

Self-management in hypertension care

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- I Bengtsson U, Kasperowski D, Ring L, Kjellgren K. Developing an interactive mobile phone self-report system for self-management of hypertension. Part 1: Patient and professional perspectives.
Blood Pressure. 2014;23:288-95.
- II Bengtsson U, Kjellgren K, Höfer S, Taft C, Ring L. Developing an interactive mobile phone self-report system for self-management of hypertension. Part 2: Content validity and usability.
Blood Pressure. 2014;23:296-06.
- III Bengtsson U, Kjellgren K, Hallberg I, Lindwall M, Taft C. Improved blood pressure control using an interactive mobile phone support system.
The Journal of Clinical Hypertension, 2015. Doi 10.1111/jch.12682.
- IV Bengtsson U, Kjellgren K, Hallberg I, Lundin M, Mäkitalo Å. Contextualizing blood pressure: Self-reporting as a basis for patient contributions in hypertension consultations. *Submitted.*



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Abstract

Despite effective treatment strategies for hypertension, many persons with hypertension still fail to reach recommended blood pressure targets. As hypertension is a significant risk factor for cardiovascular disease, measures are needed to decrease the mortality attributed to this condition and to facilitate an optimization of hypertension management. One way to do this may be to support persons with hypertension in better understanding the condition and its treatment in relation to everyday life. The overall aim of this thesis was, from a person-centered perspective, to design, develop and evaluate an interactive mobile phone-based system to support the self-management of hypertension.

A combined methods approach was used to collect and analyze data. Study I used focus group interviews with patients (n=15) and health care professionals (n=12) to explore and describe relevant aspects of hypertension and hypertension treatment, for use in the development of a self-management support system. A further aim was to elicit suggestions for what clinical measures, lifestyle measures, symptoms and side-effects of treatment would be meaningful to include in the system. Data in Study I were analyzed through thematic analysis. In Study II, the content validity of items and usability of the self-management support system were assessed iteratively in four rounds of cognitive interviews, with 21 patients and four health care professionals. Reliability of items was examined using a test-retest. Study III evaluated the effect of the daily use of the self-management support system on reducing blood pressure among 50 primary care patients with hypertension over eight weeks. Descriptive statistics, before-after analysis through paired samples t-test, and latent class growth models (LCGM) were used to analyze data. Study IV aimed at exploring follow-up consultations held at the end of the eight weeks of reporting through the self-management support system. Twenty consultations were audio or video recorded and examined through interaction analysis.

Information gleaned from the interviews with persons with hypertension and health care professionals served to define essential components of the self-management support system and to guide its design and development. The subsequently developed system was shown to capture relevant information for patients' self-management of hypertension, and further, to be reliable and usable. Blood pressure decreased significantly during use of the system (systolic blood pressure -7 mmHg, diastolic blood pressure -4.9 mmHg) between baseline and Week 8, with daily improvements levelling off as the study progressed. Finally, Study IV displayed how patients actively contributed to the follow-up consultations through initiating new topics, equal to the health care professionals, and through contextualizing their blood pressure values, which served to explain and interpret the values in collaboration with the health care professionals.

In conclusion, this thesis describes a collaborative, participatory and structured approach to the design and development of an interactive self-management support system for hypertension care. Use of the system was associated with significant reductions in blood pressure levels; however, the sustainability, scalability and mechanisms behind these results need to be studied further. Importantly, the system served as a mediator in patient-health care professional consultations, enabling patients to contribute and discuss structured, patient-generated information relevant to the management of their condition. Hence, the system may be seen as supporting patient participation and a person-centered approach in hypertension care.

Key words: adherence, blood pressure, cellular phone, communication, health information technology, hypertension, person-centered care, person-centred care, self-management

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