

Computer-based Nursing Documentation in Nursing Homes: A Feasibility Study

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Abstract

The burden of paper-based nursing documentation has led to increasing complaints and decreasing job satisfaction amongst aged-care workers in Australian nursing homes [1,2,3]. The automation of nursing documentation has been identified as one of the possible strategies to address this issue [4]. A major obstacle to the introduction of IT solutions, however, has been a prevailing doubt concerning the ability and/or the willingness of aged-care workers to accept such innovation [5]. This research investigates the attitudes of aged-care workers towards adopting IT innovation. Questionnaire survey were conducted in 13 nursing homes around the Illawarra and Sydney regions in Australia. The survey found that an unexpected 89.3% of participants supported the strategy of introducing electronic nursing documentation systems into residential aged-care facilities. 94.3% of them would use such a system depending on circumstances. Despite a shortage of computers in the workplace, which is a major barrier, this research provides strong evidence that care workers in residential aged-care facilities are willing to accept electronic nursing documentation practice and the uptake of information technology in residential aged-care is feasible in Australia.

Keywords: Aged-Care Workers' Acceptance, Electronic Nursing Documentation, IT Innovation, Residential Aged-Care, Long Term Care, Nursing Home, Australia

Introduction

Residential aged care institutions are burdened with very heavy and onerous documentation requirements in order to meet the accreditation and assessment standards set by the Australian Federal Government for the funding for their care for the frail elderly. This burden has become one of the major reasons for nurses leaving the industry. Nurses who still work in the industry are strongly disappointed with "an inability to spend sufficient time in providing direct care to each resident"¹. "Forty percent of nurses say they spend less than a third of their time in providing direct care to residents, and they are the most likely to resist the amount of paper work that they have to do"[1]. Complaints about the heavy documentation burden were the major driving force behind the Commonwealth Department of Health and Ageing's 2003 project that reviews its funding model for

residential aged-care. Despite the heavy labour cost of nursing documentation, electronic documentation has not been recognised by management in the aged-care sector as an effective means of improving information management, work process, administration and care quality because there is little or no research to prove the benefits of such innovation[5]. Also, management tends to doubt that staff will accept computer-based practice[5]. So far nursing documentation remains paper-based in the majority of nursing homes in Australia[5]. In order to improve the technology lag of information management in the aged-care sector, it is vital for policy makers and aged-care management to set aside their unsupported skepticism and to ascertain what the attitudes of aged-care workers towards adopting computer-based documentation practice actually are. This is the aim of the present study, which investigates current nursing documentation practice in 13 aged-care facilities, the participating workers' social demographic characteristics, their levels of job satisfaction, their satisfaction with the current nursing documentation practice and their attitudes towards introducing electronic nursing documentation.

Method

A survey was conducted in 13 residential aged-care facilities around Sydney, the Illawarra and Canberra in Australia to investigate aged-care workers' attitudes towards introducing electronic nursing documentation practice. The self-administered questionnaire was designed in consultation with two managers and three registered nurses not directly involved in the research project. The questionnaire starts with a brief introduction about the aim of the research, contact details of the researchers, seeks explicit consent for participation and assures participants of anonymity. It also details channels for complaints about research ethics. Four-hundred questionnaires were mailed to 13 aged-care homes, or distributed directly to the aged-care workers on site-visits by the researchers. The time frame for the questionnaire survey was November to December 2004. Reminder calls were made to the managers for the collection of questionnaires but these were collected by the researchers themselves during site visits in early December or sent back by the administrative staff in the nursing homes. The final cut-off date was December 10, 2004. There were 159 questionnaires returned, with a response rate of 39.8%.

The data was entered into an Excel spreadsheet. The missing data or non-response was recorded as neutral answers on the five-point scale. Statistical analysis was conducted using SPSS Software (Copyright © 2005, SPSS Inc. Headquarters, 233 S. Wacker Drive, 11th floor Chicago, Illinois 60606).

Results and Discussion

The participating aged-care workers' social demographic characteristics

The occupation of aged-care workers and the types of facilities they work for

The participating aged-care workers' social demographic characteristics are described according to the type of facilities where they worked (high-care or low-care)¹, occupation, age group, aged-care work experience and gender.

Of the 159 respondents (Table 1), there were 10 clerks, 70 Personal-Care Workers (PCW) and Assistants in Nursing (AIN), 23 Enrolled Nurses (EN), 33 Registered Nurses (RN) and 22 managers. There was one participant whose occupation was unknown. A significant difference was found in the number of participants from high-care (111) and low-care facilities (47). This may reflect the fact that there are more aged-care workers employed in high-care facilities than in the low-care ones in Australia. This may also indicate that the opinion of aged-care workers in high-care facilities might be over-represented in this study compared with those working in low-care ones.

Table 1 - The participants' occupation and the type of facilities where they work.

	High-care (%)	Low-care (%)	Total number
Clerk	5.4	8.5	10
PCW/AIN ²	38.7	55.3	70
EN ³	18.0	6.4	23

¹ There are two categories of aged-care facilities (long-term care facilities) in Australia: low-care and high-care facilities. Hostels (low care facilities) normally only provide accommodation and personal care, such as help with dressing and showering, together with occasional nursing care. Nursing homes (high care facilities) provide continuous nursing care besides accommodation and personal care [6].

² PCW stands for personal care worker. AIN stands for Assistant in Nursing. Both occupations require the candidate to hold Aged-care Certificate III after successful completion of half-year study in aged-care in government-funded technical training college TAFF.

³ EN stands for Enrolled Nurse. A person is qualified as an enrolled nurse if holding Aged-care Certificate IV, which is awarded after completing one-year study in aged-care in technical training college TAFF.

RN4	27.0	6.4	33
Manager	10.8	21.3	22
Total number	111	47	158

Age groups of the participants

There is a significant age difference between occupations ($p < 0.01$). However, there is no statistically significant difference in age profile of participants from high-care or low-care facilities. The majority of aged-care workers surveyed were between 30 and 59 years of age (74.2%, see Table 2).

Table 2 - The age group of participants

Age group	Total number	Percentage
Under 20	5	3.15
21 to 24	13	8.18
25 to 30	13	8.18
30 to 39	34	21.38
40 to 49	51	32.08
50 to 59	33	20.75
60 and over	10	6.29
Total	159	100

Although no significant age difference was found between occupations, all the registered nurses (RN) and people in management positions were above 30 years old. Enrolled Nurses (EN) were above 25 years old. The majority of aged-care workers under 30 years of age were Personal Care Workers or Assistants in Nursing (PCW/AIN) (see Table 3).

Table 3 - The age group of participants in different occupations.

	Clerk	PCW/AIN	EN	RN	Manager	Total (%)
Under 20	20.0	80.0				100
21 to 24	7.7	61.5	30.8			100
25 to 30		69.2	30.8			100
30 to 39	8.8	29.4	11.8	35.3	14.7	100
40 to 49		49.0	13.7	19.6	17.6	100
50 to 59	12.1	33.3	12.1	27.3	15.2	100
60 and over	20.0	30.0		20.0	30.0	100
Total	6.9	44.0	14.5	20.8	13.8	100

⁴ RN: Qualified registered nurse. The qualification is awarded after successful completion of three-year nursing degree in an accredited university.

35.9% of the aged-care workers who responded had more than ten years work experience in the area. 57.8% of respondents had one to ten years' experience. 5% of the workforce had recently joined the industry and had less than one-year experience in the area. No significant difference in aged-care work experience was found between participants from high-care and low-care facilities. However, there was a significant difference in experience between participants in different occupations ($p < 0.001$). Managers, RNs and ENs had similar length of aged-care work experience, about four to ten years or over. Personal-care workers had significantly shorter aged-care work experience than the other occupational groups. Managers appeared to have the longest aged-care work experience of all occupational groups, followed by that of RNs, then ENs.

93.1% of the participants were female, which is close to the national figure of 94% female aged-care staff given by Richardson [1].

The current nursing documentation practice in the residential aged-care facilities investigated

The five high-care and five low-care facilities belonging to UnitingCare Ageing South East Region all have computers but these are used primarily for word-processing and by a limited number of staff. The actual documentation process cannot be said to be computer-based. The normal practice is for the Director of Nursing or facility manager to generate an electronic care-plan based on either commercial software or on an internally developed Excel template. The care-plan is then printed out and the content is filled in by RNs manually. Daily resident progress reports are required by the accreditation body to ensure that the care needs of residents are evaluated regularly. In all of the aged-care facilities we investigated, the Personal Care Workers or Assistants in Nursing write daily progress reports on paper.

One nursing home did have an electronic care-plan, but it was built on an out-of-date Dos Operating System. The RNs were not happy with the information content and options provided by the system. However, they still relied on the system to generate care-plans because even so, the electronic system worked better than paper-based documentation systems. The care-workers in the rest of the facilities investigated had no opportunity to use computer-based documentation systems at all. They simply had no access to computers.

Are you happy with the current nursing documentation practice?

One hundred and nine participants answered this question. There was no significant difference in answers to this question amongst age groups, occupations, aged-care work experience and facility types. Very few (1.8% at either end) expressed extreme happiness or unhappiness. In fact, the majority of respondents (54.1%) were neutral. 26.6% selected 'happy' while 15.6% selected 'unhappy'. These results may reflect the fact that the respondents are used to their paper-based documentation system, recognise the importance of

nursing documentation and cannot imagine a very different way of doing it. Perhaps they do not see much need for change, or perhaps they are not certain what change will bring and whether it will be beneficial to them. Therefore, they are very conservative in answering this question. The answer to this question could also be interpreted as reflecting a reluctance to change work practices.

Aged-care workers' attitudes towards the introduction of an electronic nursing documentation system into care practice

The aged-care workers' attitudes towards the introduction of electronic nursing documentation practice was measured more directly through answers to the following three questions:

- To what degree do you trust the reliability of an electronic documentation system?
- Would you like an electronic documentation system to be introduced into your aged-care facility?
- If a new electronic documentation system is introduced into the workplace, will you use it?

To what degree do you trust the reliability of an electronic documentation system?

Again, no significant difference in answers to this question was found among age groups, occupations, aged-care work experience and facility types.

Table 4-The number and percentage of respondents who gave varying degrees of trust to computer systems

How Much Trust	Number of respondents	Percentage Response
Less than 25%	9	5.9
26 to 50 %	14	9.2
51 to 75 %	62	40.5
76 to 100 %	64	41.8
100%	4	2.6

Of 153 respondents who answered this question, the large majority of them (84.9%) trust computer systems. 40.5% of respondents rated their trust in computer systems at 51 to 75%. 41.8% of respondents rated their trust at 76 to 100%. 2.6% of respondents give complete trust to computer-based systems (Table 4). Only a small percentage (15.1%) of respondents did not have reasonable trust in computer systems.

Would you like an electronic documentation system to be introduced into your facility to manage care?

The majority of respondents supported the strategy of introducing an electronic nursing documentation system into aged-care facilities to manage care information. This is reflected by 89.3% of respondents answered 'yes' (N = 159) and only 6.3% answered 'no' to this question. There was no significant difference in answers to this question among age groups, occupations, facilities and workers with various aged-care work experience.

If a new electronic documentation system is introduced into the workplace, will you use it?

A significant difference was found in the final selections of the six options provided (chi-square test, $p < 0.001$). 35.8% of respondents answered 'yes' to this question ($N = 159$); 39.0% considered a system that is easy to learn as a priority for consideration; 15.1% regarded the system being able to 'significantly reduce the time taken' as a prerequisite for their consideration to use; 4.4% saw 'management insisted' as a condition for using and 4.4% of respondents were either not sure about their decision or just simply said that they would not use the system (Table 5). 1.3% of respondents did not answer this question. There was no significant difference in answers to this question amongst respondents in different facility types, age groups, aged-care work experience or occupations. Even though multiple choices are allowed, respondents only selected one answer for this question, as the total percentage of answers was exactly 100% (Table 5). Like the conservative responses given to the previous question asking their satisfaction with the paper-based documentation system that has already been in place for a long time, the care workers were very careful in selecting answers to this question. This might reflect their caution in regard to changes in nursing documentation, an activity that is considered vitally important in residential aged-care homes. 94.3% of respondents would be happy to use an electronic documentation system, but they recognise that if it is overly difficult to use and/or takes more time than the old system, obviously it would not be useful. This certainly undermines management's unsupported but unfortunately prevalent belief that the care staff would be unwilling to use an electronic nursing documentation system.

Table 5. Willingness to use an electronic documentation system, depending on circumstances

The Answer	No. of respondents that answered	Percentage of respondents
Yes	57	35.8
Yes, if it is easy to learn	62	39.0
Yes, if it would significantly reduce the time taken	24	15.1
Yes, if management insisted	7	4.4
No	5	3.1
Not sure	2	1.3
No Answer	2	1.3
Total	159	100

Conclusion

The survey results clearly indicate that despite the natural fear of change, these aged-care workers are willing to adopt the new practice of electronic nursing documentation. They trust the reliability of computer-based systems, and they would like information technology to be introduced into their facilities in order to help manage care.

89.3% of participants supported the strategy of introducing electronic nursing documentation system into residential aged-care facilities. 94.3% of them would use an electronic documentation system depending on circumstances. This strong call from the workforce for innovative nursing documentation practice should ease the concern of management about reluctance on the part of the workforce to embrace new computer-based documentation practice. The results of the study clearly suggest that the introduction of information technology into long-term care practice is not being held back by the workforce itself, as had been assumed [4], but by the management's fear of not being able to make it work.

Residential aged-care management and government need to hear what workers in the field are saying. Time wasted due to the heavy burden of hand-written nursing documentation is better spent in providing direct care to nursing home residents. Aged-care workers themselves are calling for Administration and Government to cooperate and work together in order to facilitate the introduction of innovative electronic nursing documentation practice, new systems which will optimise information management and care quality for the frail elderly who are the recipients of residential aged-care services in Australia.

Limitation of the study

The validity of the results of our questionnaire survey is constrained by a lack of response from 60% of participants. The possible reasons for no responses are: (1) the information about the questionnaire survey was not disseminated to every potential survey participant due to shift work. As there is a large proportion of part-time workers in the workforce, only a proportion of them may have been present when the questionnaires was distributed to the staff. (2) As aged care workers are always very busy during work time, the task of completing questionnaires might be assigned low priority, or even completely forgotten; (3) Aged care workers who did not believe that computer-based nursing documentation was of relevance to them or did not support computerisation might simply not participate in the study.

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