



Nutrition Screening in Primary Care for Community-Dwelling Older Adults: Who Is Missed and Why

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Received: 15 February 2024; Accepted: 20 July 2024; Published: 16 November 2024

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Abstract

Reported prevalence of malnutrition among community-dwelling older adults ranges from 0 to 83 per cent, a spread the reviewing authors read as evidence of inconsistent or unreliable screening rather than of genuine variation. The instrument most often recommended for this population illustrates the problem. Validated at 98 per cent sensitivity and 94 per cent specificity, the six-item screener achieved 59.2 per cent sensitivity and 78.8 per cent specificity when tested against diagnostic criteria in 273 community-dwelling adults aged 60 and over, agreeing with those criteria in 22.3 per cent of the population; malnutrition was diagnosed in 37.7 per cent by the criteria and in 7.3 per cent by the screener. The tool is meanwhile described as rarely used in primary care, where screening takes place mainly through weight monitoring.

Keywords: Nutrition screening; Primary care; Community-dwelling older adults; MNA-SF; GLIM criteria

Introduction

Malnutrition in older community-dwelling adults reduces wellbeing and predisposes to disease, and disease-related malnutrition has been costed in one health system at over 13 billion pounds annually across health and social care [1,2]. Screen-and-treat policies are proposed as the means of detecting it systematically [2].

Several instruments are validated for community use, including the Malnutrition Universal Screening Tool, the Mini Nutritional Assessment Short Form and a community-specific risk evaluation [3,4]. Staff who already review older people in community settings are described as being in a prime position to screen [3].

Despite that, the majority of older adults with or at risk of malnutrition living in the community remain under-detected and under-treated [3]. This review examines who is missed, and separates three distinct reasons: the instrument's performance in this population, whether it is used at all, and what happens after a

positive result.

Objective

This review sets out to establish four things from the published literature. First, how consistent reported prevalence is and what the variation indicates. Second, how the recommended screening instrument performs against diagnostic criteria in the community specifically. Third, what is actually done in primary care as distinct from what is recommended. And fourth, which barriers have been identified and which of them the instrument itself cannot address.

Literature Review

How variable the estimates are: An evidence summary of community screening reported that prevalence of malnutrition in community-dwelling older adults ranged from 0 to 83 per cent, and read this as indicating inconsistent or unreliable screening, recommending that this population undergo regular nutrition screening (Figure 1) [5]. Prospective analysis of studies conducted between 2012 and 2022 in 3,702 participants found prevalence by diagnostic criteria ranging from 11 per cent among community dwellers without prior screening to 95 per cent in geriatric rehabilitation without initial screening, with the majority of studies between 20 and 39 per cent [6].

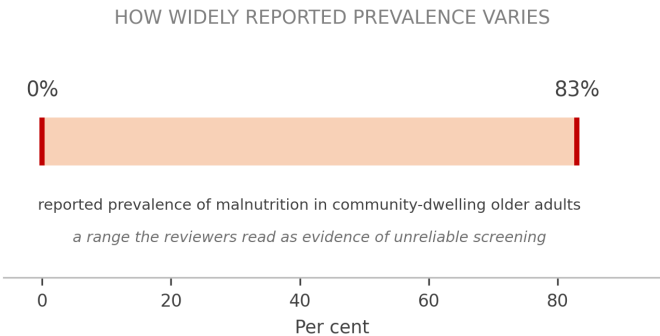


Figure 1: How widely reported prevalence varies [5]

How the recommended tool performs where it is recommended: The six-item short form is described as the most suitable screening tool for community-dwelling older adults, taking five minutes, with sensitivity of 98 per cent and specificity of 94 per cent [7]. Tested against diagnostic criteria in 273 community-dwelling volunteers aged 60 and over, sensitivity was 59.2 per cent and specificity 78.8 per cent, with an area under the curve of 0.77, described by the investigators as a fair ability to diagnose malnutrition (Figure 2) [8].

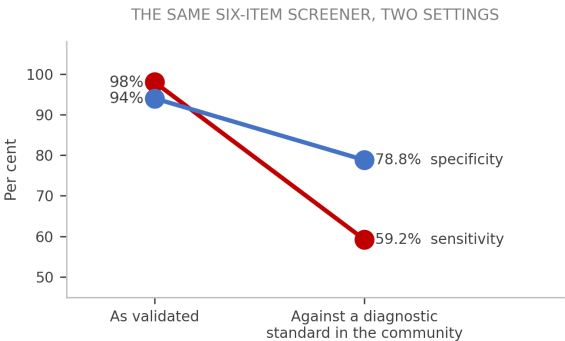


Figure 2: The same six-item screener as validated and in community testing [7,8]

How far the two disagree: In that population, malnutrition was diagnosed in more than one third of participants by the diagnostic criteria, 103 of 273 or 37.7 per cent, while the screener identified 7.3 per cent as malnourished and 28.2 per cent as at risk. Agreement between the screener score and the criteria was observed in 22.3 per cent of the population (Figure 3) [8]. The investigators concluded that the best solution may be optional replacement of the screening tool in the first step of the diagnostic algorithm with clinical suspicion of malnutrition [8]

(Table 1).

AGREEMENT BETWEEN SCREENER AND DIAGNOSTIC CRITERIA



Figure 3: Agreement between screener and diagnostic criteria [8]

Table 1: Screener against diagnostic criteria in 273 community-dwelling adults [8]

Measure	By the screener	By diagnostic criteria
Malnourished	7.3%	37.7%
At risk	28.2%	—
Sensitivity	59.2%	—
Specificity	78.8%	—
Agreement between the two	22.3% of the population	—

What the assessment predicts: An evidence summary graded the assessment as having moderate validity and reliability for malnutrition, moderately predicting mortality, weakly predicting hospitalisation and poorly predicting physical function in older adults (Figure 4). Subjective global assessment showed moderate overall validity with very low certainty, and no research was available on its reliability or predictive validity in this population [5].

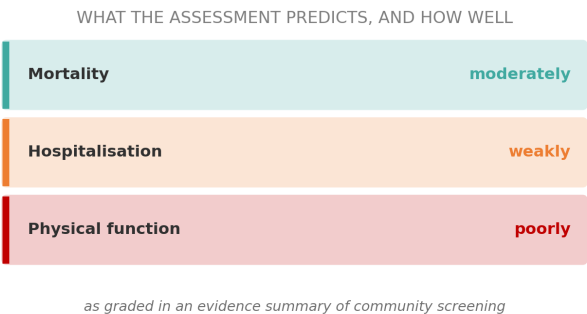


Figure 4: What the assessment predicts, and how well [5]

What is done instead: The screening instrument is described as rarely used in primary care, insufficiently known by general practitioners and seen as time consuming during a routine consultation. Practical experience and research indicate that screening in primary care takes place mainly through monitoring of weight, with validated instruments hardly used (Figure 5), while care providers report that weight loss alone can be misleading as an indicator of nutritional state [7].

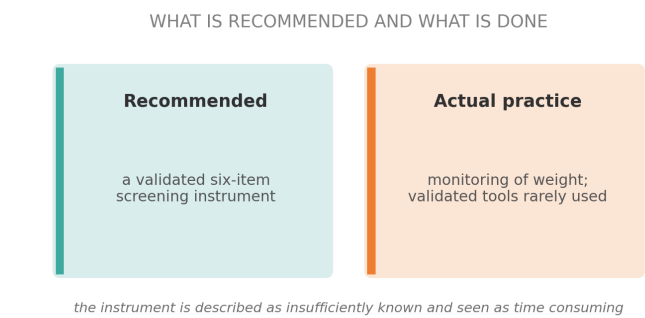


Figure 5: What is recommended and what is done [7]

What stops it happening: Key barriers to implementing screening in primary care include limited knowledge of malnutrition among non-dietetic healthcare professionals, resources not allocated to managing it, poor access to dietetic services and limited practitioner knowledge (Figure 6) [9,10]. A mixed-methods synthesis of qualitative and quantitative literature identified barriers and facilitators to implementing screen-and-treat policies and assessed which had been addressed by existing interventions [2].

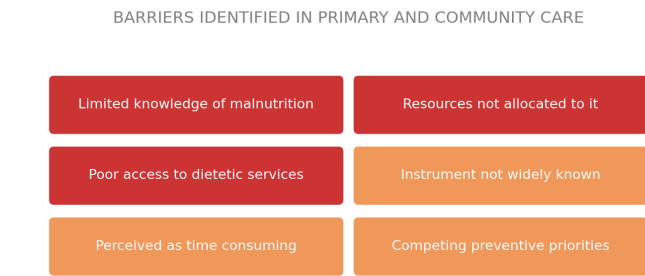


Figure 6: Barriers identified in primary and community care [2,9,10]

Where screening has been delivered systematically: In a home-based primary care programme covering 2,252 veterans aged 65 and over across 18 sites, prevalence of malnutrition was 15 per cent and of risk 40.3 per cent using the short form, and the authors concluded the instrument could be used successfully in that setting [11]. In an outpatient quality improvement programme enrolling 618 patients aged 60 and over, 85 per cent were at risk and 15 per cent malnourished on enrolment, and at 90 days 324 participants, 52 per cent, had improved nutritional status ($p < 0.001$) [11,12] (Table 2).

Table 2: Prevalence by setting and method of ascertainment

Setting	Population	Reported finding
Home-based primary care	2,252 aged 65+	15% malnourished, 40.3% at risk [11]
Outpatient improvement programme	618 aged 60+	85% at risk on enrolment [11,12]
Community volunteers	273 aged 60+	37.7% by diagnostic criteria [8]
Pooled community estimates	3,702 participants	11% without prior screening [6]

Which tool, and against which standard: Comparison of four first-step screening instruments against diagnostic criteria in an older population found all achieved 100 per cent sensitivity and negative predictive value with differing specificity, the short form performing best at 82.9 per cent [6]. That result and the community study disagree, and the populations differ: the first was conducted in a clinical setting and the second in community volunteers [6,8].

Where the instrument came from: The short form was developed and validated as a practical tool for identifying nutritional status [13,14], abbreviated from a longer assessment whose history and use have been reviewed [25,26,28]. Diagnostic criteria for malnutrition were subsequently agreed by international consensus, placing a positive screening result as the first step of a two-stage algorithm [15]. The tools available for older adults have been reviewed repeatedly [16,27], including a validity review covering community and healthcare settings [31] and a meta-analysis of criterion validity in the older community setting specifically [32].

Prevalence across settings and instruments: Systematic review and meta-analysis covering 22 screening tools validated for adults aged 65 and over compared risk across community, residential and hospital settings [21], and malnutrition in this age group has been reviewed as a general problem [22]. Large-scale screening surveys in other settings give a sense of achievable coverage [20]. European guidance addresses nutrition and hydration in geriatrics directly [19], and screening and assessment in hospitalised older people has been reviewed separately for comparison [30].

Feasibility in general practice: Mixed-methods study has examined whether routine screening is feasible in general practices [17], and practitioners have described the constraint in their own terms, asking whether routine screening of older patients is feasible when all parties are time poor [23]. Screening of older people has nonetheless been carried out in community general practice using the short form [24], and a community-specific risk evaluation instrument has been validated as an alternative [18]. Outcomes related to screening in community-living older adults have been reviewed systematically [33].

What follows a positive result: Guidance on what should happen after screening distinguishes it from assessment, and appropriate methods to guide care beyond the screen have been set out [29]. Dietary counselling with or without oral nutritional supplements has been assessed by systematic review and meta-analysis of randomised trials [34], which is the treatment arm on which any screen-and-treat policy depends [2,34] (Table 3).

Table 3: What is and is not established about screening this population

Question	What the evidence supports
Is prevalence known?	No; estimates span 0 to 83% [5]

Does the tool perform in the community?	Contested; 59.2% against 100% [6,8]
Is it used in primary care?	Rarely; weight monitoring instead [7]
Do positive results lead to care?	Limited dietetic access [9,10]
Does structured screening find people?	Yes, where programmes exist [11,12]

Method

Search strategy: PubMed and the archives of the major primary care, geriatric medicine and clinical nutrition journals were searched for studies of nutrition screening in community-dwelling older adults. Search terms combined nutrition screening and malnutrition screening with primary care, community-dwelling, MNA-SF, GLIM and barriers. Reference lists of the barriers synthesis [2] and the community evidence summary [5] were screened by hand for primary sources.

Eligibility: Studies were included if they reported prevalence in community-dwelling older populations, evaluated screening instrument performance in that setting, or examined implementation. Studies conducted in hospital or rehabilitation settings are cited for comparison and identified as such.

Data extraction and handling: Population, setting, the instrument applied, the reference standard where one was used and the reported estimate were extracted as published. The setting is stated alongside every performance figure, because the same instrument returns markedly different sensitivity in clinical and community populations and the distinction is central to the argument here. This review reports published findings and does not constitute guidance on the screening, assessment or nutritional management of any individual patient, which are matters for the treating clinician. No pooling or re-analysis was performed. Figures 1 to 6 and Tables 1 to 3 reproduce published values only. This is a narrative synthesis of published literature and was not registered as a systematic review.

Concluding Remarks

Three separate failures are usually discussed as one, and separating them changes what should be done about each. The instrument may not perform well in this population; it may not be used; and a positive result may not lead anywhere. The literature reviewed here bears on all three, and the evidence is strongest for the second.

On performance, the community result is uncomfortable. A screener validated at 98 per cent sensitivity returned 59.2 per cent against diagnostic criteria in community-dwelling adults, identifying 7.3 per cent as malnourished where the criteria identified 37.7 per cent, with agreement in 22.3 per cent of the population [7,8]. Its own investigators propose replacing the screening step with clinical suspicion, which is a striking recommendation from a study designed to validate the tool [8].

That single study should not settle the question, and the contrary evidence deserves equal weight. A comparison of four instruments against the same criteria found 100 per cent sensitivity for all four, with the short form achieving the best specificity [6]. The populations differ, one clinical and one community volunteers, and which of those resembles a general practice list is not obvious [6,8].

On use, the evidence is less equivocal and more actionable. The instrument is described as rarely used, insufficiently known and seen as time consuming, and screening in primary care takes place mainly through weight monitoring [7]. A tool that is not administered has a sensitivity of zero in practice whatever its validation figures, and no improvement in the instrument addresses that.

The prevalence range makes the same point from the other direction. Reported prevalence from 0 to 83 per cent is not plausible as genuine variation between community populations, and the reviewing authors treat it as evidence about the screening rather than about the people [5]. Where estimates vary by that margin, the measurement is the unstable element.

The barriers identified are mostly not about the instrument at all: knowledge of malnutrition among non-dietetic staff, resources, and access to dietetic services once someone screens positive [9,10]. The third is the one that determines whether screening is worth doing, and it sits downstream of every discussion about which questionnaire to use.

Where systematic programmes exist, they find a great deal. Fifteen per cent malnourished and 40.3 per cent at risk across 2,252 patients in home-based primary care, and 85 per cent at risk on enrolment in an outpatient programme with 52 per cent improving by 90 days [11,12]. Those figures describe populations selected for the programme rather than general practice lists, but they establish that structured screening followed by action identifies people and that their status can change.

Three limitations belong with these conclusions. The community accuracy study involves 273 volunteers, who are unlikely to represent an unselected older population, and volunteer samples typically under-represent the frailest [8]. Prevalence figures derive from different instruments and thresholds, which is part of the reviewed problem but also limits comparison between the studies cited [5,6]. And the barriers literature is drawn largely from qualitative work with professionals rather than from measurement of screening rates, so how often screening actually happens is described rather than quantified [2,9].

Acknowledgements

The authors thank the investigators who tested a recommended screening tool against diagnostic criteria in the community setting rather than assuming its validation figures transferred, and who published a conclusion unfavourable to the instrument they set out to assess.

Funding

No dedicated funding from public, commercial or charitable sources supported the preparation of this review.

Conflict of Interest

The authors declare no competing interests.

Ethics Statement

This article reviews previously published studies only. No new patient data were collected and no participants were recruited, so ethical approval was not required.

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Citation: Culliton S, Tholen I, Mavrakakis G. "Nutrition Screening in Primary Care for Community-Dwelling Older Adults: Who Is Missed and Why." *J Clin Nutr Heal* (2024);5: 001-006