



Quality of life in older adults: Benefits from the productive engagement in physical activity

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ABSTRACT

Productive engagement can be a strategy to reduce stress and chaos. Physical activity, a basic type of productive activity, could benefit older adults. Therefore, the purpose of this study was to explore how productive engagement in physical activity may influence older adults in maintaining their health-related quality of life when they live in a long-term care facility. We used purposive sampling to recruit 163 participants from 14 long-term care facilities in Taiwan. Data were collected through individual interviews with a structured questionnaire. Descriptive statistics and independent *t*-test were used. The result demonstrated that the preferred type of physical activities for the older adults was similar after the relocation. Older adults with increasing productive engagement in physical activity reported better scores of Mental Component Summary, social and emotional role functioning than those with decreasing productive engagement in physical activity. Older adults can have a positive perceived health-related quality of life by consistently or increasingly engaging in productive physical activity, especially when encountering a life event.

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Introduction

The older population has been growing in recent years. The proportion of older adults aged 65 years and above was 8% in 2010, and it will double worldwide in 2050.¹ Population aging has become an important issue around the world, and maintaining a good health-related quality of life (HRQOL) is the first priority for the aging society. HRQOL is a prevailing indicator used to evaluate the wellness or sense of well-being of older adults.²

Typically, people hope to avoid big life changes that may threaten their life quality, and this is particularly true for older adults.³ However, some life events might occur suddenly and force them to change, such as losing their partner or moving from their house. Many older adults move to the long-term care (LTC) facilities. Relocation becomes a major crisis impacting their HRQOL, and they feel worried and stressed.⁴ The consequences of unexpected adverse experiences in older adults' life could cause depressive symptoms, loneliness, alcohol and drug abuse, loss of leisure

activities, and poor well-being. Productive engagement could be a solution to maintain a good HRQOL when big life changes occur and ongoing difficulties are faced.⁵

Generally, productive activities encompass physical and leisure activities, self-care and daily activities, capacity-building activities, social participation, interpersonal relationships, and activities with economic value.^{6,7} Physical activity (PA) is a basic level of productive engagement that satisfies the goal of accomplishment of older adults for their own sake. PA could produce concrete products and invisible values.⁸ PA include diverse activities, such as occupational, household, leisure-time physical activity, transportation, sports, and exercise.^{1,9} PA is a key factor to achieve successful and healthy aging by engagement with life.^{6,10}

Productive engagement, especially engaging in PA, has a positive impact on personal physical, psychological, and spiritual well-being in later life. One of the major effects of productive engagement in PA is to create a qualified life. Productive engagement helps people lead a healthy lifestyle, positive emotion, fulfillment, satisfaction, gain happiness, increase social activities, and adjust to psychosocial changes.^{11–13} PA is beneficial for the quality of life because of the improvement of muscle strength and balance which is an indicator of daily living. Older adults maintain a good physical function could

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avoid the risk of injury and the fear of falling.¹⁴ Consistently engaging in PA also plays an important role in active aging and active leisure, which correlates to a positive health-related outcome, especially in HRQOL. Older adults' level of productive engagement positively affected their quality of life, mental, and physical health.¹⁵ Herens, Bakker, van Ophem, Wagemakers, & Koelen' study has proved older adult consistently participated in PA programs reported a higher HRQOL than those who dropped out.¹⁶ Engaging in PA had a positive association with older adults' HRQOL.¹⁷ Productive engagement in PA is not only good for the short-term benefits it provides a, but also for the long-term benefits of HRQOL.¹⁸ However, the setting in previous studies was mainly community-based. Therefore, this study focuses on institution-based older adults.

Productive aging emphasizes being actively involved.¹⁹ Productive engagement should also be fun, enjoyable, and acceptable to older adults.¹⁰ In order to age productively, older adults can find new goals and tasks that they are capable of achieving. Productive aging is impacted by where older adults live and spend time, such as public and private sectors, church, social clubs, and LTC facilities. These facilities provide a support system, opportunities, and surroundings for the productive engagement of older adults to satisfy the goal of productive aging.¹⁵

Furthermore, PA is a self-determinate process and independent living influence older adults' physical and psychological well-being.^{20,21} Older adults need work, religion/spirituality activities, physical activities, sports, and recreation in their daily life.¹² Promoting individual regular PA is important to improve HRQOL, and it will be a necessary behavior for older adults confronting unexpected life changes while still maintaining their life quality.

Therefore, the purposes of this study were to understand preferences and the duration of PA before and after relocating to an LTC facility, and to explore the effect of productive engagement in PA for older adults' HRQOL after the relocation. The hypothesis of this study is older adults with an increased productive engagement in PA had higher HRQOL than those with a decreased productive engagement in PA.

Methods

Participants and sampling

Purposive sampling was used to recruit qualified participants. Participants were recruited from 14 LTC facilities in Taiwan, according to the roster of the Social and Family Affairs Administration in Taiwan.²² Older adults with independent living abilities were chosen, excluding nursing home, dementia care facilities, respiratory care centers, and other critical care LTC facilities. They just took in older adults with a normal physical and mental function who were capable of daily self-care activities. If the residents need further living assistances during the period of residence, they would be asked to leave the LTC institution.

There were several criteria for the participants. The participants lived in LTC facilities for a maximum of 5 years. According to Chiu, Chen, & Li's study, 5 years was a precaution against the loss of memory to measure the admitted transition.²³ The subjects with a diagnosis of psychological diseases were excluded. The participants had an appropriate cognitive function. The participants should have an independent living function. Based on the list of names provided by the director of each LTC facility, the eligible subjects were recruited for this study. All participants signed a consent form before data collection. This study was approved by the Research Ethics Committee of the National Taiwan University (NTU-REC No. 201210HS029).

Data collection

The data were collected by individual interviews with a structured questionnaire. This study applied retrospective memory-based examination of changes in PA. Personal structured interviews were conducted from March to June 2013. During the period of the interview, the participants were seated in safe, familiar, and quiet surroundings. The interviewer spoke the language most familiar to each participant. Through one-on-one interviews, the participants answered questions from the structured questionnaire. The interviewers were six graduate students who took a 2-day training course to reduce the differences between interviewers.

Instruments

Structured questionnaires contained both closed and open-ended questions. The questions were composed of four parts, including residents' PA before and after relocating to the LTC facility, HRQOL (SF-36), and background characteristics.

Participants were asked to report their present PA, which they had participated in during the past 1 week. The participants were also asked about the frequency, the duration, and the location (e.g., room, home, garden, inner or outer community) of their major PA. In order to confirm that participants reported a complete list of PAs, the interviewer repeated the questions, "What are your major leisure activities? Are there other activities you do in your daily life?" until the participants had no further responses. The same process was applied in collecting the information about participants' PA before relocating to the LTC facility. The Cronbach's alpha value of the PA questionnaire was 0.628.

Short Form (36) Health Survey (SF-36) Taiwan version was applied in this study. SF-36 is usually conducted in clinical practice and health policy evaluations as a multipurpose survey tool. SF-36 was designed with 36 items for self-reporting. SF-36 consists of eight sections in two dimensions. Physical functioning (PF), physical role functioning (RP), bodily pain (BP), and general health perceptions (GH) are aggregated into the dimension of Physical Component Summary (PCS). Vitality (VT), social role functioning (SF), emotional role functioning (RE), and mental health (MH) are aggregated into the dimension of Mental Component Summary (MCS). Each subscale is an algebraic sum and transforms into a 0–100 scale by a formula.²⁴ A higher score represents a better health status and HRQOL. SF-36 was translated and developed into a Taiwan version. SF-36 Taiwan version was tested validly and reliably. The item-scale correlation coefficients were between 0.40 and 0.83. The internal consistency of subscales reached an acceptable level ($\alpha > 0.7$) in Taiwan version.²⁵ Therefore, in this study, the item-scale correlation coefficients were from 0.64 to 0.99, and the internal consistency of the PCS and MCS was 0.68 and 0.71, respectively (using Cronbach's α).

Data analysis

Descriptive statistics were used to demonstrate demographic characteristics and the preferences and duration of PA before and after relocation. Furthermore, according to the 2011 Compendium Tracking Guide²⁶ each participant's type of PA was coded and transferred to metabolic equivalent (MET). For example, if the subject reported "tai chi" as a PA, the code would be 3.0 (15670 tai chi, qi gong, general). The MET-hours were calculated from the duration (hr/d) of different physical activities. Total MET-hours per week were the sum of the MET-minutes of all physical activities per week. For example, if the subject reported "tai chi" 1 h a day for 5 days a week, this activity was calculated as 15 MET-hours per week (=3.0 MET \times 1 h \times 5 days). Based on the difference of total MET-hours/week before and after relocation, the participants were

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