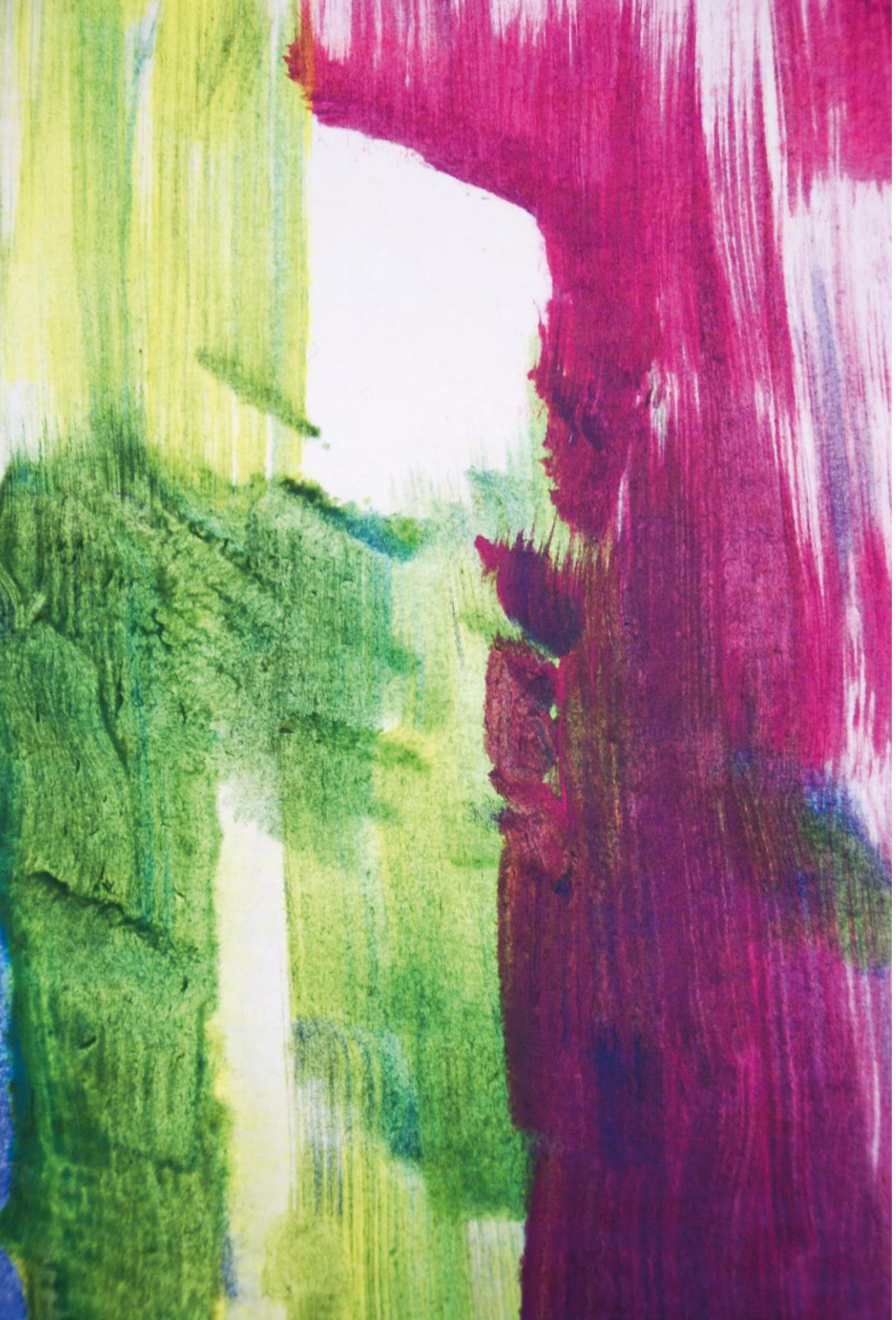

WHO/MCA/17.06.06

World Health Organization

Integrated care for older people (ICOPE)
Guidelines on community-level interventions to manage declines in intrinsic capacity

Evidence profile: malnutrition

Scoping question:

Does oral nutritional supplement, dietary advice or mealtime enhancement produce any benefit for older people at risk of undernutrition or who are affected by undernutrition?

The full ICOPE guidelines and complete set of evidence profiles are available at:
who.int/publications/i/item/9789241550109

Painting: “Wet in Wet” by Gusta van der Meer. At 75 years of age, Gusta has an artistic style that is fresh, distinctive and vibrant. A long-time lover of art, she finds that dementia is no barrier to her artistic expression. Appreciated not just for her art but also for the support and encouragement she gives to other artists with dementia, Gusta participates in a weekly art class.

Contents

Background

Undernutrition is common among older people over 60 years of age. The prevalence of undernutrition in older people living in the community ranges between 1.3% and 47.8% *(1–5)*. The reported prevalence is much higher in studies from low- and middle-income countries than high-income countries *(6)*.

Several observational studies have investigated adverse health outcomes in undernourished older people. These have reported strong associations between undernutrition and premature mortality, poor quality of life and reduced functional ability. A recent systematic review of prospective studies from high-income countries reported a strong association between undernutrition and subsequent mortality in older people *(7).* In another review of longitudinal studies, undernourished older people were found to be twice as likely to experience a poor quality of life than their normally nourished counterparts *(8)*. Other studies have found that older people who report (unintentional) weight loss have a higher risk of developing limitations in basic activities of daily living (ADLs) such as bathing, eating and dressing *(9–12)*. In a three-year longitudinal study, low body mass index (BMI) was a moderate risk factor for the onset of ADL limitations *(13)*.

Despite the high prevalence of undernutrition reported in population studies, nutritional trials targeting community-dwelling older people are limited. Earlier systematic reviews found that nutritional interventions produced some clinical benefits, including weight gain, albeit the data were less conclusive for improvements in functional outcomes *(14)*. Results from a meta-analysis examining the effect of dietary advice in older persons at risk of undernutrition showed a significant increase in energy and protein intake, and body weight, but no significant effect on physical function or mortality. Most studies included in these reviews recruited healthy older people or older people living in long-term care or admitted to hospital. The effects of nutritional interventions in older people living in the community who are undernourished or at risk of undernutrition therefore remain unclear. This current review was undertaken systematically to review and analyse published reviews and randomized controlled trials, and to summarize the evidence for formulating recommendations for the prevention and management of undernutrition among older people in community and primary care settings.

Part 1: Evidence review

Scoping question in PICO format (population, intervention, comparison, outcome)

Populations

- Older people, 60 years of age and over (both male and female) at risk of undernutrition
- Older people, 60 years of age and over (both male and female) affected by undernutrition

Interventions

- Oral nutritional supplement (macro- and/or micronutrients)
- Dietary advice
- Mealtime strategy to improve food intake

Comparisons

- Placebo
- Usual care
- Control group (waiting to receive intervention)

Outcomes

- Critical: Mortality, weight change
- Important: Hand grip strength, activities of daily living (ADLs)

Settings

- Primary health care/community

Search strategy

An independent search for systematic reviews and clinical trials was performed in September 2015 using the Ovid MEDLINE, Embase and PsycINFO electronic databases. The detailed search strategy is listed in Annex 1.

List of systematic reviews and trials identified by the search process

Included reviews in GRADE[1] analysis and considered for recommendations (*14–16*):

— Milne AC, Potter J, Vivanti A, Avenell A. Protein and energy supplementation in elderly people at risk from malnutrition. Cochrane Database Syst Rev. 2009;(2):CD003288. This systematic review was updated by WHO in 2015.

— Baldwin C, Weekes CE. Dietary advice with or without oral nutritional supplements for disease-related malnutrition in adults. Cochrane Database Syst Rev. 2011;(9):CD002008.

— Munk T, Tolstrup U, Beck AM, Holst M, Rasmussen K, Hovhannisyan K, Thomsen T. Individualized dietary counselling for nutritionally at-risk older patients following discharge from acute hospital to home: a systematic review and meta-analysis. J Hum Nutr Diet. 2016;29(2):196–208. doi:10.1111/jhn.12307.

[1] GRADE: Grading of Recommendations Assessment, Development and Evaluation. More information: http://gradeworkinggroup.org

PICO table

	Intervention/ comparison	Outcomes	Studies used for GRADE tables
1	Oral nutritional supplement compared with placebo or usual care controls	• Mortality • Weight gain • Hand grip strength • Activities of daily living (ADLs) • Quality of life • Adverse effects • Compliance	Community settings (n = 12) *(17–28)* Hospital/long-term care settings (n = 43) *(29–69)*
2	Dietary advice or education compared with no advice, usual care or exercise	• Mortality • Weight gain • ADLs • Quality of life	Community settings (n = 6) *(70–75)*
3	Mealtime enhancement strategies	• Weight gain • ADLs • Quality of life	Long-term care settings (n = 2) *(76, 77)*

Narrative summary of the reviews included in the analysis

Milne et al. *(14)* examined trials to evaluate interventions designed to improve the nutritional status of older people and their clinical outcomes; extra protein and energy sources were provided, usually as commercial sip-feeds. Most studies were randomized or quasi-randomized controlled trials of oral protein and energy supplementation in older people, and were included in the review with the exception of groups recovering from cancer treatment or in critical care. Sixty-two trials were included (n = 10 187), of which only 38 involved undernourished older people or frail dependent older people. We included only these studies in our WHO review to summarize the evidence. In 2015, this review was updated by WHO and an additional 29 trials were included in the evidence synthesis.

Baldwin et al. *(15)* published a Cochrane review that examined the evidence that dietary advice in adults with disease-related malnutrition improves survival, weight and anthropometry; estimated the size of any additional effect of oral nutritional supplement (ONS) combined with dietary advice; and compared the effects of dietary advice with those of ONS administration. Forty-five studies (n = 3186) met the inclusion criteria. Dietary advice was compared with: no advice (n = 1053); ONS (n = 332); dietary advice and ONS (n = 731). Dietary advice plus ONS was compared with no additional intervention (n = 1070). Four studies from this review targeted older people and were included in this WHO review.

Munk et al. *(16)* undertook a systematic review and meta-analysis to evaluate the evidence for an effect of individualized dietary counselling on physical function, readmissions, mortality, nutritional status, nutritional intake and quality of life in nutritionally at-risk older patients following discharge from hospital. Four randomized controlled trials (n = 729) were included. Overall, the evidence was of moderate quality. Dietitians provided counselling in all studies. Three studies from this review were included in the evidence synthesis.

GRADE table 1: Oral nutritional supplement (ONS) with or without dietary advice compared with placebo or usual care for older people at risk of undernutrition or undernourished

Author: WHO systematic review team
Date: 5 November 2015 (last updated 20 November 2015)
Question: Does ONS with or without dietary advice compared with usual care or placebo produce any benefit or harm for older people at risk of undernutrition or undernourished?
Setting: Primary care or community
Bibliography: *(14)* Milne AC, Potter J, Vivanti A, Avenell A. Protein and energy supplementation in elderly people at risk from malnutrition. Cochrane Database Syst Rev. 2009;(2):CD003288 – this systematic review was updated by WHO in 2015

Quality assessment							Number of patients		Effect		Quality	Importance
Number of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	ONS	Usual care or placebo control	Relative (95% CI)	Absolute (95% CI)		
Mortality (follow-up ranged from 3 months to 18 months)												
10	randomized trials	serious [a]	not serious	not serious	not serious	none	19/430 (4.4%)	17/436 (3.9%)	RR 1.14 (0.63 to 2.07)	5 more per 1000 (from 14 fewer to 42 more) 2 more per 1000 (from 4 fewer to 12	●●●❍ MODERATE	CRITICAL