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Development and content validation of the **Burden of Documentation for Nurses and Midwives** (BurDoNsaM) Survey

ABSTRACT

Aim. To develop a validated tool to measure nursing and midwifery documentation burden.

Background. While an important record of care, documentation can be burdensome for nurses and midwives and may remove them from direct patient care, resulting in decreased job satisfaction, associated with decreased patient satisfaction. The amount of documentation is increasing at a time where staff rationalisation results in decreasing numbers of clinicians at the bedside. No instrument is available to measure staff perceptions of the burden of clinical documentation.

Design. Survey development, followed by 2 rounds of content validation (April and May 2019).

Methods. Based on the literature a 28 item survey, with items in 6 subscales, representing key areas of documentation burden was developed. Item (I-CVI), subscale (S-CVI/Ave by subscale), and overall content validity indexes (S-CVI/Ave) were calculated following two review rounds by an expert panel of clinical and academic nurses and midwives.

Results. Level of agreement for the first iteration of the survey was low, with many items failing to reach the critical I-CVI threshold of 0.78. No subscale reached a S-CVI/Ave above 0.8 and the overall scale only achieved a S-CVI/Ave score of 0.67. Thirteen items were removed, 7 were edited and 5 new items added, based on the expert panel feedback, substantially improving the content validity. All individual items achieved an I-CVI \geq 0.78, the S-CVI/Ave was above 0.85 for all subscales, and the total S-CVI/Ave was 0.94.

Conclusion. The **Burden of Documentation for Nurses and Midwives** (BurDoNsaM) Survey can be considered as content valid, according to the content validity analysis by an expert panel.

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Impact. The BurDoNsaM survey may be used by nurse leaders and researchers to measure the burden of documentation, providing the opportunity to review practice and implement strategies to decrease documentation burden, potentially improving patient satisfaction with the care received.

KEY WORDS

Documentation; instrument development; paperwork; burden, survey; questionnaire; nurses; midwives; content validation

INTRODUCTION

Paperwork or clinical documentation is a component of the clinical communication role of Registered Nurses and Midwives and provides an avenue to record and report their assessments and care of patients (Australian Commission on Safety and Quality in Health Care (ASQHS), 2017b). Nurses and midwives complete the majority of documentation during a patient's episode of care (Cunningham, Kennedy, Nwolisa, Callard, & Wike, 2012; Keenan, Yakel, Tschannen, & Mandeville, 2008) and their documentation is a legal requirement (Australian Commission on Safety and Quality in Health Care (ASQHS), 2017a), complementing other documents that comprise the patient's multidisciplinary medical record. It is imperative that an accurate and complete record of a patient's episode of care is made and kept. In doing so, there should be a minimal amount of duplication or redundancy within the documents. Further, the task should not be overly onerous (Cunningham et al., 2012) or consume excessive amounts of nurses and midwives time, that removes them from direct patient care (Lavander, Meriläinen, & Turkki, 2016). Where this occurs, documentation is perceived to be burdensome (Heuer, Parrott, Percival, & Kacmarek, 2016) and reduces nurses and midwives satisfaction (Bøgeskov & Grimshaw-Aagaard, 2018).

BACKGROUND

Via the organisation's Nursing and Midwifery Practice Council, nurses and midwives at the study hospital have reported similar concerns related to the burden of documentation as those

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referred to in the literature. The Director of Nursing requested the assistance of the hospital Nurse Researcher to work with clinicians using an action research approach to address the issue based on the available evidence. As part of a larger study, a research team was convened and decided to quantitatively measure the extent of documentation burden from the perspective of nurses and midwives before and after an intervention to decrease documentation. An extensive search of the literature failed to reveal an appropriate tool, although the phenomenon of documentation burden has been researched from a qualitative perspective and described in discussion papers (Bøgeskov & Grimshaw-Aagaard, 2018; Cunningham et al., 2012).

Issues around the documentation burden placed upon clinicians in healthcare settings have been recognised in the literature for several decades (Heuer et al., 2016). In recent years the amount of documentation is perceived to have increased at a time when resources and health budgets are being constrained, a phenomenon observed internationally (Cunningham et al., 2012; Heuer et al., 2016). There is evidence that direct contact with patients is reducing due to extra indirect demands placed upon nurses, including documentation (Cunningham et al., 2012; Lavander et al., 2016).

Studies have shown that nurses feel that much of the documentation they complete does not add value to patient care (Bøgeskov & Grimshaw-Aagaard, 2018; Cunningham et al., 2012). Excessive documentation is a major predictor of clinician dissatisfaction which is correlated with patient dissatisfaction (Janicijevic, Seke, Djokovic, & Filipovic, 2013; Kutney-Lee et al., 2009; Mache et al., 2011; Peltier, Dahl, & Mulhern, 2009). It seems that documentation which was intended to enhance care can adversely affect both clinician and patient satisfaction, reduce time available for direct patient care and ultimately lower quality of care (Heuer et al., 2016). O'Connor et al., (2012) describe how nurses spend too much time on activities that take them away from direct patient care resulting in ineffective use of valuable resources.

Time and motion studies exploring the work patterns of clinical nurses have included measures of time spent on clinical documentation (Antinaho, Kivinen, Turunen, & Partanen, 2015; Ballermann,

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Shaw, Mayes, Gibney, & Westbrook, 2011; Hendrich, Chow, Skierczynski, & Lu, 2008; Westbrook, Duffield, Li, & Creswick, 2011; Yen et al., 2018; Yu et al., 2019). There is considerable variation in the amount of time these studies have reported nurses spend on documentation from as low as 7.3% (Westbrook et al., 2011) to as high as 28.3% (Yu et al., 2019). There are various factors which could influence these differences including variations in health care systems and clinical areas, whether data was directly observed (Ballermann et al., 2011; Westbrook et al., 2011; Yen et al., 2018; Yu et al., 2019) or self-reported (Antinaho et al., 2015; Hendrich et al., 2008), the time and length of data collection, and differences in task categorisation. Most time and motion studies collect data for short blocks of time which may lead to an under or over representation of certain tasks. Only Yu et al., (2019) collected data on the work pattern of nurses for entire shifts reporting that documentation took up 28.3% of nurses time while only 14% of their time was on direct care. In the context of community substance abuse treatment (Carise, Love, Zur, McLellan, & Kemp, 2009) a state-wide evaluation of documentation burden was conducted measuring the approximate time taken to complete different types of documentation before and after an intervention. The intervention evaluated the forms in use and implemented changes to reduce the documentation burden. This resulted in the highest estimated time to complete documentation reducing from 542 minutes to 370 minutes post intervention.

It is evident from the literature that there is a need to measure nurses and midwives perception of the burden of documentation with a valid and reliable tool. Such a tool will provide information on how documentation impacts on nurses and midwives workload and how they perceive it influences the care they provide to patients. The results obtained from using such a tool can be compared to actual time spent on documentation (as measured by time and motion studies) to determine the extent to which documentation is a real or perceived workload issue, compared to other aspects of nurses and midwives work.

THE STUDY

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Aim

The aim of this study was to develop a tool to measure nursing documentation burden and to undertake content validation with an expert panel. The development and validation of the BurDoNsaM survey is part of a larger study designed to explore documentation burden and develop an intervention to decrease the burden of documentation, while maintaining patient safety and improving nurse / midwife and patient satisfaction.

Design

Survey development based on the literature followed by a two stage expert panel review. Content validity of the survey was not apparent following the first round of expert validation. With reference to the expert panel member comments as noted in the free text fields, modifications were made to survey before a second round of content validation was undertaken.

Methods

Instrument

After reviewing the literature reporting documentation burden, two publications which focused on nurses' perception of documentation burden were identified Bøgeskov and Grimshaw-Asgaard (2018) 'Essential task of meaningless burden? Nurses' perceptions of the value of documentation' and Cunningham et al. (2012) 'Patients not paperwork – bureaucracy affecting nurses working in the NHS'. Permission was sought from the authors to adapt their work to develop a validated tool to measure nurse and midwife satisfaction with clinical documentation. Both authors gave permission to adapt their work. These two publications were selected to inform the development of the instrument because of the depth to which nurses' perceptions of documentation burden were explored. The main themes generated in Bøgeskov and Grimshaw-Asgaard's (2018) qualitative study, *the essential task* (main theme 1) and *the meaningless burden* (main theme 2), were examined by the research team and the 25 sub-themes were developed into survey items. The report produced

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by Cunningham et al. (2012) to outline documentation burden issues faced by nurses in the NHS included findings from a survey which asked nurses about documentation. All seven items and sub-items in the survey were examined, revised and adapted by the authors before being included in the first round of items for validation by the expert panel. Items were also developed to help measure study site specific concerns such as the amount of time spent on documentation and how documentation burden varies on different shifts. Based on the clinical experience of the research team an item which asks participants how often they finish work late because of outstanding documentation was also included.

Ethics

The study was approved by both the hospital and university ethics committees. Participants in the validation component of the study were provided with an information sheet. Return of completed survey, via the Qualtrics platform implied consent to participate. All information provided by the respondents was anonymous and is stored according to the relevant research guidelines and legislation (National Health and Medical Research Council, 2007).

Sample

First administration.

An email with a link to the first iteration of the survey was sent to a convenience sample of 20 experts in April 2019. Consistent with recommendations on expert panel selection (Grant & Davis, 1997), clinical nurses using documentation every day, nurse managers with experience of the issues bedside nurses report regarding documentation, nurse leaders with experience developing and evaluating documentation, and academics who have taught students about documentation or who have researched and published in the area of documentation burden were invited to participate. Nursing academics comprised the majority of experts (n = 13), while clinical nursing staff, nurse managers, form committee members, safety and quality leaders and documentation burden

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researchers comprised the remainder of the experts (combined n = 7). Prior to each round of validation participants were provided information about the study, the scope of their involvement and the extent of the problem of paperwork burden as it has been reported in the literature, along with clear instructions on how to respond to the questions (Froman, 2002). Sixteen nurses completed the content validity assessment in round 1.

Second administration.

In May 2019 an email with a link to the second iteration of the survey was sent to the same 20 experts as the first round of validation. Fourteen nurses completed the content validity assessment in round 2.

Quantitative Content Validity Analysis

The survey was given to the experts to evaluate each item's relevance/representativeness, clarity, and comprehensiveness of capturing documentation burden specific to nursing practice. Open-ended feedback on the survey was also solicited for each group of items to determine whether the survey fully covered the important aspects of documentation burden that might be missing from the survey at each stage.

Quantitative assessment: Quantitative content validity was assessed using the Content Validity Index (CVI). The CVI (Lynn, 1986) assessment was performed using a four level rating scale (1 – not relevant; 2 – somewhat relevant; 3 – quite relevant; 4 – highly relevant) to score each item. Items were then dichotomised as relevant if participants gave the item a score of 3 or 4, and not relevant if they scored it 1 or 2. Item level CVI was calculated as the proportion of all the 'somewhat relevant' and 'very relevant' ratings divided by the number of respondents. The S-CVI/Ave was calculated as an average of the I-CVIs for all items in each domain and for all items on the overall scale. The S-CVI/Ave was used for the scale level assessment over the universal agreement metric (S-CVI/UA) because of the relatively high number of raters which increases the likelihood of chance

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disagreement making the S-CVI/UA overly conservative (Polit & Beck, 2006). Items that received an I-CVI ≥ 0.78 were accepted as content valid, and the overall tool accepted as content valid if S-CVI/Ave ≥ 0.90 (Polit & Beck, 2006; Polit, Beck, & Owen, 2007). If items achieved a score less than 0.78, the items were removed or revised according to feedback from the experts in the free text fields.

The I-CVI was supplemented with a modified kappa statistic k^* as per Polit et al. (2007). The modified kappa is an index of agreement among experts that indicates beyond chance that the item is relevant. To calculate the modified Kappa we used the formula from Polit et al. (2007):

$$k^* = \frac{I-CVI - p_c}{1 - p_c}$$

where p_c represents the probability of a chance occurrence, computed using the formula for a binomial variable with one specific outcome:

$$p_c = \left[\frac{N!}{A! (N - A)!} \right] * 0.5^N$$

where N = number of experts and A = number agreeing on good relevance. Evaluation criteria for kappa are defined as Good = 0.60 – 0.74 and Excellent > 0.74. Data were imported and analysed in R (R Core Team, 2019).

RESULTS

Tables 1 and 2 present the results for the content validation analysis by item for the 1st and 2nd iterations of the documentation burden survey. Table 3 presents the scale level metrics for the content validation analysis, including subscale and overall S-CVI/Ave.

Round 1 – First administration of the BurDoNsaM survey

The survey questions assessed in round one for content validation are presented in Table 1. The level of agreement for the first round of content validation by the expert panel was relatively low, with many items failing to reach the critical threshold at 0.78 for the I-CVI and k^* (Table 1). Table 3

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presents the subscale and overall S-CVI/Ave for each round. The subscale S-CVI/Ave and overall S-CVI/Ave for the first round was similarly poor, with no subscale reaching a S-CVI/Ave above 0.8 and the overall scale only achieving a S-CVI/Ave score of 0.67 (Table 3, round 1). Following this a number of items were removed (4 from domain A, 8 from domain B, and 1 from domain C) or edited (3 in domain A, 2 in domain B, 1 in domain D and 1 in domain F). Based on the expert panel feedback in the free text fields, new items were added (1 in domain A, 1 in domain B, 1 in domain C, 1 in domain D and 1 in domain F).

Round 2 – Second administration of the revised BurDoNsaM survey

Following the first round of content validation by the experts, a second round of content validation was conducted on the revised survey. The revised questions are presented in Table 2. As can be seen from Table 2, the removals and edits substantially improved the content validity. All individual items for each subscale achieved an I-CVI ≥ 0.78 . Moreover, at the overall scale and subscale level, the S-CVI/Ave was above 0.85 for all subscales, with the total S-CVI/Ave score = 0.94 (Table 3, round 2). Thus the revised documentation burden scale can be considered as content valid, according to the content validity analysis.

DISCUSSION

The aim of this study was to develop and assess the content validity of a survey designed to measure nurses and midwives' perceptions of documentation burden. The results of the 2 rounds of content validation by a group of nurse experts have produced a 28 item survey, with items in 6 potential subscales, representing the key areas of documentation burden for nurses and midwives. In the first round of content validation the overall scale S-CVI/Ave, the S-CVI/Ave for each subscale, and the item I-CVIs and modified k^* s were below the threshold. Following modification based on the feedback from expert panel members, the second round of validation resulted in excellent agreement and the survey content is accepted as valid.

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The BurDoNsaM Survey is recommended for use in Nursing and Midwifery contexts (see supplementary file 1). The next stage for development of this survey will be to assess its reliability and other forms of validity (e.g., construct, concurrent, and predictive) in a large sample of nurses. One aspect of this will be to use the instrument to assess the effectiveness of an intervention designed to reduce paperwork burden in nurses, thereby allowing a pre- post- assessment of scores on the BurDoNsaM. We also plan to examine the relationship between BurDoNsaM survey constructs and more objective measures of paperwork burden collected through time in motion analysis, which will be instructive in quantifying how well the BurDoNsaM survey tracks time spent doing paperwork relative to other clinical tasks.

LIMITATIONS

The content validation of the BurDoNsaM survey was undertaken with a group of nursing and midwifery experts from Western Australia which may limit the generalisability of the survey to other nursing and midwifery populations. We recommend content validity determination in other contexts prior to use (Peirce, Brown, Corkish, Lane, & Wilson, 2016). In addition, two of the subscales scored just under the S-CVI/Ave level of 0.9 recommended by Waltz, Strickland, and Lenz (2010) but above 0.8 ("Burden of documentation" S-CVI/Ave = 0.88 and "Hospital leadership and documentation" S-CVI/Ave = 0.86). "Burden of documentation" had I-CVI scores consistently at 0.86 for 6 of the 7 questions, while "Hospital leadership and documentation" consisted of only two questions. However, it is important to note the overall scale S-CVI/Ave was well above 0.9.

CONCLUSION

The **Burden of Documentation for Nurses and Midwives (BurDoNsaM)** Survey has been developed with reference to the existing literature, to measure nurses and midwives self-reported perceptions of the burden of clinical documentation. It has undergone content validation and will be subjected to further validation, as it is used in our action research project that proposes to develop an intervention to decrease or at least manage the burden that clinical documentation imposes on

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bedside nurses and midwives. Given the lack of similar surveys to measure nurses and midwives' perception of documentation burden, it is anticipated that the survey will prove useful for clinical leaders as well as researchers. The ability to measure the burden of documentation provides the opportunity to review practice in direct response to the perceptions of nurses and midwives providing care, creating an opportunity to potentially improve satisfaction at work and ultimately patient satisfaction with the care they receive.

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Reference List

- Antinaho, T., Kivinen, T., Turunen, H., & Partanen, P. (2015). Nurses' working time use - how value adding it is? *Journal of Nursing Management*, 23(8), 1094-1105. doi:10.1111/jonm.12258
- Australian Commission on Safety and Quality in Health Care (ASQHS). (2017a). Clinical Governance standard. In *National Safety and Quality Health Service Standards, 2nd ed* (pp. 3-12). Sydney: Australian Commission on Safety and Quality in Health Care 2017.
- Australian Commission on Safety and Quality in Health Care (ASQHS). (2017b). Communicating for Safety standard. In *National Safety and Quality Health Service Standards, 2nd ed* (pp. 47-54). Sydney: Australian Commission on Safety and Quality in Health Care 2017.
- Ballermann, M. A., Shaw, N. T., Mayes, D. C., Gibney, R. T. N., & Westbrook, J. I. (2011). Validation of the Work Observation Method By Activity Timing (WOMBAT) method of conducting time-motion observations in critical care settings: An observational study. *BMC Medical Informatics and Decision Making*, 11(1), 32-32. doi:10.1186/1472-6947-11-32
- Bøgeskov, B. O., & Grimshaw-Aagaard, S. L. S. (2018). Essential task or meaningless burden? Nurses' perceptions of the value of documentation. *Nordic Journal of Nursing Research*. doi:10.1177/2057158518773906
- Carise, D., Love, M., Zur, J., McLellan, A. T., & Kemp, J. (2009). Results of a statewide evaluation of "paperwork burden" in addiction treatment. *Journal of Substance Abuse Treatment*, 37(1), 101-109. doi:10.1016/j.jsat.2008.10.009
- Cunningham, L., Kennedy, J., Nwolisa, F., Callard, L., & Wike, C. (2012). Patients not paperwork - Bureaucracy affecting nurses working in the NHS. In: NHS Institute for Innovation and Improvement.
- Froman, R. (2002). A classroom activity using a panel of expert judges for content validity documentation. *Journal of Nursing Education*, 41(5), 234-236.
- Grant, J. S., & Davis, L. L. (1997). Selection and use of content experts for instrument development. *Research in Nursing and Health*, 20(3), 269-274. doi:10.1002/(SICI)1098-240X(199706)20:3<269::AID-NUR9>3.3.CO2-3
- Hendrich, A., Chow, M. P., Skierczynski, B. A., & Lu, Z. (2008). A 36-hospital time and motion study: how do medical-surgical nurses spend their time? *The Permanente journal*, 12(3), 25-34. doi:10.7812/TPP/08-021
- Heuer, A. J., Parrott, J. S., Percival, D., & Kacmarek, R. M. (2016). Examining the phenomenon of the administrative burden in health care, allied health, and respiratory care. *Journal of Allied Health*, 45(2), 152-156.
- Janicijevic, I., Seke, K., Djokovic, A., & Filipovic, T. (2013). Healthcare workers satisfaction and patient satisfaction - where is the linkage? *Hippokratia*, 17(2), 157.
- Keenan, G. M., Yakel, E., Tschannen, D., & Mandeville, M. (2008). Documentation and the nurse care planning process. In R. G. Hughes (Ed.), *Patient Safety and Quality: An evidence-based handbook for nurses* (pp. 175-206). Rockville, Md.: Agency for Healthcare Research and Quality, U.S. Dept. of Health and Human Services.
- Kutney-Lee, A., McHugh, M. D., Sloane, D. M., Cimiotti, J. P., Flynn, L., Neff, D. F., & Aiken, L. H. (2009). Nursing: a key to patient satisfaction. *Health Affairs*, 28(4), w669-677. doi:10.1377/hlthaff.28.4.w669
- Lavander, P., Meriläinen, M., & Turkki, L. (2016). Working time use and division of labour among nurses and health-care workers in hospitals: A systematic review. *Journal of Nursing Management*, 24(8), 1027-1040. doi:10.1111/jonm.12423
- Lynn, M. R. (1986). Determination and quantification of content validity. *Nursing Research*, 35(6), 382-386. doi:10.1097/00006199-198611000-00017
- Mache, S., Busch, D., Vitzthum, K., Kusma, B., Klapp, B. F., & Groneberg, D. A. (2011). Cardiologists' workflow in small to medium-sized German hospitals: an observational work analysis. *Journal of Cardiovascular Medicine*, 12(7), 475-481.

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- National Health and Medical Research Council. (2007). *Australian code for the responsible conduct of research: Revision of the Joint NHMRC/AVCC statement and guidelines on research practice*. Canberra: National Health and Medical Research Council.
- O'Connor, P., Ritchie, J., Drouin, S., & Cowell, C. L. (2012). Redesigning the workplace for 21st century healthcare. *Healthcare Quarterly*, 15, 30-35.
- Peirce, D., Brown, J., Corkish, V., Lane, M., & Wilson, S. (2016). Instrument validation process: A case study using the Paediatric Pain Knowledge and Attitudes Questionnaire. *Journal of Clinical Nursing*, 25(11-12), 1566-1575. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/26841101>
- <https://onlinelibrary.wiley.com/doi/full/10.1111/jocn.13130>. doi:10.1111/jocn.13130
- Peltier, J., Dahl, A., & Mulhern, F. (2009). The relationship between employee satisfaction and hospital patient experiences. *The Forum: Business Results Through People*, 29-34.
- Polit, D. F., & Beck, C. T. (2006). The content validity index: Are you sure you know what's being reported? Critique and recommendations. *Res Nurs Health*, 29(5), 489-497. doi:10.1002/nur.20147
- Polit, D. F., Beck, C. T., & Owen, S. V. (2007). Is the CVI an acceptable indicator of content validity? Appraisal and recommendations. *Res Nurs Health*, 30(4), 459-467. doi:10.1002/nur.20199
- R Core Team. (2019). A language and environment for statistical computing (Version 3.6.0). Vienna, Austria: R Foundation for Statistical Computing. Retrieved from <https://www.R-project.org/>.
- Waltz, C. F., Strickland, O. L., & Lenz, E. R. (2010). *Measurement in nursing and health research* (4th ed.). New York,: Springer.
- Westbrook, J. I., Duffield, C., Li, L., & Creswick, N. (2011). How much time do nurses have for patients? a longitudinal study quantifying hospital nurses' patterns of task time distribution and interactions with health professionals. *BMC Health Services Research*, 11(1), 319. doi:10.1186/1472-6963-11-319
- Yen, P., Kellye, M., Lopetegui, M., Saha, A., Loversidge, J., Chipps, E. M., . . . Buck, J. (2018). Nurses' time allocation and multitasking of nursing activities: A time motion study. *AMIA Annual Symposium Proceedings Archive, 2018*, 1137-1146.
- Yu, P., Song, L., Qian, S., Yao, X., Huang, J., Min, L., . . . Deng, N. (2019). Work pattern of neurology nurses in a Chinese hospital: A time and motion study. *Journal of Nursing Management*, 27(2), 320-329. doi:10.1111/jonm.12682