobility:

1. Mobility is an integral part of sense of self and feeling whole
2. Assisted mobility is fundamental to life
3. Adaptability is a key to move forward

Under the first theme, the awareness of older persons is summarized with regard to the recognition that mobility is related to independence and well-being. The older persons relate mobility capacities to their self-confidence. Furthermore, in case of mobility decline, older persons reported a decrease in self-perception, e.g., self-identity (Goins et al., 2015). This theme demonstrated the psychological impact of older persons' perceptions on mobility, which needs to be addressed on research and instructors' levels.

The second theme addressed the feeling of older persons in case of mobility decline and impairments and the use of assistant devices. The loss of car driving is often perceived as “feeling imprisoned.” The use of assistant devices, for exam-

ple, are associated with environmental (e.g., wheeled walker use in public transportation), intrapersonal (e.g., self-confidence and self-images) as well as interpersonal barriers (maintaining social contacts) (Goins et al., 2015).

Own research experience showed that to maintain mobility and be able to go shopping, biking was maintained even in the case of severe physical impairments. Driving was not allowed any longer, walking was severely impaired, so biking was the only possibility to maintain mobility and remain independent. Another experience is related to mobility assistance, e.g., wheeled walkers. Often, participants are unaware and lacking information about the right usage of wheeled walkers and are not satisfied with the wheeled walkers (Brandt, Iwarsson, & Stahl, 2003; Lindemann et al., 2016).

The third theme addressed the navigation and coping with mobility declines in older persons. Older persons reported facing difficult decisions by experiencing mobility declines. They also reported concerns on the social impact and the feeling of being stigmatized as frail. Furthermore, the perception of incongruence between health care professionals' view of significance and priority of mobility in older persons posed another burden (Goins et al., 2015).

In conclusion, health care professionals and movement scientist should target the psychological dimensions as well as environmental barriers in the perception of older persons with regard to mobility.

The concept of “walking”

Sustaining mobility and independence is a priority for older persons. Walking is a component of mobility and very often recommended, as it is easy to perform and has no additional financial burden. In terms of leisure time physical activity, walking is one of the most commonly reported activities, and therefore often recommended for older community-dwelling persons.

In geriatric research, walking or gait speed terms are used interchangeably (Studenski, Perera, & Patel, 2011; Middleton, Fritz, & Lusardi, 2015). Nevertheless, both parameters have been found

to be strong predictors of the onset of disability and/or mortality (Studenski et al., 2011; Middleton et al., 2015).

Perception of walking in lay older persons

In addition, older people often seem to be ignorant or doubtful of the health benefits of walking (Leavy & Åberg, 2010; Bean, Kearns, & Collins, 2008). Research demonstrated that less active or completely inactive participants described that they were not well informed about the health benefits of exercise. Some mentioned that their doctors did not discuss with them what an appropriate type of activity would be. A study by Bean and colleagues (Bean et al., 2008) assessed perceptions of the importance of walking for physical health in the context of understanding transportation behavior. They reported that health concerns were far from the primary reason for picking walking over other forms of transportation. Some stressed the importance of walking for their social lives, e.g., walking home with friends after a night out or having regular walking dates with friends in the neighborhood, rather than for their health (Bean et al., 2008).

In contrast to the views that walking levels are low because people may not see it as an appropriate way to promote their health, findings from a study of 3415 Australians over the age of 15 years suggest that surveys do not accurately measure people's walking levels. Merom and colleagues (Merom, Bowles, & Bauman, 2009) argued that walking is part of other daily activities, such as transport. Their goal was to assess why walking is not reported as accurately as other activities in self-report surveys of physical activity. They compared self-reporting of leisure physical activity when a general question was asked vs. when people were specifically asked about walking. Hiking was treated separately from walking. In all, 78% of the participants reported that they walked for exercise, recreation, or sport in the past 12 months, but only 35% reported walking when asked the general question about physical activity, whereas 43% had to be prompted specifically for

walking. In comparing characteristics of people who had to be asked specifically about walking, the researchers found that men were less likely to report walking in response to the general question than women. The results indicated that 14% of the entire sample would have been falsely classified as not engaging in any leisure time physical activity, had they not been asked specifically about walking. This also raises the necessity of better understanding lay people's language use for communicating about walking. It may be just as important to understand the nuances here as it is to understand the nuances in the language of health professionals.

Conclusion

There is no "golden way" to overcome the difference in perception of terms or wording between sport scientists, health care worker and lay older persons. It is important for researchers and instructors to be aware of these differences. There is a need for translation of the "language of science" into lay language for empowerment of the older person to understand the underlying knowledge and be able to make the right choices in the area of physical activity.

Taken together, if PA or categories of PA or types of PA are promoted to older persons, wording is of importance and mostly not congruent with the scientific approach. To enhance the percentage of older persons who are physically active, this understanding is a prerequisite for designing appropriate messages. Increasing awareness and motivation about the positive effects of "simple walking", especially in frail older persons, has until now not received enough attention, neither from research nor from the perspective of the older person.

In addition, positive framing of health messages related to physical activity or exercise intervention is a prerequisite for motivating older persons to begin physical activity or exercise classes.

As a limitation it has to be stated that by the nature of this article—a short communication—the authors could not address all the manifold elements in depth. This needs to be addressed in separate publi-

cations, e.g., gaining more in depth expertise of the understanding of lay older persons with different levels of PA or different functional levels. In addition, more information on wording in the recruitment process should be reported in future studies.

Corresponding address

PD Dr. Ellen Freiberger
Institute for Biomedicine of
Aging, Friedrich-Alexander-
Universität Erlangen-
Nürnberg
Kobergerstr. 60,
90408 Nuremberg,
Germany
ellen.freiberger@fau.de

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Declarations

Conflict of interest. E. Freiberger and N. Notthoff declare that they have no competing interests.

For this article no studies with human participants or animals were performed by any of the authors.

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