Investigation of nutrition risk in community living adults aged 75 years and older: prevalence and associated physical health factors

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Abstract

Background:

New Zealand's population is ageing. Given prevalence of functional disability and chronic disease increases with age, and older adults account for one third of health loss in New Zealand, supporting older adults to maintain independence is paramount to reducing future health care costs. A compromised nutritional status, and declining muscle mass, strength and function threatens independence. This study aims to investigate the prevalence of nutrition risk, and identify associated socio-demographic and physical health factors among community-living older adults aged 75 years and older.

Methods:

A total of 200 participants were recruited from eligible patients enrolled at the Henderson Medical Centre. Baseline sociodemographic, and health information was collected using an interview style questionnaire. Body composition, including muscle mass was estimated using Bioimpedance Analysis (BIA). Muscle strength was assessed using a hand held dynamometer to measure grip strength, and a Five Times Sit To Stand (5TSTS) test. Lower extremity function performance was assessed using 2.4 meter gait speed. Validated screening tools identified nutrition status (Mini Nutritional Assessment Short Form MNA-SF), swallowing status (10 item Eating Assessment Tool EAT-10), and cognitive status (Montreal Cognitive Assessment MoCA). Pearson's Coefficient Correlations were used to identify associations between nutrition risk and physical health nutrition risk factors.

Results:

The study sample (n= 200) included 89 (44.5%) men, and 111 (55.5%) women with a mean age of 80.5 years. The MNA-SF identified 2 (1%) malnourished participants, and 24 (12%) participants at risk of malnutrition. MNA-SF scores were positively correlated with a lower BMI (r=0.257, p=<0.001), lower muscle mass, lower calf circumference (r=0.333, p=<0.001), lower percentage of body fat (r=0.287, p=<0.001), and weaker grip strength

(r=0.143, p=0.047). MNA-SF scores had an inverse correlation with EAT-10 scores indicating dysphagia risk (r=0.182, p=<0.010).

Conclusion:

A low prevalence of malnutrition was found in this study population. Those at risk of malnutrition or malnourished were more likely to use support services, be at risk of dysphagia, have a low BMI, low muscle mass, a lower calf circumference, lower percentage of body fat, and poor muscle strength. Routine nutrition risk screening is recommended to identify at risk individuals early to prevent escalation to malnutrition and poor health.

Key words: Malnutrition, MNA-SF, Older Adults, Community, Dysphagia, Muscle Mass

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Dedication

This thesis is dedicated to my grandmother, Jean Alexandra Fitzjohn who was born into a generation of women where continued education was often not an option. Her lifelong desire for learning inspired me to begin this journey of self-discovery and personal achievement. Her final 18 months, spent unable to eat food orally directed me to the field of dietetics. This achievement is for you Grandma.

11 July 1925 - 18 July 2011

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Abbreviations

AD	Alzheimer's disease
ADL	Activity of daily living
ANSI	Australian Nutrition Screening Initiative
ANOVA	Analysis of Variance
BIA	Bioelectrical Impedance Analysis
BMI	Body Mass Index
CC	Calf Circumference
CHD	Coronary heart disease
cm	Centimeter
COPD	Chronic obstructive pulmonary disorder
DALY	Disability adjusted life year
DHB	District Health Board
DXA	Dual-Energy X-Ray Absorptiometry
EAT-10	10-Item Eating Assessment Tool
GI	Gastrointestinal
GP	General Practitioner
HDEC	Health and Disability Ethics Committee
ICD-10	International Classification of Diseases 10^{th} revision
IHD	Ischaemic heart disease
kg	Kilogram
m	Meter
MCI	Mild cognitive impairment
MNA	Mini Nutritional Assessment
MNA-SF	Mini Nutritional Assessment-Short Form
MoCA	Montreal Cognitive Assessment
MRI	Magnetic Resonance Imaging
MST	Malnutrition Screening Tool
MUST	Malnutrition Universal Screening Tool
NRV	Nutrient Reference Value
OTC	Over the counter
PEM	Protein energy malnutrition
QOL	Quality of Life
RDI	Recommended Daily Intake
SCREEN II	Seniors in the Community: Risk Evaluation for Eating and Nutrition, Version II
SD	Standard Deviation
SMM	Smooth muscle mass
WDHB	Waitemata District Health Board
WHO	World Health Organization
Y	years