

WORKERS' OF HOSPITAL SATISFACTION ANALYSIS IN THE TOYOTARITY ASPECT

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Abstract

This paper presents workers' satisfaction analysis, carried out at public hospital located in Poland by the use of BOST method and Servqual method (service quality method). BOST method is associated with the management principles Toyota underlying. The study consists of 35 randomly selected participants who are workers of the stationary health care – public hospital located in the Silesia voivodeship. Servqual method was consist of 21 quality determinants. Study shows that seven quality determinants among 21 determinants influence positively for workers' satisfaction. These determinants are following: modern equipment, neatness medical personnel, staff involvement in the affairs of the hospital, care about the opinion of the patient, politeness of staff, having knowledge needed to respond to patients' questions, readability of information materials in the field of diseases and drugs. Presented researches showed that respondents- workers' of hospital feel appreciated that someone express a hidden hope that the information provided by them will improve the assessment of the quality of their work and the quality of the product/service, which also has a positive effect on loyalty to the hospital where they work. The study illustrates the perceived problems of the workers' satisfaction connected with problems such as attractiveness of the wards, engagement of personnel, understanding peculiar needs for patients as well as individual approach to the patient. It was stated that hospital should invest in workers' training in the range of shaping the relation with patients.

Key words: quality, satisfaction, worker, Servqual method, Toyotarity, health care.

Classification JEL: M12 – Personnel Management.

1. Introduction

Satisfaction is an important element of the quality of health care, often determining workers' engagement and influencing the effectiveness of care. Workers of hospitals there are human resources about the various level and the kind of education, the gender, the cover, people coming from various professional environments and political (*Janusz, 2003: 33–36; Jurkowski, 2002: 352*). The worker is the internal customer of the organization and therefore it is necessary to look after his planes carefully, as for the outside customer. Care of the worker should embrace (*Borkowski & Rosak-Szyrocka, 2012: 190; Borkowski & Rosak-Szyrocka, 2010: 153; Zimon, 2016: 61–64; Ulewicz, 2013: 38–40*):

- Method of behaviour towards internal and outside customers;
- Preparing the profitable climate, the workers' community.

Personnel is considered for the most important resources of the organization from many reasons. For example because of:

- Efficiency of working the organization is starting with the quality of its workers' work that have impact their talent, education, skills, experience, purposes and values, attitudes and behaviours, features of the personality and motivations;
- Problems are being solved thanks to personnel in the organization;
- It is a strategic resource, able at learning and the improvement in one's potential, able at conceptive thinking resource, as well as creative.

This is important indicating a relationship between aspects of employment quality and self-perceived job satisfaction, general health and mental health (*Scott-Marshall, 2010; Vives et al., 2010*). Moreover, differences between men and women in these health associations may be expected. Dominant gender roles make the balance between work and family demands

particularly challenging for women, since they tend to perform most of the care and unpaid domestic work (*De Moortel et al., 2014; Davis & Greenstein, 2009*).

The aim of paper is to devote attention to the most important factors in healthcare, especially to the satisfaction of the patients of hospitals in Poland. Based on obtained results and experiences from previous researches, this paper is focused to the newest data and results, gained in 2016. The analysis show the patients' satisfaction might be searched with use the original method BOST that is built on the grounds of the most important features of Toyota Production System.

2. Important aspects of satisfaction

Job satisfaction is important in its own right as part of social welfare. Moreover, measures of job satisfaction, as a proxy for job quality, appear to be useful predictors of future labour market behaviour. Workers' decisions about whether to work or not, what kind of job to accept or stay in, and how hard to work, are all likely to depend in part on the workers' subjective evaluation of their work, in other words, on their job satisfaction. Positive association between income and job satisfaction is found (*Judge et al., 2010: 157–167*). Many authors found the effect of earnings on different measures of job satisfaction (*Clark, 2005: 377–400; Gamero, 2005*). Recent evidence demonstrates the existence of certain factors of job quality that affect job satisfaction but are not correlated with earnings (*Leontaridi & Sloane, 2001*). This contrasts with the traditional belief of economists who regarded earnings as the main approach to compute the value of jobs.

Van Aerden, Puig-Barrachina, Bosmans and Vanroelen claims that several aspects of employment quality are important for workers' job satisfaction, general health and mental health (*2016: 132–140*).

In fact, job satisfaction acts as a summary measure of the different aspects of job quality, a number of which are difficult to observe or measure. By itself, the use of satisfaction information may help to explain workers' behaviour better than data on, for example, pay and hours. For instance, (*Freeman, 1978: 135–141*), using American panel data, shows that job satisfaction is a strongly significant predictor of quits, even more than wages in some cases.

3. Satisfaction in the TOYOTARITY aspect

TOYOTARITY is a concept invented by the author of this paper; this one is legally protected by the confirmation date (*Borkowski, 2012a; Rosak-Szyrocka & Borkowski, 2012b; Foltyn, 2009: 23; Gobillot, 2008: 272*). In this paper, there is the following definition of TOYOTARITY:

TOYOTARITY is a scientific discipline dealing with the relationships between a human and a machine, and among human beings, with regard to process approach, Japanese culture, especially Toyota, aimed at continuous improvement with the use of knowledge.

Definition specifies two dipoles: 'human – machine', and 'human – human'. Within four components of the definition, human occurs three times, it underlines the importance of a human in Japanese culture, and thus in Toyota culture. In the basic dipole 'human – machine', the pole human is: originator, initiators, investors, senior management, leaders, who plan and realize human activity. In the second dipole 'human – human', one pole means: management, leaders – managerial staff that while managing human teams has a visual contact with them, one can say that they look in the eyes of the implementers of the processes, being the element of the second pole 'human – human'. Used BOST method allows to:

- Assess the validity of factors describing 14 principles of the management of Toyota;
- Determine management styles (taking into account the optimum of Toyota);
- Identify leadership qualities of managers;

- Determine satisfaction of employees/clients;
- Determine command skills of managers;
- Identify features of managers' influence;
- Perform team and individual self-assessment;
- Build a 3x3 matrix (competitiveness of a product/service, technological capabilities);
- Determine the brand of a manager;
- Determine the meaning of the driving forces of improvement;
- Obtain information about the structure of human potential, taking into consideration: sex, education, age, length of service, mobility, mode of recruitment.

The core of this method are the Toyota management rules and according to the scope described, from 4 to 10 factors. The term 'quality' in the method of BOST, occurs in the so-called E1 area, including roof elements of Toyota and included 14 factors describing the principle of management Toyota. The issues and their analysis shows that the quality of customer is interested. If it is a primary mission of the company and subject to improvement, the client is assured that he bought the product the manufacturer complies with the highest declared by him, standards. It is a subconscious impact. Supporting factor may be the cost of that move directly to the price of the product. The definition specifies two dipoles 'man – machine' and the 'person – man'. The four components of the definition is up to three times the man points to the importance of man in Japanese culture and the same culture Toyota.

4. Research methodology

In the test object – hospital – located in Poland in Silesia voivodeship were compared to the expected value of the patients actually offered to them by the SERVQUAL method. The study was conducted using a survey BOST, which is (as presented before) associated with the management principles Toyota underlying.

Servqual method was chosen as the subject of analysis by many authors (*Tazreen, 2012: 12–19; Urban, 2013: 30–33; Ru, Lixin, Guangfeng, Hongyan, Chengjie, Shan & Bingyan, 2015: 508–512; Stefano, Casarotto Filho, Barichello & Sohn, 2015: 433–438*).

Method SERVQUAL (service quality) is implemented technique surveying respondents. With the test method, quality of service – SERVQUAL service providers can anticipate the expectations of patients and to identify the level of assessment of their services by recipients. SERVQUAL is used to verify the quality assessment. The method was developed by Parasurmana, Zeithaml and Berrego in 1983–1985. It is one of the most popular methods used by numerous organizations (universities, health care, banks, hotels, as well as law firms). The method enables comprehensive identification of areas of activity of institutions that need improvement or complete reorganization. The study of different groups of respondents (hospital staff and patients allows to know the different opinions and priorities). Test the quality of services using SERVQUAL begins by select the appropriate set of determinants of quality of service.

The survey consists of three parts. The first and the second part consists the number of 22 statements. The first part contains statements that illustrate the expected recipients in relation to the service, while the second contains statements about the ratings services analysed the hospital. To formulate expectations as to the different characteristics of the services provided and the evaluation of the fulfilment of these expectations, the scale of 1 to 6 is used where: 1 – respondent totally disagrees with the statement; 6 – respondent totally agrees with the statement.

The third part of the survey is formulated in the form of statements aimed at identifying the importance of the five leading providers service attribute by separation of 100 points between these determinants.

Studies on the assessment of the quality of fixed-line medical care based on the following formulas:

$$S = P - O \quad (1)$$

where: S – the result Servqual;
P – perception of the service by patients;
O – patient expectation of service.

Application of SERVQUAL allows the identification of areas critical for the quality of medical services. Table 1 shows determinants of medical services quality.

Table 1. Determinants of medical services quality (own study)

Group of determinants	Detailed criteria
Material infrastructure of services	the equipment and the standard of halls of sick people and generally available rooms, cleanness and personnel's neatness
Reliability of services	personnel's reliability, punctuality of provided services, the consistency the level of provided services
Providers' sensitivity	efficiency of executed activities, reacting to needs for patients, the ability to advise and needs for patients, providers' protectiveness, calm, self-control and providers' patience
Certainty of services	reliability of given information, correct filled in hospital charts, providers' responsibility, safety of patients and their business, providers' honesty
Knowledge needs for clients	ability of easy linking contacts, the ability to recognize needs for patients, the individual approach to patients, recognizing constants and loyal patients, personnel's politeness and concern for patients, the competence in foreign languages

The concept of measuring the difference between expectations and perceptions in the form of the Servqual gap score proved very useful for assessing levels of service quality. Parasuraman argued that, with minor modification, Servqual can be adapted to any service organization. Information on service quality gaps can help managers diagnose where performance improvement can best be targeted.

The largest negative gap, combined with assessment of where expectations are highest, facilitates prioritization of performance improvement. Equally, if gap scores in some aspects of service do turn out to be positive, implying expectations are actually not just being met but exceeded, then this allows managers to review whether they may be 'over-supplying' this particular feature of the service and whether there is potential for redeployment of resources into features which are under performing (Tazreen, 2012: 12–19).

4.1. Results and their analysis

Figure 1 shows a numerical (radar charts) and percentage (pie charts) characteristics of the respondents.

Figure 1a) and 1b) present structure of respondents according to sex; 1c) and 1d) according to education; 1e) and 1f) according to age; 1g) and 1h) according to seniority/work experience; 1i) and 1j) according to work mobility; 1k) and 1l) according to admission to operation.

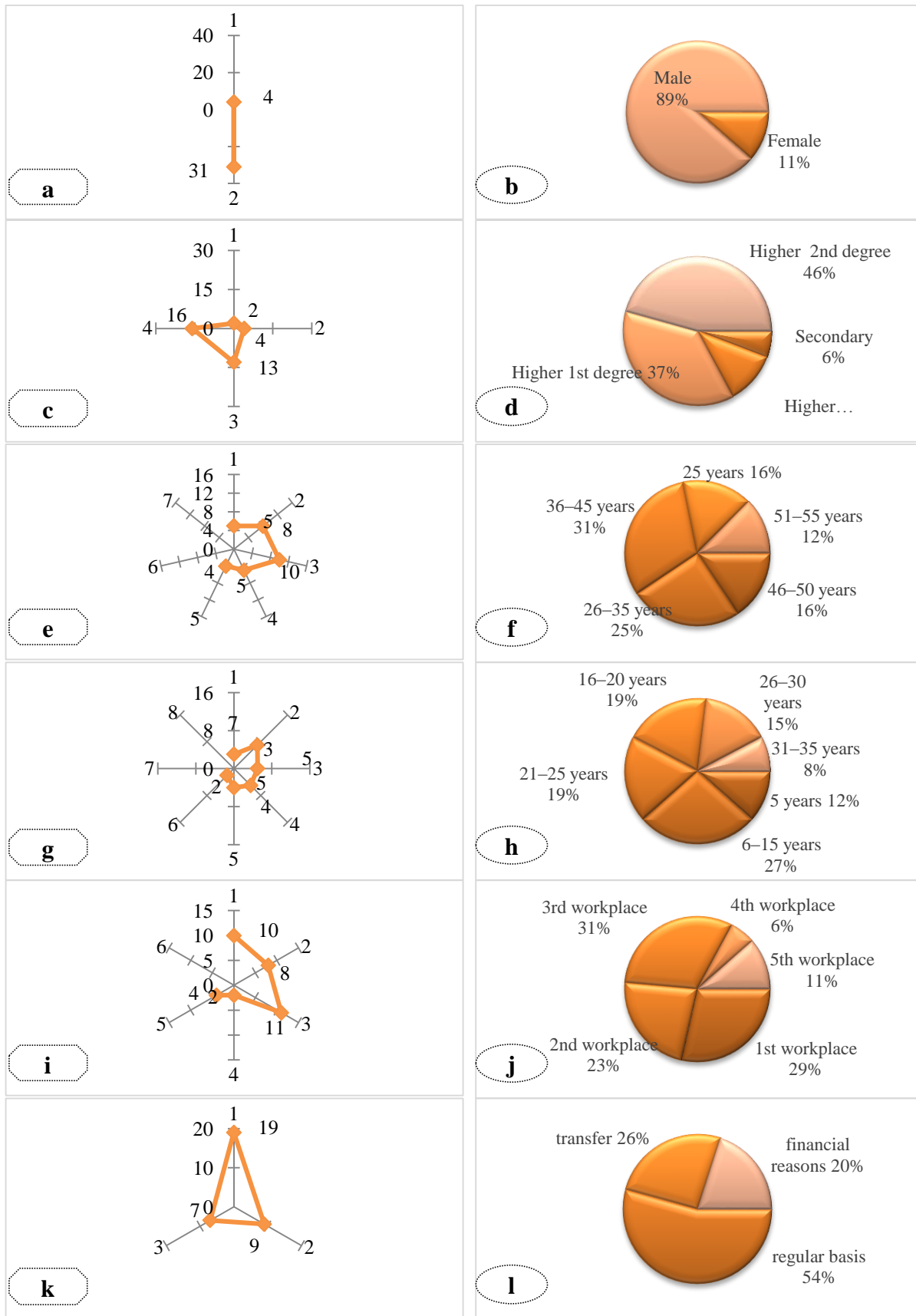


Figure 1. Numeric (radar charts) and percentage (pie charts) of respondents with regard to: a), b) gender; c), d) training; e), f) age; g), h) work experiences; i), j) the mobility; k), l) mode to employment (own study)

4.2. Results of Servqual method applying

The next step of examination was to present the evaluation of the standard deviation for the factors region expectation and perception methods Servqual (Figure 2). Following symbols used in the method means:

- A – Modern equipment;
- B – Attractiveness of the wards;
- C – Cleanness and personnel's neatness;
- D – Neatness medical personnel;
- E – Keeping promises made;
- F – Reliability;
- G – Duration;
- H – Looking after of the patient's opinions;
- I – Safety;
- K – Care about the opinion of the patient;
- L – Engagement of personnel;
- M – Recognizing of needs for patients;
- N – Protection;
- O – Honesty;
- P – Politeness of staff;
- R – Having knowledge needed to respond to patients' questions;
- S – Understanding peculiar needs for patients;
- T – Individual approach to the patient;
- V – Politeness;
- X – Readability of information materials in the field of diseases and drugs;
- Y – Communicativeness.

Based on Figure 2a) it can be seen that the test group respondents have the greatest expectations of the two factors, which are material infrastructure services, and empathy. The evaluation factors are assigned to 5. In the case of perception (Figure 2b) can be inferred that the rated maximum of two groups in the facilities, which are empathy and speed services. '5' assessment of the group have been charts of this type have important information. They allow you to specify the differences between the first and third quartile. They give information that the assessment contain 50% of the central results. In the case of assessments for groups: materiality, reliability and confidence ratings '5' and '6' represent 50% of the votes cast (for waiting area). A similar relationship has a place for a group of security perceptions area. For other groups, 50% of the results achieved by 3 assessment '4', '5' and '6'. Analysing the standard deviation represented by a line graph (Figure 2a) in terms of perception it can be seen that particularly stands out single factor. It is a factor in the attractiveness of the wards (B). In this case, the standard deviation is 1.50, which signifies the dispersion of data or a large variety of responses. In the illustrated Figure 2b shows that in case the difference standard deviation value of the highest received two factors. For w / the factors are the attractiveness of the wards (B) and keeping promises made (F). The lowest value given two factors: clarity of information materials on diseases and medicines (X) and recognition of the patients' needs.

4.3. Results of statistical data processing

The third step of analysis was to calculate chosen statistical data. Analysing the data shown in Figure 3a) shows that the average waiting area exceeds the average perception of the quality of medical services. It means that the expectations of patients do not fully satisfied in the analysed research facility – a hospital. In case of a Servqual you want to focus on the data in the area 5 (Figure 3b).

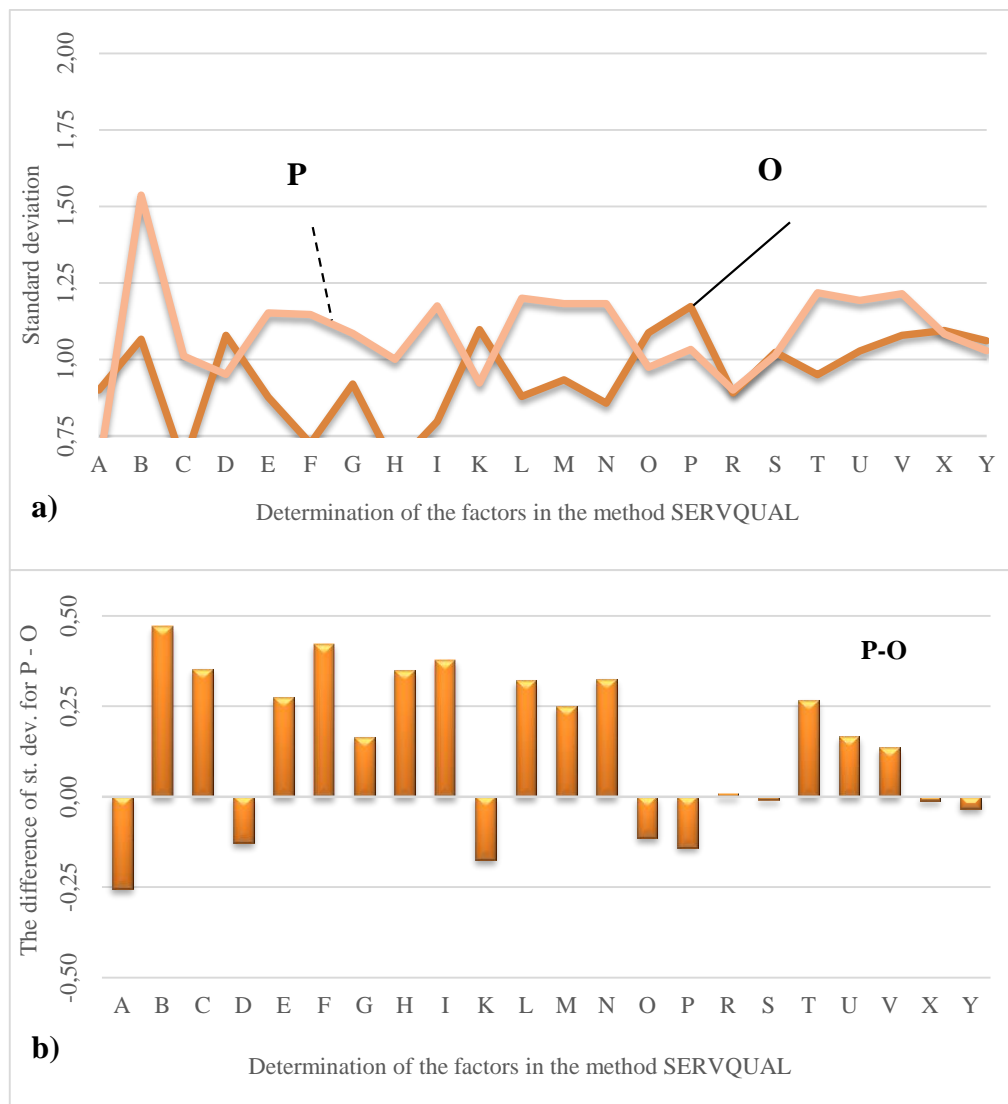


Figure 2. The standard deviation for the factors region expectation and perception methods SERVQUAL in the system: a) linear graphs, b) the difference (own study)

The standard deviation shown in Figure 3c) is highly variable data in the case of the perception, wherein the standard deviation is 1.12. You may also notice that the average grade area expectation is 5.03, while the average ratings performance variation around the mean is 0.97. In the case of the perception on the other hand it can be seen that the average grade is 4.90, while the average ratings performance variation around the mean is 1.12. The strength of the dispersion of results (Figure 3d) measured by the coefficient of variation is 19.3%, which means the variability among features weak area for waiting. For a subjective indicator in relation to the area of the perception of the value was 22.8%, which variation characteristic is moderate. The coefficients of skewness (Figure 3e) for both regions are within the range (0.8–1.2), this means that the asymmetry of the distribution is moderate. The Figure 4f) shows the distribution of factors in the case of the perception and anticipation characterized by flattening greater than normal distribution.

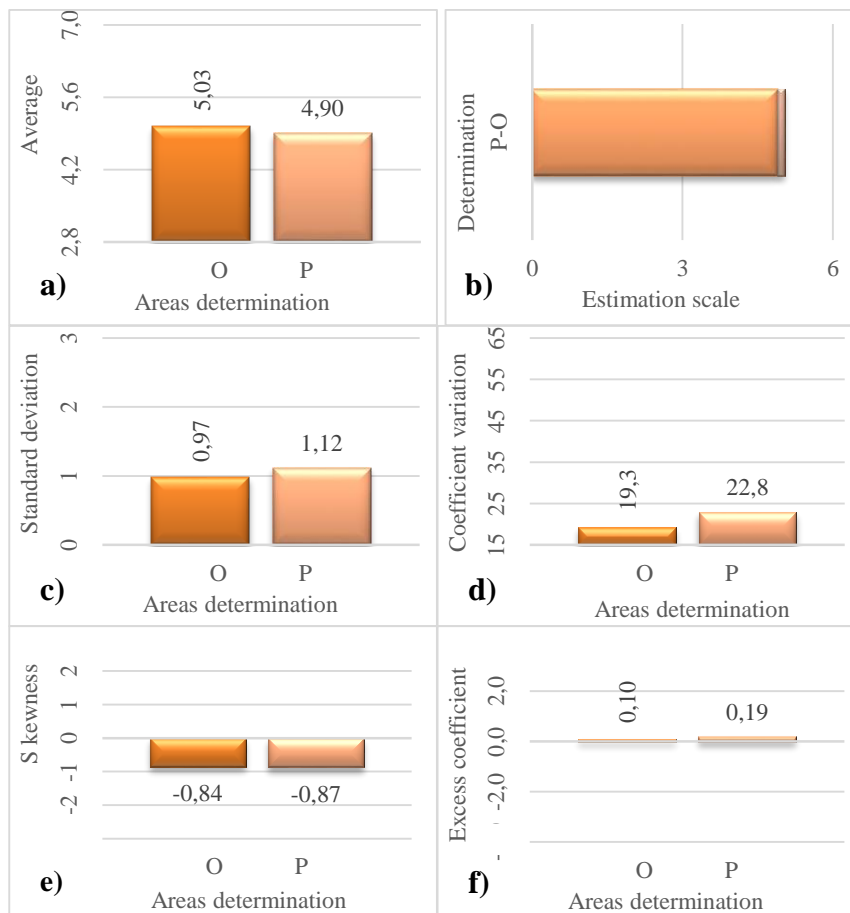


Figure 3. Comparison: a) medium, b) the difference P - O, c) the standard deviation, d) coefficient of variation, e) skewness, f) kurtosis for areas Servqual method. Histograms: without filling – the expectation of fulfilment – perception (own study)

4.4. Servqual method analysis in the traditional aspect

The last step of researchers was to present the output Servqual method factors in the traditional sense and rating scale (Figure 4). From the data presented in Figure 4a) on the result of Servqual in the traditional sense, you can see that 7 out of 22 factors received the value above 0, which in their case means the state of satisfaction ($S > 0$).

Thus it can be said that factors which have been rated high by medical staff are as follows:

- Modern equipment (A);
- Neatness medical personnel (D);
- Staff involvement in the affairs of the hospital (E);
- Care about the opinion of the patient (K);
- Politeness of staff (P);
- Having knowledge needed to respond to patients' questions (R);
- Readability of information materials in the field of diseases and drugs (X).

It can be said that other factors have been rated lower by medical staff, for example as follows:

- Attractiveness of the wards (B);
- Cleanness and personnel's neatness (C);
- Reliability (F);
- Duration (G);

- Looking after of the patient's opinions (H);
- Safety (I);
- Engagement of personnel (L);
- Recognizing of needs for patients (M);
- Protection (N);
- Honesty (O);
- Understanding peculiar needs for patients (S);
- Individual approach to the patient (T);
- Politeness (V);
- Communicativeness (Y).

In case of a method Servqual on a rating scale (Figure 4b) it can be seen that all the groups are in the above evaluation 4, which shows a high level of expectations and perceptions.

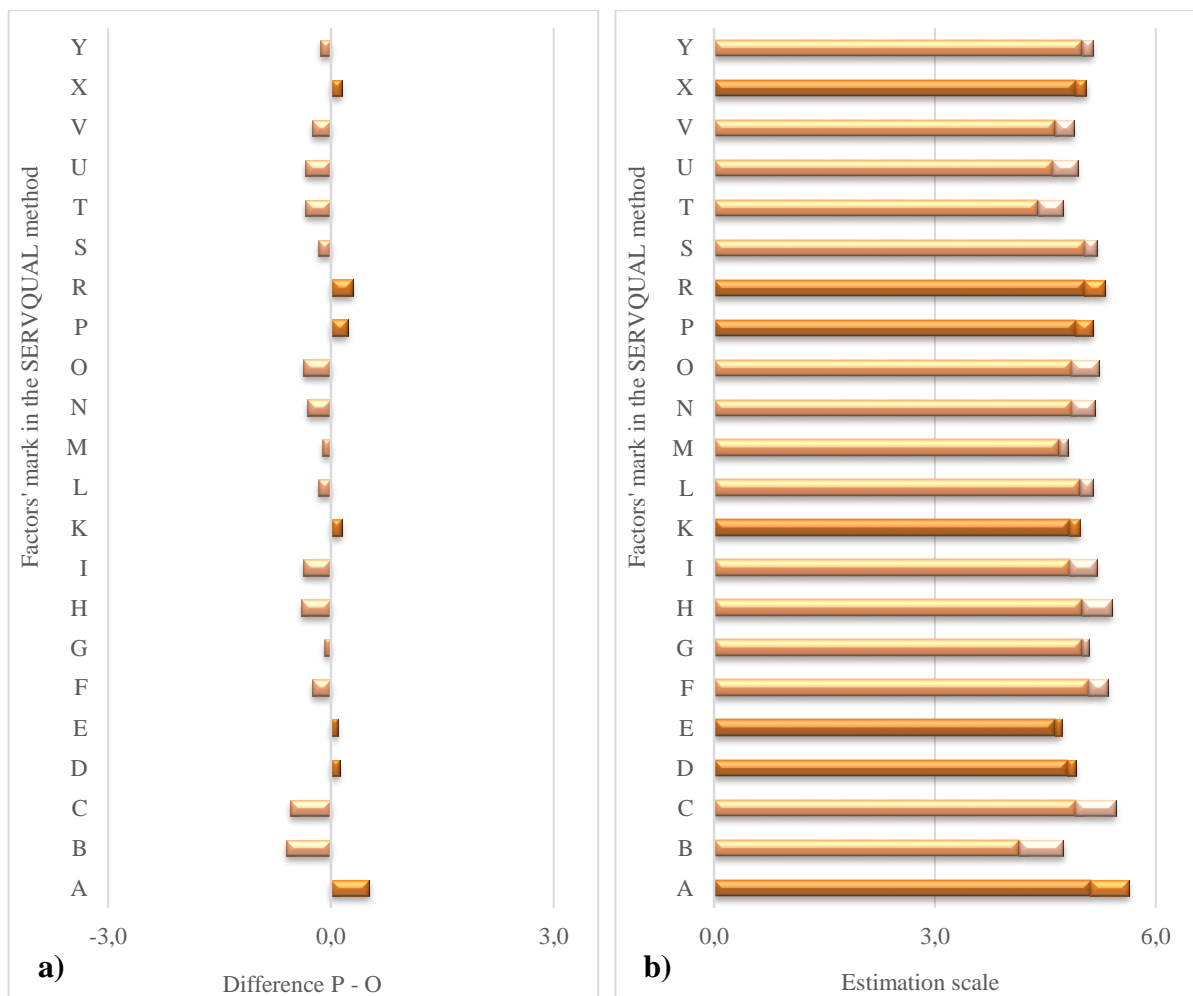




Figure 4. Servqual method result $P - O$ for factors: a) in the tradition frame, b) in the estimation scale.

 $P - O < 0$  $P - O < 0$ (own study)

5. Conclusion

The paper is connected with workers' satisfaction analysis in the Toyotarity concept aspect. Based on research conducted by the Institute of Engineering Production Czestochowa University of Technology, we can say that paying for employees to express their opinions on various areas of the company increases their commitment to work. They feel noticed by

someone express a hidden hope that the information provided by them will improve the assessment of the quality of their work and the quality of the product/service, which also has a positive effect on loyalty to the hospital where they work. With *oral interviews* it was learned that the survey also meets the training role, because sets of factors respondents pay attention to the problems that have so far not noticed. An example could be order, cleanliness around and jobs or the validity of parameters of technology, their frequent checking for a stable, high-quality products/services.

It was found that care about workers' satisfaction at hospital should be the goal of director because it influence on patients' satisfaction from the medical services. Researchers carried out showed that thanks to Servqual method it is possible to find gaps quality. Information on service quality gaps can help managers of hospital to diagnose where performance improvement can best be targeted. The largest negative gap, combined with assessment of where expectations are highest, facilitates prioritization of performance improvement. These determinants are following: attractiveness of the wards, cleanness and personnel's neatness, reliability, duration, looking after of the patient's opinions, safety, engagement of personnel, recognizing of needs for patients, protection, honesty, understanding peculiar needs for patients, individual approach to the patient, politeness, communicativeness.

Many authors claim that Servqual method is a useful method for evaluation of processes. When many methods are concentrated on measurement of results, a Servqual method allows to analyse the process and its elements, helps to identify strong and weak *points* (Pradela, 2014: 1671–1677). Hospital is such an area.

The implementation of the Servqual scale in order to assess service quality, proved to be a controversial ability in the context of health care services, even if they differ significantly from the ones of the providers. From a managerial perspective, Servqual helps when organizatiof the service gaps and the intention to close these gaps by managers is likely to increase the service quality perception and the consumer satisfaction (Purcărea, Gheorghe & Petrescu, 2013: 573–585; Caruana, Ewing & Ramaseshan, 2000: 57–65).

References:

- [1] Borkowski, S., Rosak-Szyrocka, J. (2012). *Jakość i satysfakcja w usługach medycznych* (Quality and Satisfaction in Health Services). Warszawa: Wydawnictwo PTM. ISBN 978-83-61949-72-5.
- [2] Borkowski, S., Rosak-Szyrocka, J. (2010). *Jakość usług medycznych w Polsce* (Quality of Health Services in Poland). Warszawa: Wydawnictwo PTM. ISBN 978-83-61949-20-6.
- [3] Borys, T., Rogala, P. & Skowron P. (2015). *Zrównoważony rozwój organizacji – odpowiedzialne zarządzanie* (Sustainable Development Organization – Responsible Management). Wrocław: Wydawnictwo Uniwersytetu Ekonomicznego we Wrocławiu. ISBN 978-83-7695-203-1.
- [4] Clark, A. E. (2005). Your Money or Your Life: Changing Job Quality in OECD Countries. *The British Journal of Industrial Relations*, 43: 377–400. ISSN 0048-3486.
- [5] Czerw, A. & Religioni, U. (2013). Wdrażanie systemu zarządzania jakością w budowaniu przewagi konkurencyjnej podmiotów świadczących działalność leczniczą (Implementation of the Quality Management System to Build Competitive Advantage of Providers of Medical Activities). B. Polzakiewicz & J. Boehlke. (eds.). *Ekonomia i Prawo*, XII(2).
- [6] Moortel, D. De, Palencia, L., Artazcoz, L., Borrell, C. & Vanroelen, C. (2015). Neo-Marxian Social Class Inequalities in the Mental Well-being of Employed Men and Women: The Role of European Welfare Regimes. *Soc. Sci. Med.*, 128: 188–200.
- [7] Davies, H. T. O. (2000). Organizational Culture and Quality of Health Care. *Quality Health Care*, 9.
- [8] Fołtyń, H. (2009). *Praca współczesnych menedżerów* (The Work of Contemporary Managers). Warszawa: Wydawnictwa Naukowe Wydziału Zarządzania Uniwersytetu Warszawskiego. ISBN 978-83-61276-2508.
- [9] Frączkiewicz-Wronka, A. & Austen, A. (2011). Wyzwania nowego zarządzania publicznego dla menedżerów w ochronie zdrowia. Wyniki badań empirycznych. (The Challenges of the New

- Public Management for Managers in Health Care. The Results of Empirical Research). *Zarządzanie Zasobami Ludzkimi*, 2(79): 9–28.
- [10] Freeman, R. B. (1978). Job Satisfaction as an Economic Variable. *American Economic Review*, 68: 135–141.
- [11] Gamero, C. (2005). *Microeconomic Analysis of Labour Satisfaction* (In Spanish). Madrid: Consejo Económico y Social, Colección Estudios. ISBN 978-84-8188-001-4.
- [12] Głód, G. (1996). Zarządzanie zmianą w jednostce ochrony zdrowia (Managing Change in Medical Care). J. Skalik. (2011). (ed.). *Projektowanie organizacji instytucji*. Wrocław: Wyd. Akademii Ekonomicznej. ISBN 8370112145.
- [13] Gobillot, E. (2008). *Przywództwo przez integrację. Budowanie sprawnych organizacji dla ludzi, osiągnięcia efektywności i zysku* (Leadership by Integration. Building Efficient Organization for Men, Achieving Efficiency and Profit). Kraków: Oficyna a Wolter Kluwer business. ISBN 9788326431203.
- [14] Gróca-Wojtowicz, P. (2009). Systemy jakości i bezpieczeństwa w jednostce sektora ochrony zdrowia (Quality Systems and Security Unit of the Health Care Sector). *Problemy Jakości*, 8.
- [15] Janusz, S. (2003). Zarządzanie zasobami ludzkimi. Pracownicy i nowe możliwości (Human Resource Management. Employees and New Possibilities). *Szpital Polski*, 33–36.
- [16] Judge, R., Piccolo, N., Podsakoff, J. & Shaw, B. Rich. (2010). The Relationship between Pay and Job Satisfaction: A Meta-analysis of the Literature. *J. Vocat. Behavior*, 77: 157–167. ISSN 0001-8791.
- [17] Jurkowski, R. (2002). Racjonalizacja zarządzania zasobami ludzkimi w zakładach opieki zdrowotnej (Rationalization of Human Resources Management in Health Care). M. Trocki (ed.). *Nowoczesne zarządzanie w opiece zdrowotnej, instrumenty zarządzania zakładami opieki zdrowotnej*. Warszawa: Instytut Przedsiębiorczości i Samorządności. ISBN 83-88432-16-8.
- [18] Kanownik, G. (2014). Koncepcje zarządzania jakością w służbie zdrowia (The Concepts of Quality Management in Health Care). *Edukacja ekonomistów i menedżerów*, 4(34).
- [19] Krot, K. (2004). Proces doskonalenia jakości w placówkach opieki zdrowotnej (The Process of Quality Improvement in Health Care). *Problemy Jakości*, 1.
- [20] Leontaridi, R., Sloane, P. (2001). Measuring the Quality of Jobs: Promotion Prospects, Low Pay and Job Satisfaction. *LoWER Working Paper*, 07. University of Amsterdam.
- [21] Lewandowski, R. & Kautsch, M. (2009). Rynek certyfikacji placówek ochrony zdrowia w Polsce (Market Certification of Healthcare Facilities in Poland). *Problemy Jakości*, 4.
- [22] Lien, Ch. H., Wu, J. J., Chen, Y. H. & Wang, Ch. J. (2014). Trust Transfer and Effect of Service Quality on Trust in the Healthcare Industry. *Managing Service Quality*, 4.
- [23] Michalak, J. (2013) Czy system ochrony zdrowia może być efektywny (Does Health Care System Can Be Effective?). A. Frączkiewicz-Wronka. (ed.). *Efektywność zarządzania organizacjami publicznymi i jej pomiar. Studia Ekonomiczne*, 168.
- [24] Stefano, N. M., Casarotto Filho, N., Barichello, R. & Sohn, A. P. (2015). A Fuzzy SERVQUAL Based Method for Evaluated of Service Quality in the Hotel Industry. *Procedia CIRP*, 30. 7th Industrial Product-Service Systems Conference – PSS, Industry Transformation for Sustainability and Business: 433–438. ISSN 2212-8271.
- [25] Olkiewicz, M. (2012). Ocena efektów funkcjonowania systemu zarządzania jakością w przedsiębiorstwie (Evaluation of the Effects of the System of Quality Management in the Enterprise). *Zarządzanie i Finanse*, 10(3): 1.
- [26] Pandi, A. P., Paranitharan, K. P. & Jeyathilagar, D. (2015). Implementation of IEQMS Model in Engineering Educational Institutions – A Structural Equation Modelling Approach. *Total Quality Management and Business Excellence*. ISSN 1478-3363.
- [27] Pradela, A. (2015). Quality of Graduates' Preparation for Labour Market: A Servqual Analysis. *Procedia - Social and Behavioral Sciences*, 174: 1671–1677.
- [28] Rogala, P. (2008). Najważniejsze wyniki badań przeprowadzonych przez ISO (The Most Important Results of the Research Conducted by the ISO). *Problemy Jakości*, 2.
- [29] Rosak-Szyrocka, J. (2015). Systemy jakości w aspekcie jakości usług medycznych szpitali w Polsce (Quality Systems in Terms of Quality of Medical Services of Hospitals in Poland). *ABC Jakości*, 3.

- [30] Rosak-Szyrocka, J. & Borkowski, S. (2007). The Influence of Resources on the Quality of Medical Services from the Workers of the Health Care in Poland Perspective. *Human Resources Management and Ergonomics*, 1.
- [31] Ru, L., Lixin, C., Guangfeng, Z., Hongyan, W., Chengjie, W., Shan, Y. & Bingyan Y. (2015). Applying The Fuzzy SERVQUAL Method To Measure The Service Quality In Certification & Inspection Industry). *Applied Soft Computing*, 26, January 2015: 508–512.
- [32] Davis, S. & Greenstein, T. (2009). Gender Ideology: Components, Predictors, and Consequences. *Annu. Rev. Sociol.*, 35(2009): 87–105. ISSN 0360-0572.
- [33] Scott-Marshall, H. (2007). Work-related Insecurity in the New Economy: Evaluating the Consequences for Health. *Res. Political Sociology*, 16: 21–60. ISSN 0895-9935.
- [34] Shaw, C., Bruneau, C., Kutryba, B. & Sunol, G. B. (2010). Towards Hospital Standardization in Europe. *International Journal for Quality in Health Care Advance Access*, June 24. ISSN 1353-4505.
- [35] Szetela, A. (2012). Zewnętrzne metody oceny jakości w ochronie zdrowia – akredytacja i system zarządzania jakością według normy ISO 9001:2008 (External Quality Assessment Methods in Health Care – Accreditation and Quality Management System According to ISO 9001: 2008). *Problemy Zarządzania*, 10(2): 37.
- [36] Świątko, D. (2015). Polskie wyroby medyczne zdobywają zagraniczne rynki (Polish Medical Devices Win Foreign Markets). *Jakość*, 2.
- [37] Tazreen, S. (2013). An Empirical Study of Servqual as a Tool for Service Quality Measurement. *Journal of Business and Management*, 1(5). ISSN 2278-487X.
- [38] Ulewicz, R. (2013). Effectiveness Assessment of Functioning of Quality Assurance System, *Production Engineering Archives*, 1.
- [39] Urban, W. (2013). *Jakość usług w perspektywie klientów i organizacji w kierunku zintegrowanej metodyki pomiaru* (Quality of Service in the Perspective of Clients and Organizations towards an Integrated Measurement Methodology). Białystok: Oficyna Wydawnicza Politechniki Białostockiej.
- [40] Zimon, D. (2016). Influence of Quality Management System on Improving Processes in Small and Medium-sized Organizations. *Quality – Access to Success*. ISSN 1582-2559.
- [41] Purcărea, V. L., Gheorghe, I. R. & Petrescu C. M. (2013). The Assessment of Perceived Service Quality of Public Health Care Services in Romania Using the SERVQUAL Scale. *Procedia Economics and Finance*, 6: 573–585. ISSN 2212-5671.
- [42] Caruana, A., Ewing, M. T. & Ramaseshan, B. (2000). Assessment of the Three-Column Format SERVQUAL: An Experimental Approach. *Journal of Business Research*, 49(1): 57–65. ISSN 0148-296.

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