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Healthcare Professionals' Expectations of a Diabetes Care Performance Management System

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Abstract

The objective of this survey study was to identify health professionals' attitudes towards performance evaluation and their expectations of a diabetes care performance monitoring system. On average, the professionals supported the implementation of the system, and were interested in using cost-effectiveness information. Usability and willingness to compare performance results between units were most strongly associated with support. Clinicians' involvement in developing and using performance monitoring systems is encouraged.

Keywords:

Diabetes care, Healthcare professionals attitudes, Monitoring systems

Introduction

Performance monitoring systems can provide important information on the quality, effectiveness and cost-effectiveness of care. Observed deficiencies in practices require changes at managerial and clinician levels of the organization. In implementing new organization and management innovations, the role of the personnel at the clinical and operational level has, indeed, been found even more important than that of managers [1]. Despite healthcare professionals' crucial role in operational change and therefore as users of performance information, there is limited knowledge on how performance monitoring systems are accepted and used by this group. This study uses the extant literature on technology acceptance to shed light on what affects the healthcare professionals' acceptance of, and therefore intention to use a performance monitoring system in a pre-implementation phase.

In line with Davis' Technology Acceptance Model [2], Gagnon et al. [3] literature review found that the perceived benefits of the technology (*usefulness*) are the most common facilitating factor of ICT adoption among health care professionals, followed by *ease of use*. Professionals' perception of system usefulness is related to whether they find the information contained by the system interesting and whether they find their role in using this information as a developer as important. Therefore, professionals' *interest towards cost-effectiveness* information and perception of the importance of their *role in developing* care practices may affect their support for a performance monitoring system.

Healthcare professionals' typically work under tight schedules and therefore *time constraints and work load* related to the use of the new technology is a notable barrier to technology acceptance [3,4]. In the implementation phase, *sufficient resources* offered by the management and *support in the use of*

the new system, especially in terms of a *super-user* in the clinical unit, contribute to the success [3].

In this survey study, we tested whether diabetes care professionals' interest towards and perceived role in performance management, their expectations of the performance management system, and perceptions of resource availability are associated with their support for the new reporting system.

Methods

Data

The study was conducted in a Finnish social and health care district serving a population of 170 000 people. We conducted a web-survey to all potential future users of the system, that is, the health professionals treating patients with diabetes in the district, and their supervisors, altogether 170 professionals.

The questionnaire included questions on the present diabetes care practices in the region, care quality and cost-effectiveness improvement, and the implementation of the new monitoring system. Most of these questions were statements with a five-point Likert scale.

The invitation letter included a description of the new performance management system. The monitoring system allows evaluation of the quality of diabetes care, and the follow-up of the health outcomes, diabetes-related treatments and contacts of the entire diabetic patient population in the region. The system will be developed to also provide information on the association of cost and effectiveness of diabetes care (cost-effectiveness).

Analysis

Statistical analysis was performed with descriptive and linear regression analyses to assess different factors association with professionals' support for the monitoring system to be implemented.

In the linear regression analyses, professionals' support for the system was used as the dependent variable (DV). Professionals' perception of their role in quality improvement, interest in cost-effectiveness information, willingness to benchmark results with other units, expected usefulness, usability and willingness to develop the new system, time available for quality improvement at present, expected support from an expert user and having used and having tested the system were used as independent variables (IV). We first tested the associations of the IVs with the DV separately using univariate regression. Secondly, to test the relative contribution of each of the IVs to the total variance of DV explained, we used multiple regression analysis. Predictors that were significant in univariate regression were included

in the multiple regression analysis. All statistical analyses were performed using Stata version 15.0 (StataCorp LP, College Station, TX, USA).

Results

Responses from 86 professionals (response rate = 51%) were received. Majority of the respondents were doctors (44%) and nurses (29%) who treat patients with diabetes, and a minority were doctors' (10%) and nurses' (10%) supervisors. Majority of the respondents work in primary care (70%). Little over half (53%) of the respondents had heard about the new system to be implemented and only 7% had tried the demo version. Respondents' support for the system was rather high and 92% reported that they are interested in the cost of care and the association between cost and health outcomes. Only 29% expected that it would be easy for them to use the system (Usability). At present, the respondents did not agree to have enough time for quality monitoring and 41% expect that there will not be enough resources for the implementation of the new system (see Table 1).

Table 1. Descriptive Information (n=86)

Characteristic or Factor	
Profession, N(%)	
Doctor	38 (44%)
Nurse	25 (29%)
Doctors' supervisor	9 (10%)
Nurses' supervisor	10 (12%)
NA	4 (5%)
Support, Mean (SD)	4.4 (0.73)
Perceived role, Mean (SD)	4.0 (1.13)
Interest in cost-effectiveness, Mean (SD)	4.6 (0.70)
Willingness to benchmark, Mean (SD)	4.1 (0.95)
Expected usefulness, Mean (SD)	4.1 (0.74)
Expected usability, Mean (SD)	3.3 (0.98)
Willingness to develop, Mean (SD)	3.7 (0.96)
Available time, Mean (SD)	2.3 (1.09)
Expected resources, Mean (SD)	2.8 (1.03)
Expected support from expert user, Mean (SD)	3.7 (0.98)

To assess which factors would best predict support, we fitted a multiple regression model with support as the DV (see Table 2). In model A, all variables with significant association in the univariate regression were included as IVs. Available time and expected resources had not been associated with support in univariate analysis and were thus left out from this model. The results showed that only willingness to benchmark, expected usefulness and expected usability have significant association in the multiple regression. Model B shows that these variables alone explain 65% of the variation in the DV. The magnitude of the positive effect on support is moderate for expected usefulness and willingness to benchmark. In the multiple regression analysis, the association of expected usability with support changed signs.

Table 2. Multiple Linear Regression Analysis for System Support

	Model A	Model B
Independent variables		
Perceived role	-0.02 (0.10)	
Interest in cost-effectiveness	-0.02 (0.11)	
Willingness to benchmark	0.26 (0.08)**	0.29 (0.07)***
Expected usefulness	0.52 (0.09)***	0.50 (0.06)***
Expected usability	-0.14 (0.06)*	-0.13 (0.06)*
Willingness to develop	-0.01 (0.09)	
Expected support from expert user	0.05 (0.08)	
Has heard of the system	0.03 (0.13)	
R ²	0.68	0.65

Conclusions

In this survey study, we identified health professionals' attitudes towards performance evaluation and their expectations of a diabetes care performance monitoring system. The findings are representative of the diabetes care professionals in a Finnish integrated health and social care district. We found that clinicians who treat patients are interested in using performance management systems with information on cost-effectiveness at population level. Usefulness of the system is the most important aspect in professionals' support for a performance monitoring system. To encourage professionals' support towards performance monitoring, information provided by the systems should be used for constructive benchmarking.

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