



Low-value home-based nursing care: A national survey study

Benjamin Wendt¹  | Milou Cremers² | Erwin Ista² | Monique van Dijk² |
 Lisette Schoonhoven^{3,4} | Minke S. Nieuwboer⁵ | Hester Vermeulen¹ |
 Simone A. Van Dulmen¹ | Getty Huisman-de Waal¹ 

¹Radboud University Medical Center, Radboud Institute for Health Sciences, IQ healthcare, Nijmegen, The Netherlands

²Department of Internal Medicine, Section of Nursing Science, Erasmus MC, University Medical Center Rotterdam, Rotterdam, The Netherlands

³Nursing Science, Julius Center for Health Sciences and Primary Care, University Medical Center Utrecht, Utrecht University, Utrecht, The Netherlands

⁴School of Health Sciences, Faculty of Environmental and Life Sciences, University of Southampton, Southampton, United Kingdom

⁵Academy of Health and Vitality, HAN University of Applied Sciences, Nijmegen, The Netherlands

Correspondence

Benjamin Wendt, Radboud University Medical Center, Radboud Institute for Health Sciences, IQ healthcare, Nijmegen, The Netherlands.

Email: benjamin.wendt@radboudumc.nl

Funding information

ZonMw, Grant/Award Number: 101110032010002 and 101110032010003

Abstract

Aims: To explore potential areas of low-value home-based nursing care practices, their prevalence and related influencing factors of nurses and nursing assistants working in home-based nursing care.

Design: A quantitative, cross-sectional design.

Methods: An online survey with questions containing scaled frequencies on five-point Likert scales and open questions on possible related influencing factors of low-value nursing care. The data collection took place from February to April 2022. Descriptive statistics and linear regression were used to summarize and analyse the results.

Results: A nationwide sample of 776 certified nursing assistants, registered nurses and nurse practitioners responded to the survey. The top five most delivered low-value care practices reported were: (1) 'washing the client with water and soap by default', (2) 'application of zinc cream, powders or pastes when treating intertrigo', (3) 'washing the client from head to toe daily', (4) 're-use of a urinary catheter bag after removal/disconnection' and (5) 'bladder irrigation to prevent clogging of urinary tract catheter'. The top five related influencing factors reported were: (1) 'a (general) practitioner advises/prescribes it', (2) 'written in the client's care plan', (3) 'client asks for it', (4) 'wanting to offer the client something' and (5) 'it is always done like this in the team'. Higher educational levels and an age above 40 years were associated with a lower provision of low-value care.

Conclusion: According to registered nurses and certified nursing assistants, a number of low-value nursing practices occurred frequently in home-based nursing care and they experienced multiple factors that influence the provision of low-value care such as (lack of) clinical autonomy and handling clients' requests, preferences and demands. The results can be used to serve as a starting point for a multifaceted de-implementation strategy.

Reporting Method: STROBE checklist for cross-sectional studies.

Patient or Public Contribution: No Patient or Public Contribution.

Implications for the Profession and/or Patient Care:

- Nursing care is increasingly shifting towards the home environment.

Milou Cremers and Benjamin Wendt are equal first authors.

This is an open access article under the terms of the [Creative Commons Attribution-NonCommercial-NoDerivs](https://creativecommons.org/licenses/by-nc-nd/4.0/) License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.

© 2023 The Authors. *Journal of Advanced Nursing* published by John Wiley & Sons Ltd.

- Not all nursing care that is provided is effective or efficient and this type of care can therefore be considered of low-value.
- Reducing low-value care and increasing appropriate care will free up time, improve quality of care, work satisfaction, patient safety and contribute to a more sustainable healthcare system.

KEYWORDS

de-implementation, evidence-based practice, guidelines, home care, home healthcare, low-value care, medical overuse, nurse, nursing, quality improvement

1 | INTRODUCTION

In an effort to keep nursing care affordable and accessible, institutionalized care is increasingly shifting towards the home environment (World Health Organization, 2020). Trends, such as an ageing population, a societal attitude towards more personalized care and newly created home treatment options are important drivers (World Health Organization, 2015). A similar shift is seen in the Netherlands, where the demand for home-based nursing care increased to 589,000 clients in 2018, a 32,000-increase compared to the year before (Vektis Intelligence, 2022). A major challenge that coincides with these changes is that nurses and certified nursing assistants working in home-based nursing care are scarce. Shortages are expected to increase in the Netherlands to more than 10,000 on a total of 105,000 home-based healthcare professionals in 2027 (Grijpstra et al., 2020). As a result, healthcare professionals in home-based nursing care experience that care is increasingly left undone; for example, comforting and educating patients or supporting and involving family or carers (Senek et al., 2020). In 2020, 34% of respondents in home-based nursing care reported that care was left undone in their last shift (Senek et al., 2020). Another challenge is that not all care that is provided is effective or efficient, for example, there is evidence that 'the use of dressings for primarily closed wounds' or 'preoperative hair removal to prevent surgical site infections' is ineffective to prevent infections, but are still prevalent in clinical practice (Osorio et al., 2019). This type of care can therefore be considered of 'low-value' and wastes limited resources and time, and may cause physical, psychological or financial harm to patients (Brownlee et al., 2017). For nurses and certified nursing assistants to reduce low-value care and free up time will therefore possibly, increase appropriate care, improve quality of care, patient safety, work satisfaction and contribute to a more sustainable healthcare system (Wei et al., 2018).

2 | BACKGROUND

Although there is no international consensus on what exactly constitutes 'low-value care' (Niven et al., 2015), evidence is increasing that low-value care might be highly prevalent in nursing (Osorio

et al., 2019). In general, care can be considered of low-value when it is: (1) ineffective; for example, proven ineffective or the harms outweigh the benefits; (2) inefficient; for example, essentially effective care but of low-value because it is performed double, too soon or continued too long or (3) unwanted; for example, essentially effective care but of low-value because it does not solve the patients' problem or it does not fit the patients' preferences (Verkerk, Tanke, et al., 2018). Several lists identifying and compiling low-value nursing care practices have been developed (Plas et al., 2008; Shellian & Levinson, 2016). In 2017, the first systematic assessment of Dutch clinical nursing guidelines resulted in 66 do-not-do recommendations of low-value nursing care practices (Verkerk, Huisman-de Waal, et al., 2018).

The next step is to raise awareness and de-implement, that is actively reduce, replace or stop low-value nursing care practices with the help of theory- and evidence-based strategies (Rietbergen et al., 2020). These strategies address the 'how' part and are methods, tools, interventions and techniques that aid the process of de-implementation (Ingvarsson et al., 2022). However, to increase the chance of success for future de-implementation strategies, assessment is needed of the volume and types of low-value home-based nursing care and factors—barriers and facilitators—that influence the provision of low-value home-based nursing care (Norton & Chambers, 2020). Therefore, this study aimed to explore potential low-value home-based nursing care practices, their prevalence and related experiences and influencing factors according to nurses and nursing assistants working in home-based nursing care.

3 | METHODS

3.1 | Research design

The study had a quantitative, cross-sectional design using an online survey and is reported according to the STROBE checklist for cross-sectional studies. A questionnaire was developed based on two points of interest: (1) What are potential areas of low-value home-based nursing care and how prevalent are these? and (2) What are related experiences and influencing factors—barriers and facilitators—of low-value home-based nursing care?

3.2 | Development of the survey

The survey contained three sections: (1) respondents' demographics; (2) 46 specific low-value home-based nursing care practices that contained scaled frequencies on five-point Likert scales (never, monthly, weekly, daily or every client) and possible related influencing factors (multiple answers possible) and (3) experiences with low-value home-based nursing care in general that included open questions.

The questions on potential areas of low-value home-based nursing care were based on the 2017 Dutch low-value nursing care list with 66 do-not-do recommendations derived from clinical practice guidelines (Verkerk, Huisman-de Waal, et al., 2018), as well as the results of a 2017 survey of the Dutch Professional Nurses Association (V&VN, 2017). In addition, Dutch nursing clinical practice guidelines from 2017 to 2021 were screened on do-not-do recommendations and added to the list of low-value home-based nursing care practices (for the screening process: see Appendix S1). We selected recommendations that were relevant for the home environment, for example, 'measuring vital signs without a specific reason' or 're-use of a urinary catheter bag after removal/disconnection' and possible related influencing factors, for example, 'because the client asks for it' or 'not aware of the guideline(s)'.

The questions and possible answers on related influencing factors—barriers and facilitators—of low-value home-based nursing care were based on a previously developed questionnaire used for questioning general practitioners on low-value care (Kool et al., 2020). The questionnaire was complemented with questions derived from the seven domains of the tailored implementation for chronic diseases (TICD) framework: guideline related factors, individual health professional factors, patient factors, professional interactions, incentives and resources, capacity for organizational change and social, political and legal factors (Flottorp et al., 2013). The list of answers on related influencing factors was not meant to be exhaustive, but to give direction to explore these factors further in a qualitative follow-up study with healthcare professionals to identify barriers to and facilitators on reducing low-value home-based nursing care practices.

The survey was piloted by three registered nurses (Level 6) from our own network working in home-based nursing care. This resulted in the rephrasing of some practices and examples. The final version of the questionnaire can be found in Appendix S2.

3.3 | Setting, population and data collection

The survey was aimed at health and welfare assistants and certified nursing assistants (Level 2 and 3), registered nurses (Level 4 and 6) and nurse practitioners (Level 7) employed by a healthcare organization active in home-based nursing care. Managers and students were excluded. An elaboration on the educational and professional competencies of care professionals in the Netherlands can be found in Table 1 (NCP NLQF, 2019).

Eight nursing care organizations in the west, middle and eastern parts of the Netherlands were purposively selected to take part in the study. These care organizations were active in both rural and urban settings and had between 2000 and 13,500 employees providing nursing care in the home environment to 600–80,000 clients each. Key persons—quality officers, managers or nurses—from the participating organizations were asked to send out a digital invitation containing a link to the survey through e-mail and the organizations' intranet or employee portal, therefore we could not track the exact dissemination of the survey and calculate a response rate. To increase recruitment, the secretaries of the home-based nursing care constituency ($n=1959$) and the certified nursing assistant constituency ($n=3125$) of the Dutch Professional Nurses Organization were asked to send out a digital invitation containing a distinguishing link to all the constituents' members e-mail addresses. Each organization sent two reminders (after 2 weeks and 3 weeks). The data collection took place from February to April 2022.

3.4 | Data analysis

Descriptive statistics were used to summarize the characteristics of the respondents, the prevalence of low-value home-based nursing care practices and related influencing factors. For the possible

TABLE 1 Educational and professional status of care professionals in The Netherlands.

Profession	Educational level ^a	General task description
Nurse Practitioner (<i>Master's degree</i>)	Level 7	Practitioner with both nursing and medical expertise—diagnosing patients—needs assessment and coordination of care and medical treatment—responsible for quality of care and team expertise
Registered Nurse (<i>Bachelor's degree</i>)	Level 6	High complex nursing and care—responsible for quality of care and team expertise—coaching colleagues—coordination of care—needs assessment
Registered Nurse (<i>Vocationally trained</i>)	Level 4	(Complex) nursing and care—coordination on patient level
Certified Nursing assistant	Level 3	Low complex nursing, care and support—care plan
Health and Welfare assistant	Level 2	Domestic and light care tasks (daily activities)

^aAccording to Dutch Qualification Framework (NCP NLQF, 2019).

related influencing factors multiple answers were possible. In this case the total given number of answers were added up and divided by the number of given answers of a specific factor. To assess relationships between the prevalence of low-value care and characteristics of the respondents multiple linear regression analyses (forward stepwise procedure) were performed with the following hypotheses: is there an association between the prevalence of low-value care and (1) educational level; (2) age and (3) working experience and (4) is age a confounder in the association between the prevalence of low-value care and educational level (Twisk, 2016). No missing data had to be dealt with. All analyses were performed with IBM SPSS Statistics for Windows, version 25.0 (IBM Corporation, 2017).

The 46 dependent variables 'low-value care practice' did not meet the criteria for ordinal variables as the distance between 'never', 'monthly', 'weekly', 'daily' and 'every client' was arbitrary. Therefore the dependent variables 'low-value care practice' were dichotomised as 'never'=0 and 'monthly', 'weekly', 'daily' and 'every client'=1. To use all available prevalence data a sum score 'sum score low-value care' of all 46 low-value nursing care practices was computed (continuous variable 0–46).

To make a meaningful comparison in educational level and meet assumptions for normal distribution, the independent categorical variable 'profession' was recoded into three groups: Care and Certified Nursing assistant (Level 1, 2 and 3)=0, Registered Nurse (Level 4)=1 and Registered Nurse and Nurse Practitioner (Level 6 and 7)=2.

To meet assumptions for normal distribution, the independent categorical variable 'age' was recoded into five groups: 18–30 years=0, 31–40 years=1, 41–50 years=2, 51–60 years=3 and >61 years=4.

Qualitative assessment of the 'sum score low-value care' using a visual check showed a right skewed histogram with a statistically significant test of normality (Shapiro–Wilk $p < .001$). However, descriptive statistics showed that all groups contained sufficient respondents (>30 and most groups >100) to assume normal distribution for testing (see Table 5, column 1) (Kwak & Kim, 2017). Further model assumptions for (multiple) linear regression (linearity, homoscedasticity, multicollinearity) were verified without violations.

3.5 | Ethical considerations

The research ethics committees of the Radboud University Medical Centre and University Medical Centre Rotterdam concluded that ethical approval was not required under Dutch law (CMO no. 2021-13325 and MEC-2021-0948). All procedures were conducted according to the Declaration of Helsinki.

4 | RESULTS

A total of 776 valid and fully answered questionnaires were included. The results will be presented under the following topics: (1)

characteristics of the study respondents; (2) low-value home-based nursing care; (3) influencing factors related to low-value home-based nursing care (4) experiences with low-value care and (5) relationships between prevalence of low-value care and characteristics of respondents.

4.1 | Characteristics of the study respondents

The majority of the respondents were female (723/776=93.2%), the largest age group was between 51 and 60 years old (286/776=36.9%). The three main educational levels that responded were Level 3 certified nursing assistants (208/776=26.8%), Level 4 registered nurses (197/776=25.4%) and Level 6 registered nurses (331/776=42.7%). Most of the respondents worked part-time between 21 and 30 h a week (429/776=55.3%) and had more than 21 years' experience in nursing care (412/776=53.1%) and generally less experience in home-based nursing care. The full characteristics of the study respondents are summarized in Table 2.

4.2 | Low-value care practices in home-based nursing care

In Table 3 the top 10 most delivered low-value care practices are reported as the sum of the answer categories 'monthly', 'weekly', 'daily' and 'in every client'. A complete overview of low-value care practices can be found in Appendix S3. While the majority of practices score highly on the category 'not' (70.0–99.0%), the practices that do occur, however, score highly towards the answer category 'daily'. For example (1) 'washing the client with water and soap by default' (360/776=46.4% daily), (2) 'application of zinc cream, powders or pastes when treating intertrigo' (211/776=27.2% daily), (3) 'washing the client from head to toe daily' (301/776=38.8% daily), (4) 're-use of a urinary catheter bag after removal/disconnection' (179/776=23.1% daily).

4.3 | Influencing factors related to low-value home-based nursing care

The most frequently given answers on influencing factors related to providing low-value care were: (1) 'because a (general) practitioner advises or prescribes it' (2888/12,295=23.5%), (2) 'because it is written in the clients' care plan' (2830/12,295=23.0%) and (3) 'because the client asks for it' (2177/12,295=17.7%). The totals of all influencing factors are presented in Table 4. However, depending on the specific low-value care practice differing factors might be dominant. For example, related to 'washing with water and soap' the dominant factor was 'because the client asks for it' (505/776=65.1%). Related to 'application of zinc cream, powders or pastes when treating intertrigo' the dominant factors were 'because a (general) practitioner advises or prescribes

TABLE 2 Characteristics of the respondents in home-based nursing care ($n=776$).

Characteristics	<i>n</i>	%
Educational level		
Care and health and welfare assistants (Level 1 and 2)	32	4.2
Certified nursing assistant (Level 3)	208	26.8
Registered nurse (Level 4)	197	25.4
Registered nurse (Level 6)	331	42.7
Nurse practitioner (Level 7)	8	1.0
Gender		
Female	723	93.2
Male	46	5.9
I do not want to say	7	0.9
Age		
<21 years	1	0.0
21–30 years	133	17.1
31–40 years	101	13.0
41–50 years	156	20.1
51–60 years	286	36.9
>61 years	99	12.8
Working hours (week)		
<10h	14	1.8
11–20h	140	18.0
21–30h	429	55.3
>31h	193	24.9
Experience in nursing care (years)		
<5 years	83	10.7
5–10 years	122	15.7
11–20 years	159	20.5
>21 years	412	53.1
Experience in home-based nursing care (years)		
<5 years	211	27.2
5–10 years	204	26.3
11–20 years	208	26.8
>21 years	153	19.7

it' ($295/776=38.0\%$) and 'because it is written in the clients' care plan' ($292/776=37.6\%$). The 're-use of a urinary catheter bag after removal/disconnection' was mainly driven by 'the influence of healthcare insurers' ($236/776=30.4\%$) and 'because it is written in the clients' care plan' ($159/776=20.5\%$).

4.4 | Experiences with low-value home-based nursing care

Respondents estimated that low-value home-based nursing care regularly occurs in the Netherlands ($744/776=95.9\%$) and the majority expected it to occur on a daily basis ($458/776=59.0\%$). Meanwhile, the estimated occurrence of low-value care in the respondents' own team were considerably lower, more on a monthly

($189/776=24.4\%$) and weekly ($255/776=32.9\%$) basis and less on a daily ($220/776=28.4\%$) basis.

The topic of low-value care was regularly discussed in home-based nursing care teams, for example, on a yearly ($88/776=11.3\%$), monthly ($425/776=54.8\%$) or weekly ($151/776=19.5\%$) basis. Respondents were actively trying to reduce low-value care ($676/776=87.1\%$) through raising awareness during team meetings ($603/776=77.7\%$), discussing it face-to-face with co-workers ($464/776=59.8\%$), with management ($151/776=19.5\%$) as well as with clients and caregivers ($523/776=67.4\%$). During the 'needs assessments' ($365/776=47\%$) home healthcare nurses took low-value care into account. An often mentioned answer to the 'open question' on the reduction of low-value care in the questionnaire was to consult other disciplines such as occupational therapists, physical therapists and case managers.

TABLE 3 Top 10 most delivered low-value care practices reported as the sum of the answer categories 'monthly', 'weekly', 'daily' and 'every client', together with top three related influencing factors^a as reported by respondents in home-based nursing care (n = 776).

Low-value care practice (within the last 2 months) and related influencing factor ^b	n	%	n	%
1. Washing the client with water and soap by default	694	89.4		
Because the client asks for it			505	65.1
Because it is written in the clients' care plan			227	29.3
Wanting to offer the client something			109	14.0
2. Application of zinc cream, powders or pastes when treating intertrigo	582	75.0		
Because a (general) practitioner advises / prescribes it			295	38.0
Because it is written in the clients' care plan			292	37.6
Because the client asks for it			137	17.7
3. Washing the client from head to toe daily	552	71.1		
Because it is written in the clients' care plan			329	42.4
Because the client asks for it			270	34.8
Wanting to offer the client something			114	14.7
4. Re-use of a urinary catheter bag after removal/disconnection	436	56.2		
Because of the influence of healthcare insurers			236	30.4
Because it is written in the clients' care plan			159	20.5
Because a (general) practitioner advises / prescribes it			80	10.3
5. Bladder irrigation to prevent clogging of urinary tract catheter	349	45.0		
Because a (general) practitioner advises / prescribes it			299	38.5
Because it is written in the clients' care plan			99	12.8
Because the client asks for it			18	2.3
6. Choosing short-stretch bandages by default instead of using techniques such as Coban, UrgoK2, FarrowWrap or JuxtaLite	322	41.5		
Because a (general) practitioner advises / prescribes it			626	33.8
Because of the influence of healthcare insurers			69	8.9
Because it is always done like this in the team			53	6.8
7. Use an extra inlay to prevent leaking of continence material	290	37.4		
Because the client asks for it			180	23.2
Because it is written in the clients' care plan			67	8.6
Wanting to offer the client something			66	8.5
8. Measuring vital signs (blood pressure, temperature, pulse, respiration rate) without a specific reason.	257	33.1		
Because a (general) practitioner advises / prescribes it			202	28.4
Because it is written in the clients' care plan			84	10.8
Because the client asks for it			49	6.3
9. Assist with putting on/taking off compression stockings while the client can do this him/herself (possibly with an aid)	248	32.0		
Because the client asks for it			90	11.6
Because it is written in the clients' care plan			79	10.2
Because it is always done like this in the team			54	7.0
10. Assist with (un)dressing while the client can do this him/herself	230	29.6		
Because the client asks for it			108	13.9
Because it is written in the clients' care plan			85	11.0
Wanting to offer the client something ^c			67	8.6
It is faster to do it as a professional ^c			67	8.6

^aInfluencing factors are shown in italic font.

^bMultiple answers were possible.

^cShared third place.

TABLE 4 Totals of influencing factors related to low-value care as reported by respondents in home-based nursing care ($n = 776$).^a

Influencing factor	<i>n</i>	%
1. Because a (general) practitioner advises / prescribes it	2888	23.5
2. Because it is written in the clients' care plan	2830	23.0
3. Because the client asks for it	2177	17.7
4. Wanting to offer the client something	1055	8.6
5. Because it is always done like this in the team	1042	8.5
6. Maintaining a good relationship with the client	579	4.7
7. Because of the influence of healthcare insurers	523	4.3
8. Because of team culture	340	2.8
9. It is faster to do it as a professional	278	2.3
10. It is not clear how to handle in the situation	226	1.8
11. Not aware of the guideline(s)	180	1.5
12. Do not agree with the guideline(s)	177	1.4

^aMultiple answers were possible.

4.5 | Relationships between of low-value care and characteristics of respondents

Hypothesis 1. Association between the prevalence of low-value care and educational level.

Hypothesis 1 is partly supported. Linear regression indicated a negative relation between educational level and the prevalence of low-value care. The difference between the lowest educational level (Care and Certified Nursing assistants (Level 1, 2 and 3)) and the highest educational level (Registered Nurse and Nurse Practitioners (Level 6 and 7)) on the outcome prevalence of low-value care was -1.743 (95% CI $[-2.576, -0.910]$, $p < .001$). No statistically significant associations were found between the other educational levels and the outcome (see Table 5, column 2).

Hypothesis 2. Association between the prevalence of low-value care and age.

Hypothesis 2 is partly supported. The lowest age group performed low-value care significantly more often than the three oldest age groups ($p = .016$) (see Table 5, column 2).

Hypothesis 3. Association between the prevalence of low-value care and work experience (in nursing care, and in home-based nursing care).

Hypothesis 3 is rejected as no statistically significant results were found between work experience in (home-based) nursing care and the prevalence of low-value care (see Table 5, column 2).

Hypothesis 4. Confounding of age on the association between the prevalence of low-value care and educational level.

Age (variables with the lowest p -values) was added as an explanatory variable in a multiple regression model with educational level on the outcome prevalence of low-value care resulting in a stronger association between middle and highest educational levels and increased the $R^2 = .049$ (see Table 5, column 3). Therefore, hypothesis 4 is supported.

5 | DISCUSSION

This study intended to explore potential areas of low-value home-based nursing care practices, their prevalence and related influencing factors. Our survey showed that according to registered nurses and certified nursing assistants a number of low-value care practices were frequently provided in home-based nursing care. Respondents estimated that low-value home-based nursing care regularly occurs (95.9%) and the majority (59.0%) expected it to occur on a daily basis. The majority of respondents reported to have taken steps to reduce low-value home-based nursing care and expected their own team to perform better than the Netherlands as a whole. These results are consistent with literature where respondents tend to overestimate their own performance and are limited in their ability to accurately reflect on their own performance (Cawthorne & Cooke, 2020).

In addition, the results showed a negative relation on the prevalence of low-value care and respondent characteristics on educational level and age, that is, a higher educational level and age is associated with a lower provision of low-value care practices. However, while statistically significant, the found effect sizes are small and hardly explained a significant proportion of variance in prevalence of low-value care and should therefore be interpreted with caution. There is also risk of selection bias as there seems to be an underrepresentation of level 3 certified nursing assistants: 26.8% (this study) versus 52.7% (national average in home-based nursing care) (Grijpstra et al., 2020). Differences might also be explained by the fact that higher education nurses perhaps perform more office duties and spend less time in actual practice. However, other characteristics appear to be representative for age, gender and work experience as health and welfare assistants (Level 1 and 2) are hardly employed in home-based nursing care (Grijpstra et al., 2020), the majority of the workforce is female and the average age and work experience are high compared to intramural settings (CBS StatLine, 2022a,b; Grijpstra et al., 2020).

The results show that influencing factors related to the provision of low-value care practices were different, depending on the type of low-value practice. However, client preferences, requests and demands as an influencing factor for low-value home-based nursing care were reported the most and showed similarities

TABLE 5 Results of linear regression of dependent variable 'sum score low-value care' in relation to several independent variables.

Independent variable	Descriptive		Univariate linear regression			Multiple linear regression		
	n	%	Beta ^a	p-Value ^b	95% CI	Beta ^a	p-Value ^b	95% CI
Educational level								
Care and Certified Nursing assistant (Level 1, 2 and 3)	240	30.9	ref.	ref.	ref.	ref.	ref.	ref.
Registered Nurse (Level 4)	197	25.4	-0.745	.124	-1.694 to 0.205	-0.942	.050	-1.885 to 0.001
Registered Nurse and Nurse Practitioner (Level 6 and 7)	339	43.7	-1.743	<.001	-2.576 to -0.910	-2.230	<.001	-3.080 to -1.380
Test of Model								
Age								
18–30 years	134	17.1	ref.	ref.	ref.	ref.	ref.	ref.
31–40 years	101	13.0	-0.213	.749	-1.520 to 1.094	-0.602	.363	-1.898 to 0.695
41–50 years	156	20.1	-1.169	.050	-2.337 to -0.001	-1.576	.008	-2.736 to -0.416
51–60 years	286	36.9	-1.578	.003	-2.616 to -0.540	-2.246	<.001	-3.299 to -1.194
>61 years	99	12.8	-1.439	.032	-2.753 to -0.125	-2.133	.002	-3.452 to -0.813
Test of Model								
								$R^2 = .049 F(6, 769) = 6.652, p < .001$
Experience in nursing care (years)								
<5 years	83	10.7	ref.	ref.	ref.			
5–10 years	122	15.7	0.876	.223	-0.534 to 2.286			
11–20 years	159	20.5	0.416	.543	-0.926 to 1.757			
>21 years	412	53.1	-0.739	.224	-1.931 to 0.453			
Test of Model								
								$R^2 = .016 F(4, 771) = 3.086, p = .016$
Experience in home-based nursing care (years)								
<5 years	211	27.2	ref.	ref.	ref.			
5–10 years	204	26.3	0.019	.969	-0.958 to 0.996			
11–20 years	208	26.8	0.199	.688	-0.773 to 1.171			
>21 years	153	19.7	-1.010	.061	-2.067 to 0.046			
Test of Model								
								$R^2 = .007 F(3, 772) = 1.934, p = .123$

^aUnstandardised beta.^bp-Value less than or equal to .050 is considered significant.

with studies on general practitioners and primary care (Kool et al., 2020; Zikmund-Fisher et al., 2017). As 'client preferences and values' together with the 'best available research evidence' and 'clinical expertise' are the pillars of Evidence Based Practice (Sackett et al., 1996), this result manifests a tension between these three elements. Which of these elements should prevail in the provision of care: evidence that a practice is of low-value or the clients' preferences? Elwyn, Price (Elwyn et al., 2022) argue that this is one of the limitations of 'shared decision making' as the interests of the broader population override 'individual wishes' for which there are no simple solutions. However, a questionnaire on the needs of Dutch general practitioners showed that 'more time for a good explanation to the patient and education for both healthcare professionals and patients' might help to reduce low-value care (Kool et al., 2020).

The second, third and fourth most reported influencing factor were 'a (general) practitioner advises / prescribes it', 'because it is written in the client's care plan' and 'wanting to offer the client something'. These influencing factors raise questions on who has control over home-based nursing care practice. For example, how home-based nursing care professionals fulfil their role in 'needs assessments' and how clinically autonomous they are, in other words, 'the authority and freedom of the nurse to make nursing care decisions concerning the content of clinical patient care' (Kramer et al., 2006). In the Netherlands, registered nurses (BSc and MSc) are exclusively entitled to determine what care is necessary for the individual client in his/her 'own environment'. A 'needs assessment' is performed based on professional autonomy, the nursing process, clinical reasoning and with a focus on self-reliance. The results however, show that respondents have a somewhat indulgent attitude, which is in line with a Dutch survey study among general practitioners, that concluded that an indulgent attitude was associated with 'the delivery of too much care' and 'deviation from guidelines and professional norms' (Wammes et al., 2014). Further research is therefore warranted on the relation between clinical nursing autonomy, the performance of 'needs assessments' and the provision of low-value nursing care. Performance feedback on practice variation and audits are seen as effective ways to gain insights in these relationships (Ivers et al., 2014). Reflective activities, for example, intervision and peer review, where professionals analyse their own actions to learn for the future, are expected to improve the performance of 'needs assessments', however, the effects of these practices remain unclear and warrant further investigation (Schwenke et al., 2023).

Influencing factors related to professional guidelines, such as, not being aware of or not agreeing with guidelines, were among the least reported in this study. Despite the fact that clinical guidelines are regarded as helpful means to lower unjustified variation in nursing care practice, nurses' adherence to guidelines is often suboptimal (Spoon et al., 2020). Possible explanations for these results may be 'intentional non-adherence due to contra-indications' or 'client preferences' (Arts et al., 2016). However, according to Spoon et al. (2020), there is not one single strategy, or combination

of strategies, that is definitely successful in implementing nursing guidelines (Spoon et al., 2020). Evidence also seems to suggest that there is correlation between different forms of 'waste' or low-value practices on different levels: the system level, the organizational level, the network level and the level of individual healthcare providers (Stadhouders et al., 2022). Therefore, future research should focus on identification of possible barriers and facilitators, from the perspective of home-based nursing care professionals, clients and general practitioners, as they differ for each specific low-value care practice. In addition, research needs to focus on the needs of home-based nursing care professionals to transform daily practice. These insights could be used for the development, testing and scaling of tailored, multifaceted, de-implementation strategies (Spoon et al., 2020). It is recommended that home-based nursing care professionals use professional guidelines as a requisite part of the 'needs assessment' and that both vocational and bachelor's nursing education pay specific attention to finding and applying guidelines in clients' care plans.

5.1 | Strengths and weaknesses

This is the first assessment of low-value home-based nursing care. We established a satisfactory response that seems representative for age, gender and work experience and with a spread across the Netherlands. Selection bias might have had an influence as there seems to be an underrepresentation of certified nursing assistants (level 3). Moreover, the majority of respondents were employed by healthcare organizations that had contracts with health insurers defining, for example, volume of care and certain quality standards. Respondents from non-contracted healthcare organizations or self-employed nurses were a minority. A report on the differences between contracted and non-contracted healthcare organization suggests that non-contracted organizations perform considerably less efficient than contracted organizations (Puijk et al., 2017). Therefore, it is suspected that the reported delivery of low-value care practices in this study are an underestimation. The increasing demand and shift towards home-based nursing care, together with an ageing workforce, makes the results both relevant and important.

6 | CONCLUSION

According to registered nurses and certified nursing assistants, a number of low-value nursing care practices occurred frequently in home-based nursing care. They actively tried to reduce it but experienced multiple factors that influenced the provision of low-value care such as (lack of) clinical autonomy and handling clients' requests, preferences and demands. The results can be used to increase awareness of low-value nursing care among home-based nursing care professionals, and may serve as a starting point for tailored, multifaceted de-implementation strategies, that need to be tried, tested and refined in practice.

AUTHOR CONTRIBUTIONS

Benjamin Wendt: Equal first authors, Conceptualization, Methodology, Investigation, Formal analysis, Data Curation, Writing—original draft, Writing—review & editing, Supervision, Project administration. Milou Cremers: Equal first authors, Conceptualization, Methodology, Investigation, Formal analysis, Data Curation, Writing—original draft, Writing—review & editing, Supervision, Project administration. Simone Van Dulmen: Conceptualizing, Writing—review & editing, final review. Monique van Dijk: Conceptualizing, Writing—review & editing, final review. Erwin Ista: Conceptualization, Methodology, Writing—review & editing, Supervision, Project administration. Minke Nieuwboer: Writing—review & editing, Supervision. Getty Huisman-de Waal: Conceptualization, Methodology, Writing—review & editing, Supervision, Project administration. Hester Vermeulen: Conceptualizing, Supervision, Writing—review & editing, final review. Lisette Schoonhoven: Conceptualizing, Supervision, final review.

FUNDING INFORMATION

This study was funded by ZonMw, the Netherlands Organisation for Health Research and Development (grant number 10110032010003 and 10110032010002).

CONFLICT OF INTEREST STATEMENT

The authors declare that they have no known competing financial interests or personal relationships that could have influenced the work reported in this study.

DATA AVAILABILITY STATEMENT

Data available on request from the authors.

ORCID

Benjamin Wendt  <https://orcid.org/0000-0001-8970-4503>

Getty Huisman-de Waal  <https://orcid.org/0000-0003-2811-4176>

REFERENCES

- Arts, D. L., Voncken, A. G., Medlock, S., Abu-Hanna, A., & van Weert, H. C. P. M. (2016). Reasons for intentional guideline non-adherence: A systematic review. *International Journal of Medical Informatics*, 89, 55–62.
- Brownlee, S., Chalkidou, K., Doust, J., Elshaug, A. G., Glasziou, P., Heath, I., Nagpal, S., Saini, V., Srivastava, D., Chalmers, K., & Korenstein, D. (2017). Evidence for overuse of medical services around the world. *The Lancet*, 390(10090), 156–168.
- Cawthorne, K., & Cooke, R. (2020). Healthcare workers' attitudes to how hand hygiene performance is currently monitored and assessed. *Journal of Hospital Infection*, 105(4), 705–709.
- CBS StatLine. (2022a). *Werknemers met een baan in de zorg en welzijn; persoonskenmerken, regio*. <https://azwstatline.cbs.nl/#/AZW/nl/dataset/24016NED/table?ts=1670236834239>
- CBS StatLine. (2022b). *Werknemers; arbeidskenmerken*. <https://azwstatline.cbs.nl/#/AZW/nl/dataset/24068NED/table?ts=1670236667230>
- Elwyn, G., Price, A., F. J. V. A., & Gulbrandsen, P. (2022). The limits of shared decision making. *BMJ Evidence-Based Medicine*, bmjebm-2022-112089.
- Flottorp, S. A., Oxman, A. D., Krause, J., Musila, N. R., Wensing, M., Godycki-Cwirko, M., Baker, R., & Eccles, M. P. (2013). A checklist for identifying determinants of practice: A systematic review and synthesis of frameworks and taxonomies of factors that prevent or enable improvements in healthcare professional practice. *Implementation Science*, 8(1), 1–11.
- Grijpstra, D., De Klaver, P., & Meuwissen, J. (2020). *De situatie op de arbeidsmarkt in de wijkverpleging*. Ministerie van Volksgezondheid en Sport.
- IBM Corporation. (2017). *IBM SPSS Statistics for Windows*. IBM Corporation.
- Ingvarsson, S., Hasson, H., von Thiele Schwarz, U., Nilsen, P., Powell, B. J., Lindberg, C., & Augustsson, H. (2022). Strategies for de-implementation of low-value care—A scoping review. *Implementation Science*, 17(1), 73.
- Ivers, N. M., Grimshaw, J. M., Jamtvedt, G., Flottorp, S., O'Brien, M. A., French, S. D., Young, J., & Odegaard-Jensen, J. (2014). Growing literature, stagnant science? Systematic review, meta-regression and cumulative analysis of audit and feedback interventions in health care. *Journal of General Internal Medicine*, 29(11), 1534–1541.
- Kool, R. B., Verkerk, E. W., Winnemuller, L. J. A., Wiersma, T., Westert, G. P., Burgers, J. S., & van Dulmen, S. A. (2020). Identifying and de-implementing low-value care in primary care: The GP's perspective—A cross-sectional survey. *BMJ Open*, 10(6), e037019.
- Kramer, M., Maguire, P., & Schmalenberg, C. E. (2006). Excellence through evidence: The what, when, and where of clinical autonomy. *The Journal of Nursing Administration*, 36(10), 479–491.
- Kwak, S. G., & Kim, J. H. (2017). Central limit theorem: The cornerstone of modern statistics. *Korean Journal of Anesthesiology*, 70(2), 144–156.
- NCP NLQF. (2019). *Dutch qualification framework (NLQF): Increases visibility and value of learning*. www.nlqf.nl
- Niven, D. J., Mrklas, K. J., Holodinsky, J. K., Straus, S. E., Hemmelgarn, B. R., Jeffs, L. P., & Stelfox, H. T. (2015). Towards understanding the de-adoption of low-value clinical practices: A scoping review. *BMC Medicine*, 13(1), 1–21.
- Norton, W. E., & Chambers, D. A. (2020). Unpacking the complexities of de-implementing inappropriate health interventions. *Implementation Science*, 15(1), 1–7.
- Osorio, D., Zuriguel-Pérez, E., Romea-Lecumberri, S., Tiñena-Amorós, M., Martínez-Muñoz, M., & Barba-Flores, Á. (2019). Selecting and quantifying low-value nursing care in clinical practice: A questionnaire survey. *Journal of Clinical Nursing*, 28(21–22), 4053–4061.
- Plas, M., van Engelshoven, I., & Landelijk Expertisecentrum Verpleging en Verzorging (Utrecht). (2008). *Doorbreek de rituelen: Een overzicht van zinloze rituelen in de zorg en een stappenplan om deze te doorbreken*. LEVV.
- Puijk, L., Baas, N., & Meijer, R. (2017). *(Niet-)gecontracteerde zorg in de wijkverpleging: Een kwantitatief en kwalitatief onderzoek*. Arteria Consulting.
- Rietbergen, T., Spoon, D., Brunsveld-Reinders, A. H., Schoones, J. W., Huis, A., Heinen, M., Persoon, A., van Dijk, M., Vermeulen, H., Ista, E., & van Bodegom-Vos, L. (2020). Effects of de-implementation strategies aimed at reducing low-value nursing procedures: A systematic review and meta-analysis. *Implementation Science*, 15(1), 1–18.
- Sackett, D. L., Rosenberg, W. M. C., Gray, J. A. M., Haynes, R. B., & Richardson, W. S. (1996). Evidence based medicine: What it is and what it isn't. *British Medical Journal*, 312, 71–72.
- Schwenke, M., van Dorst, J., Zwakhalen, S., de Jong, J. D., Brabers, A. E. M., & Bleijenberg, N. (2023). Measures to improve patient needs assessments and reduce practice variation in Dutch home care organizations. *Nurs Open*, 10(5), 3052–3063.
- Senek, M., Robertson, S., Ryan, T., Sworn, K., King, R., Wood, E., & Tod, A. (2020). Nursing care left undone in community settings: Results

- from a UK cross-sectional survey. *Journal of Nursing Management*, 28(8), 1968–1974.
- Shellian, B., & Levinson, W. (2016). When more is not always better: Choosing nursing interventions wisely. *Nursing Leadership (Toronto, Ont.)*, 29(4), 8–9.
- Spoon, D., Rietbergen, T., Huis, A., Heinen, M., van Dijk, M., van Bodegom-Vos, L., & Ista, E. (2020). Implementation strategies used to implement nursing guidelines in daily practice: A systematic review. *International Journal of Nursing Studies*, 111, 103748.
- Stadhouders, N., Jeurissen, P., van Dulmen, S., & Som, T. (2022). *Verkenning naar faalkosten in de Nederlandse gezondheidszorg*.
- Twisk, J. (2016). Multiple regressie-analyse: Associatiemodellen en predictiemodellen. Inleiding in de toegepaste biostatistiek. Inleiding in de toegepaste biostatistiek, edn. (pp. 229–273).
- V&VN. (2017). Peiling Beter Laten. <https://www.venvn.nl/thema-s/beter-laten/peiling-beter-laten/>
- Vektis Intelligence. (2022). Factsheet Wijkverpleging. <https://www.vektis.nl/intelligence/publicaties/factsheet-wijkverpleging>
- Verkerk, E. W., Huisman-de Waal, G., Vermeulen, H., Westert, G. P., Kool, R. B., & van Dulmen, S. A. (2018). Low-value care in nursing: A systematic assessment of clinical practice guidelines. *International Journal of Nursing Studies*, 87, 34–39.
- Verkerk, E. W., Tanke, M. A. C., Kool, R. B., van Dulmen, S. A., & Westert, G. P. (2018). Limit, lean or listen? A typology of low-value care that gives direction in de-implementation. *International Journal for Quality in Health Care*, 30(9), 736–739.
- Wammes, J. J. G., Jeurissen, P. P. T., Verhoef, L. M., Assendelft, W. J. J., Westert, G. P., & Faber, M. J. (2014). Is the role as gatekeeper still feasible? A survey among Dutch general practitioners. *Family Practice*, 31(5), 538–544.
- Wei, H., Sewell, K. A., Woody, G., & Rose, M. A. (2018). The state of the science of nurse work environments in the United States: A systematic review. *International Journal of Nursing Sciences*, 5(3), 287–300.
- World Health Organization. (2015). *World report on ageing and health*. World Health Organization.
- World Health Organization. (2020). *State of the world's nursing 2020: Investing in education, jobs and leadership*.
- Zikmund-Fisher, B. J., Kullgren, J. T., Fagerlin, A., Klamerus, M. L., Bernstein, S. J., & Kerr, E. A. (2017). Perceived barriers to implementing individual choosing wisely® recommendations in two national surveys of primary care providers. *Journal of General Internal Medicine*, 32(2), 210–217.

SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

How to cite this article: Wendt, B., Cremers, M., Ista, E., van Dijk, M., Schoonhoven, L., Nieuwboer, M. S., Vermeulen, H., Van Dulmen, S. A., & Huisman-de Waal, G. (2023). Low-value home-based nursing care: A national survey study. *Journal of Advanced Nursing*, 00, 1–11. <https://doi.org/10.1111/jan.15970>

The *Journal of Advanced Nursing (JAN)* is an international, peer-reviewed, scientific journal. *JAN* contributes to the advancement of evidence-based nursing, midwifery and health care by disseminating high quality research and scholarship of contemporary relevance and with potential to advance knowledge for practice, education, management or policy. *JAN* publishes research reviews, original research reports and methodological and theoretical papers.

For further information, please visit *JAN* on the Wiley Online Library website: www.wileyonlinelibrary.com/journal/jan

Reasons to publish your work in *JAN*:

- High-impact forum: the world's most cited nursing journal, with an Impact Factor of 2.561 – ranked 6/123 in the 2019 ISI Journal Citation Reports © (Nursing; Social Science).
- Most read nursing journal in the world: over 3 million articles downloaded online per year and accessible in over 10,000 libraries worldwide (including over 6,000 in developing countries with free or low cost access).
- Fast and easy online submission: online submission at <http://mc.manuscriptcentral.com/jan>.
- Positive publishing experience: rapid double-blind peer review with constructive feedback.
- Rapid online publication in five weeks: average time from final manuscript arriving in production to online publication.
- Online Open: the option to pay to make your article freely and openly accessible to non-subscribers upon publication on Wiley Online Library, as well as the option to deposit the article in your own or your funding agency's preferred archive (e.g. PubMed).