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Food pickiness in the elderly: Relationship with dependency and malnutrition

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ABSTRACT

Among factors contributing to malnutrition in the elderly, the present study aimed at assessing the impact of food selectivity (also referred as food "pickiness") on the nutritional status of the elderly. A survey with 559 French people over 65 years old was conducted to collect data on food selectivity, dependency and nutritional status. Food selectivity was assessed by asking respondents to tick each food they dislike among a list of familiar foods. Since some foods could be ticked as disliked because elderly people experience physical difficulties in eating these foods, the survey also included self-report assessment about difficulties encountered when eating. Results showed that an increase of food selectivity is correlated with an increase of malnutrition risk, parallel to the effect of eating difficulties on malnutrition. It seems that the eating difficulties have a stronger impact on malnutrition than the food selectivity. However, the prevalence of food selectivity appears to be higher than the prevalence of eating difficulties. Furthermore, we observed that food selectivity increased as dependency increased. Given the fact that food selectivity may increase the risk of malnutrition, and that the number of "picky" eaters is far from being negligible in nursing homes, it seems worthwhile to screen for pickiness when elderly people become culinary dependent (delegation of food-related activities to a caregiver or a home helper, meal home-delivery by a catering service, nursing homes). It may give an opportunity to improve food care dedicated to these persons and *in fine* to prevent malnutrition.

1. Introduction

Within the context of an ageing population, malnutrition appears today as a major public health stake. Malnutrition results from an insufficient and/or inadequate nutritional intake which causes different deleterious effects such as muscle wasting and impaired body defenses. In the elderly, malnutrition causes or worsens a state of frailty and/or dependency, and contributes to the development of morbidities. It is also associated with a worsening of the prognosis of underlying diseases and increases the risk of death (Corti, Guralnik, Salive, & Sorkin, 1994; Ferry, 2011; Wallace, Schwartz, LaCroix, Uhlmann, & Pearlman, 1995). According to the HAS. (2007), 4–10% of elderly people living at home are malnourished. However, the prevalence of malnutrition rises up to 15–38% for elderly people living in nursing home and 70% for those in geriatric hospitals. The reasons for malnutrition are multi-factorial (Donini, Savina, & Cannella 2003; Elsner, 2002; Hays & Roberts, 2006). In fact, the ageing process, even when normal, is associated with several modifications such as physiological, psychological, economic and social that may impact on nutritional status. Among those factors, the aim of the present study was to assess the impact of food "pickiness", also referred to as food selectivity or fussiness, on the nutritional status of the elderly.

As pointed out by Potts and Wardle (1998), there is a distinction between rejection of a novel food (food neophobia) and rejection of a familiar food. The latter should be referred to as food "pickiness". Food pickiness has been studied both in the children and in the adult population, either by using self-report questionnaires (Carruth, Ziegler, Gordon, & Barr, 2004; Mascola, Bryson, & Agras, 2010; Raudenbush, Van Der Klaauw, & Frank, 1995) or by using food atttitude questionnaires (Birch et al., 2001; Kauer, 2002; Mascola et al., 2010; Monnery-Patris, 2009; Smith, Roux, Naidoo, & Venter, 2005; Smith, 1988). In some studies, food pickiness has also been assessed by asking respondents to tick each food they dislike among a list of familiar foods (Frank & van der Klaauw,

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1994; Raudenbush et al., 1995). Despite it was often stated that food pickiness should affect nutritional status, this hypothesis was barely studied and remained controversial (see Dovey, Staples, Gibson, and Halford (2008) for a review). In fact, Galloway, Fiorito, Lee, and Birch (2005) reported that picky children had lower intakes of vitamin E, folate and fibre and this could be related to a lower consumption of fruits and vegetables compared to non-picky children. Marchi and Cohen (1990) observed that picky eaters have lower Body Mass Index (BMI) than non-picky eaters. However, other research groups have failed to observe such relationship between pickiness and BMI (Carruth & Skinner, 2000; Kauer, 2002).

Regarding the elderly population, we hypothesized that food pickiness may be a considerable problem because it can be an aggravating factor of malnutrition by restricting diet. Such impact of pickiness may even be worse for elderly people who need help for food related activities. Food dependency usually occurs after a physical or psychological break-down. At home, food dependency can range from delegation of food-related activities such as shopping or cooking to a caregiver, to meal home-delivery by a catering service. Ultimately, for elderly people who live in a nursing home, all meals are planned and provided by the catering service of the institution. When dependent for food, elderly people have to face food choices made by a third party, which may be even more difficult for picky eaters.

To challenge these hypotheses, we designed a quick and easy tool to measure pickiness eating among an elderly – and thus frail – population. Rather than using a self-report questionnaire for which a social desirability bias may affect responses (elderly people may have difficulty in acknowledging themselves as "picky"), we asked respondents to tick each food they dislike among a list of familiar foods. Such method was called "list heuristic" by Potts and Wardle (1998). Among others, these authors have pointed out that the nature of foods included in the list was not of great importance while they recommended not using a too small number of items in it. In line with Potts and Wardle (1998) work, we considered that the higher the number of foods ticked as disliked, the pickier the respondent is. However, as Kauer (2002) pointed out that picky adults consider themselves as "selective" rather than "picky", we chose to refer the number of disliked foods as a "selectivity" score.

A survey with people over 65 years old was conducted to collect data on food selectivity, dependency and nutritional status in order to explore the link between these variables. Since some foods could be ticked as disliked because elderly people experience physical difficulties in eating these foods, the survey also included self-report assessment about dental status and difficulties encountered when eating.

2. Material and methods

2.1. Aupalesens survey

The Aupalesens survey is a study of eating behaviour and dependency in the French elderly. In 2011, 559 participants older than 65 years old (65–99 years old, 387 women, 172 men) were recruited among four categories ranging from a high level of autonomy to a high level of dependency. These four categories were defined prior to the survey as follows: category 1, elderly people living independently at home; category 2, elderly people living at home with help unrelated to food activity (housekeeping; gardening; personal care); category 3, elderly people living at home with help including help related to food activity (food purchasing; cooking; home meal delivery); category 4, elderly people living in a nursing home.

The survey was conducted in four French cities and their suburbs (Angers, Brest, Dijon, Nantes). To be recruited, candidates had to meet the following criteria: older than 65 years old; not suffering from an acute pathological episode at the time of the survey; not suffering from congenital anosmia neither from an anosmia due to head injury; not subject to food allergies; not on a diet prescribed by a doctor; not scoring below 20 in the Mini Mental Scale Examination (MMSE; Folstein, Folstein, & McHugh, 1975; this questionnaire screens for cognitive impairment). A brief interview was carried out with each candidate to check completion of inclusion criteria. The experimental protocol of the survey was approved by the French Ethical Research Committee (CPP Est I, Dijon, #2010/42, AFSSAPS# 2010-A01079-30). In accordance with the rules of ethics, all participants received written and oral information on the survey before signing a consent form.

Respondents took part in two sessions of about 90-min each during which extensive medical, nutritional, psychological, sociological and sensory data were collected on the basis of tests and questionnaires. Face-to-face interviews were run by six experimenters (all women) that followed a 1-day training session. Only data related to nutritional status, food selectivity and eating difficulty in addition to background information such as dependency category, age and gender are reported here.

2.2. Measurements

2.2.1. Nutritional status

Respondents completed the Mini Nutritional Assessment© (MNA; Guigoz, Lauque, & Vellas, 2002), a validated screening tool on a scale of 30 points that identifies elderly persons who are nourished normally (score >23.5), at risk for malnutrition (score between 17 and 23.5) or malnourished (score <17). It comprises 18 questions and relies on four dimensions: anthropometric assessment including Body Mass Index (BMI) measurement, global evaluation, dietetic assessment, and subjective assessment. Anthropometric measurements were done by the six trained experimenters.

2.2.2. Food selectivity

Respondents were asked to tick each food item they dislike among a list of 71 familiar products which includes both raw foods and dishes from the following categories: starter, meat, fish, egg, garnish, dairy products, desserts, bread, and beverage (Table 1). The selectivity score is the number of disliked food items among the list of 71 items. This list has been designed thanks to the help of health care professionals and food manufacturers delivering food for nursing homes. A first list of 80 items was assessed through a preliminary study run with 60 elderly participants who did not participate in the present study. Nine items were removed because they were disliked by more than 20% of the sample. The food selectivity questionnaire was self-administrated except for people who had difficulty in reading and/or writing.

2.2.3. Eating difficulties

Eating difficulties were assessed through a generic question and four specific questions. Firstly, participants were asked to indicate whether eating is "very difficult", "difficult", "not very easy", "easy" or "very easy". Secondly, they had to indicate whether they experienced difficulty in cutting the food, in putting the food in the mouth, in chewing the food and in swallowing the food ("yes", "somewhat yes", "somewhat no", "no"). They were also asked to indicate whether they were dentate with or without partial dentures, edentulous with partial or complete denture, edentulous without denture.