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Usability Assessment as a Participatory Method for Implementing Technical Innovations in Nursing Care

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Abstract. For the introduction of technical nursing care innovations, a usability assessment survey is conducted by nursing staff. The questionnaire is used before and after the introduction of technical products. This poster contribution shows the latest comparison of pre- and post-surveys on selected products.

Keywords. Nursing technology, participation management, nursing innovation, usability assessment

1. Introduction

The research project Centre of Implementing Nursing Care Innovations (PPZ Hannover) aims to integrate innovative technologies to support nursing staff and to improve patient care. To ensure the participation of nurses' perspective in implementation decisions, a participatory implementation concept was designed [1]. One part of the concept are workshops, in which the innovative technologies are discussed with nursing staff as the primary user-group.

2. Method

As an important decision instrument, a modified questionnaire for assessing the usability of medical devices [2] is used during the workshops with the nursing staff to assess the expected usability and feasibility. About three months after the introduction, the questionnaire is conducted again to reveal the experiences made with the innovation by the nursing staff. The questionnaire contains general questions that can be used for all technical products and specific questions that need to be selected and customized according to the products´ specifics. The questions can be answered on a 5-point-Likert

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Scale ranging from statement disagreement to full agreement. As result, a value named the “weighted usability” is summarized that distinguishes between "not suitable", “suitable to a limited extent" and "very suitable".

3. Results

The following table shows the usability values of three products in a pre/post comparison [Table 1]. The indicated number presents a single nurse that assessed the usability of the product. The mattress system is used to mobilize patients for decubitus prophylaxis, the robotic cat is used for activating and interacting with patients, and the sound cushion produces relaxing music to improve patients' state of restlessness.

Table 1. The table shows results of the usability assessment survey before and after the implementation of three technical products on the project ward at Medical School Hannover. Eight to sixteen nurses participated in the surveys.

		Product					
		Mattress System (pre) n=8	Mattress System (post) =12	Robotic cat (pre) n=15	Robotic cat (post) n=11	Sound cushion (pre) n=16	Sound cushion (post) n=9
Results	Not suitable	0	1	2	2	0	0
	Suitable to a limited extent	0	2	6	2	0	0
	Very suitable	8	9	7	7	16	9

The mattress system as well as the sound cushion are rated as "very suitable" in both the pre- and post-surveys. Although the response between the pre- and post-survey differs, both products are expected to be very suitable in everyday nursing care and are still rated as very suitable several months after the implementation. The interactive robot cat receives mixed feedback with regard to its suitability in everyday nursing care.

4. Discussion

The results of the pre-survey showed a fairly clear tendency to introduce the products and the mostly positive results of the post-survey give a consistent picture in the pre/post comparison, proving the accuracy of the implementation decision. Therefore, the questionnaire can be seen as a supporting element in the process of a participatory approach for introducing technical products.

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