

ARTICLE

Assessing the impact of a benchmark workshop on quality of care as perceived by patients

Christoph Kowalski PhD^a, William H. Yeaton PhD^b and Holger Pfaff PhD^c

a Sociologist and Research Associate, Institute for Medical Sociology, Health Services Research and Rehabilitation Science, Faculty of Human Sciences and Faculty of Medicine, University of Cologne, Germany

b Psychologist and Independent Consultant, Institute for Social Research, University of Michigan, Ann Arbor, MI, USA

c Professor and Social and Administrative Scientist, Institute for Medical Sociology, Health Services Research and Rehabilitation Science, Faculty of Human Sciences and Faculty of Medicine, University of Cologne Germany

Abstract

Rationale, aims and objectives: Though the ultimate goal of patient surveys is to improve patient care, few studies have systematically examined whether other feedback modes in addition to written reports can spur improvement in subsequent patients. We investigate whether staff participation in benchmark workshops leads to improved results during the next survey period.

Method: Standardized patient surveys with consecutive samples were administered in all accredited breast care center hospitals in a German state (18 million inhabitants). After the 2009 survey results were distributed to breast care centers, participation at a benchmark workshop was offered to employees from all hospitals that participated in the survey at the beginning of the 2010 survey period. The workshop focused on 3 topics. Multiple linear regression analyses were applied.

Results: Participation in workshops was positively and statistically significantly associated with improvement in survey results the following year for the dimension “support by nurses” and positively associated with both of the other 2 dimensions.

Conclusion: If breast center hospitals participate in benchmark workshops, care of quality as perceived by patients is likely to improve and will actively contribute to the person-centeredness of clinical services.

Keywords

Benchmark workshop, patient survey, person-centered healthcare, quality of care, regression point displacement design

Correspondence address

Dr. Christoph Kowalski, Institute for Medical Sociology, Health Services Research and Rehabilitation Science (IMVR), Faculty of Human Sciences and Faculty of Medicine, University of Cologne, Eupener Str. 129, 50933 Cologne, Germany.
E-mail: christoph.kowalski@uk-koeln.de

Accepted for publication: 8 February 2013

Introduction

Since patient surveys are a well established proxy measure for assessing the quality of care, it is surprising that there have been so few systematic attempts to evaluate the impact of patient surveys. As Davies and Cleary (2005) stated: “Little is known about (...) whether reporting survey data improves care” [1]. For instance, minimal effort has been made to investigate whether patient survey results can serve as a basis for improvement of care in subsequent groups of patients and whether hospitals implement practices that address specific strengths and weaknesses identified by the survey instrument.

The acceptance of patient surveys as a tool for quality management and organizational change has become increasingly apparent [2]. Healthcare workers’ attitudes toward patient surveys have been generally positive across numerous countries and settings [3-6]. However, as addressed by Draper and colleagues, it is not clear to what

extent patient surveys are actually used by hospital professionals to initiate measures aimed at improving care [7]. Among the barriers to the use of patient survey data for this important purpose are lack of expertise with administering survey data and potential skepticism concerning the potential utility of patient survey data among staff [1].

Riiskjaer and colleagues have identified 3 criteria that must be present for patient surveys to represent a viable incentive for change: (1) “they have sufficient validity; (2) feedback is detailed on an organizational level and the units have significantly lower scores than comparable units and (3) there are obvious actions to address the problems” [2]. Besides investigating the validity of patient survey instruments, efforts should further focus on their usefulness for improving quality of care. However good the psychometric properties of a questionnaire might be, their value is ultimately determined by their ability to contribute to the improvement of care quality.

To date, few studies have systematically examined whether care quality can be improved by steps taken by hospital staff as a result of a prior survey. Often, patient survey results are reported to the hospital management without actively involving front-line employees. In this paper, we evaluate an effort that brings together employees from different hospitals facing similar challenges to translate knowledge and to initiate a structured discussion and an open exchange among employees during a “benchmark workshop.” More specifically, we examine whether participation in these benchmark workshops (“learning from the best”) is associated with better results in the next survey period.

Methods

Patient Surveys

In breast care center hospitals in the German state of North-Rhine Westphalia (approx. 18 million inhabitants), standardized patient surveys from consecutive samples were taken over a 6-month period in 2009 and 2010. Accreditation criteria require breast care center hospitals to participate in the patient survey. All patients who had undergone inpatient surgery for newly diagnosed breast cancer between February 1 and July 31 each year and who have had at least one malignancy as well as at least one post-operative histology were potential participants in the study. Surveys were approved by the Medical Ethics Committee of the University of Cologne.

Shortly before being discharged from the hospital, patients were asked to give written consent to participate in the survey. Within a week after receiving the consent forms from patients who had agreed to take part in the survey, survey questionnaires were sent to discharged patients. The survey was designed according to Dillman’s Total Design Method [8] and incorporated 2 reminders. Data from the patients were collected using the Cologne Patient Questionnaire for Breast Cancer (CPQ-BC). This questionnaire was an adapted version of the Cologne Patient Questionnaire (CPQ) [9,10], which has been expanded for use with breast cancer patients. The CPQ-BC contains, for example, key data on hospital organization and provider-patient interaction. Details on how the survey was conducted are presented elsewhere [11,12]. All 51 breast care centers accredited at both survey periods participated in the survey. From the 51 breast care centers, 92 of the 93 eligible hospitals participated in both years. During 2009 a patient response rate of 87.4% (3950 of 4517 patients) was observed; in 2010 the response rate was 87.1% (3856 of 4426 patients).

The benchmark workshop

After completion of the initial 2009 survey period, survey results were distributed to the breast care centers. In addition to including a number of satisfaction items, benchmarking indicators related to patients’ perception of nursing care, cooperation with referring doctors and

perception of discharge procedure. At the beginning of the 2010 survey period, a benchmark workshop was offered to all hospitals participating in the survey. While benchmarking processes are typically initiated by management, in this case it was the research organization that offered the workshop. Individual hospitals decided which employee(s) to send to the event. These representatives were intended to take the role of multiplier within each hospital, spreading the lessons of best practice to their colleagues. Benchmark workshop participants possessed widely diverse backgrounds and consisted of management representatives and employees directly involved in patient care.

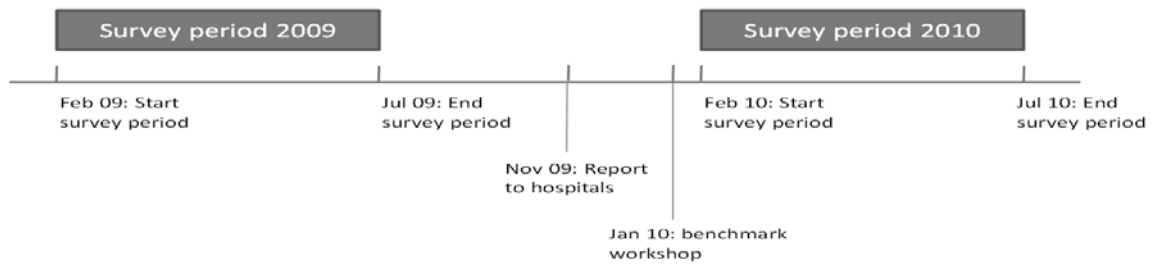
Benchmark workshops were held at a single meeting place attended by one or more representatives of each hospital. The primary intent of the benchmark workshops was that individual breast centers learn from each other (see schematic timeline in Figure 1). The benchmark workshop investigated here focused on 3 topics: improvement of nursing care focusing on specially trained breast care nurses; cooperation with the referring doctor and high quality discharge from the hospital/further treatment steps. Representatives from 21 hospitals participated in the benchmark workshops. Each participant took part in group discussions on 2 of the 3 offered topics (45 minutes each) in which they discussed factors associated with good quality care. These factors were summarized at the end of the workshop during a plenary session.

Statistical analysis

The proportion of patients who reported good quality in each aspect of care was calculated for each hospital, in each survey period and for each measurement. Support by nurses was measured with a 5-item instrument with 4-point scales for each item. Scores were summed and divided by the number of items, resulting in a scale average ranging from 1 to 4. A mean of 3.5 and above was considered to show high perceived support by nurses. The quality of the discharge procedure was measured with an index consisting of 4 dichotomous (yes/no) items (for example: “Did the doctor in the hospital talk with you about further treatment steps?”). Patients who reported 3 or 4 items as “yes” were considered as having experienced good discharge organization. Cooperation between the hospital physician and the referring doctor was measured with a single, dichotomous item: “Was the further treatment well-coordinated between the hospital physician and the referring doctor?” (yes / no, while those patients who indicated ‘don’t know’ were deleted from the analyses). The proportion of patients per hospital indicating “Yes” was computed. The measurement procedures were identical in 2009 and 2010. Hospitals for which fewer than 6 patients responded to the survey in any survey period were excluded from analysis, leaving 83 hospitals for analysis.

Multiple linear regression analyses were used to provide impact estimates for each measurement in 2010 with the value in 2009 being the independent variable and the value in 2010 being the dependent variable.

Figure 1 Timeline



The analytic strategy is similar to what Trochim and Campbell proposed in their paper on the regression point displacement design (RPDD) [13]. Their approach was not used here as a formal research design, but rather as a statistical strategy providing the template to present our findings graphically. As pointed out by Linden and colleagues, “[t]he RPD design corresponds to a non-equivalent group design (NEGD) if the group volunteers, or is selected for participation due to other subjective reasons” [14], which was the case here.

Following the approach used by Linden *et al.*, the statistical model was: $Y = \beta_0 + \beta_1 X_i + \beta_2 Z_i + e_i$ with Y being the dependent variable, β_0 the intercept, β_1 the pre-test coefficient, β_2 the estimated treatment effect, Z_i the dichotomous assignment variable for participation in the workshop and e_i the error term. We did not weight the regression means used in the analyses based upon the number of patients who responded to the survey, even though the number of respondents varied across hospitals. Pre- and post-intervention values are presented in a scatterplot in which the regression line is also displayed. Hospitals that participated in the workshop are represented with circles, non-participating hospitals with crosses. While the approach proposed by Trochim and Campbell in their original RPD paper used a single treatment group and a regression line based only on controls, here the regression line is constructed from all units and not just from the “controls.” The impact of the 3 dependent variables is estimated and a graphical illustration is presented.

Results

Tables 1 to 3 present the results of the linear regression analyses and Figures 2 to 4 present the graphical representation using the 2009 survey results on the x axis and the 2010 survey results on the y axis. Hospitals that were represented by at least one employee at the benchmark workshop are represented with circles, non-participating hospitals with crosses. Circles and crosses above the regression line indicate scores better than expected in 2010; circles and crosses below the line

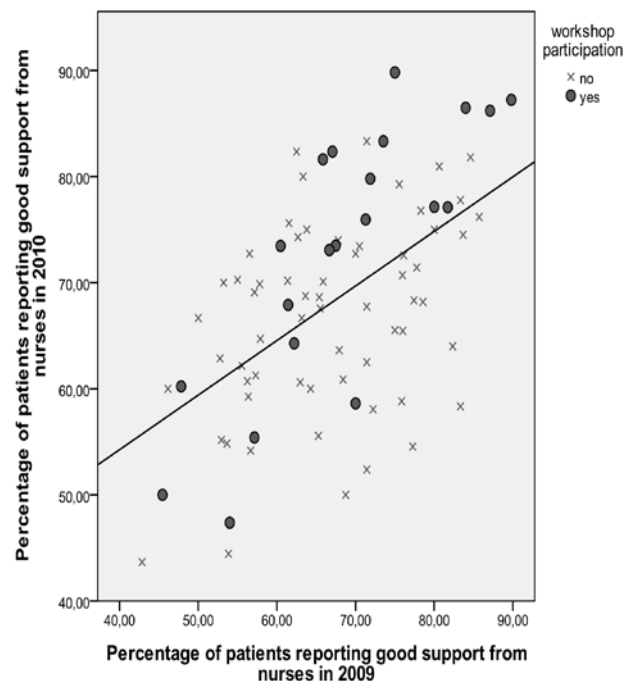
represent scored worse than expected relative to the regression line. The greater the proportion of circles above the regression line and crosses below the line, the more beneficial was participation in the workshop.

Table 1 Results of the linear regression analysis for the dependent variable “support by nurses”

Predictor	B	SE	P-value
Constant	33.35	5.9	<0.001
Workshop participation	5.31	2.16	0.016
Support from nurses '09	0.50	0.09	0.000

R²: 0.34; DV: Percentage of patients report good “support by nurses” in 2010

Figure 2 Regression point displacement plot for the variable “support by nurses”



The results show that participation in the benchmark workshop was associated with a statistically significant,

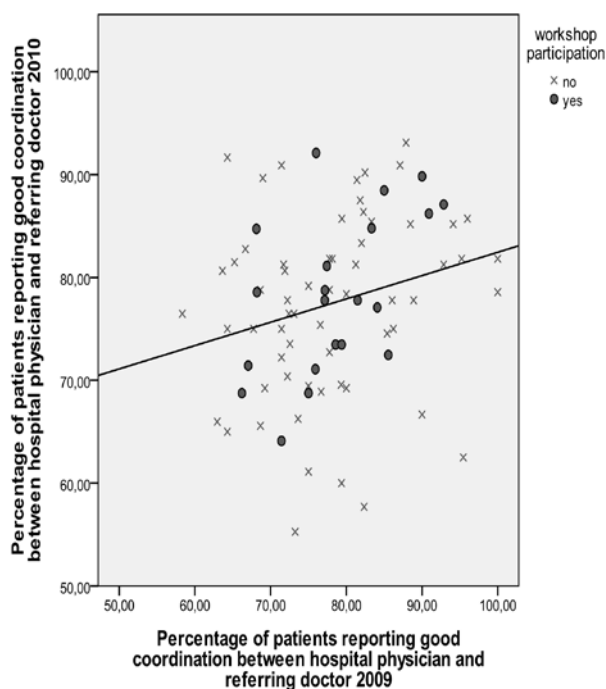
higher percentage of patients indicating high support by nurses in the post-test score when controlling for the pre-test score ($p < 0.05$). The pre-test score itself was a relatively strong predictor, resulting in a model with an R^2 of 0.34.

Table 2 Results of the linear regression analysis for the dependent variable "cooperation between hospital physician and referring doctor"

Predictor	B	SE	P-value
Constant	59.58	7.92	<0.001
Workshop participation	1.17	2.13	0.585
Coordination with referring doctor '09	0.23	0.10	0.028

R^2 : 0.06; DV: Percentage of patients reporting coordination between hospital physician and referring doctor was "good" in 2010

Figure 3 Regression point displacement plot for the variable "cooperation with referring doctor"



A positive but non-significant association was found for the patient ratings of quality of coordination between the hospital physician and the referring doctor. Neither was the positive association between pre- and post-test scores significant nor was there a statistically significant association between participation in the workshop and the 2010 score (even though the association was positive). R^2 was 0.06.

For the discharge procedure a statistically significant association between pre- and post-test scores was found, but there was no significant association between the 2010 score and workshop participation. R^2 was 0.09.

Overall, the regression slopes in all 3 figures were positive. Results indicated that participation in benchmark workshops was associated with a statistically significant

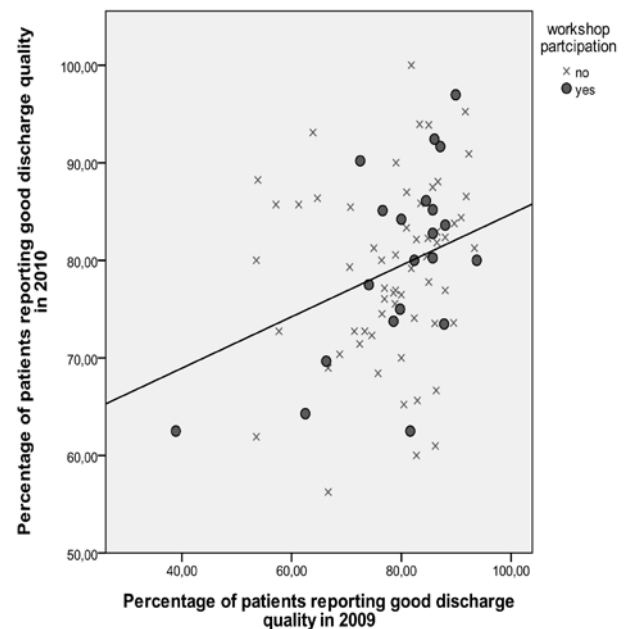
improvement of survey results in the following year for support by nurses; while the other 2 variables were positively related to workshop participation, they were not statistically significant.

Table 3 Results of the linear regression analysis for the dependent variable "discharge procedure"

Predictor	B	SE	P-value
Constant	58.33	7.42	<0.001
Workshop participation	0.73	2.26	0.749
Discharge quality '09	0.26	0.09	0.006

R^2 : 0.09; DV: Percentage of patients reporting good discharge quality in 2010

Figure 4 Regression point displacement plot for the variable "discharge procedure"



Discussion

This research aimed to expand current knowledge on the usefulness of patient surveys and to investigate whether hospitals can improve subsequent results based on information taken from patient surveys. We examined whether participation in optional benchmark workshops was associated with better care/survey results in the following survey period. For all 3 topics discussed at the workshop, models were estimated and a consistent pattern of positive effects was found for all scores; however, only for the support with nurses variable was the association found to be statistically significant.

In the context of a substantial body of research on the usefulness of patient surveys, this study adds a new dimension; the evaluation of a feedback workshop for hospital employees. A number of previous studies have investigated changes in patient survey results for hospitals

over time [15-20], but even when improvements were found, those findings contribute little to answering the question of whether feedback on surveys/survey results was effective in changing patient perceptions of quality of care. Though it is generally assumed that patient survey reports encourage healthcare providers to take steps that lead to better healthcare processes [19], documentation of that presumed impact has previously been lacking.

In a randomized controlled study conducted over a decade ago, a feedback report given to general practitioners did not lead to improvements of patient evaluations in the intervention group or to changes in doctors' communication behavior [18,21]. This no-difference-finding was consistent with a literature review of earlier study results [4]. Though lacking a control group, an intervention conducted in 2 inpatient units led to a significant increase in patient satisfaction with pain management using the so-called "Six Sigma Tools" [22] and showed that patient reports can help improve patient care. Raleigh and colleagues discussed the associations between staff and patient experiences in hospital care [23]. Their findings hinted at a promising approach toward interventions to improve patient experience that entailed changing work environments and staff behavior. The approach in the present study focused not on the effectiveness of an intervention of some unspecified kind, such as a feedback report, but instead addressed the possibility of providers improving results, if they take action (and not simply express the importance of taking action). The sorts of actions that might be taken were precisely those illustrated in this paper by participation in a benchmark workshop.

There are several possible explanations why only 1 of the 3 topics discussed in the workshop was associated with a statistically significant improvement in scores. First, it is possible that the intervention was not strong enough to result in all of its intended outcomes [24]. Discussing measures to improve patient care in a single session of 3 hours with a sometimes small number of representatives *per* hospital simply might not lead to a significant effect, especially since it might not have been clear precisely what was to be subsequently done in each hospital (that is, which processes or structures should have been changed). However, a substantial number of the workshop participants were specially trained breast care nurses and this might be one reason why the support by nurses score was the one that most improved, since the nurses are themselves able to directly implement changes in nursing processes in their hospitals. Thus, results may vary depending upon precisely who participates in the workshop, be it nurses, specialist nurses, quality managers, or doctors and whether those participants have the required authority to change structures and processes.

Second, addressing issues related to data analysis, the raw scores were relatively skewed, a phenomenon often observed in patient surveys. Mean scores of the variables were highest for "cooperation with the referring doctor" which – not surprisingly – yields the model with the least explained variance. Choosing other cutpoints or using scores closer to a normal distribution might more clearly demonstrate a "workshop effect." This explanation has

been presented by Vingerhoets *et al.*, who utilize this logic for the little (if any) improvements in patient evaluations in the already high pre-test scores (*viz.*, ceiling effect). Riiskjaer and colleagues showed that even though results change over time, there is also the challenge of regression to the mean, with the largest improvements being possible in hospitals with the worst pre-test scores. It is also important to consider that healthcare of early-stage breast cancer patients is highly standardized, leaving little space for improvement in general.

Third, the number of units was relatively small (though we had scores for almost all hospitals that participated in the survey, the absolute number was less than 90). A larger sample size would have yielded greater statistical power and, therefore, an increase in the likelihood of showing significant associations. Fourth, the measures used to assess improvement on these 3 topics are of unequal complexity. For example, the cooperation between the hospital physician and the referring physician includes not only the work that is done within the hospital, but also collaboration with the resident physician. In contrast, support from nurses is a relatively straightforward, within-hospital task.

In this paper we used the statistical analysis and graphical representation proposed by Trochim and Campbell for the regression point displacement design as a framework for the analytical technique [13]. According to them, "the RPDD has great potential for studying organizational-level treatment interventions" (p. 24). However, we want to be cautious in our conclusion as our research design does not enable us to say that participation in the workshop was causally related to the benefits found. Rather, our results suggest that participation was an indicator for those organizations willing to improve their results and our findings do reveal that the workshop was consistently associated with improvement in patient ratings of the quality of care.

As advocated by Davies and Cleary [1], "[m]ore studies about how to use patient survey data effectively are needed." Among the many imaginable possibilities to investigate, we chose one that had not been previously pursued. Patient survey results are still "underused by hospital staff and insufficiently discussed within teams," even though opinions toward patient surveys are mostly positive [3]. An often-mentioned barrier to using survey results, a lack of specificity to specialties [6,25], does not apply in the case described in this paper, since the questionnaires were specific to breast center care. As proposed by Riiskjaer *et al.*, the usefulness of patient surveys is higher if results are reported on a lower organizational level [25], which is the case in this investigation where gynecological/senological departments are the units under consideration. Showing that actions undertaken to improve patient experiences are successful, as demonstrated in this paper, might further increase acceptance and use of patient survey reports.

Further research should address the potential causal effects of interventions intended to improve patient care as measured by patient surveys. Since randomized studies may not be politically or ethically feasible in many instances, one potentially attractive alternative to test the

benchmark workshop effect is the Regression Point Displacement Design, noted above. In this approach, only one (or few) hospitals receive the intervention while those hospitals not receiving treatment become controls from which a regression line is established [13]. If the treatment group's dependent variable displacement from the regression line is significant and other validity threats can be made implausible, then casual inference is substantially enhanced.

In addition, the potential psychological component surrounding the construct of motivation to attend a workshop should be investigated; information from the baseline survey provides staff motivation and direction for amelioration and gives hospital managers license to direct improvement efforts. Finally, by directly addressing the question of mechanism of change, "How exactly do the survey results from the first year lead to changes in staff behavior and to potential improvement in the second year?," researchers will be better able to replicate and extend the benefits of benchmark workshops.

Conclusion

The study's primary aim was to determine whether hospitals can improve patient ratings of quality of care if they have employees who participate in a benchmark workshop. Our results suggest that breast centers can indeed improve patient results, if hospitals are willing to learn actively from each other. Sending at least one employee to the workshop is certainly an "investment" made by hospital management. Different from other studies that previously probed the usefulness of patient survey data, we investigated the actual behavior of healthcare providers, namely that providers sent staff to a workshop. When hospital staff attend benchmark workshops, beneficial change is likely to follow.

In the context of a competitive hospital environment when budgets are constrained, hospital administrators are likely to be motivated by efficient, group-level practices like benchmark workshops which hold promise to the improve quality and person-centeredness of care. Demonstrating potential benefits of these workshops will likely serve as motivation for hospital management to encourage future workshops and to provide an impetus for hospital staff to attend.

Acknowledgements and conflicts of interest

We thank the patients who participated in the surveys and the breast centers supporting the surveys. We confirm all patient identifiers have been removed or disguised so that the patients described are not identifiable. The patient surveys were required and initiated by the North Rhine-Westfalian Ministry of Work, Health and Social Affairs (MAGS NRW). Costs were borne by each participating hospital. The hospitals provided disease characteristics as

reported. Neither the ministry nor the hospitals were involved in the analysis and interpretation of data, in the writing of the report and in the decision to submit this paper for publication. The authors declare that they have no conflict of interest.

References

- [1] Davies, E. & Cleary, P.D. (2005). Hearing the patient's voice? Factors affecting the use of patient survey data in quality improvement. *Quality and Safety in Health Care* 14 (6) 428-432.
- [2] Riiskjær, E., Ammentorp, J., Nielsen, J.F. & Kofoed, P-E. (2010). Patient surveys - A key to organizational change? *Patient Education and Counseling* 78 (3) 394-401.
- [3] Boyer, L., Francois, P., Doutre, E., Weil, G. & Labarere, J. (2006). Perception and use of the results of patient satisfaction surveys by care providers in a French teaching hospital. *International Journal for Quality in Health Care* 18 (5) 359-364.
- [4] Greenhalgh, J. & Meadows, K. (1999). The effectiveness of the use of patient-based measures of health in routine practice in improving the process and outcomes of patient care: a literature review. *Journal of Evaluation in Clinical Practice* 5 (4) 401-416.
- [5] Hearnshaw, H., Baker, R., Cooper, A., Eccles, M. & Soper, J. (1996). The costs and benefits of asking patients for their opinions about general practice. *Family Practice* 13 (1) 52-58.
- [6] Reeves, R. & Seccombe, I. (2008). Do patient surveys work? The influence of a national survey programme on local quality-improvement initiatives. *Quality and Safety in Health Care* 17 (6) 437-441.
- [7] Draper, M., Cohen, P. & Buchan, H. (2001). Seeking consumer views: what use are results of hospital patient satisfaction surveys? *International Journal for Quality in Health Care* 13 (6) 463-468.
- [8] Dillman, D.A. (1978). *Mail and Telephone Surveys: The Total Design Method*. New York: Wiley & Sons.
- [9] Pfaff, H. (2003). Der Kölner Patientenfragebogen: Theoretischer Rahmen, Konstrukte und Messinstrumente. In *Der Kölner Patientenfragebogen (KPF): Entwicklung und Validierung eines Fragebogens zur Erfassung der Einbindung des Patienten als Kotherapeuten* H. Pfaff, D.C. Freise, G. Mager & M. Schrappe eds.), pp. 7-27. Sankt Augustin: Asgard-Verlag
- [10] Steffen, P., Ommen, O. & Pfaff, H. (2009). Reduced patient demands in hospitals and their determinants. *International Journal of Public Health* 54 (1) 11-22.
- [11] Kowalski, C., Würstlein, R., Steffen, P., Harbeck, N. & Pfaff, H. (2011). Vier Jahre Patientinnenbefragung im Rahmen der (Re-)Zertifizierung der Brustzentren in Nordrhein-Westfalen. *Geburtshilfe und Frauenheilkunde* 71, 67-72.
- [12] Davoll, S., Kowalski, C., Kuhr, K., Ommen, O., Ernstmann, N. & Pfaff, H. (2012). "Tendency to excuse" and patient satisfaction of those suffering with breast

cancer. *International Journal of Public Health* DOI: 10.1007/s00038-012-0405-6.

[13] Trochim, W.M.K. & Campbell, D.T. (1996). The Regression Point Displacement Design for Evaluating Community-Based Pilot Programs and Demonstration Projects. Retrieved November 22nd, 2012, from <http://www.socialresearchmethods.net/research/RPD/RPD.pdf>.

[14] Linden, A., Trochim, W.M. & Adams, J.L. (2006). Evaluating program effectiveness using the regression point displacement design. *Evaluation & the Health Professions* 29 (4) 407-423.

[15] YouGov. (2005). The patient experience. London: The Health Foundation.

[16] Longo, D.R., Land, G., Schramm, W., Fraas, J., Hoskins, B. & Howell, V. (1997). Consumer reports in health care: do they make a difference in patient care? *Journal of the American Medical Association* 278 (19) 1579-1584.

[17] Jorde, R. & Nordøy, A. (1999). Improvement in clinical work through feedback: intervention study. *British Medical Journal* 318, 1738-1739.

[18] Vingerhoets, E., Wensing, M. & Grol, R. (2001). Feedback of patients' evaluations of general practice care: a randomised trial. *Quality in Health Care* 10 (4) 224-228.

[19] Jamtvedt, G., Young, J.M., Kristoffersen, D.T., Thomson O'Brien, M.A. & Oxman, A.D. (2003). Audit and feedback: effects on professional practice and health care outcomes. *Cochrane Database of Systematic Reviews* 3, CD000259.

[20] Riiskjaer, E., Ammentorp, J. & Kofoed, P.E. (2010). [Can patient satisfaction change over time?] *Ugeskrift for Laeger* 172 (26) 1967-1971.

[21] Wensing, M., Vingerhoets, E. & Grol, R. (2003). Feedback based on patient evaluations: A tool for quality improvement? *Patient Education and Counseling* 51 (2) 149-153.

[22] DuPree, E., Martin, L., Anderson, R., Kathuria, N., Reich, D., Porter, C. & Chassin, M.R. (2009). Improving patient satisfaction with pain management using Six Sigma tools. *Joint Commission Journal on Quality and Patient Safety* 35 (7) 343-350.

[23] Raleigh, V.S., Hussey, D., Seccombe, I. & Qi, R. (2009). Do associations between staff and inpatient feedback have the potential for improving patient experience? An analysis of surveys in NHS acute trusts in England. *Quality and Safety in Health Care* 18 (5) 347-354.

[24] Yeaton, W.H. & Sechrest, L. (1981). Critical dimensions in the choice and maintenance of successful treatments: strength, integrity, and effectiveness. *Journal of Consulting and Clinical Psychology* 49 (2) 156-167.

[25] Riiskjaer, E., Ammentorp, J., Nielsen, J.F. & Kofoed, P.E. (2011) Semi-customizing patient surveys: linking results and organizational conditions. *International Journal for Quality in Health Care* 23 (3) 284-291.