Life-space in older populations: Promising technology-supported measure of mobility
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Purpose Life-space is a measure of the spatial extension of the area in which a subject moves within a specified time. Due to its implicit link to physical movement of a person it has frequently been used as a measure of mobility, consequently being referred to as "life-space mobility" in several works. By now there is an empirical foundation for its association with various clinically meaningful measures in older populations such as apathy, depression, social participation and physical functioning. Still, most of this work relies on self-report of life-space (mobility), which especially in older subjects comes with a high risk of bias. To address this issue, technology-based assessments have been used more frequently, but these also have methodological pitfalls, especially considering the different living environments of older persons. **Methods** This talk (1) gives an overview of empirical evidence on technology-assessed life-space which is still in the process of being formed; (2) presents findings from own empirical studies on the topic; (3) derives missing pieces in the current evidence and proposes future steps to fill these gaps; (4) discusses the potential of intervention-induced enhancement of life-space. **Results & Discussion** Especially in community-dwelling populations, GPS-derived data provides a clear picture of the extent of older individuals' mobility exertion in everyday life and with high ecological validity. Outcomes such as number of trips, ellipse area and maximum distance travelled help understanding where older people move and how they are actually utilizing their individual environment. This not only provides a more holistic view on health and wellbeing in older persons, but it is also important in terms of social participation and the effect of the living environment on individual mobility. When it comes to more impaired samples such as nursing home residents, other measures such as infrared and wireless communication systems are applied with much more measurement intricacies. Data shows that in these cases, mobility is largely confined to indoor spaces whereas longer out-door travel occurs mainly via passive transportation. Interventions to promote life-space utilization are scarce but show that through functional training and physical activity promotion life-space can be enhanced. Currently used instruments and the anticipation of ongoing techno-logical development strengthen the usefulness and feasibility of technology-based life-space assessments in gerontological research.

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