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Original Article

Nutritional status and psychological well-being

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SUMMARY

Background & aims: Psychological well-being (PWB) is one of the main dimensions of the quality of life (QOL), which has less been used in nutritional studies. The aim was to examine the relationship between the nutritional status of 65+ residents in service housing units and their PWB.
Method: In this cross-sectional study, Mini Nutritional Assessment (MNA) and a structured questionnaire were used in assessing the residents. Six dimensions of PWB were included in the questionnaire.
Results: Of all the residents, 67% ($n = 1475$) participated. Of them, 22% were well-nourished and 13% malnourished according to the MNA. PWB was good in 41% (score ≥ 0.80) and poor in 12% (score < 0.40) of the residents. Residents' good nutritional status, having meals served in a common dining room and eating larger proportion of the offered food were associated with good PWB. In logistic regression analysis the higher MNA score was an independent predictor of the highest class of PWB (OR 1.11, 95% CI 1.06–1.16, $p < 0.001$).
Conclusions: Nutritional status is an important dimension affecting service housing residents' PWB. Professionals should pay attention to nutritional care in order to ensure PWB of aged residents.

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1. Introduction

Several studies have shown that aged residents living in institutions suffer from malnutrition.[1–4] In Finland, about one third of aged nursing home residents and about half of aged long-term care hospital patients were malnourished.[5,6] Malnutrition, low body mass index (BMI) and unintentional weight loss have been found to be risk factors for mortality and deterioration of the functional status in the aged population.[7–9]

Nutritional problems are poorly recognised,[6] and there is also a lack of documentation of the nutritional deficiencies in nursing homes.[10] On the other hand, there are good means of intervening malnutrition and to improve nutritional status of aged people. In addition, good nutritional care has been shown to reduce mortality and improve the nutritional status of aged patients.[11,12]

Quality of life (QOL) is a multidimensional concept. Both objective circumstances and subjective values and satisfaction modify the QOL. Some authors have suggested that main determinants of QOL are health (physical domain), material standards, social conditions and environment, psychological and emotional well-being, social

relationships, and productive well-being and meaningful roles.[13–16] Health related quality of life (HRQOL) is one part of the QOL concept which is often used in studying influence of particular illnesses or conditions on the QOL.[17] The determinant of HRQOL are, for example, functioning and various symptoms.[15] Psychological well-being (PWB) is one dimensions of the QOL. The WHOQOL-Bref defines PWB with such dimensions as life satisfaction, meaningfulness of life, depression and satisfaction with social relationships.[15]

Malnutrition and weight loss among elderly institutionalized patients have been shown to be associated with decreased QOL.[4,9] Long-term care residents have rated the meals and independence in eating as one of the most important dimensions of QOL.[18] Some intervention studies have shown that good nutritional care has effectiveness on older patients' QOL.[12,19] However, studies on the relationship of nutritional status and QOL are still scarce. In addition, measures used in these studies have been heterogeneous including both HRQOL measures as well as measures on functional status. It is logical that health and functional status are associated with nutritional status since these concepts have been shown to be associated in a number of studies.[20] Psychological well-being has been utilised to a lesser extend in nutritional studies.

The aim of the study was to examine the relationship between the nutritional status of service housing residents and their PWB.

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The hypothesis in this study was that good nutritional status is associated with PWB of residents in service housing.

2. Materials and methods

The cross-sectional study assessed nutritional, functional and health status, psychological well-being (PWB) and nutritional care of all residents aged 65+ years residing in service housing in the cities of Helsinki and Espoo in Finland. There are 36 service housing units in Helsinki, the respective figure for Espoo is 33. The mean number of residents per unit was 86 (range 11–138) in Helsinki and 30 in Espoo (range 10–43). In literature service housing can also be commonly called as assisted living. The service housing in Helsinki and Espoo provides care similar to traditional nursing homes. It has round-a-clock care and supervision, but the environment is more home-like than in traditional nursing homes. Of all the residents, 67% ($n = 1475$) participated in the study. The dropouts were either refusals (approximately 28%) or residents in temporary respite care (about 5%).

The Mini Nutritional Assessment (MNA) was used in assessing the residents' nutritional status. The MNA test gives a maximum of 30 points. Less than 17 points indicates malnutrition, 17–23.5 a risk for malnutrition, and more than 23.5 points indicate a good nutritional status.[21,22] A trained nurse who knew the residents well carried out the interview and the MNA assessment. Nurses took part in educational sessions before the study period. All residents' actual weight and height were measured by the trained nurses, and BMI for the MNA was calculated by dividing weight by the square of height in metres.

In addition, a structured questionnaire was used in interviewing and assessing the residents about their demographic characteristics, functional and health status (diseases) and PWB as well as their nutritional care.

The cognitive and physical functioning was assessed by well-validated questions retrieved from the Clinical Dementia Rating Scale (CDR).[23] The subject's stage of cognition was evaluated according to the "Memory" class in the CDR (0–0.5: no or possible memory problems, 1: mild problems, 2–3: moderate or severe problems), and divided into two groups: those with CDR <1 and CDR 1 or more (cognitive impairment). Dependence on the activities of daily living (ADL) was assessed by the CDR "Personal care": CDR class 1 or higher ("Requiring at least prompting or assistance in dressing, hygiene, managing personal effects, or requiring much help with personal care, often involving incontinence") was defined as the dependence on the ADL.

The medical records were used in retrieving medical diagnoses. Comorbidity was computed for each resident using Charlson's comorbidity index.[24] Charlson's comorbidity index is a weighted index that takes into account the number and the seriousness of a resident's comorbid diseases.

PWB was assessed by six questions: 1: "Are you satisfied with your life?" (yes/no), 2: "Do you have zest for life?" (yes/no), 3: "Do you have plans for the future?" (yes/no), 4: "Do you feel needed?" (yes/no), 5: "Do you feel depressed?" (seldom or never/sometimes/often or always) and 6: "Do you suffer from loneliness?" (seldom or never/sometimes/often or always). A psychological well-being (PWB) score has been created from these questions, where each question represented 0 ("no" in questions 1–4, "often or always" in questions 5 or 6), 0.5 ("sometimes" in questions 5 or 6) or 1 ("yes" in questions 1–4, "seldom or never" in questions 5 or 6) point. These questions and score have been used from 1989 in several studies,[25–27] and the validity has been thoroughly tested. The six questions show good test–retest reliability[25] and significant prognostic validity.[26] The content validity is good since these questions represent areas considered significant in psychological well-being.[15] The score

shows good concurrent validity with WHOQOL dimensions.[28] The PWB score was created by dividing the total points by the number of questions the participant had answered. Thus, score 1 represents the best and 0 the poorest PWB. The participants were divided in three groups according to their PWB: good well-being (PWB ≥ 0.80), moderate well-being (0.40 ≤ PWB < 0.80) and poor well-being (PWB < 0.40). The PWB score has been used in measuring impact of a psychosocial intervention and it also shows sensitivity to change.[27]

Nutritional care during the past three months was assessed by several questions. Dining place of the resident was charted (1: common dining room of the service housing unit; 2: food delivery to resident's own room, 3: resident takes care of meals by her/himself). Proportion of offered food eaten by the residents during the main meal was inquired (1–2: little or quite a little, 3: normal, 4–5: quite much or much).

The local ethics committee of Helsinki University Hospital approved the study. An approval from the City of Helsinki was also received. An informed consent was acquired from all participants. Residents' names or initials were not used in analysis.

The data were analysed by SPSS and NCSS statistical programmes. Participants in the PWB groups were compared by Chi square test or Fischer exact test for categorical variables and by the Kruskall–Wallis test for continuous variables. Logistic regression analysis was used to determine which variables independently predicted good PWB (PWB ≥ 0.80). $p \leq 0.05$ was considered statistically significant.

3. Results

The mean age of the participants was 82.7 years (SD 7.8), and 78% were females. Of the participants, 58.6% were widowed and 10.8% married. The nutritional status according to the MNA was good in 22.0% of the residents, 64.6% were at risk for malnutrition and 13.4% malnourished. Of the residents, 55.0% had a cognitive impairment according to the CDR memory class (≥1) and 84.5% were dependent in ADL according to the CDR "Personal care" (class ≥1).

Of the residents, 40.5% had good (score ≥ 0.80) and 12.1% poor PWB (score < 0.40) (Table 1). Residents' nutritional status was significantly associated with their PWB. Health status measured by the Charlson comorbidity index didn't have an association with the PWB. Having meals in the common dining room of the service housing unit rather than having food delivered to resident's own room was associated with better PWB. Eating only a small proportion of offered food indicated poor PWB. Functional status and demographic variables (age, gender, education, marital status) had no significant association with the PWB (Table 1).

In logistic regression analysis when controlling for age, gender, dependence in activities of daily living and the dining place, higher MNA score was an independent predictor of the highest class of PWB (≥0.80) (OR 1.11, 95% CI 1.06–1.16; $p < 0.001$; Table 2).

Because the MNA tool includes items which are closely related to PWB like "suffering from psychological stress or acute disease" or "suffering from neuropsychological problems" we further tested the relationship of the PWB and the MNA by excluding these items from the MNA. When omitting these items from the MNA score and repeating the logistic regression analysis, the higher MNA score was still a significant predictor of the highest class of PWB (≥0.80) (OR 1.12, 95% CI 1.07–1.17, $p < 0.001$).

4. Discussion

Of service housing residents in Helsinki and Espoo 65% were at risk for malnutrition. Good nutritional status predicted high