

An Investigation into the Effects of Quality Improvement Method on Patients' Satisfaction: A Semi Experimental Research in Iran

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Abstract- Today, to increase effectiveness is a Strategy for success of organizations and their viability. In health care organization not only service cost- effectiveness is a major problem for productivity and organizational management but also customer-centred is in first priority. Because of these reasons, most of health organization trend to patient satisfaction for their viability. If complex process implemented for viability without attention to patient satisfaction, this is no success result. The FOCUS PDCA process is a new strategy for effectiveness of service quality. To this reason, the recent research done and its objective is to assess effect of FOCUS PDCA process strategy on patient satisfaction in surgery units of hospitals affiliated to Tehran Medical University. This research is a semi experimental with non- equivalent design. The sample was all of patients who hospitalized in two selected surgery units. Self-report was method of data gathering. Patient satisfaction assessed with questionnaire in pre and posttest. Then manipulation implemented as post-operation care process selected. Modelling and opportunity statement Diagrams prepared and improvement team organized. Flow process, convergences and cause- effect charts used to prepare list of items to be improved. Executive program was written. This include personnel training, standard implementation, election and training of quality control nurses (Q.C Ns), daily QC of caring and providing appropriate feed back to personnel, forming group session for determining corrective actions. Then after 1 month patient satisfaction was assessed. Statistical analysis shows this process increase patient satisfaction and it leads to care effectiveness. The findings of the pre-intervention phase indicated that the satisfaction level had been low in both groups and it is not significantly different in the two groups ($P > 0.05$). There was a significant difference before and after following intervention in the case study group ($P > 0.0001$). FOCUS PDCA is effective method for access to various objectives especially patient satisfaction. it is suggested other researcher assess effects of this strategy for other indexes and total care process effectiveness.

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Introduction

Improving health care quality is an important means of increasing the effectiveness of health systems in developing countries (1). Improving effectiveness and quality of care is a significant challenge for survival and success of any organisation (2). Effectiveness is an indicator of the extent that objectives have been met. One way to ascertain the effectiveness of services is to assess customer satisfaction.

Researches have indicated that information concerning patients satisfaction is an important symbol, a valuable source for quality improvement (3) and a

valid indicator of quality of nursing care (4). In addition, it is vital for the survival of the health care organizations and their operation in the world today (4-6). Due to its significance, it is used by a large number of supplement medical auditing programmes (7).

Since nurses have a direct impact on continuity of patients' care and their satisfaction, the effectiveness of their work is particularly important. However, in an environment where there is shortage of nurses and pressures to reduce nursing costs, nursing managers need to explain nursing services in terms of attaining patients' satisfaction (8). For a number of years, a great deal of effort has been made to improve the

effectiveness and quality of nursing care. But despite advances in technology and the efforts made by managers and staff patients' satisfaction still falls far short of the expected level. This has been demonstrated by research in general and above all within Iran. For instance, a study in 2002 by Safari indicated that merely 2.2% of the patients had been satisfied with the care they had received (9).

Nowadays patients are aware of their rights and expectations and their perspective and satisfaction should, therefore, be considered as part of the definition of quality of care (4).

Researchers believe that first and foremost is the careful choice of the correct management philosophy. Health personnel need to be aware of the potential use of certain theoretical models and applied methodology in order to effectively design quality improvement interventions in care settings (10). One such management philosophy is Total Quality Management (TQM), which has been put forward as a means of improving quality and effectiveness. TQM is based on the principle that a real quality improvement is founded upon understanding the process functions and systems, their constant modification resulting from information (11).

Researchers have introduced a number of methodologies for process improvement. These include FOCUS-PDCA, PDCA, FADE, and Common Committee Circle for performance improvement. The common approach between all the aforementioned methodologies is scientific problem solving technique. A number of studies published in the literatures have demonstrated the importance of using an acceptable and standard process as well as problem solving (12-18).

So far researches have established the effectiveness of TQM. For instance Tam (2007) studied empirically the impact of improvement in service-delivery quality on customer satisfaction in the context of Hong Kong health services from more than 1,000 patients. Findings showed that basing a service quality improvement program on feedback from the patient survey did improve satisfaction (19). *Dipankar* (2005) guided a study with objective to evaluate the effect of quality improvement on patient perceptions of quality, patient satisfaction in north India. The results indicate that the project had a significant and positive effect on both these outcomes for patients¹. Also Chapman and Al-Khawoldeh (1998) has shown that productivity, which is comprised of effectiveness and efficiency, is improved through TQM (20). Another study carried out in Spanish

hospitals in 1997 reported a 30-40% productivity increase in nursing services (21).

Another research was conducted in the Methodist Hospital in Texas, USA, which was serving patients from over 80 countries, and facing problems such as increased patient numbers, a wider range of illnesses, lower wages and human resource shortages. The study utilized TQM and functionality improvement strategy using problem solving method, focused on outcomes which are potentially sensitive to nursing care, and selected unit where low patients' satisfaction had been reported. In this study, the four steps of problem-solving were carried out. The ward personnel were chosen as the members of the development process. The findings indicated that over a six months period there was a long-term improvement in patients' satisfaction and nurses' awareness of improved functionality of the unit (22).

In August 1993, a group of nurses in the Metrohels Medical Centre formed a quality improvement team in order to assess the medical care process for the outpatients using Continuous Quality Improvement (CQI). The study took 6 months and randomly assigned 1102 admitted cases to either the control group or the study group, and studied medical teams' rounds within the ward, where the control group received the traditional approach. One of the outcomes of the study was patients' satisfaction indicating the programme's success (23).

Researchers have stated that for TQM to be successful there is a need for deep understanding of customers' perception of quality (4). Nowadays, quantifying patients' satisfaction is an administrative reality especially with an emphasis on TQM.

Beck & Larrabee (1997) reported that there is a direct relation between nursing care and patients' satisfaction of the overall treatment process. They also illustrated that appropriate behaviour of the staff and their interaction are essential for patients' satisfaction (24). Overall, special attention has been paid to quantifying patients' satisfaction in the literature. Satisfaction is viewed as a positive component of nursing care which also depicts nurses as being effective in relation with the process structure and the care outcome (25-27).

Considering the importance of patients' satisfaction, researchers in the current study selected a method which is based on a profound philosophy and stresses the process as whole, and had not been used in hospitals in Iran. It is hoped that the current study would be a significant step in creation of positive care outcomes

including patients' satisfaction in a process-orientated approach.

Patients and Methods

The study aimed to determine the effect of a method of TQM -FOCUS PDCA strategy- on patients' satisfaction. TQM researchers believe that organizations, including health organization, can utilize any of the said methods or indeed develop their own methodology (28). FOCUS PDCA is one of the TQM plans which are used as a framework for the transfer of an idea to an act plan, which is based on the work by two founders of TQM, Showart and Deming (29). This is a systematic method of problem solving and outcome analysis which improves quality through a wide-ranging deliberation of the process². The method is normally used when an opportunity for process development has presented itself or when evaluation of the process has indicated a need for process re-design (30). The method was, therefore, suited to and utilized by the current study.

It utilized a semi-experimental investigation of before and after, using a control group. FOCUS PDCA is method of improving the processes, through a number of stages, namely; finding the suitable improvement process, organizing a team which understands the process, clarifying the nature of process function, understanding the reasons for process change, selection of an aspect of the process in need of improvement, planning, application, assessment and further measures (2,28,29,31).

Data collection method in this semi-experimental design was self-reporting, using a questionnaire with 21 questions. For patients with lower literacy level, an interviewer asked the questions verbally and recorded the answers. A double blind method was used. The sample consisted of all the patients in these wards.

Questionnaires' validity was verified with 12 academic members of various universities. To ensure the reliability of the questionnaire, split-half method was used and resulted in a reliability coefficient of 99.68%. Each question was assigned 3 marks, with the lowest assigned to "dissatisfaction" and the highest to "fully satisfied".

The subjects were 15 to 75 year-old women in two surgical wards in hospitals connected with Tehran University's Faculty of Medical Sciences, who had undergone surgery within the preceding 48 hours. The required sample size was assessed, using other research studies and a formula for sample size calculation, to be 44 participants.

Once the consent of the patients and those in charge were given, the questionnaires were distributed and completed by the informants. Following the pre-determined intervention process, the questionnaires were once again administered and completed by the participants within both wards. The results for both groups (control and case study groups) before and after intervention were then fully analysed.

The intervention was based on the nine stages of FOCUS PDCA. First, the nursing care process for the initial two days post-op was selected (F), which is an essential, important and a prevalent procedure in these wards. The process flow chart, detailing all the process steps as they should have been carried out, was devised and the process was organized (O). The ward's nursing personnel were deemed the most suitable quality improvement team as they were familiar with, and directly connected with the chosen process. At the next step, the characteristics of the process function were clarified. Using the process flow chart a process diagram for the entire post operative nursing care was drawn. Subsequently, using the collected information regarding the current process functionality the data flow diagram was constructed (C). At the fourth stage (U) using a brain storming method the factors influencing the natural process function were listed and categorized, and a cause and effect diagram constructed. Finally, the most effective sections of the diagram was identified in consultation with the team members and expanded, and a limited range diagram was drawn (S). The improvement programme was subsequently devised and implemented. At the implementation stage, human resource development with respect to the wards' routine practices was achieved through staff meetings. Meeting's transcripts were prepared as a booklet and copies were provided for personnel (P). Performance standards were devised and subsequently modified with full staff involvement, and they were requested to observe these standards when caring for the patients (D). The next phase was concerned with quantifying patients' satisfaction (C). The final phase, action phase, which followed data analysis, involved conveying the findings to hospital management and hospital nurses, and in the light of process effectiveness they were requested to keep up with the process (A).

Results

The findings indicate that the majority of research units within both the control group and the case study, (before and after intervention) were married and that there was

no statistically significant differences between, marital status, patients' age, education and profession, history of hospital admissions and diagnosis between the 2 groups. The majority of the research units within both wards had been admitted to undergo a hysterectomy operation.

In addition, the findings of the pre-intervention phase indicated that the satisfaction level had been low in both groups: 29.6 for the case study group and 30.2 for the control group. Statistically, the average satisfaction level is not significantly different in the two groups ($P > 0.05$).

Following the intervention the satisfaction level in the case study group rose to 54.57, and statistical T-test indicated that there was a significant difference before and after intervention ($P > 0.0001$). The average satisfaction level in the control group was 29.3, which statistically did not have a significant difference with that before the intervention ($P > 0.05$). Furthermore, the results indicate that between the two groups (case study and control) patients' satisfaction has a statistically significant difference after the intervention ($P > 0.001$).

Discussion

The quality of services within the health and medical centres is vitally important as these institutions are dealing with human life. Nevertheless, despite efforts by management and staff alike, patient's satisfaction is still a distant goal. In the current study, the findings of the pre-intervention phase also confirmed that patients' satisfaction levels are low. Similar results have also been reported by other research carried out in this field in Iran, including the research by others (9,32,33).

TQM focuses on a customer-oriented approach, is process inclined, aims for sustained quality improvement, and relies on teamwork. The findings of the current study have demonstrated the effectiveness of FOCUS PDCA strategy for quality improvement in a customer-oriented process. The results agree with those reported in the literature; such as Uzun (2001) research in Turkey; as well as Triolo, Hansen, Kazzaz, Dobbs 2002; Curley, McEachern, Speroff, 1998; and Flynt, Caraway 2002, who all demonstrated the effectiveness of the aforementioned method (4,22,23,29).

Aghlmand *et al.* (2008) concluded that the introduction of a quality improvement care model associated with patient satisfaction levels (34). Saxena *et al.* (2004) studied how the FOCUS-PDCA approaches improved overall blood-administering practices. They studied a total of 982 assessments completed during the 51-month period and concluded The FOCUS PDCA program has improved transfusion practice (35).

The literature search indicated that FOCUS PDCA is successful in a range of contexts, including hospital settings. The researchers were, therefore, assumed that the technique could be utilized as a quality improvement tool, and the study results later established its effectiveness. Another study conducted in Missouri Medical Centre devised and dispensed self-administered medical packages using FOCUS PDCA method and the packages proved effective in attaining patients' satisfaction (2).

According to Nelson *et al.* a process incorporating a quality improvement structure can produce significant results in patients' clinical condition, enhance their satisfaction and reduce costs (2). Researchers consider that what is needed is process management instead of vertical management, which leads to most significant improvements in understanding processes and efforts to control them. This method focuses on the current work process and ensures that customers' needs are met. Methodical processes are essential, but not necessarily sufficient, for achieving positive outcomes. What is needed is skilled personnel and motivating them is also necessary if positive care outcomes and effectiveness is to be achieved (36). TQM together with personnel's cooperation leads to their enhanced motivation and improves their ability to analyses and solve the problems.

Educating and human resources development, which were employed in the current research, can play an important role in implementation of TQM method and process success. Other researchers have demonstrated that educating and human resources developments lead to improved effectiveness of the care provided and patients' satisfaction in such processes (37).

TQM involves staff in decision-making processes and empowers them which improve their motivation for performing their duties and seeking patients' satisfaction as their customers. Other studies have also reported that TQM leads to improved productivity and efficiency of the organization. Prior (1997) reported a 30-40% increase in efficiency of the nursing services and a reduction of negative outcomes (21).

It is important to stress that should the nursing profession wish to preserve its professional identity with its members enjoying a proper social status, they need to make a comprehensive effort to attain patients' satisfaction. Attention to various processes involved in the care and treatment of patients and modifying them through teamwork, a customer-oriented approach and by focusing on fundamental aspects of TQM, can lead to patients' satisfaction as a significant indicator of quality

of the provided services. In conclusion, the current research utilized a method which had proved successful in other countries such as Japan but had not been used in hospitals in Iran. Improved patients' satisfaction which is one of the intended outcomes of any health and healing system may be achieved through FOCUS PDCA method. Although the current research analysed one of the expected outcomes, that of patients' satisfaction, the results can equally applicable to efficiency, productivity and satisfaction of the staff. It is also recommended that this method is utilised in other wards and medical centres and focuses on important processes such as patients' education and process of patients' discharge as well as disease prevention. Then their effects should be investigated.

References

1. Dipankar RK. Quality improvement and its effect on patient perceptions and demand for health services: evidence from Uttar Pradesh, India. The Johns Hopkins University [Online]. 2005 [cited 2011 Mar 1]; Available from: URL:<http://proquest.umi.com/pqdlink?did=913535761&Fmt=7&clientId=48023&RQT=309&VName=PQD>
2. Beger D, Messenger F, Roth S. Self-Administered medication packet for patients experiencing a vaginal birth. *J Nurs Care Qual* 1999;13(4):47-59.
3. Roth TA, Schoolcraft M. Patient Satisfaction: The Survey Says. *Nursing Case Management. Nurs Case Manag* 1998;3(5):184-9; quiz 190-1.
4. Uzun O. Patient satisfaction with nursing care at a university hospital in Turkey. *J Nurs Care Qual* 2001;16(1):24-33.
5. Dansky KH, Miles J. Patient satisfaction with ambulatory healthcare services: waiting time and filling time. *Hosp Health Serv Adm* 1997;42(2):165-77.
6. Jun M, Peterson RT, Zsidos GA. The identification and measurement of quality dimensions in health care: focus group interview results. *Health Care Manage Rev* 1998;23(4):81-96.
7. Sixma HJ, Spreeuwenberg PM, van der Pasch MA. Patient satisfaction with the general practitioner: a two-level analysis. *Med Care* 1998;36(2):212-29.
8. Hall LM. Nursing intellectual capital: a theoretical approach for analyzing nursing productivity. *Nurs Econ* 2003;21(1):14-9.
9. Safari M. Effect of Nurse Training Through Group Discussion on the Quality of Nursing Care for Patients With Myocardial Infarction. Master of sciences Nursing Thesis, Tarbiat Modarres University, 2002. [Persian]
10. Samoutis GA, Soteriades ES, Stoffers HE, Zachariadou T, Philalithis A, Lionis C. Designing a multifaceted quality improvement intervention in primary care in a country where general practice is seeking recognition: the case of Cyprus. *BMC Health Serv Res* 2008;8:181.
11. From Quality Measures to Quality Care: Examples of Quality Improvement at Work. Department of Health and Human Services for the Domestic Policy Council, 1998.
12. Deming EW. *Out of the Crisis*. Massachusetts Institute of Technology: The MIT press, 1986.
13. New SW, Gutierrez L. Quality improvement in the ambulatory surgical setting. *Nurs Clin North Am* 1997;32(2):477-88.
14. Caswell DR, Williams JP, Vallejo M, Zaroda T, McNair N, Keckeisen M, Yale C, Cryer HG. Improving pain management in critical care. *Jt Comm J Qual Improv* 1996;22(10):702-12.
15. Oetker D, Cole C. Improving the outcome of emergency department patients with a chief complaint of chest pain. *J Nurs Care Qual* 1996;10(2):58-74.
16. Maguerez G. The CQI/TQM journey in France. *Jt Comm J Qual Improv* 1997;23(1):33-7.
17. Fischer LR, Solberg LI, Kottke TE. Quality improvement in primary care clinics. *Jt Comm J Qual Improv* 1998;24(7):361-70.
18. Dianis NL, Cummings C. An interdisciplinary approach to process performance improvement. *J Nurs Care Qual* 1998;12(4):49-59.
19. Tam JLM. Linking quality improvement with patient satisfaction: a study of a health service centre. *Marketing Intelligence Planning* 2007;25(7):732-45.
20. Chapman R, Al-Khawoldeh K. Total quality Management and Its effect on Productivity Industrial Corporation in Jordan. Research group University of Western Sydney Australia, 1998.
21. Prior D. Efficiency and total quality management in health care organizations: A dynamic frontier approach. *Ann Oper Res* 2006;145:281-99.
22. Triolo PK, Hansen P, Kazzaz Y, Chung H, Dobbs S. Improving patient satisfaction through multidisciplinary performance improvement teams. *J Nurs Adm* 2002;32(9):448-54.
23. Curley C, McEachern JE, Speroff T. A firm trial of interdisciplinary rounds on the inpatient medical wards: an intervention designed using continuous quality improvement. *Med Care* 1998;36(8 Suppl):AS4-12.
24. Beck KL, Larrabee JH. Measuring patients' perceptions of nursing care. *Nurs Manage* 1996;27(9):32B-D.
25. Ravert P, Williams M, Fosbinder DM. The Interpersonal Competence Instrument of Nurses. *West J Nurs Res* 1997;19(6):781-91.

26. Wolf ZR, Miller PA, Devine M. Relationship between nurse caring and patient satisfaction in patients undergoing invasive cardiac procedures. *Medsurg Nurs* 2003;12(6):391-6.
27. Minnick A, Young WB, Roberts MJ. 2,000 patients relate their hospital experiences. *Nurs Manage* 1995;26(12):25, 29-31.
28. Friedman MM. The Joint Commission's "improving organizational performance" standards for home infusion therapy providers. *J Intraven Nurs* 2000;23(6):352-8.
29. Flynt G, Caraway C. Using OASIS data to improve skin care. *Home Healthc Nurse* 2002;20(4):263-6.
30. Winston PA, Morelli P, Bramble J, Friday A, Sanders JB. Improving patient care through implementation of nurse-driven restraint protocols. *J Nurs Care Qual* 1999;13(6):32-46.
31. Pfaadt MJ. Using performance improvement to reinvent your skin care program. *Home Healthc Nurse* 2001;19(5):275-82.
32. Khateeban M. Effects of Organised Nursing Care using a Primary Method on Patients' and Nurses' Satisfaction in the Cardiac Ward in Hamadan, Iran. MSc Thesis, Tarbiat Modarres University, 1998.
33. Sayadjoo SA. Comparison of Patients Satisfaction with Nursing Care in Surgical Wards in Teaching and Non-Teaching Hospitals in Semnan, Iran. Thesis of Nursing and Midwifery from Iran University of Medical Sciences, 1996.
34. Aghlmand S, Akbari F, Lameei A, Mohammad K, Small R, Arab M. Developing evidence-based maternity care in Iran: a quality improvement study. *BMC Pregnancy Childbirth* 2008;8:20.
35. Saxena S, Ramer L, Shulman IA. A comprehensive assessment program to improve blood-administering practices using the FOCUS-PDCA model. *Transfusion* 2004;44(9):1350-6.
36. Pour Hoseinzade M. Processes Management. Tehran: Yaslavi Publisher; 1997.
37. Irvine Doran DM, Baker GR, Murray M, Bohnen J, Zahn C, Sidani S, Carryer J. Achieving clinical improvement: an interdisciplinary intervention. *Health Care Manage Rev* 2002;27(4):42-56.