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RESEARCH ARTICLE

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Resource use of geriatric nurses due to documentation practices: A cross-sectional study of applied recording techniques in nursing homes

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Abstract

Aim: To compare recent compliance cost estimates by nurses of German nursing homes who employ the new documentation approach structural model with those who use traditional documentation frameworks.

Design: A cross-sectional survey.

Methods: For each documentation approach, five sub-processes were surveyed employing standard activities. The postal and online surveys were based on the same self-administered questionnaire. The measures addressed time investments and further costs to carry out the components of nursing documentation. Data were collected from a convenience sample of nurses (n = 264) from German nursing homes between October 2018 and June 2019.

Results: The analysed sub-processes consume between 26 min and 8 hr per fulfilment. For users of the structural model, collecting information on a new admission is the costliest part of the documentation, at €90 per case. For users of other documentation approaches, care planning requires the most expensive effort, at €130 per case.

KEYWORDS
administrative costs, compliance cost assessment, nurses, nursing documentation, nursing home, structural model

1 | INTRODUCTION

Nursing documentation is an essential tool for consistent and comprehensive good-quality care. There are different approaches to how this tool promotes quality of care and reflects the care provided. Accordingly, several studies have thrown light on nurses' usage of documentation that is characterized by a standardized nomenclature, whereas other works describe experiences with templates that offer more space for individual descriptions (Urquhart & Currell, 2005). Furthermore, research has focused on paper-based and computerized practices and the ability of nursing documentation to reflect person-centred care (Broderick & Coffey, 2013; Urquhart et al., 2009).

However, evidence has also shown that nurses associate nursing documentation with time-consuming obstructions to care work (Michel et al., 2017). This raises the question whether documentation solutions exist that are viewed more positively because they require lower time investments. Given the recent introduction of a new documentation approach in German nursing homes, we address this question by comparing the new and the traditional approaches for nursing documentation. For this purpose, we break down nursing documentation into basic elements and examine them from a

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time- and cost-related perspective. This method helps to highlight similarities and differences between the existing solutions.

It is in the best interest of the nursing-home management to avoid unnecessary waste of available resources by implementing a documentation approach that positively influences both nursing care outcomes and user satisfaction. Hence, this study contributes a guidance on available approaches for nursing care providers considering the pros and cons of the employed documentation frameworks in their organization.

2 | BACKGROUND

Until 2015, German geriatric care providers' approaches to documentation predominantly conceived the care process of a resident's Activities of Daily Living (ADLs) (Krohwinkel, 2013; Roper et al., 1996; Wolf-Ostermann et al., 2017). In these frameworks, numerous care-relevant areas of a resident's everyday life were listed as subjects of recording templates, depending on the individual's care requirements, which could involve a wide range of forms that had to be filled out each day. Such conventional frameworks have certain advantages, such as preventing misunderstandings between nurses since they are all supposed to use the same standardized nomenclatures. Furthermore, detailed standardized forms help structure upcoming tasks by clarifying responsibilities and simplifying the recording process for practitioners not accustomed to writing free-text entries (Meißner & Schnepp, 2014).

Despite these positive effects, nursing practitioners complained about too much paperwork consuming time they ought to spend with patients (Michel et al., 2017; Munyisia et al., 2011). A report by the German Federal Statistical Office estimated the time-related costs of these documentation efforts in German nursing homes at €1.9 billion per year (Bundeskanzleramt - Geschäftsstelle Bürokratieabbau and Statistisches Bundesamt, 2013). This estimate was guided by the concept of regulatory compliance cost assessment. Figure 1 presents the appropriate calculation scheme.

The German Ministry of Health reacted to the criticism of nursing practitioners in 2012 and mandated an ombudsperson to identify the main issues in nursing care that should be prioritized. Her analysis placed nursing documentation at the top of her priority list (Beikirch, 2017). Hence, a documentation approach called the structural model (SM) was tailored to the principles of person-centred care advocated by the World Health Organisation (Salvage, 1993). The idea behind the subsequent nationwide implementation of this model was to provide a less bureaucratic alternative for dealing with nursing documentation. One essential characteristic of the SM is the reduction in paperwork thanks to the less frequent documentation of routines. Furthermore, the restructured documentation aims to empower caregivers to systematically consider residents' perceptions of their own situation by providing mandatory fill-in fields in the forms for such self-assessments. Finally, by leaving more space for individual wording instead of predefined checkboxes in SM templates, the model encourages nurses to communicate their own professional assessments (Beikirch, 2017; Beikirch et al., 2017).

2.1 | Research question

To assess the impact of this recent effort to reduce bureaucracy in recording practices for geriatric care providers, we designed a study addressing the following research question: How do nursing documentation approaches vary in terms of compliance costs in German nursing homes?

3 | THE STUDY

3.1 | Design

We conducted a cross-sectional study (Cummings, 2018; Mann, 2003) based on a convenience sample of nurses from German nursing homes. For study reporting, we consulted the STrengthening the Reporting of OBservational studies in Epidemiology (STROBE) checklist of items that should be included in reports of cross-sectional studies (von Elm et al., 2008).

3.2 | Method

The convenience sample addressed nursing staff working in German nursing homes (a total of 796,489 in 2019; Statistisches Bundesamt, 2020). The inclusion criteria were an age of at least

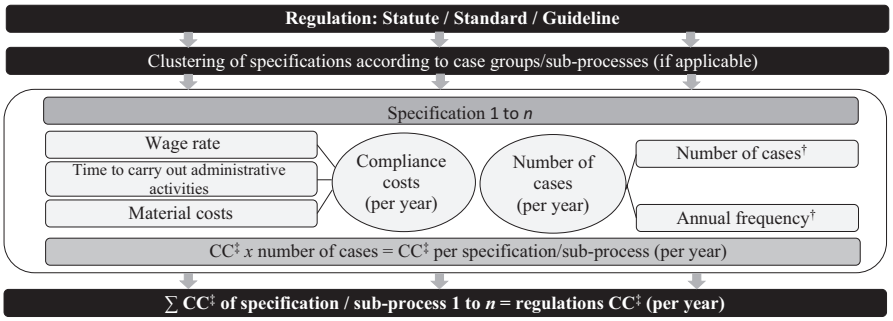

FIGURE 1 Identification scheme of compliance costs according to the guidelines of the Federal Government. Source: Illustration based on the Federal Statistical Office on behalf of the German Federal Government and the National Regulatory Control Council (2012), p. 7, Statistisches Bundesamt im Auftrag der Bundesregierung und des Nationalen Normenkontrollrates (2018), p. 8

18 years and experience with documenting nursing activities or insights into the organization's resource usage required by the employed nursing documentation system. The invitation strategy was composed of

- postal invitation letters to nursing-home managers from an online published contact list of a selected region, complemented by telephone contacts to clarify the interest in participation;
- invitation via posts in social media and an online magazine;
- newsletter to institutional stakeholders; and
- personal invitation during a national nursing care congress.

Data were collected using a self-administered anonymous questionnaire between October 2018–June 2019. During this time period and in accordance with the cross-sectional study design, interested healthcare practitioners who met the inclusion criteria could provide data about the employed documentation approach they were using at that time. To enhance the response rate, the data collection strategy followed two alternative tracks: paper–pencil and online. Additionally, respondents were offered to voluntarily participate in a raffle to win shopping vouchers.

3.3 | Survey instrument

Both data collection tracks employed the same questionnaire adapted from the survey of the Federal Statistical Office used for the examination of compliance costs in nursing care (Bundeskanzleramt - Geschäftsstelle Bürokratieabbau and Statistisches Bundesamt, 2013). Our questionnaire focused on practitioners' self-estimates about performance times of predefined standard activities (SAs) for single documentation sub-processes and further costs due to the use of a documentation model. The survey was also comprised of a scale to measure the effects of the employed model on nursing practice which will be discussed in a forthcoming publication.

Three nursing practitioners and a nursing scientist piloted the first draft of our questionnaire in clarity and feasibility. For the compliance cost-related part of the instrument, the final version included revisions of wording and reference units as well as practical examples to improve the understanding of SAs and further cost items. Based on the feedback, one of the original SA was split in two.

3.4 | Survey structure

The final questionnaire consisted of five sub-sections with relevance to the presented research question:

1. selection of ten sub-processes related to one out of two documentation approaches, namely either the SM or the non-structural model (non-SM);
2. questions about the caregivers' working conditions, including the mode of the employed tools to carry out nursing documentation (electronic, paper-based or hybrid) and the duration of the model's use;
3. questions on the time needed to carry out the following eight SAs that make up a single documentation sub-process:
   -. SA1 (training)
   -. SA2 (familiarizing)
   -. SA3 (procuring and processing)
   -. SA4 (internal communication)
   -. SA5 (external communication)
   -. SA6 (filling in forms)
   -. SA7 (filing)
   -. SA8 (other activities)
4. inquiry on material costs for the processing of nursing documentation and one-off implementation costs; and
5. collection of sociodemographic characteristics.

3.5 | Analysis

All measures were analysed using the Statistical Package for the Social Sciences (SPSS Inc., Chicago, IL, USA) version 25.0. Descriptive statistics (frequencies, percentages, proportions, mean and standard deviation) were calculated for characteristics related to the employed documentation models, surveyed sub-processes, demographic variables and material cost data. Following the computation framework of the compliance cost assessment (Figure 1) and consulting calculations by the Federal Statistical Office (Bundeskanzleramt - Geschäftsstelle Bürokratieabbau and Statistisches Bundesamt, 2013), we computed the time-related resource use due to documentation from the bottom, namely based on the times reported in minutes for each of the SAs. Specifically, we focused on the median as the measure of the central tendency and on the interquartile range (IQR) as the measure of spread for the derived figures. We estimated the total time consumed in a sub-process by adding up the median values of each SA.

To describe the documentation efforts in terms of money, we multiplied all aggregated times by the wage rate of €15,74. This labour price represents the gross hourly wage for full-time employees at all occupational levels in German geriatric care. We derived it from the gross monthly remuneration in elderly care reported by the Federal Agency of Employment (Statistik der Bundesagentur für Arbeit, 2020) under the assumption that a working month consists of 168 hr. Subsequently, we multiplied the converted efforts per sub-process with the annual frequency of a sub-process performance to calculate the annual compliance costs per resident. For this computation, we considered the following frequencies to show annual expenditure trends:

- for the first two sub-process of each documentation approach (SM1; SM2; non-SM1; non-SM2), only the first-time implementation;

- for the documentation of repetitive routines, the daily basis with 365 days per year; and
- for the routine-based evaluation, four events per year per resident.

After collecting the data, we made two data-driven decisions in the course of the data-plausibility screening: First, we excluded participants' time estimates from time calculations if they did not identify filling in forms (SA6) as an applicable task in the SA set. This decision was based on our consideration of the SA6 as a core activity in the documentation processes. Second, we decided ex-post to exclude the time information provided by nurses if their estimates for a single process performance exceeded their reported regular working hours.

3.6 | Ethics

The institutional review board of the university where the study was conducted approved our research design and the questionnaire in advance. No identifiable data were collected.

4 | RESULTS

Our convenience sample consisted of 264 eligible questionnaires self-administered by nursing professionals. About 90% of the participants opted for online instead of the paper–pencil track of the survey. With 78%, the sample was predominantly female. Approximately 30% of participants were between 50–59 years old, representing the largest age group in the sample. Both figures correspond to characteristics of the target group: 83% of German geriatric nurses are female, and 30% are between 50 and 59 years old (Statistisches Bundesamt, 2020). However, according to the national statistics, nurses aged between 30 and 39 are overrepresented in our sample (25% vs. 18% in the total group), whereas caregivers aged 60 and over are underrepresented (5% vs. 13%).

In total, 95% of the participants had either an expert or a specialist level of experience with slightly more qualified SM users (SM 96%; non-SM 87%; Appendix S1 provides the definitions employed in assessing these levels). Table 1 provides further details on the sample characteristics.

4.1 | Identified time expenditure

In sum, ten sub-processes were examined to determine the average resource consumption for selected documentation tasks. Tables 2 and 3 show the aggregated median time in minutes needed to perform each sub-process. For the interpretation of the total time, it should be noted that for some sub-processes, the credible response rate varied at the level of single SAs. For SM1, for instance, it varied between 87–90 responses. Appendix S2 contains further information about single SAs.

About the time usage for each SA, familiarizing was the most effort-intensive activity in 6 out of 10 sub-processes in our sample: setting-up (sub-processes SM1 and non-SM1) and evaluation of documentation (sub-processes SM5 and non-SM5), as well as planning of interventions (sub-processes SM2 and non-SM2). Here, the activity familiarizing ranges between 24 and 120 min (median). In the remaining processes, which are characterized by fewer conceptual elements—filling in the proof of selected procedures forms (SM3; non-SM3) and filling in the report sheet (SM4; non-SM4)—data processing leads the ranking with a 10–30 min range (median). On the contrary, regular training times, being calculated pro-rata for a process run, could not be identified as a SA in any process. Concerning the original paperwork, namely SA6 (filling in forms), the minimum of 4 min accounts for SM users to fill in the report sheet (SM4), and the maximum of 120 min accounts for users of traditional approaches to prepare the care planning (non-SM2). Communication times vary in the median between 3 and 60 min for internal exchange (SM4 and non-SM2, respectively), while external communication consumes in median between 0 (SM3; SM4) and 30 min (non-SM1; non-SM2).

4.2 | Compliance costs per nursing case

Tables 2 and 3 display the computed resource use per surveyed subprocess in nursing homes, based on the computation scheme presented in Section 2 ("Method").

The most expensive sub-process in terms of personnel costs per procedure was the setting-up of new documentation forms for new residents, which was true for both documentation groups. The initial documentation was slightly cheaper for those who employed the non-SM, where the setting-up demanded about €80. This sub-process cost about €90 for nursing homes using the SM. More statistically significant differences appeared about the subsequent documentation module: The SM users invested about €70 (in terms of time, half a working day) to prepare an individual care plan for one resident, whereas the formulation of goals and interventions required almost double the price for non-SM users, namely €127 (8 h of work). As for the more frequently repeated sub-processes, the most statistically significant contrast emerged in relation to filling in the proof of procedures forms: Overall, it consumed €17 per resident per day. However, the non-SM approach required €34 per procedure, whereas the SM consumed only €11. The evaluation of nursing documentation was quite similar for both groups, as it demanded about €26 regardless of the specific recording technique. However, there was a tiny difference when we compared the surveyed evaluation types in more detail: The routine-based evaluation was slightly less expensive for non-SM users, at €16. This revision of documents would cost €21 if the SM approach was employed.

TABLE 1 Participant characteristics

	Structural Model	Non-structural Model	All documentation approaches
Sample	Number of responses		
Total	183	81	264
Feedback on time estimates	151	62	213
Feedback on further costs	89	45	134
Gender	Number of responses (%)[a]		
Female	138 (77)	63 (80)	201 (78)
Male	42 (23)	16 (20)	58 (22)
No answer	3	2	5
Age	Number of responses (%)[a]		
Under 30 years	27 (15)	19 (25)	46 (18)
30–39 years	48 (27)	15 (19)	63 (25)
40–49 years	40 (23)	14 (18)	54 (21)
50–59 years	54 (30)	26 (33)	80 (31)
60 years and older	9 (5)	4 (5)	13 (5)
No answer	5	3	8
	Number of years		
Mean	43.0	42.0	43.0
SD	11.1	13.0	11.7
Occupational category[b]	Number of responses (%)[a]		
Experts	101 (55)	33 (41)	134 (52)
Specialists	74 (41)	37 (46)	111 (43)
Professionals	4 (2)	9 (11)	13 (5)
Helpers	1 (1)	1 (1)	2 (1)
No answer	3	1	4
Working experience	Number of years		
Mean	20.0	17.0	19.0
SD	11.3	12.1	11.6
Working time	Number of responses (%) [a]		
Full-time	124 (69)	52 (67)	176 (68)
Part-time	57 (31)	26 (33)	83 (32)
No answer	2	3	5
Affiliation with the nursing home	Number of years		
Mean	10.0	9.0	10.0
SD	8.2	8.1	8.1
Experience with the employed documentation approach	Number of responses (%)		
<6 months	18 (10)	3 (4)	21 (8)
Between 6 and 11 months	34 (19)	6 (7)	40 (15)
More than 11 months	131 (72)	72 (89)	203 (77)
Mode of the employed tools to carry out nursing documentation	Number of responses (%)[a]		
Electronic	106 (58)	37 (46)	143 (55)
Hybrid (paper-based and electronic)	50 (28)	24 (30)	74 (28)
Paper-based	26 (14)	19 (24)	45 (17)
No answer	1	1	2

[a]Valid percentages only.

[b]Appendix S1 provides the definitions employed in assessing these occupational levels.

TABLE 2 Sub-processes, times and compliance costs of the structural model

Structural model (SM)						
	Total number of responses	IQR 1	Median	IQR 3	Compliance costs per procedure	Annual compliance cost per new resident
Sub-process	*N*	in minutes	in minutes	in minutes	in euro	in euro
SM1[a]: Structured collection of information on a new admission	90	147.5	**347.6**	640.3	**91.2**	91
SM2: Individual action planning	34	161.3	**259.5**	550.2	**68.1**	68
SM3: Filling in the proof of selected procedures forms	9	5.5	**43.0**	113.0	**11.3**	4,118
SM4: Filling in the report sheet	10	3.3	**26.0**	88.8	**6.8**	n/a
SM5: Evaluation[b]	8	41.2	**89.5**	212.7	**23.5**	n/a
SM5_A: -Occasion-based	-	*47.3*	***100.5***	*227.1*	**26.4**	n/a
SM5_B: -Routine-based	-	*35.0*	***78.5***	*198.3*	**20.6**	89
Total compliance cost of the documentation process						**4,366**

[a]SM1–SM5 = sub-processes of the structural model.

[b]The displayed values for the sub-process evaluation SM5 are the average values from the two segments occasion-based evaluation and routine-based evaluation.

TABLE 3 Sub-processes, times and compliance costs of the non-structural model

Non-structural model (non-SM)						
	Total number of responses	IQR 1	Median	IQR 3	Compliance costs per procedure	Annual compliance cost per new resident
Sub-process	*n*	in minutes	in minutes	in minutes	in euro	in euro
Non-SM1[a]: Set-up documentation for a new admission	24	160.2	**317.5**	600.0	**83.3**	83
Non-SM2: Care planning (goals and related interventions)	19	180.0	**485.0**	1173.8	**127.3**	127
Non-SM3: Filling in the proof of selected procedures forms	7	22.0	**131.0**	777.1	**34.4**	12,547
Non-SM4: Filling in the report sheet	4	24.7	**58.0**	138.8	**15.2**	n/a
Non-SM5: Evaluation[b]	8	26.9	**79.5**	242.1	**20.9**	n/a
Non-SM5_A: -Occasion-based		*31.0*	***97.0***	*225.0*	**25.5**	n/a
Non-SM5_B: -Routine-based		*22.8*	***62.0***	*259.1*	**16.3**	65
Total compliance cost of the documentation process						**12,822**

[a]Non-SM1–Non-SM5 = sub-processes of the non-structural model approaches.

[b]The displayed values for the sub-process evaluation (non-SM5) are the average values from the two segments occasion-based evaluation and routine-based evaluation.

4.3 | Further costs

In addition to time-related costs, there are material costs for processing nursing documentation. For the purposes of this study, we report only those material costs that were identified as applicable by at least half of the respondents. This criterion was true for two cost types: purchase costs (one-time costs, especially for hardware, software new documentation forms) and copying costs (per month). Table 4 shows both figures.

5 | DISCUSSION

Our figures illustrate, from a time-related perspective, that it is not the amount of the writing activities—whether performed electronically or paper-based—that constitutes the major resource usage in the nursing documentation. For instance, filling in forms (SA6) was the main resource-consuming activity for just one sub-process (filling in the proof of selected procedures forms) and only for non-SM users. Hence, our results show that becoming aware of a resident's

TABLE 4 Material and training costs

Cost type	Total number of responses	Minimum	IQR1	Median	IQR3	Maximum	Mean	SD
	n	in euro					in euro	in euro
Purchase costs (one-time)	81	0	0	1,255	10,000	150,000	9,656	21,501
Copying costs (per month)	84	0	0	0	41	1,000	**72**	196
	n	in minutes					in minutes	in minutes
One-off training - *All approaches*	108	10	90	240	480	1,440	**292**	259
One-off training—*Structural model*	89	10	90	240	480	1,440	**315**	271
One-off training—*Non-structural model*	19	30	60	120	300	480	**188**	160

individual circumstances is the most time-consuming activity. In many cases, this was the sub-process familiarizing (SA2), followed by procuring and processing the data (SA3), which applied to both documentation groups. Thus, our insights into the cost-driver activities suggest that concerns about too much documentation in health care cannot be solely linked to the time-consuming form-filling and writing demanded from professionals. Accordingly, previous studies show that whether or not documentation is seen as a time-consuming obstruction to care work depends on different factors: how the information in nursing documents is used by other professionals; how familiar nurses are with the employed documentation tools; and whether nurses think that their professional contribution is visible in the final documents (Heartfield, 1996; Meißner & Schnepp, 2014; Urquhart & Currell, 2005).

Another interesting result of our analysis is that the new person-centred (PC) approach to prepare nursing documentation does not necessarily result in more communication (SA4; SA5). In reality, the need to communicate internally to make entries is higher in three out of five processes for users of traditional approaches; for external communication, this is true for four sub-processes. Our findings thus confirm previous suggestions that the PC approach has the potential to contribute to cost savings in nursing care. Sahlen et al. (2015) support this conclusion, demonstrating cost-effectiveness through a comparison of PC care interventions with standard care for patients with chronic heart failure. Despite different focuses and study groups, it can be added that the use of a PC-guided approach to handle documentation issues also benefits the annualized resource usage, at least in nursing homes.

About differences in how long single sub-processes take in total, the documentation steps required at the beginning of a resident's stay were identified as the most time-consuming procedure per case in our data. In general, this confirms previous findings by the Federal Statistical Office (Bundeskanzleramt - Geschäftsstelle Bürokratieabbau and Statistisches Bundesamt, 2013). However, our responses indicated higher time consumption for sub-processes of the non-SM users compared with the figures from 2013. An explanation could be that the consulted study did not differentiate between the SAs of procuring and processing and familiarizing, which might indicate that the smaller-scale process definitions used in our research may lead to overestimations.

Concerning available approaches for recording daily routines, the overall direction of our results confirms that the SM could be a time-saving alternative. A study by Wolf-Ostermann et al. (2017) shows that caregivers who applied the new approach subjectively saved 30% to 60% of the time previously needed for daily documentation. Bearing in mind that we employed a different study design, our data indicate an even bigger time reduction: According to our results, SM users save about 70% of time compared with the previous practice. However, daily documentation still consumes the largest part of the total annual resource efforts in both documentation groups (Table 2; Table 3) because this sub-process is carried out 365 days a year.

While the SM approach mainly helps to reduce paperwork, more training might be helpful for SM users. In our sample, participants

reported no time for regular training. Instead, most participants replied that they attended only one-off trainings. Previous studies have also highlighted this lack of training: Nurses who employed the SM considered one-off trainings too short if took less time than a full one-day course (Wolf-Ostermann et al., 2017). According to our figures, the need for training is still not met because the median value of our sample was half a day (Table 4). Furthermore, our comparison adds to the evidence that non-SM users complete the evaluation processes faster. We found that in general, and particularly during the routine-based evaluation, caregivers who use non-SM revise their forms quicker, which contradicts the previous finding derived from focus-group discussions (Wolf-Ostermann et al., 2017). Thus, our comparison of the evaluation activities shows that non-SM approaches might help to guide better processes for users of the new approach.

About the purchase costs, our results indicate that increasing experience and sustained exchange between the documentation tool providers and their customers might have contributed to reduced implementation costs: According to our data, the purchase costs amounted to a quarter of the costs that were reported in a previous study (Wolf-Ostermann et al., 2017).

5.1 | Limitations

Our results are subject to several limitations. The different response rates of the two documentation groups and the low number of responses in the traditional group (Table 1) influence the strength of our comparisons. If a response rate is low, the risk of bias in the findings will be greater. Nonetheless, on average, participants had a relatively long professional experience ($M = 19$ years) and more than one-year-long familiarity with the employed documentation approach which heightens the informative value of the collected estimations because they are less affected by first-time experiences. However, since we also followed gatekeeper strategies to attract survey participants (e.g. we asked nursing-home managers to forward our invitations), this may have produced a highly qualified set of respondents, leaving the views of less qualified caregivers underrepresented. To determine the actual time constraints and cost drivers involved in nursing documentation more precisely, it would be helpful to gain further insights into the acceptance of trained and untrained staff who do not hold leading positions. Given the limited range of positions expressed in our survey, we would encourage nursing staff in all positions to participate in research projects frequently to foster critical collaboration between researchers and the organizations that might benefit from reforms. Moreover, our time-data points are spread out over a wide range of values among the single sub-processes. Wolf-Ostermann et al. (2017) and Rothgang et al. (2015) experienced similar problems in the analysis of real-time data derived through self-appraisal techniques. However, this type of data collection seems to be essential in nursing research because self-recording ensures the privacy of those who need care (Rothgang et al., 2015). We recommend enlarging the scope of self- and third-party reporting in further investigations. Further insights into the pros and cons of the several data collection methods could support both the choice of suitable methods to investigate sensitive areas and the development of analytical strategies to strengthen the significance of self-reported values.

Finally, a compliance-based cost measuring approach identifies, by definition, fewer costs under the SM approach but may not fully capture all documentation costs. However, based on the responses of 264 nurses, our comparison of resource use in nursing homes provides insights into an area of documentation that has been rarely observed. While previous research has mainly focused on documentation activities in hospitals (Urquhart et al., 2009), only a few studies have highlighted particular aspects of such activities in long-term care (Meißner & Schnepp, 2014; Michel et al., 2017; Munyisia et al., 2011).

6 | CONCLUSION

Our research provides a map of up-to-date experiences of caregivers in German nursing homes. While times and, subsequently, costs for the documentation of daily routines could be reduced by opting for the structural model, some parts of nursing documentation still proceed faster according to traditional approaches. The presented comparisons between standard activities of comparable documentation processes can support nursing-home managers in identifying specific task adjustments to minimize time-consuming obstructions. This analysis also shows that some activities have only little or no potential for time savings as they seem to be essential for an effective nursing documentation. If a documentation procedure is found at an early stage that fits with the organization's arrangements and culture, this could help avoid unnecessary investments in unsuitable documentation solutions.

However, besides saving costs, selecting a documentation approach should also address staff needs, particularly those related to working conditions, to indirectly enhance the satisfaction of those who need long-term care. Thus, further research is needed to understand whether achieved time gains are beneficial from the perspective of long-term outcomes. In future work, we will investigate whether having more time to deal with single-case information might positively impact nurses' expertise and their perceptions of documentation as a helpful tool.

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CONFLICT OF INTEREST

Both authors were employees of the Federal Statistical Office. At that time, they contributed to the referred study conducted by the Statistical Office. The first author is again an employee of this institution. Her main contribution to the present research was made during her tenure as a research assistant at a university between the two periods. Both authors declare that they have no competing interests.

AUTHOR CONTRIBUTIONS

Eugenia Larjow: conceptualization and design, acquisition of data, analysis and interpretation of data, and writing the manuscript. Tobias Lingner: contribution to design, analysis and interpretation of data, and critically revising the manuscript.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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