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Dietary behavioural support in Dutch nursing homes: a cross-sectional study

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Abstract

Background Dietary support among residents by nursing home nurses can enhance quality of life and mitigate risks. The extent to which this support is provided may be influenced by determinants that shape professional behaviour, such as skills, knowledge, professional role perception, emotions, attitude, self-efficacy, outcome expectancies, and priority. This explorative study described self-reported dietary support practices, determinants of practice, and additional knowledge needs among Dutch nursing home nurses.

Methods A cross-sectional design was used. Nurses completed an online, self-administered 70-item questionnaire (n = 138). Nurses reported on a 5-point Likert scale (never [1] to always [5]) frequency of healthy dietary support practice in general and of four specific practices: observing any problems, having a conversation, motivating, setting goals. Ten determinants were rated (strongly disagree [1] to strongly agree [5]). Percentage of nurses who reported performing practices often or always, and who (strongly) agreed with the determinant, were obtained.

Results Most nurses frequently supported healthy diet in general (71%). With respect to the specific practices, almost all nurses observed any problems with eating and drinking among residents (91%), only about half of the nurses addressed diet in a conversation (48%) or motivated residents (55%), and nurses set goals rarely (19%). Sufficient skills (80%), sufficient knowledge (79%), a favourable professional role perception (77%), positive emotions (72%), and a high intent (70%) regarding general healthier dietary support was expressed by a lot of nurses. Fewer nurses indicated lack of negative emotions (63%), positive attitude (56%), high self-efficacy (55%), high outcome expectancies (34%), and lack of competing priorities (34%). Nurses expressed a broad need for additional knowledge related to nutrition and behaviour change.

Conclusions Nurses generally supported healthy diet among residents, but specific practices that go beyond merely observing problems are implemented less frequently. Competing priorities, belief in outcome expectancies, and knowledge related to this support require further attention.

Keywords Nurses, Diet, Nursing homes, Determinants, Behaviour, Attitude, Self-efficacy, Knowledge, Skills, Theoretical domains framework

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Background

A component of a healthier lifestyle is improved dietary behaviour. Dietary behaviour remains important for frail patients in older age, as it can improve quality of life by contributing to decreased risk of constipation, frailty, immobility, illness, pressure ulcer, delayed recovery, and falls [1, 2]. Consequently, even patients receiving long-term care in nursing homes may benefit from targeted dietary behaviour support in order to maintain nutritional and dehydration status. In line with professional competency frameworks [3], nurses providing this long-term care, therefore, play a role in supporting healthier dietary behaviour of their residents. Healthier dietary support involves supporting a diet that adheres to national dietary guidelines, adapted where necessary to the resident's personal situation. In nursing homes, this often necessitates a focus on adequate intake, mainly of energy- and protein-dense foods, to counteract the prevalence of (risk of) malnutrition [2, 4].

Dietary behavioural support encompasses all nursing activities aimed at optimizing residents' dietary intake, all of which can be incorporated into the nursing process [5]. Nurses can identify any problems with eating and drinking during the assessment stage, set appropriate dietary behavioural goals together with the resident during the planning stage, and implement several behavioural change interventions during the implementation stage to empower the resident or change the social and physical environment. These interventions ideally involve the use of behavioural change techniques (BCTs) [6]. BCTs can be seen as active components that can be used in combination to make behaviour change easier for people [6, 7]. Nurses can deploy these BCTs in their support or support residents in using BCTs to make behaviour change more manageable. Examples of BCTs include self-monitoring of behaviour (e.g., helping a resident keep a diary), implementation intentions (i.e., assisting in making specific 'if-then' plans to automate behaviour, such as 'If I watch television at 20:00, then I drink a glass of water.'), and planning coping responses (i.e., making a clear plan for difficult moments) [6]. As such, nurses can support residents in setting and working toward dietary goals, such as increasing consumption of protein-rich or energy-dense foods, making healthier dietary choices when options are available, and maintaining adequate fluid intake, even in a context in which autonomy over food choices is limited.

Little is known about the actual incorporation of dietary support by nursing home nurses. This practice, however, may not be incorporated to its fullest potential, as malnutrition and obstipation are commonly observed in nursing homes [4, 8, 9]. Furthermore, a study indicated that 47% of nursing home staff did not actively conduct dietary assessments in practice [10].

The degree to which nursing home nurses incorporate dietary behaviour support in their practice could be influenced by determinants at multiple levels: intrapersonal (e.g., knowledge, attitude, self-efficacy, role perception), interpersonal (e.g., professional-patient relationship, patient cooperation), and organisational (e.g., resources, policy) [11]. However, previous research on intrapersonal determinants of professional practice among nursing home nurses is either inconsistent or limited. Studies conducted in Australia, Austria, and the United States of America revealed that nursing home nurses scored moderate on nutritional knowledge tests [10, 12–14]. Regarding attitude, most studies showed that around half of the nurses held positive attitudes towards dietary care [12, 15, 16]. A more favourable attitude up to 83% was found regarding dietary assessment [10]. A qualitative study conducted in a nursing home setting identified a negative attitude as a barrier to the delivery of good dietary care in the United Kingdom [17]. Some studies showed that role perception and confusion can hinder good dietary care as well [17, 18]. Finally, information on the self-efficacy of nursing home nurses in providing support of healthier diet is lacking. However, previous research among community nurses and practice nurses indicate that self-efficacy is an important determinant of supporting healthy diet [19–21].

Taken together, these findings indicate that intrapersonal determinants of dietary support practices are not addressed, and a broad range of such determinants is not explored simultaneously (e.g. knowledge, attitude, self-efficacy, and role perception). Furthermore, existing studies in a nursing home setting focused on determinants of practice that were often related to malnutrition or one specific practice (e.g. dietary assessment). Consequently, understanding current healthier dietary support practices in general among nurses and the determinants of practice can provide valuable starting points for nursing homes to optimize care and support their nursing staff in further professionalisation. Therefore, this explorative study described self-reported healthier dietary support practices, determinants of these practices, and additional knowledge needs among Dutch nursing home nurses.

Methods

Study design

This exploratory study used a cross-sectional design. Dutch nursing home nurses filled out an online, self-administered questionnaire between 19 September and 17 October 2022 (Supplementary file 1, Questionnaire).

Nursing homes in the Netherlands

In the Netherlands, frail persons are admitted to nursing homes when they are (temporarily) not able to live independently due to complex care needs. Residents in

nursing homes receive 24-hour care from healthcare professionals, including nurses [22]. In 2022, 125 thousand persons resided in homes for the elderly and nursing homes in the Netherlands [23]. The average age of residents was 84 years of age in 2017 [24]. Residents living in nursing homes were cared for by 255 thousand professionals in 2022; 60% of whom held a nursing degree at the European Qualifications Framework (EQF) level 3 or higher [25, 26]. Data from 2022 indicated an average staffing ratio of 1.07 full-time equivalent per resident (i.e., approximately 5.5 to 6 h per day) [27]. Nursing homes have different wards, including somatic wards for persons with chronic somatic conditions and psychogeriatric wards predominantly for residents with dementia.

Nursing homes in the Netherlands are required to provide all usual daily foods including three main meals, snacks, fruit, and adequate hydration [28]. The daily nutrition offered has to comply with the basic guidelines for healthy, safe nutrition from the Dutch Nutrition Centre [28]. Residents have access to a variety of options they can choose from, particularly at breakfast, lunch, and snack time. Options may be restricted for residents requiring texture-modified food. Supporting healthy dietary behaviour by nurses encompasses influencing organisational policies, collaboration with dietitians, volunteers, healthcare assistants, and catering, and the everyday actions of nurses to support residents to make healthier choices within available options and to optimise dietary intake. Through the nursing process [5], nurses are often the first to observe eating or drinking difficulties, formulate dietary goals in collaboration with residents (when needed in collaboration with a dietitian as well), and implement behavioural strategies to support goal attainment. This may include supporting residents in prioritizing protein-rich or nutrient-dense components, optimizing the sequence of intake during meals, and encouraging residents to select healthier options (e.g., whole-wheat products).

Recruitment

Researchers recruited participants by contacting nursing home nurses belonging to their organizational, professional, and informal networks through email, WhatsApp, LinkedIn, Facebook, telephone calls, and professional meetings. Furthermore, we sent an email request to approximately 130 nursing home organizations, each with multiple locations, to share the invitation to participate with their employees. As such, we used convenience and snowball sampling, which are non-probability sampling methods in which each individual chooses whether to respond [29]. For recruitment efforts, we created a digital flyer that contained a web link and a QR code to the online questionnaire.

Participant eligibility and informed consent

On the first page of the online questionnaire, participants were provided with study information and asked to provide informed consent (Supplementary file 1, Questionnaire). Participants who did not provide informed consent were informed of non-eligibility via a pop-up notification and could not proceed. After providing consent, eligibility was assessed using three screening questions. Eligible participants were required to (1) currently work as a nurse in a Dutch nursing home, (2) work at least 8 h per week, and (3) hold a nursing qualification at EQF level 3 or higher. These criteria were applied to ensure sufficient exposure to nursing home practice and professional experience relevant to the study aim. Participants who did not meet any of these criteria were informed of non-eligibility via a pop-up notification and the questionnaire was closed. Of the nurses who provided informed consent (n = 319), 83 did not meet or fill out the inclusion criteria (39 did not work in Dutch nursing home; 3 were employed for less than 8 h/week; 20 did not have a nursing degree at the EQF level 3 or higher [26]; 21 did not fill out inclusion criteria). Another 98 participants were excluded from the analysis sequentially due to missing data on participant characteristics (n = 21), professional practices (n = 19), or determinants (n = 58). The population for analysis consisted of 138 participants. Needs for additional knowledge were obtained from 126 participants.

Questionnaire

The online questionnaire was adapted from a previous questionnaire developed to examine professional dietary support determinants and practices among Dutch community nurses [21]. The questions regarding determinants were based on the validated Dutch Determinants of Implementation Behaviour Questionnaire (DIBQ) [11, 21]. The DIBQ was grounded in the Theoretical Domains Framework, which provides a theoretical basis for identifying and understanding the determinants underlying professional behaviour [30]. Although originally developed for community nurses, the questionnaire was expected to be applicable to nursing home settings, as it addressed universal determinants of behaviour and dietary support practices that are shaped by similar competency profiles. Nevertheless, its contextual relevance, readability, feasibility, and comprehensibility were pretested in two rounds with nursing home nurses (EQL 3–4; round 1 n = 4; round 2 n = 2), and a management representative. Based on this feedback, wording adjustments were made to ensure contextual relevance, i.e., replacing “patients” with “residents”, and additional questions regarding workplace setting and psychological conditions commonly encountered in nursing homes were added (Supplementary file 1, Questionnaire). The

70-item questionnaire started with a short description of the study objective, the estimated completion time (15 min), and a question to obtain informed consent. It consisted of items on participant characteristics (14 items), professional practice (5 items), nurse-related determinants (24 items), and the need for additional knowledge (22 items), weight and height (3 items – not used), and comments (1item) (Supplementary file 1, Questionnaire). To proceed through the online questionnaire it was mandatory to answer all questions, except six optional questions at the end of the questionnaire (Supplementary file 1, Questionnaire). The questionnaire was administered in Dutch and launched using the Qualtrics online survey tool [31].

Participants characteristics

Characteristics included employment rate (< 8, 8–16, 17–24, 25–32, > 32 h/week), education level (EQF level 2 (first-degree secondary vocational education), 3 (partially secondary vocational education), 4 (completed secondary vocational education), 6 (Bachelor), 7 (Master), other) [26], gender (man, women, other), year of birth (years), work experience as nurse (< 5, 5–10, 11–20, > 20 years), working area (municipality), working at specific nursing home organisations (organisation A, organisation B, other), type of care (long-term, rehabilitation, short-term), patient group primarily worked with (psychiatric disorders, somatic disorders, dementia), working in small-scale living nursing home (yes, no), having focal point for lifestyle and/or (under)nutrition (yes, lifestyle and/or (under)nutrition, no), having additional training on nutrition (yes, no) or BC(T)s (yes, no).

Professional practices

A 5-point Likert scale (never [1] to always [5]) was used to obtain information on professional practice including both healthy dietary support in general and four specific practices. Healthy dietary support in general was operationalised as a diet that adheres to the Dutch Dietary Guidelines, adapted where necessary to the resident's personal situation. The specific practices could be integrated in the nursing process and involved (1) observing any problems with eating and drinking among residents, (2) having a conversation with residents about eating and drinking, (3) motivating residents to eat and drink healthier, and (4) setting goals for healthier eating and drinking collaboratively with residents.

Determinants of practice

A 5-point Likert scale (strongly disagree [1] to strongly agree [5]) was used to assess nurses' alignment with several determinants underlying dietary support, operationalized as 10 constructs based on the DIBQ [11]. These constructs examined how nurses rated: their ability to provide support (skills), their factual information regarding how to support (knowledge), their responsibility to perform support (professional role), their affective states accompanying support (positive emotions, negative emotions), their conscious resolve to provide support (intention), their perceived likability of providing support (attitude), their confidence to provide support even when facing barriers (self-efficacy, 2 items), the expected results of their support (outcome expectancies, 3 items), and the relative importance they assigned to support (priority) (Table 2). All items were positively framed, except 'negative emotions' and 'priority'. Given their importance [17, 18, 21], professional role and self-efficacy were also assessed for both healthy dietary support in general and four specific professional practices. Self-efficacy was also explored for three capabilities related to healthy dietary support: a) dealing with residents' autonomy appropriately, b) dealing with resident resistance appropriately, and c) informing residents about a healthier diet.

Need for additional knowledge

The questionnaire assessed need for additional knowledge in the three areas: diet in relation to specific health conditions (12 items); motivating and communicating with residents (6 items); and diverse topics covering residents' social network, interprofessional cooperation, and fact-checking (3 items). Response options to each item included: 'Yes', 'No, I already have sufficient knowledge', 'No, no interest', and 'I do not know'. Two open-ended questions explored other topics where additional knowledge was desired and inquired about familiarity with BCTs (Supplementary file 1, Questionnaire).

Data-analysis

For the purpose of simple interpretation, the negatively framed items 'negative emotions' and 'priority' were reverse-coded and redefined as 'lack of negative emotions' and 'lack of priority'. As a result, higher scores of all determinants were in favour of the professional practice. To verify that items on self-efficacy and outcome expectancy could also be aggregated into single constructs for this specific sample, Cronbach's alphas were calculated. The results ($\alpha = 0.84$ and $\alpha = 0.90$, respectively) confirmed high internal consistency, justifying the use of composite constructs [32]. Categorical data were expressed as frequencies and percentages, while continuous variables were expressed as means with standard deviations. Percentage of nurses who reported performing practices often or always, and who (strongly) agreed with a determinant, were also obtained. These response categories were collapsed to distinguish nurses frequently performing practices or with more favourable determinants, thereby identifying areas where dietary support practice may be strengthened. Descriptives of

the practices and determinants were stratified by resident group (caring for residents with vs. without dementia) recognizing that professional practices may vary across resident group. A p-value of less than 0.05 in the Chi-square tests (if dichotomized determinants or practices) and Mann-Whitney U tests (if ordinal determinants) indicated statistical significance in the stratified analysis. Analyses were limited to resident group as the sample size was relatively small and conducting multiple statistical tests would increase the likelihood of chance findings. To assess potential selection bias, a drop-out analysis was conducted comparing baseline characteristics between participants with and without information on professional practice and determinants. Results showed a maximum variation of 4% between groups across characteristics. Data were analysed using IBM SPSS Statistics 28.0.1.0 (IBM Corp, Armonk, NY, USA).

Table 1 Characteristics of Dutch nursing home nurses ($n = 138$)

	n	%
Gender		
Man	8	5.8
Woman	130	94.2
Other	0	0
Age (years)		
18-<35	35	25.4
35-<50	48	34.8
50-<65	52	37.7
≥65	3	2.2
Highest level of education[1]		
EQF Level 3	82	59.4
EQF Level 4 or higher	56	40.6
Employment (hrs/week)		
8–16	19	13.8
17–24	38	27.5
25–32	62	44.9
>32	19	13.8
Work experience (years)		
<5	19	13.8
5–10	21	15.2
11–20	27	19.6
>20	71	51.4
Geographical working location[2]		
North	2	1
East	78	57
South	13	13
West	28	28
Caring for residents with		
Psychiatry disorders	12	8.7
Somatic disorders	65	47.1
Dementia	61	44.2
Small scale residential care		
No	68	49.3
Yes	70	50.7
Focal point		
(Under)nutrition	3	2.2
Lifestyle	5	3.6
(Under)nutrition and lifestyle	0	0
Neither	130	94.2
Additional education past two years[3]		
Not about nutrition or BC(T)s	68	49.3
Yes, about nutrition	24	17.4
Yes, about BC(T)s	22	15.9
Yes, about nutrition and BC(T)s	24	17.4

[1]EQF, European Qualifications Framework; [2]missing ($n = 1$); [3]BC(T)s, behaviour change (techniques)

Ethical considerations

This study was approved by the Social Sciences Ethics Committee of Wageningen University & Research (220411, Wageningen, the Netherlands) and conducted in accordance with the Declaration of Helsinki. All participants were informed about the purpose of the study and provided informed consent prior to participation. Confidentiality was assured through the use of an anonymous questionnaire. Participants were made aware that participation was voluntary and that they could withdraw from the study without completing the questionnaire at any time. Data were securely stored on a protected server of the Christian University of Applied Sciences and only accessible to the researchers.

Results

Participant characteristics

Most participants were female (94%), completed a nursing degree at EQF level 3 (59%), and were employed at least 25 h/week (59%) (Table 1). Half of the participants had more than 20 years of nursing experience (51%) and followed additional training on nutrition and/or BC(T) during the past two years (51%). Participants cared for residents with chronic somatic conditions (47%), dementia (44%), or psychiatric disorders (9%). Participants most often worked in the Middle or East Netherlands (85%).

Professional practices

Most nurses indicated that they supported healthy eating in general at least often (71%) (Fig. 1, Supplementary file Table 1). Regarding specific practices, nearly all nurses frequently observed any problems with eating and drinking among residents (91%), about half frequently had a conversation with residents about eating and drinking (48%) or frequently motivated residents to eat and drink healthier (55%), while only 19% frequently set goals for healthier eating and drinking. Nurses caring for residents with dementia engaged less frequently in conversations about eating and drinking (34%) than nurses caring for residents without dementia (58%) ($p < 0.01$) (Table 2).

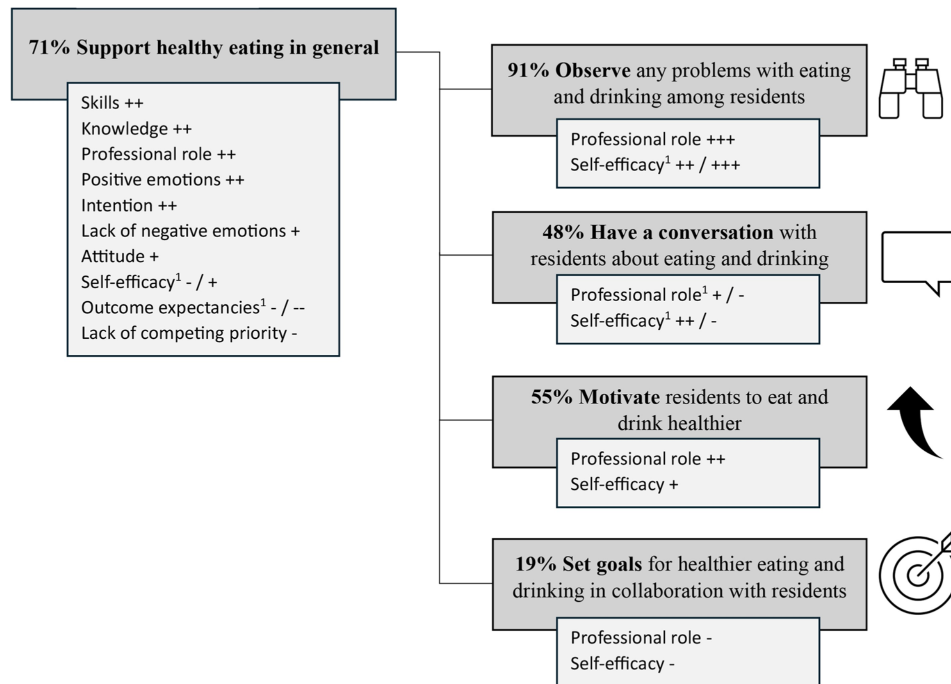

Fig. 1 Percentages of Dutch nursing home nurses reporting frequent professional practices and alignment with determinants of dietary behavioural support[2]. Legend: Percentage of alignment with determinants of practice expressed as constructs (%(strongly) agree)): (+++= >90%; ++= >70–90%; += >50–70%; - = >30–50%; --= 30-<10%; ---= ≥ 10%). [1]Results were presented for nurses caring for residents without dementia versus with dementia, if differences in constructs were observed based on the Chi-square test ($p < 0.05$). [2]Percentages represent top-two response categories: 'often/always' (practices) and 'agree/strongly agree' (determinants)

Table 2 Extent to which Dutch nursing home nurses' identify with determinants of healthy eating support in general

Constructs	Total (*n* = 138)		Caring for residents				*p*-value[2]
			without dementia (*n* = 77)		with dementia (*n* = 61)		
	mean[1]	SD	mean[1]	SD	mean[1]	SD	
Skills	3.9	0.5	3.8	0.6	3.9	0.5	0.37
Knowledge	3.9	0.6	3.8	0.6	3.9	0.7	0.53
Professional role	3.9	0.7	3.8	0.7	3.9	0.8	0.26
Positive emotions	3.8	0.7	3.7	0.7	3.9	0.7	0.13
Intention	3.8	0.7	3.8	0.8	3.9	0.6	0.45
Lack of negative emotions[3]	3.7	1.0	3.7	1.0	3.8	1.0	0.26
Attitude	3.6	0.7	3.5	0.7	3.7	0.7	0.06
Total self-efficacy (2 items)	3.4	0.7	3.3	0.7	3.5	0.7	0.04
Outcome expectancies (3 items)	3.2	0.8	3.5	0.6	2.8	0.8	< 0.01
Awareness dietary behaviour	3.3	0.9	3.6	0.7	2.8	0.8	< 0.01
Motivated to healthier dietary behaviour	3.1	0.8	3.4	0.7	2.8	0.8	< 0.01
Start working on goals	3.1	0.9	3.4	0.8	2.8	0.9	< 0.01
Lack of other priority[3]	3.0	0.9	2.9	0.9	3.2	1.0	0.26

Abbreviations: *SD* Standard deviation. [1]Mean on 5-pt Likert scale: strongly disagree [1] to strongly agree [5]; [2]P-value for the difference between nursing home nurses caring for residents without and with dementia, Mann-Whitney U test; [3]To increase interpretability, all constructs were aligned such that higher scores favoured dietary support. To achieve this, the scales for 'negative emotions' and 'priority' were reversed and renamed as 'lack of negative emotions' and 'lack of priority'

Professional determinants of practice

More than 70% of the nurses regarded healthy dietary support as part of their professional role and were positive about their knowledge, skills, and intention regarding this support (Fig. 1, Supplementary file Table 1). A positive attitude, high self-efficacy, and lack of negative emotions were expressed by more than 50% of the nurses (Fig. 1). Lack of other priorities and high outcome expectancies were expressed by less than 50% of the nurses. Nurses caring for these residents had lower mean scores for outcome expectancies than nurses caring for residents without dementia (3.4 vs. 3.6 ($p < 0.01$) (Table 2; Fig. 1)). Nurses caring for residents with dementia had a higher mean score for

self-efficacy than nurses caring for residents without dementia (3.5 vs. 3.3 ($p = 0.04$)) (Table 2; Fig. 1).

Regarding specific practices, nurses indicated that observing any problems with eating and drinking among residents was part of their professional role (92%) and nurses felt competent to perform this specific practice (91%). Nurses caring for residents with dementia felt more competent than nurses caring for residents without dementia (97% vs. 86%, respectively, $p = 0.03$) (Fig. 1; Table 2, Supplementary file Table 1).

Having a conversation was considered as part of their role by 45% of the nurses and 59% felt competent to perform this specific practice. Nurses caring for residents with dementia indicated less often that having a conversation fitted well within their professional role (34%) or felt competent (44%) than nurses caring for residents without dementia (53% and 70%, respectively) (Fig. 1; Table 2, Supplementary file Table 1). Nurses considered motivating residents to eat and drink healthier as their professional role (83%), although nurses felt less competent to perform this task (57%) (Fig. 1, Supplementary file Table 1). Less than half of the nurses considered setting goals for healthier eating and drinking collaboratively with residents as part of their professional role and felt capable of supporting goal setting (44% and 39%, respectively) (Fig. 1, Supplementary file Table 1).

Concerning self-efficacy for specific capabilities, nurses most frequently reported confidence in dealing with residents' autonomy related to healthier dietary support (76%), followed by informing residents about a healthier diet (69%) and dealing with residents' resistance appropriately (49%) (data not shown in table).

Need for additional knowledge

Nurses expressed a need for additional knowledge on nutrition in relation to health conditions, ranging from diabetes (n = 54; 43%) to Parkinson's disease (n = 81; 64%) (Supplementary file Table 2). At least half of the participants wanted additional knowledge on all the topics related to motivating and communicating with residents (Supplementary file Table 2). Furthermore, nurses either had sufficient knowledge or were not interested in additional knowledge about the involvement of patients' social network (n = 43 (34%) and n = 29 (23%), respectively), interprofessional cooperation (n = 68 (54%) and n = 17 (14%), respectively), or fact-checking (n = 30; 24% and n = 44; 35%, respectively) (Supplementary file Table 2). Additional topics on need for knowledge that appeared from the open-ended question involved specific nutrients and the relation between diet and health problems (n = 6), the influence of the living environment of the resident on healthier eating (n = 4), and professional dilemma's regarding healthier eating (n = 4). Responses to the final open-ended question highlighted at least the professional dilemma of whether care in the last years of life should primarily focus on enjoyment and residents' dietary wishes or on healthier dietary support. The open-ended question about the familiarity with BCTs showed that some participants were familiar with motivational interviewing (n = 6), nudging (n = 5), demonstration of behaviour (n = 2), information transfer (n = 1), and feedback (n = 1) [6].

Discussion

Most nursing home nurses frequently supported healthy eating in general. With respect to the specific practices, almost all nurses observed any problems with eating and drinking among residents, but only about half of the nurses addressed diet in a conversation or motivated residents, and nurses set goals rarely. Concerning the determinants of practice, general support was accompanied by sufficient skills, sufficient knowledge, a favourable professional role perception, positive emotions, and a high intent according to the nurses. Although nurses perceived their knowledge as sufficient, participants were eager to learn more about diseases and behaviour change methods.

Nurses frequently supported healthy eating in this study, but observing any problems was the only specific practice that was nearly always carried out. This may indicate that nurses related healthy eating support in general to other specific practices, such as collaboration with other professionals, documentation of intake, or practical assistance with eating and drinking, instead of specific practices that are needed to personalize healthier dietary support.

Besides not being aware of these specific practices, nurses may also encounter challenges in supporting healthy eating in general and continuing dietary care beyond observation. First, challenges may relate to a less positive attitude as approximately half of the nurses reported a neutral attitude to healthy eating in general in this study, a finding comparable to other studies [12, 16]. At the same time, attitudes may vary depending on the specific practice considered. For example, 83% of the nursing home staff in an Australian study recognized the importance of dietary assessment, which can be used to systematically observe problems with eating and drinking [10]. A less positive attitude may also relate to ethical dilemmas. A dilemma may arise from balancing among scientific evidence, professional experience, resident experience preferences, and information from the local context while conducting evidence-based care [33]. Based on some remarks of the nurses, nurses may perceive that allowing residents to eat what they enjoy and are used to contributes more to their quality of life than eating healthier, even when evidence supports the benefits of a healthier diet for frail older adults [1, 2, 34].

Second, challenges may relate to lower self-efficacy regarding addressing resident resistance and performing specific dietary support practices, namely motivating residents and setting dietary behavioural goals. Additionally, self-efficacy regarding having a conversation about dietary behaviour appears to require particular attention when caring for residents with dementia, possibly reflecting the communicative complexity of this care context. Targeted training initiatives may help to enhance self-efficacy of nurses, notably in these areas, especially when these initiatives use BCTs to increase self-efficacy such as guided practice, feedback, or self-monitoring of behaviour [6]. Importantly, BCTs are not only relevant for strengthening nurses' self-efficacy. Nurses can apply a broad range of BCTs when supporting dietary behaviour. However, in this study only a limited number of nurses were able to explicitly mention specific BCTs, even though most nurses reported possessing the necessary skills to support dietary behaviour. This may suggest that nurses may not yet fully recognise or intentionally apply the broad range of available BCTs in practice. It should be taken into account that all BCTs are not equally applicable across resident group. Most BCTs are designed for cognitive processes of behaviour change and hence suitable for residents without cognitive impairment [6, 35]. Therefore, it is likely that BCTs relying on non-conscious processes and adaptations in social and environmental surroundings are especially relevant when caring for residents with dementia [35]. Using context-appropriate BCTs might also positively influence nurses' outcome expectancies by increasing the likelihood that dietary support targets residents' determinants of practice. This highlights a valuable opportunity, as our study shows that outcome expectancies could be further strengthened, particularly among nurses caring for residents with dementia. Taken together, strengthening nurses' self-efficacy through training, and explicit use of context-appropriate BCTs may enhance outcome expectancies and the implementation of dietary behavioural support by nurses.

Third, knowledge related to dietary support might play a role. In this study, nurses considered their knowledge of dietary support to be sufficient regardless of their educational level. However, the actual adequacy of this knowledge was not assessed. Other studies indicated room for improvement, as nutritional knowledge assessments revealed that, on average, 55% to 66% of the questions were answered correctly [10, 12–14]. Studies evaluating dietary knowledge pointed to a higher score for nursing home staff with higher educational background [10, 12–14, 36]. As such, it remains important to adapt future training possibilities to learning needs and prior knowledge of dietary support.

Fourth, besides professional factors, challenges could also be related to organisational factors and cooperation with others. Organisational factors, like time constrains, staff, training, and organisational policy, were mentioned as barrier to dietary care in prior studies [10, 37–39]. Although organisational factors were not directly assessed in this study, time constraints and staff shortages might explain nurses' neutral appraisal of competing priorities. A potential solution involves optimizing cooperation with residents' social network in care provision. Although this does come with some challenges. Family members, who actively participate in care, such as assisting with meals, often struggle to coordinate their relatives' care with nursing staff [40]. Furthermore, inadequate information transfer within multidisciplinary teams has been identified as a barrier to effective dehydration care and has also been highlighted in studies on interdisciplinary collaboration in nursing homes [41, 42]. However, nurses in this study did not express a need for additional knowledge about cooperation with the residents' social network or other professionals. This might suggest a potential gap in their awareness of the benefits of cooperation.

Several issues should be taken into account when interpreting the results of this study. First, while the cross-sectional design aligned with the aim of describing current practices and its determinants, it inherently limits the ability to establish causal associations between determinants and dietary support practices [43]. Current practices and factors were described, as studying associations between determinants of practice and dietary support practices was not feasible without risking insufficient power and multiple testing issues. Nevertheless, behavioural theories suggest that determinants influence professional behaviour [44]. Therefore, relatively lower factor scores might indicate what hamper dietary support practices. Overall, this explorative study provides sufficient initial evidence to justify larger cross-sectional studies or even prospective studies to explore potential associations. Second, participants may have over- or underreported their self-reported practices due to recall inaccuracies. This potentially impacted the validity of the results. Third, professional practices in nursing home settings may vary across countries. As such, caution is warranted when attempting to generalise these findings beyond the Dutch context. Fourth, some specific practices were more aligned with care for residents without dementia than with dementia. Specifically, actively involving residents in setting their own goals is less applicable in the context of dementia care. Furthermore, nurses may have interpreted the specific practice having a conversation about eating and drinking primarily as means of creating awareness through knowledge transfer or risk perception enhancement. Consequently, this may explain why nurses caring for residents with dementia less frequently conducted this practice. However, conversations can also

be about encouraging dietary intake and obtaining positive associations with eating and drinking, which are also relevant in dementia care. Further exploration of dietary support practices specifically tailored to dementia care is recommended. Fifth, there is a potential for selection bias, as participants might have been disproportionately drawn from nurses already interested in the topic. As such, nursing home nurses who did not complete the questionnaire may have differing attitudes or practices, possibly skewing the results to a more optimistic view about determinants and practices. Although the regional concentration of nurses may also have introduced selection bias, comparison with national statistics indicated that the sample was largely representative of the national nursing home nursing workforce in terms of age, working hours, and gender distribution (mean age: 44.4 vs. 43.2 years, max. 24 h/week: 41% vs. 50%, and 94% female vs. 90%) [45, 46].

Conclusion

Nurses generally supported healthier diet among residents, but specific practices that go beyond merely observing problems are implemented less frequently. Other competing priorities, belief in outcome expectancies, and knowledge needs may hamper practice. In addition to addressing these determinants, facilitating training in BCTs and ethical deliberation may empower nurses to further strengthen their dietary support.

Abbreviations

BCTs Behaviour change techniques
EQF European qualifications framework

Supplementary Information

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Supplementary Material 1.

Supplementary Material 2.

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Authors' contributions

GJGVW, ECW, APZH, and WK contributed to the study design; ECW and APZH collected the data; GJGVW analysed data and drafted the manuscript. All authors contributed to revising the article critically. All authors read and approved the final manuscript which was finalized by GJGVW.

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Data availability

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate

This study was approved by the Social Sciences Ethics Committee of Wageningen University & Research (220411, Wageningen, the Netherlands) and conducted in accordance with the Declaration of Helsinki. All participants were informed about the purpose of the study and provided informed consent prior to participation.

Consent for publication

not applicable.

Competing interests

The authors declare no competing interests.

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