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HEALTHY AGING RESEARCH

Protective personality variables and their effect on well-being and participation in the elderly: A pilot study

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Abstract

Background: Elderly individuals experience a complex array of physiological, psychological, and social changes in their lives, which challenges their ability to participate in meaningful occupations, and can result in a diminished sense of well-being. In previous work, we proposed a broader perspective that takes into account the contribution of hope and playfulness –protective personality characteristics – to participation and well-being among the elderly. A pilot study was designed to explore this notion and examined the relationship between playfulness, hope, well-being, and participation, while accounting for cognitive decline and negative emotions.

Methods: Forty six participants with mean age of 78.4 years (SD = 7.3), of which 78.3% were women and 21.7% men, were interviewed using standardized questionnaires measuring participation, well-being, sense of hope, cognitive status, playfulness and emotional status.

Results: Moderate to high correlations were found between playfulness and hope and both well-being and participation. The correlation coefficient range was $r = 0.47–0.70$ ($p < 0.05$). In addition, participation correlated with cognitive and emotional status, while well-being correlated only with emotional status ($r = 0.72$; $p < 0.01$). Statistical analysis demonstrated that while playfulness and hope differed among individuals with and without depressive symptoms, they did not affect participants' cognitive status.

Conclusions: The results presented here support the importance of traits such as having a sense of hope and playfulness and their role as resilient factors that may contribute to elderly well-being and participation.

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Introduction

Elderly individuals experience a complex array of physiological, psychological, and social changes in their lives, which challenge their ability to participate in meaningful occupations, resulting in a diminished sense of well-being [1–6]. Recently in gerontology, the focus has shifted from age-related decline to the promotion of healthy aging [7–10]. Healthy aging has been defined as "the process of slowing down, physically and cognitively, while resiliently adapting and compensating in order to optimally function and participate in all areas of one's life (physical, cognitive, social and spiritual)" [11]. Theoreticians explain healthy aging as maintaining a high level of cognitive and physical function, and that maintaining a positive attitude, together with a sustained engagement in life through participation in

meaningful occupations, facilitates an overall state of health and well-being [12, 13].

There is compelling evidence that positive factors in individual lives, such as favorable emotions, happiness, life satisfaction, and quality of life, as well as protective personality traits, relate to healthy aging [14–16]. Factors such as a person's playfulness [17, 10, 15] and their sense of hope [18, 19] are influenced by positive attitude and are believed to contribute to one's resilience [20]. In a previous paper [10], we argued for the need to employ a broader perspective, and to conduct research into the contribution of protective personality characteristics to elderly participation and well-being, beyond cognitive decline.

Participation, well-being, and healthy aging

Participation in the home and community provides the means for physical, cognitive, and social activities that are the natural foundation for health and well-being in older age [3]. Well-being is defined as a complex physical, mental, and social state of overall contentment and life satisfaction [21]. A lifetime of occupation in personally and culturally productive and meaningful activities supports older adults' continued participation in their life roles [16]. Health, combined with psychosocial well-being, facilitates participation in meaningful occupations, as well as ongoing engagement in life [13].

Medical and gerontological research on healthy aging has focused on the decline of abilities and the response to chronic illness often seen in the older population. Cognitive functioning has been added to the medical definition of healthy aging as a result of research highlighting the neurophysiological and neuropsychological basis of cognition [5]. Psychological functioning related to healthy aging concerns the individual's attitudes, resilience, and personal definitions of aging [7–9].

Hope is defined as a cognitive way of thinking about the perceived capability to derive pathways to desired goals that motivate oneself; the initiation of use of these pathways is influenced by one's motivation [19]. Among adult populations, it is assumed that higher degrees of hope will consistently relate to better outcomes in academics, athletics, physical health, psychological adjustment, and psychotherapy. Similarly, among older adults, hope has been found to contribute to a sense of satisfaction and quality of life; namely, the process of healthy aging [19]. For example, Duggleby and Wright [22] interviewed elderly individuals receiving palliative care, who expressed a desire to live their life with hope, despite significant physical and functional challenges encountered because of their illness. Their search for hope was reflected in their acknowledgement of their limitations in function, independence, and social relations, with a simultaneous desire for meaning and positive re-appraisal beyond functional limitations. Similarily, Hoppmann et al. [18] found that elderly responders who expressed more hopeful than fearful images of current and future functioning were more likely to engage in everyday desired activities, possessed a higher positive affect, and had a higher probability of survival over a 10-year period. Based on these research findings, one may speculate that hope can serve as a protective personality characteristic that encompasses both cognitive and emotional components, and can assist the elderly in overcoming challenges of the aging process.

Adults' playfulness is a multidimensional concept that describes the internal disposition or mental propensity to engage in playful behavior [23]; it includes fun-seeking motivation (further divided into fun belief, initiative, and reactivity), uninhibitedness, and spontaneity. In one of the most cited definitions, Barnett [24] added that while play refers to behavioral manifestations, playfulness is defined as "the predisposition to frame (or reframe) a situation in such a way as to provide oneself (and possibly others) with amusement, humor, and/or entertainment" [24].

In a study of adults aged 28 to 63 years old, Gordon [25] built upon research in attachment theory by correlating secure attachment in infancy with an adult's well-being; this demonstrated how playfulness might be a lifelong outcome, both of secure attachment, and as a primary factor in well-being. According to the interpretation of his study findings, playfulness is a state of mind, and an internal predisposition that allows adults to approach activities with the same open mind with which a child approaches play, and with which difficult situations are perceived as challenges [14].

Magnuson and Barnett [26] conducted a cross-sectional study with 898 young adult students to investigate the interrelationship between playfulness to perceived stress and styles of coping. They revealed that playful individuals reported lower levels of perceived stress than their less playful counterparts, and that these individuals more frequently utilized adaptive, stressor-focused coping strategies and were less likely to employ negative, avoidant, and escape-oriented strategies. The results suggest that playfulness serves as a strong adaptive trait. In other research using a sample of elderly people, Proyer et al [27] reported a positive relationship between playfulness and various indicators of quality of life. However, further research is warranted in order to examine the possible contribution and role of playfulness both in healthy aging and as a positive personality trait.

It appears that the majority of research in the allied health professions concentrates on elderly health and quality of life from a "negative or disease-oriented" perspective. There is compelling evidence that positive traits and attitudes can serve as protective factors that contribute to better function and life satisfaction, both important components of healthy aging. We propose that two factors, hope and playfulness, serve as such protective factors, and conducted a pilot study to examine their potential contribution to participation and perception of well-being. Such knowledge can potentially support health professionals in the future development of interventions, enhancing and integrating protective personality characteristics to promote elderly participation and engagement in various life domains, despite cognitive and physical decline.

Methods

This cross-sectional study was approved by Ono Academic College Institutional Review Board (IRB). Occupational therapy research assistants conducted the data collection, which employed a convenience sampling method of elderly individuals aged 70 years and older, and adhered to the inclusion and exclusion criteria detailed below.

Participants

Forty-six elderly, independent, community-dwelling individuals participated in the study. Inclusion criteria were: (a) being over the age of 70 years; (b) dwelling in the community; (c) being able to understand and complete the study measures; and (d) having no major medical diagnosis affecting cognition (e.g. acquired brain injury or major psychiatric diagnosis).

Thirty-six women (78.3%) and 10 men (21.7%) were recruited, with an age range of 70–91 years, and a mean age of 78.4 years (*SD* = 7.3). Number of years in education varied from 6 to 21 years, with a mean of 12.71 years (*SD* = 3.7). The proportion of married participants was 32.6%, and 54.7% were widowed or divorced. Eighty-seven percent reported that they regularly participate in leisure activities, while 6.5% said they did not. Most of the sample reported independence in handling finances (80.4%) and in medication management (91.3%).

Measurements

Demographics

Participants were asked to complete a questionnaire to provide socio-demographic information, and a background to their medical status and daily living functions.

Occupation and well-being

The Reintegration to Normal Living index (RNL) [28], a self-report questionnaire, was used to evaluate participants' reintegration into productive, social and leisure activities. It includes 11 statements that are rated subjectively from 1 (strongly agree) to 5 (disagree). The final score is the sum of all the statement scores, and ranges from 11 to 55, such that a low score indicates complete reintegration into the community. Internal consistency, test–retest reliability, construct, and criterion validity were found to be high in various studies available in the public domain [28–29].

The Adult version of the Personal Wellbeing Index (PWI) [30-31] was also used to evaluate well-being. This is a scale containing eight items pertaining to satisfaction, each one corresponding to a quality of

life domain such as standard of living, health, achievement in life, personal relationships, safety, community connectedness, future security, and spirituality/religion. Items are rated with an 11-point (0–10) end-defined response scale. The PWI has established psychometric properties across different cultures and is available in the public domain [31].

Protective personality characteristics

The Adult Playfulness Trait Scale (APTS) [23, 32] defines playfulness as a personality trait underlying the individual's tendency to be intrinsically motivated, with a clear, fun orientation, and to engage oneself spontaneously in an unconstrained manner. The APTS contains 19 items, randomly ordered using a seven-point Likert-type scale (1 = strongly disagree, 7 = strongly agree). The 19 items correspond to three sub-scales of the hierarchical playfulness construct: (a) fun-seeking (measured by items 2, 4, 6, 7, 10, 13, 14, 17, and 19); (b) uninhibitedness, which refers to the ability to subdue potentially constraining situational factors and create a free, uninhibited mental state (measured by items 1, 3, 9, 12, and 18); and (c) spontaneity, which refers to the mental propensity to respond promptly without deep thought or premeditation (measured by items 5, 8, 11, 15, and 16). The ATPS has established psychometric properties, and permission for use was granted by Dr. Sharon Xiangyou Shen (Chinese Academy of Social Science, Inno-Solution Research LLC; personal communication, May, 2nd, 2015) [23, 32].

The Adult Hope Scale (AHS) [33] is derived from the publically available Hope theory, which compared theories of learned optimism, self-efficacy, and self-esteem. The AHS is a 12-item measure of a respondent's level of hope and is divided into two subscales comprising Snyder's Cognitive Model of Hope: (1) agency (i.e., goal-directed energy) and (2) pathways (i.e. planning to accomplish goals). Of the 12 items, four make up the agency subscale and four make up the pathways subscale. The remaining four items are fillers. Each item is answered using an eight-point, Likert-type scale, ranging from 'definitely false' to 'definitely true'. The AHS has also established psychometric properties across different cultures and is available in the public domain [33, 34].

Emotional and cognitive status

The Montreal Cognitive Assessment (MoCA) [35] is a screening instrument developed to identify participants with mild cognitive impairment (MCI), and is available in the public domain [35, 36]. The MoCA screens attention and concentration, executive functions, memory, language, visual–constructional skills, conceptual thinking, calculations, and orientation, and takes 5–10 minutes to administer. In Israel, the criterion score is 24 and below (from a maximum score of 30), which indicates possible cognitive decline. Psychometric properties of reliability and validity are high within mixed groups of participants.

The Personal Health Questionnaire (PHQ) [37] is the depression section of a patient-oriented, self-administered instrument derived from the Primary Care Evaluation of Mental Disorders (PRIME-MD) questionnaire, and is available in the public domain [38, 39]. It lists nine potential symptoms of depression and asks patients to rate the frequency of experiencing each symptom during the past two weeks, ranging from 'never' to 'almost always', yielding a score of 0 to 27. Recent validity research indicates that scores of 5, 10, 15 and 20 represent mild, moderate, moderately severe and severe depression, respectively. This measure was used in several past studies and has established psychometric properties [40–42].

Procedure

Participants were recruited from several elderly recreation centers and were met by occupational therapy research assistants trained to administer the measurements. Participants completed the questionnaires independently; the research assistants were present to assist, if needed. The demographic questionnaire and the MoCA were individually administered.

Statistical analysis

Four of the 50 participants who completed questionnaires were excluded from the results because of significant cognitive deterioration (a score of <19 on the MoCA screening test). Data were analyzed using SPSS software, version 22 (IBM, USA).

Table 1. Profile of participants on all measurements

Measurement	Mean (SD)	Profile
MoCA (cognition)	23.3 (3.9)	Intact 47.8%, MCI 52.2%
RNL (participation)	16.9 (6.2)	11 = good integration (higher score: less)
PWI (well-being)	7.9 (1.6)	10 = max positive
Playfulness:		
Fun seeking	6.2 (0.7)	7 = max positive
Inhibited	4.1 (1.1)	7 = max positive
Spontaneity	4.8 (1.4)	8 = max positive
Hope		
Goal directed	6.7 (1.3)	
Goal planning	6.7 (1.2)	
PHQ (Emotional)	5.6 (5.7)	No = 63%, Mild-Mod = 37%

RNL= The Reintegration to Normal Living index; MoCA= The Montreal Cognitive Assessment; PWI= The Adult version of the Personal Wellbeing Index; PHQ= The Personal Health Questionnaire. MCI= Minimal Cognitive Impairment.

Pearson correlation coefficients were used to analyze the correlations between playfulness, hope, well-being, and participation. Correlations between the dependent variables (well-being and participation) and cognitive or emotional status were also assessed. Initially, the total score of the PWI and RNL scales was analyzed; thereafter, the eight PWI life domains were further analyzed to provide an in depth look at participants' well-being in relation to the independent variables (playfulness and hope). Second, because of variability in cognitive status, a 2 × 4 multivariate analysis of variance (MANOVA) test was employed to examine possible differences in the playfulness construct, hope, participation and well-being of elderly individuals with low versus high cognitive function, as well as elderly individuals with absent to moderate levels of depression.

Results

In general, this small sample demonstrated good levels of participation and well-being [30]. The playfulness profile showed preferences towards fun-seeking behavior and a greater tendency to a sense of hope. Cognitive status was variable among the participants; about half showed intact cognitive function (48%), while 52% showed signs of minimal cognitive deficits. Concerning emotional status, most members of our sample reported no significant decrease in mood (63%); however, 37% of participants indicated mild to moderate symptoms of a decline in mood. Table 1 shows the participants' profile of responses on all measurements. The cognitive screening with the MoCA (35) indicated that about half of the sample experience mild cognitive decline and about third reported signs of depression on the PHQ (37). The measure of participation with the RNL (28) indicates some general decline in everyday activities in the community. Overall participants reported good satisfaction from life (79%) and high sense of hope and fun-seeking trait. A significant and low correlation between cognitive and emotional status was found ($r = 0.3$, $p < 0.05$).

Participation correlated positively and significantly with both domains of sense of hope (goal directed and goal planning), the fun-seeking aspect of the playfulness construct, and cognitive status. Emotional status exemplified a positive and significant correlation with participation (see Table 2). Positive, significant, and moderate relationships were found between well-being and both aspects of sense of hope (goal directed and goal planning) and the fun-seeking aspect of the playfulness construct. Emotional status showed a positive, significant, and high correlation, while cognitive status was not significantly correlated with well-being. To better understand these findings, we further analyzed the correlations between MoCA score and each life domain of the PWI measure (well-being). The only domain that showed statistically significant correlation with cognitive status was the satisfaction with health domain ($r = 0.31$, $p < 0.05$).

Because of the moderate to highly significant relationships between participation and well-being with playfulness and hope, and the variability found among our sample in cognitive and emotional status, an in-depth analysis was required. Thus, the sample was divided into sub-groups of low (< 24) and high (> 24) cognitive status, and by emotional status (either no report of depressive symptoms, or experiencing a severe level of depressive symptoms).

Table 2. Correlations of participation and well-being with playfulness, hope, cognitive and emotional status (n = 46)

Variables	Participation	Wellbeing (total score)
	r (p)	r (p)
Playfulness: fun-seeking	0.44*	0.52*
Hope: Goal directed	0.57*	0.47*
Hope: Goal planning	0.46*	0.53*
Emotional status	0.71*	0.72*
Cognitive status	0.51*	0.10

*p < 0.01

The 2 × 4 exploratory MANOVA model indicated a significant effect for cognitive status, $F(4, 39) = 5.07$, $p < 0.05$, $\eta^2 = 0.34$; as well as for emotional status, $F(4, 39) = 34.39$, $p < 0.05$, $\eta^2 = 0.31$. A significant main effect was found for cognitive status in relation to participation, $F = 11.27$, $p < 0.05$, $\eta^2 = 0.21$, while no such significant main effect was found for playfulness, fun-seeking or well-being. A significant main effect was found for emotional status in relation to playfulness and fun-seeking, $F = 10.84$, $p < 0.05$, $\eta^2 = 0.21$; participation, $F = 11.27$, $p < 0.05$, $\eta^2 = 0.21$; well-being, $F = 12.66$, $p < 0.01$, $\eta^2 = 0.23$; and hope, $F = 5.89$, $p < 0.05$, $\eta^2 = 0.12$. These significant differences in all variables indicated that elderly individuals with no report of depressive symptoms had greater playfulness, fun-seeking behaviors, a higher sense of hope, good levels of participation, and greater life satisfaction. Table 3 demonstrates the profile of playfulness, hope, well-being and participation according to cognitive and emotional sub-group. Differences are apparent, between those with and without depression symptoms, in playfulness and sense of hope. In addition, differences in participation and well-being can be seen between those with and without cognitive decline as well as based on their emotional status groups.

Table 3. Mean and standard deviations of playfulness, participation, and well-being by sub-groups of cognitive and emotional status

	Cognitive Status		Emotional Status	
	Intact	MCI	None	Mild-mod depressed mood
	M (SD)	M (SD)	M (SD)	M (SD)
Playfulness fun-seeking	6.24 (0.63)	6.19 (0.73)	6.46 (0.50)	5.80 (0.75)
Hope	6.73 (1.01)	6.64 (1.33)	7.01 (0.91)	6.13 (1.39)
Participation	13.82 (5.58)	19.75 (6.70)	14.34 (4.18)	21.29 (6.61)
Well-being	8.14 (1.11)	7.65 (1.94)	8.51 (0.96)	6.81 (1.90)

MCI= Minimal Cognitive Impairment

Discussion

Advances in biomedical research and practice in the United States and Western countries have resulted in increased longevity, yet they have raised an array of concerns regarding health and well-being [5–6, 10]. Studies have demonstrated that cognitive and psychological functions such as attitudes and resilience, are important factors in participation and emotional well-being in late life, thus contributing to healthy aging [2, 5, 7, 8, 9, 18, 22]. Additional factors related to psychological and physical quality of life in the elderly [14, 15] are playfulness [10, 15, 17] and sense of hope [18, 19]. The aim of this cross-sectional pilot study was to explore and examine the relationships between playfulness, hope, well-being, and participation, while accounting for cognitive decline and negative emotional experience.

The findings of this pilot study revealed significant relationships between elderly participation in the community and sense of hope, playfulness (fun-seeking component), cognitive and emotional status. In our sample, elderly individuals with an increased sense of hope and a tendency toward fun-seeking

behavior reported of higher participation in daily and social activities and good positive emotional status. They also expressed satisfaction with their lives, as measured by their sense of well-being. Similarly, Gilbert et al. [12] and Wilcock [13] reported that healthy aging could be achieved by having a high level of cognitive and physical function, a positive attitude, and sustained engagement in life. Interestingly, cognitive status alone did not correlate with perception of well-being in our study.

We targeted healthy, independent, community-dwelling elderly individuals; however, there was variability in cognitive status and about half of the participants in our study experienced mild cognitive decline. The prevalence of MCI is estimated to be between 5 and 53% [43], so these findings are not exceptional. Further analysis was carried out to explore the profiles of both cognitive sub-groups (intact and MCI). An effect was noted on function and participation but not on satisfaction with life. Previous studies have supported the notion that cognitive decline affects everyday performance in the elderly [5, 44]. However, we were surprised that cognitive decline was not significantly related to elderly well-being, except in relation to satisfaction with health status [3, 13]. No significant difference were detected between the groups in terms of the personality trait of playfulness. This finding may suggest that playfulness is a stable personality trait that is not affected by mild deterioration in cognition, yet is associated with elderly participation and well-being.

We found that cognitive and emotional statuses associated with one another; that is, MCI was associated with a mood decline. However, emotional status was found to have a stronger association with playfulness, participation, and well-being. Magnuson and Barnett [26] suggested that playfulness serves as a strong adaptive trait among college students and assisted them in coping with academic-related stress. In our sample, elderly individuals with mild to severe depressive symptoms were found to be less playful (fun-seeking), and had lower levels of satisfaction with well-being. This was also evident in Proyer et al. [27] study of the elderly population. Gordon [25] also made an assumption that playfulness is the primary factor in well-being among adults. These findings are in line with previous studies that suggested that playfulness has protective qualities [14, 15, 25, 27], especially when grouped with factors such as participation and well-being, as demonstrated in this study.

Nevertheless, it is worth noting that in our study, among the three dimensions of the playfulness trait [23, 32], only the fun-seeking aspect yielded significant relationships with participation and differentiated between sub-groups. One possible explanation for the fact that neither uninhibitedness nor spontaneity were found to produce significant findings as expected, might relate to the way in which they were defined. Both are defined as cognitive constructs, considered in the realm of thought and mental states that affect one's response. There are other constructs to define and measure playfulness; mainly behaviors such as fun-seeking, humor, and mischief [14, 24, 45]. In the elderly, this factor might be the most significant, especially as cognition deteriorates.

Another factor examined in our study was hope. Sense of hope was found to relate to both elderly participation and well-being. Those with a higher sense of hope reported a higher level of participation and satisfaction with life. These findings are similar to those of Hoppman et al. [18], who found an association between elderly individuals' sense of hope and everyday functioning. Not surprisingly, sense of hope was highly correlated with emotional status. The group who reported decreased mood also reported a decreased sense of hope. However, as we found in playfulness, this characteristic did not correlate with cognitive status. Hope, as defined by Snyder [19], is a construct based on cognitive processes, so its lack of association with cognitive function was surprising and might suggest this construct's relation to emotional status as well.

Overall, our findings indicated that the elderly tendency toward playfulness (fun-seeking) and increased sense of hope reported better participation, satisfaction with life, and good emotional status. Furthermore, these associations were not dependent on cognitive status. Implications for clinical practice include the importance of focus upon personality traits that may contribute to resilience and a better ability to cope with life challenges.

Study limitations

This was a pilot study designed to assess theory and feasibility, and provides preliminary results that should be taken with caution. The convenience sampling method and small sample size prevent from drawing of robust conclusions. Further data collection is currently underway within a cross-cultural study.

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