On the complex nature of patient evaluations of general practice service

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Abstract

This study examines the extent to which service process, service outcome and purpose influence patient evaluative judgments regarding a visit to a general practitioner. Scenarios with manipulation of outcome, process and purpose were used to investigate relationships between aforementioned variables and service quality, satisfaction and behavioral intentions regarding switching and positive word-of-mouth. The results of an experimental design suggest that a favorable process increases the likelihood of a positive evaluation of the service encounter by patients. However, it appears that the effect of a favorable process is more positive in the case of a favorable outcome than in the case of an unfavorable outcome. Furthermore, in case of a visit aimed at tangible aspects of the medical service, service outcome has a stronger impact on patient evaluations, whereas in the case of a visit aimed at intangible aspects, service process has a stronger impact on patient evaluations. Finally, additional analyses revealed that the manipulated variables of outcome, process and purpose only have a direct impact on service quality and not on satisfaction and behavioral intentions. © 1998 Elsevier Science B.V. All rights reserved.

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1. Introduction

Recent reviews of health care systems in many industrialized countries have emphasized the move towards a mixed economy of medical care (Phillips et al., 1994; Leopold et al., 1996). In a new atmosphere of competition and increased pressure on costs, health care providers are realizing that they should view their patients as customers (Phillips et al., 1994; Murfin et al., 1995). The use of the term ‘customer’ with its marketplace connotations is indicative of the fact that patients are more sensitive to getting their money’s worth and are less likely to use health services indiscriminately. The passive role of patients is being replaced with an active demand for personalized, attentive and courteous service (Leopold et al., 1996). At the same time, reduced insurance benefits and an increase in co-payments and deductibles are becoming more widespread. As a result, medical service providers are under increasing pressure to evaluate their performance and to be more sensitive to patients’ wishes in terms of perceived service quality.

Perceived service quality is frequently viewed as a function of both service process and service outcome (Iacobucci et al., 1994; Lapierre, 1996). Obviously, when doctors are able to deliver the cure for a patient’s disease, a patient’s most essential need will be fulfilled. However, in case the cure cannot or only partly be accomplished, the care in the process of interaction between patient and physician may very well be important (Lytle and Mokwa, 1992; Kirk, 1997). Furthermore, to complicate matters even more, patient evaluative judgments are also based on the fact whether they are primarily seeking tangible or intangible benefits in the service (Lytle and Mokwa, 1992; Kirk, 1997). This is particularly for general practitioners who work on “the front line” of medical care and are confronted increasingly with patients who seek emotional support instead of a more ‘tangible’ benefits (e.g., a prescription). Differences in consultation purposes influence patient perceptions of the quality of process and outcome of the service encounter.

To date, most of the research on medical services has considered variables such as service process and outcome and tangible and intangible benefit seeking in isolation, resulting in narrow and limited conceptualization and assessment of medical service quality (Brown and Swartz, 1989; Lytle and
Mokwa, 1992; Woodside et al., 1989; Kirk, 1997). An insight into how patients perceive aforementioned aspects of service quality can contribute to a better understanding of the complex relationship between process, outcome and purpose of visit (Phillips et al., 1994; Murfin et al., 1995). Such an understanding is increasingly important in order to ensure patients’ patronage with a health care service provider. The purpose of our paper, therefore, is to integrate the aforementioned aspects and to investigate how the complex interplay between service process, outcome, purpose of visit determines patient evaluations of the medical service encounter. The remainder of this paper is structured as follows. First, we will offer a brief synthesis of the extant literature on key conceptual and methodological issues concerning medical service quality and patient satisfaction and the role of service process, outcome and purpose as well as an economic rationale for focusing on these issues. We subsequently discuss the results of an experiment designed to provide empirical evidence on the relationship between these aspects in the formation of perceived service quality. We conclude with a discussion of a number of theoretical and managerial implications of our results.

2. Economic rationale

Health care organizations are under increasing pressure to evaluate and improve their performance and to measure efficiency and effectiveness as there is a rapid move towards a mixed economy of care (Phillips et al., 1994). In this new environment different axioms and measurement instruments apply as patients are an increasingly scarce resource pursued by a rapidly growing number of suppliers. For instance, it is doubtful whether productivity increases (e.g., in terms of cost utility analyses) will be relied upon much longer as the sole indicator of economic performance by health care institutions (Murfin et al., 1995). Rather, it may very well be that economic performance will be judged by the ability to match economic output to increasingly manifold demand (Fornell, 1992). The intended beneficiary of health care services is moving towards center stage and issues of health and medical care are presented as a matter of personal choice (Donabedian, 1992). Employers are offering their employees the choice between health plans as the number of alternative providers is progressively heterogeneous. Therefore, recently the focus has been on patient evaluative judgments in order to supplement productivity as a measure of economic output in appraisals of health care. It has been argued that economic growth reflects the
ability to achieve productivity of economic resources as well as the added value of the output of these resources (Fornell, 1995).

One characteristic that the new measures of economic output have in common is that they rely on survey techniques used to measure the experience utility from a subjective perspective. Instead of price, satisfaction, perceived quality and customer retention are treated as dependent variable economic models of health care performance. Here utility is not based on preference but on the service experience. According to the perspective of subjective experience utility, evaluative judgments can be viewed as a non-price aspect of the product (service) offering that has an impact on the demand curve. In addition, it has been argued that gauges of the hedonic quality of experience reflect future economic performance also (Anderson and Fornell, 1994). Fornell et al. (1996) demonstrate that an increase in customer satisfaction will result in an increase in customer loyalty and reduce price elasticity. The authors maintain that loyalty may be considered as a proxy for a firm’s profitability as well as shareholder value. Therefore, we will examine the nature of evaluative judgments in more detail in the next section.

3. Evaluative judgments

In most models of patient evaluations of medical services the focus has been on a comparative judgment of expectations vs. perceived performance resulting in the two major evaluative judgments of perceived service quality and patient satisfaction (Taylor and Cronin, 1994; Murfin et al., 1995). Both concepts have been frequently used and measured in the medical services area (Brown and Swartz, 1989; Swartz and Brown, 1991; Walbridge and Delene, 1993). However, as several meta-analytic studies have shown, problems of definition, delineation and conceptualization concerning these patient evaluative judgments still exist (Hall and Dornan, 1988a, b). Much of the confusion arises from the fact that both forms of evaluative judgments are based on comparable underlying constructs. Patients form expectations prior to their encounter with a doctor, they develop perceptions during the service delivery process and subsequently they compare their perceptions to their expectations in evaluating the outcome of the service encounter (Iacobucci et al., 1994).

While service quality and satisfaction are concepts that have a number of similar characteristics, they have points of differentiation as well, as becomes
clear from recent advances in the services marketing literature (Patterson and Johnson, 1993). In the first place, whereas service quality is viewed as the mathematical difference between expectations and perceptions of performance, according to the prevalent paradigm in the literature satisfaction is influenced by the intervening variable of disconfirmation. According to the so-called disconfirmation paradigm there will be both a direct and an indirect relation (via disconfirmation) between expectations and satisfaction (Patterson and Johnson, 1993). Secondly, it is frequently argued that in order to form a satisfaction judgment, consumers must have experienced a service, whereas perceived service quality is generally viewed as being not necessarily experience-based (Taylor and Baker, 1994; Ostrom and Iacobucci, 1995). Thirdly, the dimensions of service quality as operationalized by Parasuraman et al. (1988) are fairly specific, whereas satisfaction can result from a large variety of dimensions (Oliver, 1993). Finally, it has been argued that the two concepts are determined by different antecedents. Evidence exists regarding a number of cognitive and affective processes (equity, attributions, cost/benefit analyses) that influence satisfaction. The number of antecedents to service quality is regarded more limited (Oliver, 1993). Clearly the two types of evaluative judgment are not perceived as isomorphic and increasingly treated as separate constructs in research on services.

There is a growing consensus on the sequential order of service quality and satisfaction. The latter is increasingly regarded as the superordinate construct based on conceptual work by Oliver (1993), and empirical evidence provided by Cronin and Taylor (1992) and de Ruyter et al. (1997). Although there may be considerable variations in terms of specificity, both service quality and satisfaction are frequently used as overall evaluative judgments across multiple encounters (Brown and Swartz, 1989). Recently, it has been suggested that given the essence of customer choice in services it is imperative to examine customers’ behavioral intentions with regard to the likelihood of switching to another supplier or positive word-of-mouth communications should also be included under the general heading of customer evaluative judgments (Ostrom and Iacobucci, 1995; Zeithaml et al., 1996).

Therefore, in this study we will focus on three types of evaluative judgments; service quality, service satisfaction and behavioral intentions. By zooming in on the individual service episode, we encounter another aspect that complicates the assessment of evaluative judgments in services; the distinction between service process and outcome. We will discuss this in the next section.
4. Evaluative criteria

Due to certain characteristics of services, such as their intangibility, perishability and simultaneous production and consumption, evaluations of services are based on what consumers receive as outcome as well as on how the process of service delivery, i.e., the encounter with the service provider takes place (Brown and Swartz, 1989; Swartz and Brown, 1991; Lapierre, 1996). Therefore, Grönroos (1984) argues that quality perceptions by consumers of services are essentially based on the technical quality of the outcome and the functional quality of the process. Both outcome and process may be used as criteria or cues to assessing the quality of service. In most research on services the emphasis has been on the process of services (Lapierre, 1996). Bopp (1990) states that most patients cannot distinguish between the “caring” (expressive) and the “curing” (technical) performance of medical care providers. Hence, evaluative judgments are based on the interaction of both. In this section we will attempt to balance the perspective by focusing on both evaluative criteria and their interaction because in the context of medical services both the quality of the process and the outcome of the service are considered important (Lytle and Mokwa, 1992; Phillips et al., 1994; Murfin et al., 1995).

4.1. Service outcome

Outcome essentially refers to the instrumental performance of a service. It can be viewed as an end-state, which may or may not be the intended effect of a service process (Phillips et al., 1994). In a health services context, outcome pertains to the fact whether diagnostic and therapeutic interventions performed by the physician have the desired effect on the patient (Donabedian, 1980). Outcome has been denominated as ‘the nucleus of the total product offering’ (Lytle and Mokwa, 1992, p. 5) in a medical services context and as such an important determinant of customer evaluative judgments. Applying the concept of outcome to the evaluation of a medical service encounter, however, presents some problems. As (Zeithaml and Bitner, 1996, p. 117) argue some services are ‘highly complex and a clear outcome is not always evident’. In the case of a visit to a general practitioner, for instance, it is often very difficult to establish the outcome due to the ill-defined nature of health problems in primary care and the difficulty of measuring effects on a patient’s physical and mental condition in a reliable manner. This has led to the introduction of the concept of ‘output’ or ‘intermediate outcome'
Intermediate outcome can be defined as a measurable service aspect attributable to the service encounter. This concept is easier to assess and is assumed to be indicative of definitive outcomes. In addition to effect measures of medical services (i.e., patient health and well-being), several authors (e.g., Murfin et al., 1995) emphasize the importance of perceptual (e.g., quality) and behavioral (e.g., patient compliance) measures of service outcome. For instance, quality perceptions of patients with high blood pressure can be measured on the basis of subjective performance indicators (e.g., reassurance) and patient adherence to medical instructions in addition to the effect of lower levels of blood pressure.

4.2. Service process

Despite the introduction of the concept of intermediate outcome, it has frequently been argued that the result is only one side of the coin of patients evaluations of the quality of medical service encounters. It has been reported that, while patients consider the outcome of a service encounter as an essential, high-priority ingredient, they often feel that they lack the ability and knowledge to assess the quality of medical diagnosis (Donabedian, 1982; Bopp, 1990). Often process characteristics are used as cues to signal the presence or absence of outcome quality (Brown and Swartz, 1989). In this sense, medical services can be characterized as credence services. Furthermore, Ostrom and Iacobucci (1995) argue that more variability is associated with service process elements (e.g., the degree of empathy or friendliness) than with the outcome (e.g., whether a medical diagnosis is correct or not). As a consequence, patients often base their quality perceptions of the (medical) service encounter on the interpersonal attitudes and behaviors of service providers during the process of service delivery (Brown and Swartz, 1989; Bopp, 1990; Zeithaml and Bitner, 1996). Brown and Swartz (1989) demonstrated that medical service quality can be regarded as a multi-dimensional construct, similar to the general model of service quality developed by Parasuraman et al. (1988). Brown and Swartz (1989) found that interactions with the physician were considered as most important by patients, in addition to the doctor’s competence and peripheral service elements pertaining to the environment of the service delivery process. Thus, the interaction between service consumer and service provider is an essential element in establishing service quality. Both actors are an integral part of the service delivery. Hence, doctors can enhance the functional quality perceptions of their patients by being attentive to the patient, by evoking the
patient’s underlying anxieties and fears and by providing reassuring information. The importance of the functional or expressive performance has been demonstrated extensively (Walbridge and Delene, 1993) and has lead (Bopp, 1990, p. 7) to conclude that ‘most patients base their evaluations of the medical care process on the expressive performance’. This point of view is consistent with the general consensus in the services marketing literature based on the fact that the service process may be a more important antecedent of customer evaluations than the service outcome (Brown and Swartz, 1989). Despite differences in relative importance of the main effects of outcome and process on customer evaluative judgments, both are an integral part of the service encounter and can hardly be considered in isolation. Therefore, the interaction between outcome and process should be examined.

4.3. Service outcome vs. service process

Bopp (1990) states that patients’ assessment of medical service quality is a frequently function of the technical skills as well as the interpersonal attitudes and behaviors of service providers. He concludes that ‘a good outcome may not be sufficient to foster patients’ perceptions of high service quality, satisfaction and loyalty to a medical practice’ (Bopp, 1990, p. 7.) Iacobucci et al. (1994) support this by stating that a favorable outcome might not increase the chance of positive evaluative judgments by service customers. On the other hand, it has been argued that that a favorable process increases a positive evaluation (Grönroos, 1984; Iacobucci et al., 1994). Therefore, we hypothesize that as below.

Hypothesis 1. Patients who experience a favorable service outcome and favorable service process, will evaluate the service encounter more positively in terms of patient evaluative judgments (service quality, satisfaction and behavioral intentions) than patients who experience a favorable outcome and an unfavorable service process.

With regards to the interaction between outcome and process, it has been argued that particularly in the case of an unfavorable outcome, process variables are important determinants of patients evaluative judgments. For instance, Lytle and Mokwa (1992), in a study of patients of a fertility center, demonstrated that when patients experienced an unsuccessful outcome, elements pertaining to the service process were considered important and
significantly influenced patient perceptions of quality. Lazare et al. (1975) report that the interaction of an unfavorable outcome (i.e., unsuccessful treatment) and positive process perceptions may still result in a positive overall assessment of service quality. A positive process may compensate for a negative outcome. Concerning the interaction between service outcome and service process we hypothesize as below.

**Hypothesis 2.** The effect of a favorable service process will be more positive in terms of patient evaluative judgments (service quality, satisfaction and behavioral intentions) for patients who experience an unfavorable service outcome than for patients who experience a favorable outcome.

### 4.4. Tangibility of purpose vs. intangibility of purpose

Particularly general practitioners often function as a gatekeeper to other layers of medical care. For this type of primary health care is the service encounter can be viewed as consisting of a bundle of tangible and intangible benefits (Lytle and Mokwa, 1992). Patients visit their general practitioner for a variety of purposes, depending on the nature of their complaint. In many cases the appeal on the physician will mostly aimed at solving a medical complaint through, for instance, medicinal therapy. The need of the patient is primarily a medical one and therefore more result- or outcome-oriented. Patients are generally expected to comply with the physician’s instructions. Typically, the outcome of the service encounter will be a tangible prescription of a reference letter or form to other medical specialists. In these instances, the encounter will be evaluated primarily in the light of its tangible outcome (Ross et al., 1987).

In addition, an increasing number of patients visit their general practitioner seeking emotional support in order to solve their personal and/or psychological problems. In these instances, the emphasis in the relationship between doctor and patient is on communication and understanding (Deonnabedian, 1992). Generally, this includes the more “intangible” and sometimes non-medical aspects of health care (e.g., relief, understanding). In these instances, perceived quality will be determined more by process characteristics such as the fact whether the general practitioner expressed empathy towards the patient during the service encounter (Ross et al., 1987). The purpose of the visit will be more process-oriented. Therefore, we hypothesize as below.
Hypothesis 3. When the purpose of the service encounter is aimed at intangible aspects of medical service, service process will have a stronger impact on patient evaluations.

Hypothesis 4. When the purpose of the service encounter is aimed at “tangible” aspects of medical service, service outcome will have a stronger impact on patient evaluations.

Finally, since we surmise that the effect of service process will be relatively important and that the effect of process will be stronger in case of an ‘intangible purpose’, we predict a three-way interaction between service process, service outcome and purpose of visit. Specifically, we hypothesize as below.

Hypothesis 5. The impact of the interaction between service process and service outcome will be stronger in case the purpose of the service encounter is aimed at intangible aspects of medical service.

In the next section we will report the results of an experiment aimed at testing our hypotheses.

5. An experimental study

5.1. Experimental design

To test the above-posed hypotheses we designed a between-subjects, fixed-effects factorial design consisting of three factors. Service process (SP) was manipulated on two levels: (a) unfavorable service process and (b) favorable service process. Several process-related variables were manipulated in the scenario’s such as empathy, responsiveness, assurance, courtesy, communication and reliability (see Appendix A for details). Service outcome (SO) was manipulated on two levels: (a) unfavorable service outcome and (b) favorable service outcome. Finally, purpose of the visit (P) was manipulated on two levels as well: (a) intangible and (b) tangible. The outcome variable of tangible purpose was related to the provision of a prescription. The outcome variable of intangible purpose pertained to the fact whether felt reassured or not. Consequently, we arrived at a full $2^3$ factorial design, which allows us to explicitly take into account interaction effects (Keppel, 1991).
5.2. Stimulus materials

Role-playing scenarios were developed reflecting our experimental design as this method has proven to be useful in medical services research (Brown and Swartz, 1992). The purpose of the scenarios was to help subjects put themselves into the situation in order to test the hypotheses. Each scenario contained the description of a hypothetical visit to a general practitioner. The scenarios were developed after in-depth interviews with the two general practitioners who participated in the study, to ensure whether each scenario depicted a realistic situation. Each of our main variables (service outcome, process and purpose) were varied at two levels.

Two different clinical scenarios were selected in order to distinguish between purpose of visit. Intangible purpose of visit was operationalized as a situation in which a patient suffering from headaches induced by domestic problems wanted to share this with the physician. In the case of tangible purpose, a situation was described in which a patient who was suffering from an infection of the frontal sinus wanted medication to cure this. For each of these purposes, both outcome and process were varied on two levels: favorable and unfavorable. Eight scenarios were composed based on the combination of manipulated service process, service outcome and purpose of visit. A sample scenario is included in Appendix A.

5.3. Pretest

Using simple random sampling 30 patients (15 each for each general practitioner participating in the study) were selected for the pretest. The pretest served two purposes: (a) to assess whether the desired state was induced by the manipulations of the independent variables and (b) to assess the reliability of the dependent measures. The subjects were interviewed immediately after exposure to the manipulation (Perdue and Summers, 1986). The interviews revealed that the manipulations were successful in inducing the desired state of mind. Only minor adaptations were necessary for the role-playing scenarios. Moreover, preliminary analyses indicated that the dependent measures showed sufficient reliability in terms of coefficient α.

5.4. Procedure

Two hundred nine patients of two general practitioners participated in our study. The respondents were randomly assigned to the 8 treatment
conditions. As we expected relatively large to very large effects for all treat-
ments and as we anticipated the dependent variables to be highly intercor-
related, a sample size of approximately 25 would suffice to achieve a power
\(1 - \beta\) of 0.80 at a \(\alpha = 0.05\).

Each respondent received a booklet, which included the instructions, a
description of the scenario, the service quality, satisfaction and behavioral
intention measures. Furthermore, manipulation checks were added to assess
whether the state intended by three independent variables was induced
(Perdue and Summers, 1986). Finally, three demographic measures were
presented to the respondents, gender, age and frequency of visits.

The sample consisted of 36.0% men and of 64.0% women. Of the re-
pondents 22.6% were aged between 18 and 29 years, 28.4% between 30 and
39 years, 25.9% between 40 and 49 years, 13.0% between 50 and 59 years and
10.1% were 60 years or older. Of the respondents 12.5% visited the their
general practitioner one time or more than one time per month, while 87.5%
of the respondents indicated that they visited their general practitioner less
than one per month. 

6. Results

6.1. Manipulation checks

The results of the manipulation checks strongly suggested that there were
differences between the unfavorable and favorable service process
\((F_{1,199} = 316.48; p < 0.001)\), the unfavorable and favorable service outcome
\((F_{1,199} = 155.58; p < 0.001)\) and the degree of tangibility \((F_{1,199} = 55.39;
\ p < 0.001)\), as intended by the design. Furthermore, Sternthal et al. (1987)
argue that ultimately the effectiveness of the manipulations is reflected in
pattern of the resulting data.

6.2. Reliability of dependent measures

Service quality was operationalized using a reduced version of the
SERVQUAL instrument (Parasuraman et al., 1988) consisting of 12 items

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2 The distribution of gender, age and frequency of visits categories is in correspondence with the results
of a national study carried out by NIVEL (Netherlands Institute for Research in Primary Health Care).
on 9-point Likert-type scale. A composite measure of service quality was calculated by averaging these 12 items (coefficient $\alpha = 0.96$). Satisfaction was operationalized with two items on a 9-point scale using “Very dissatisfied” and “Very satisfied” as anchors (coefficient $\alpha = 0.83$). Finally, behavioral intentions consisted of two items on a 9-point Likert-type scale. The first item was concerned with recommending the general practitioner, while the second item was concerned with intended switching behavior (coefficient $\alpha = 0.71$).

6.3. Outlier detection

As MANOVA is particularly sensitive to outliers, we started our data analyses with testing for univariate and multivariate outliers (Tabachnik and Fidell, 1996). We ran tests for univariate and multivariate outliers separately for each cell of the design. Our analyses revealed that six observations might be considered univariate outliers and one observation might be considered a multivariate outlier. These observations were subsequently eliminated from the data matrix.

6.4. Testing assumptions of MANOVA

Given the large sample size and the robustness of MANOVA to departures from multivariate normality (Tabachnik and Fidell, 1996), violations of multivariate normality are not expected to be severe. In addition, inspection of the histograms, normal-probability plots, skewness and kurtosis for each dependent measure for each cell showed only slight departures from normality. Another assumption underlying MANOVA is equality of variance–covariance matrices. This assumption can be tested using Box’s M test for homogeneity of dispersion matrices. However, this test is usually not very useful, as it is extremely sensitive to multivariate nonnormality (Tabachnik and Fidell, 1996). Finally, power analysis revealed that the power level was well above 0.8 for all significant effects ($\alpha = 0.05$).

6.5. Assumptions of dependent measures

If the dependent variables are uncorrelated, MANOVA is superfluous, in such a case one might be able to rely on univariate ANOVAs (one for each dependent variable). The pooled within-groups correlation matrix (see
revealed relatively high correlations between the dependent variables.  

Additionally, we carried out principal components analyses to assess whether the three variables would load on separate components. Our analyses showed that each dependent variable loaded high (>0.7) on only one component. This indicates that the three measures are tapping different concepts. Finally, Bartlett’s test of sphericity was used to test the null hypothesis that the correlation matrix came from a population of variables that are independent. Bartlett’s test of sphericity revealed that the null hypothesis could be rejected ($\chi^2 = 219.70; p < 0.001$).

### 6.6. Service process, service outcome and purpose of visit

Research into the robustness of the statistics available for MANOVA suggested that Pillai–Bartlett trace criterion ($V$) might be the most robust statistic for general protection against departures from multivariate normality and homogeneity of variance–covariance matrices (Tabachnik and Fidell, 1996). Therefore, we will only report the Pillai–Bartlett trace criterion and its $F$ approximation. However, it must be noted that the all four rival tests (Wilk’s likelihood ratio criterion [$\Lambda$], Hotelling–Lawley trace criterion [$T$], Roy’s largest root criterion [$R$], Pillai–Bartlett trace criterion [$V$]) are asymptotically equivalent in large samples.

The results of MANOVA are summarized in Table 1. We found that all three factors exhibit significant main effects (Service Process: $V = 0.65; F_{3,191} = 120.10 \ [p < 0.001]; \ \eta^2 = 0.65$; Service Outcome: $V = 0.61; F_{3,191} = 98.94 \ [p < 0.001]; \ \eta^2 = 0.61$; Purpose: $V = 0.09; F_{3,191} = 6.64 \ [p < 0.001]; \ \eta^2 = 0.09$). Additionally, we found that all two-way interactions show significant effects. As a consequence, the main effects in isolation will not yield a faithful picture of the results of the experiment (Keppel, 1991).

We found a significant two-way interaction between service process and outcome ($V = 0.14; F_{3,191} = 10.47 \ [p < 0.001]; \ \eta^2 = 0.14$). The cell means for

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3 Pooled within-groups correlation matrix a:

<table>
<thead>
<tr>
<th></th>
<th>1.</th>
<th>2.</th>
<th>3.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customer satisfaction</td>
<td>0.71</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Behavioral intentions</td>
<td>0.53</td>
<td>0.57</td>
<td>1.00</td>
</tr>
</tbody>
</table>

a All Correlation coefficients are significant at $\alpha = 0.05$. 

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the interaction between service process and service outcome are presented in Fig. 1 for all three dependent measures, as all three measures show significant univariate effects. We will use univariate analyses to further explore the relationships uncovered by the omnibus test. With respect to Hypothesis 1 we find that patients who experience a favorable service outcome and favorable service process evaluate all patient evaluative judgments significantly more positively than patients who experience a favorable service outcome and unfavorable service process (QUAL: \(t_{193} = 9.61, \ p < 0.001\); SAT: \(t_{193} = 4.37, \ p < 0.001\); BI: \(t_{193} = 4.88, \ p < 0.001\)). Therefore, we fail to reject Hypothesis 1.

With regard to Hypothesis 2 we find that the effect of a favorable process is more positive in the case of a favorable outcome than in the case of an unfavorable outcome for all three patient evaluative measures (QUAL: \(F_{1,193} = 26.29, \ [p < 0.001]\); SAT: \(F_{1,193} = 27.84, \ [p < 0.001]\); BI: \(F_{1,193} = 9.76, \ [p < 0.001]\)). Therefore, we reject Hypothesis 2. Although Umesh et al. (1996) caution researchers for using the omnibus \(F\) test for interactions testing for differences between cell means, they also indicate that the 2*2 ANOVA constitutes a special case in that respect (cf. Keppel, 1991).

Similarly, we found a significant two-way effect for the service process and purpose (\(V = 0.12; \ F_{3,191} = 8.70, \ [p < 0.001]\); \(\eta^2 = 0.12\)). The cell means for this interaction effect are graphically depicted in Fig. 2 for all three dependent measures. Regarding Hypothesis 3 we find in Fig. 2 that in the case of an intangible purpose the effect of service process on the patient evaluative judgments is more positive than in the case of a tangible purpose (QUAL:

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Results of MANOVA</th>
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<tbody>
<tr>
<td>Effect</td>
<td>Pillai–Bartlett trace (V)</td>
</tr>
<tr>
<td>Main effects</td>
<td></td>
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<tr>
<td>Service Process (SP)</td>
<td>0.65</td>
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<tr>
<td>Service Outcome (SO)</td>
<td>0.61</td>
</tr>
<tr>
<td>Purpose (P)</td>
<td>0.09</td>
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<tr>
<td>Two-way interactions</td>
<td></td>
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<tr>
<td>SP*SO</td>
<td>0.14</td>
</tr>
<tr>
<td>SP*P</td>
<td>0.12</td>
</tr>
<tr>
<td>SO*P</td>
<td>0.15</td>
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<tr>
<td>Three-way interaction</td>
<td></td>
</tr>
<tr>
<td>SP<em>SO</em>P</td>
<td>0.03</td>
</tr>
</tbody>
</table>

\(a\) \(df_1 = 3, \ df_2 = 191.\)  
\(b\) \(F\) approximation.  
\(c\) Multivariate extension of \(\eta^2\).
Fig. 1. Graphical representation of means of two-way interaction between service process and service outcome for: (a) Quality; (b) Satisfaction; (c) Behavioral intentions.
Furthermore, our analyses also revealed a significant two-way interaction between service outcome and purpose (\(V = 0.15; F_{3,191} = 11.51 [p < 0.001]; \eta^2 = 0.15\)). The cell means for this interaction are presented in Fig. 3 for all three dependent measures. From Fig. 3 it can be shown that in the case of tangible purpose the impact of service outcome on patient evaluative judgments is larger than for an intangible purpose. (QUAL: \(F_{1,193} = 25.74 [p < 0.001]\); SAT: \(F_{1,193} = 3.76 [p = 0.05]\); BI: \(F_{1,193} = 12.49 [p = 0.001]\)). Therefore, we can fail to reject Hypothesis 4. Finally, the hypothesized three-way interaction showed no significant effect (\(V = 0.03; F_{3,191} = 2.18 [p < 0.09]; \eta^2 = 0.03\)). As a consequence, Hypothesis 5 was rejected.

7. Conclusion

7.1. Discussion

This study was aimed at nuancing the intricate interplay between the outcome, process and purpose variables in establishing patient evaluations of
Fig. 2. Graphical representation of means for two-way interaction between service process and purpose for: (a) Quality; (b) Satisfaction; (c) Behavioral intentions.
a medical service encounter. Various observations can be drawn from our results. Consistent with research on services in general (Iacobucci et al., 1994) and medical services in particular (Bopp, 1990), the results suggest that a favorable process experience increases the likelihood of a positive service evaluation by patients. Since the favorable process mean is higher in all conditions of service outcome and purpose, we are able to identify a process main effect that is according with previous findings. On the other hand, we failed to find evidence for the fact that the relative impact of process would be higher in case of an unfavorable service outcome than in case of a favorable service outcome as suggested by previous research (Lytle and Mokwa, 1992). This, however, may be due to the type of medical services investigated. Lytle and Mokwa (1992) investigated patients in the setting of a fertility program for which there is arguably a much more sharper contrast between outcome and process than in case of the visit to a general practitioner.

While process is an important determinant of evaluative judgments, it cannot wholly compensate for an unfavorable outcome. Process is a value-added feature but not a substitute for outcome (Crosby and Stephens, 1987). Our findings suggest that the nature of the outcome of a medical service encounter influences the way in which the process is evaluated. This supports
Fig. 3. Graphical representation of means for two-way interaction between service outcome and purpose for: (a) Quality; (b) Satisfaction; (c) Behavioral intentions.
Grönroos' (Grönroos, 1984) contention about a hierarchy of determinants of patient evaluative judgments in general that outcome-related aspects may not be sufficient but necessary for a positive service encounter evaluation. Alternatively, it may be that a positive process magnifies the effects of a positive outcome, as the most positive evaluations were obtained for the favorable process–favorable outcome condition.

Interestingly, it may be noticed that the main effects of outcome and process are of a comparable magnitude in relation to perceived service quality. This might be indicative of the relative importance of the outcome variable. At the same time, however, it may very well be that interaction between process and outcome is subject to outcome bias. In the context of medical decision-making, Baron and Hershey (1988) demonstrated that respondents rate the quality of the decision higher when the outcome of the decision is favorable. Similar findings were reported for the assessment of public policy decisions (Mowen and Stone, 1992). Thus, in reference to our results, respondents may have interpreted good outcome as a sign of a good service delivery process.

Furthermore, we find that evaluations of service encounters by patients are influenced by the purpose of the encounter. As expected, in case of a
visit aimed at tangible aspects of the medical service, service outcome has a stronger impact on patient evaluations, whereas in the case of a visit aimed at intangible aspects, service process has a stronger impact on patient evaluations. Therefore, the effects of outcome and process should be compared only within patient groups of tangible and intangible purpose rather than across the total population. We did not find empirical support for a three-way interaction between service outcome, service process and purpose of visit.

7.2. Theoretical implications

Part of the strength of a study lies in the recognition of its limitations. These limitations form directions for future research and point to theoretical implications. First of all, the experimental design pertained to a “laboratory experiment”. As a consequence, the generalizeability of the findings would be limited with regards to real-life settings. Furthermore, the use of an experimental design is subject to other inherent limitations pertaining to a possible lack of realism. For instance, our study involved a single sample of each subject group judging one hypothetical case on the basis of limited information. Even though the results of the manipulation check show successful manipulation of service process and outcome, there may be a difference between simulation and real experience, affecting the way in which respondents react to the situation. One way of dealing with this limitation may be to present audio–visual scenarios which are more realistic than verbal stimuli. In this way, the manipulated conditions are more closely to holistic experience (‘gestalt’) of a service encounter.

Furthermore, evaluative judgments have been restricted to a single service episode in this study. Future experiments might investigate how these judgments develop over time, in order to examine the impact of service process and service outcome more profoundly and in line with real-life situations. Based on advances in attribution theory (e.g., Folkes, 1994) it can be argued that patient perceptions of service quality and satisfaction may be influenced by more than just outcome and process. Patient inferences concerning the cause of an unfavorable process may considerably moderate service quality and satisfaction evaluations. Future research should take the impact of such attributions into account. In addition, more research is needed with respect to the influence of outcome bias. Finally, additional research is needed to address how each of the variables used in
this study has an impact on actual behavior rather than patient evaluative judgments.

7.3. Managerial implications

Our findings have several implications for medical practice also. Lytle and Mokwa (1992) detect a tendency for patient evaluation surveys to be biased towards process elements. As our study identifies both outcome and process as important drivers of patient evaluations, general practice management should take both into account in patient surveys. Particularly, in high involvement services with a relatively high degree of perceived risk, the use of experimental design may be warranted as the relative impact of outcome and process in survey type questionnaires may be a function of the format that is used. Iacobucci et al. (1994), for instance, argue that it would be irrational for respondents to rate process variables as relatively more important than outcome variables when confronted with rating scales for service quality attributes. This may be a major reason why current measurements of customer satisfaction are not especially informative or diagnostic (Peterson and Wilson, 1992). Conducting experiments enables health care researches to deal with such an unwanted effect of the data collection method in an efficient manner by manipulation of the variables under investigation. Alternatively, and requiring considerable more effort, the use of standardized regression parameters in a large-scale survey research across general practitioners and patient populations may also yield more insight into the relative importance of process, outcome and purpose of visit.

An additional managerial implication is that health care providers may find it useful to be aware of the patient’s purpose of visit as this may significantly influence the impact of outcome and process variables in determining patient evaluations. Particularly, general practitioners, therefore, should attempt to elicit the purpose of visit and attempt to meet role expectations involved with purpose of visit (Woodside et al., 1989; Folkes, 1994). This emphasizes the importance of good communication skills.

Finally, the measurement of patient evaluations may provide an important measure of the general practice past and current performance. In addition it also has a future economic rationale. Measuring patient evaluations yields an insight into the general practice most important assets: its customers. As perceptions of service quality and satisfaction will be positively related to patient loyalty, decreased price elasticity and a positive image in the market for first level health care services, measurement of
patient evaluations can provide a compelling indication of the economic health of a general practice.

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Appendix A. Sample scenario

A sample scenario referring to a good service process and outcome with respect to tangible purpose is given below.

Process: You are afraid that you are suffering from a sinusitis. In order to get medication, you decide to consult a general practitioner. When calling, you are told that the general practitioner is able to see you the same day. As you enter the consulting-room, the general practitioner greets you kindly and asks how you are doing. While you express your concerns, the general practitioner listens to you attentively and shows interest and care. When the general practitioner diagnoses your disease, you feel that your concerns have been heard and addressed. Your presumptions were right, you are suffering from a sinusitis. The general practitioner informs you about possible ways of medical treatment and that it may be sensible to not to take medication rightaway. The general practitioner explains to you that this infection may cure spontaneously. On the basis of what he told you, you agree that it is sensible to wait for another week, because you do not want to take medication unnecessarily. If the symptoms remain longer than a week, the general practitioner agrees to giving you medicinal therapy as yet.

Outcome: A week passes, and the infection has not yet cured. You contact the general practitioner again. The general practitioner now prescribes and sends out to your home-address a medicine that cures you.

References


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