

ROLES OF NORMATIVE AND PREDICTIVE EXPECTATIONS IN EVALUATION OF PHARMACIST CONSULTATION SERVICES

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ABSTRACT

The purpose of this study was to investigate the role of normative and predictive expectations in patients' evaluation of service encounter satisfaction and perceived quality for pharmacist consultation. A 2x2x2 fully-crossed factorial design was used for collecting and analyzing data. Two levels each for normative expectations, predictive expectations, and performance level were manipulated experimentally yielding eight treatment groups. Results from repeated measures ANOVA showed that normative and predictive expectations play differential roles in patients' evaluation of pharmacist consultation services.

INTRODUCTION

The research domain for this study was pharmacist consultation defined as verbal communication between a pharmacist and patient (or agent of the patient) about medications or health. Consultation is a vital component for patient understanding of medication regimens, acceptance of medical services, compliance with treatment plans, and achieving therapeutic goals (Helling et al., 1979; McKenney et al., 1973; Svarstad, 1986).

In order to provide effective consultation services, pharmacists must change their relationship with their patients from simply a provider of prescriptions to that of concerned counselor (Hardy and Conway, 1988). Thus, these relationships need to be transformed from discrete, product-oriented exchanges into long term, patient-oriented ones (Berger, 1993; Hepler and Strand, 1990). This study was based on the assumption that patients' service encounter satisfaction (Ross et al., 1987; Ware and Davies, 1983) and their perception of service quality (Boulding et al., 1993; Ross et al., 1987) are important components for their commitment to a long term relationship with their pharmacist and willingness to actively participate in consultation services. For this study, service encounter satisfaction was defined as "the summary psychological state resulting when emotion

surrounding disconfirmed expectations is coupled with an individual's prior feelings about the experience under consideration" (Oliver, 1981). Satisfaction is an affect, or level of surprise, an individual experiences after a specific service encounter. It is of finite duration and decays into a less dynamic attitude, such as perceived service quality. Perceived service quality was defined as "an individual's assessment of the overall excellence or superiority of consultation services provided" (Boulding et al., 1993; Parasuraman et al., 1985). It is a general post-encounter attitude about the service overall, not only about a particular service encounter. Thus, the satisfaction construct emphasizes individuals' perceptions of a specific service encounter, and the quality construct emphasizes individuals' cumulative perceptions (Bitner and Hubbert 1994).

Little is known about how patients evaluate service encounter satisfaction or the quality of pharmacist consultation services. The purpose of this study was to investigate the role of patients' expectations in these evaluations. The theoretical framework on which this research was based is called the Dynamic Process Model of Service Quality (Boulding et al., 1993). This model proposes that individuals' expectations, as well as the performance of a service, play important roles in their evaluation of the service. The evaluation of a service is viewed as a function of an individual's prior expectations of what will and what should transpire during a service encounter, as well as his or her most recent contact with the service delivery system (Boulding et al., 1993). Specifically, the model predicts unique effects for expectations on how an individual perceives his or her service encounter and allows for two individuals experiencing an identical service encounter to have different perceptions of the service if they enter the encounter with different expectations.

Expectations are defined as pretrial beliefs about a product or service (Olson and Dover, 1979). Two main types of expectations are used for evaluative purposes (Boulding et al., 1993). Normative expectations represent what level of performance an individual believes he or she

should receive during a service encounter (Boulding et al., 1993; Swan and Trawick, 1980). Predictive expectations represent what level of performance an individual believes he or she will receive (Boulding et al., 1993; Swan and Trawick, 1980).

It was hypothesized that both types of expectations negatively influence individuals' service encounter satisfaction via a process called disconfirmation of expectations (Oliver, 1980; Olson and Dover, 1979). For this process, both normative and predictive expectations act as standards against which individuals compare pharmacist performance (Boulding et al., 1993; Woodruff et al., 1983). When expectations match performance, confirmation occurs. When expectations exceed perceived performance, negative disconfirmation occurs. Positive disconfirmation occurs when perceived performance exceeds expectations. More positive disconfirmation of expectations leads to greater service encounter satisfaction (Oliver, 1980; Woodruff et al., 1983). Therefore, the higher the expectation in relation to performance, the lower the level of satisfaction with the service.

Expectations also were hypothesized to play a role for individuals' evaluation of service quality. The role of normative expectations was thought to follow the disconfirmation of expectations process (Oliver, 1980; Olson and Dover, 1979). That is, individuals with higher normative expectations (what should occur) have lower perceptions of service quality after a service encounter, all else equal, than those with lower normative expectations. However, the model posits a positive relationship between predictive expectations and service quality. That is, individuals with higher predictive expectations (what will occur) have higher perceptions of quality after a service encounter, all else equal, than those with lower predictive expectations.

Based on the previous discussion, the following hypotheses were tested. The hypotheses reflect proposed relationships among normative expectations, predictive expectations, and performance level with service encounter satisfaction and perceived service quality.

H1: There is a negative relationship between patients' **normative expectations** for

pharmacist consultation services and **service encounter satisfaction**, for equivalent levels of predictive expectations and performance level.

H2: There is a negative relationship between patients' **predictive expectations** for pharmacist consultation services and **service encounter satisfaction**, for equivalent levels of normative expectations and performance level.

H3: There is a positive relationship between **performance level** and **service encounter satisfaction**, for equivalent levels of normative expectations and predictive expectations.

H4: There is a negative relationship between patients' **normative expectations** for pharmacist consultation services and **perceived service quality**, for equivalent levels of predictive expectations and performance level.

H5: There is a positive relationship between patients' **predictive expectations** for pharmacist consultation services and **perceived service quality**, for equivalent levels of normative expectations and performance level.

H6: There is a positive relationship between **performance level** and **perceived service quality**, for equivalent levels of normative expectations and predictive expectations.

Because no research was found which suggested interactive effects among the independent variables, none were hypothesized. However, an exploration of significant interactive effects was conducted statistically.

METHODS

A 2 x 2 x 2 fully-crossed factorial design was used for collecting and analyzing data. Two levels each for normative expectations, predictive expectations, and performance level were manipulated experimentally yielding eight treatment groups. To control for between-subject variation, a repeated measures design was used in which each study subject received all eight

treatment combinations in random order.

The dependent variables, service encounter satisfaction and perceived service quality, were measured using six items for each based on previously used measures for satisfaction (Crosby et al., 1990; Oliver, 1981) and perceived quality (Walbridge and Delene, 1993) (see Appendix A for items and rating scales). Items for each measure were summed to produce overall scores.

On the basis of theory and prior experiments (Boulding et al., 1993), normative and predictive expectations were manipulated through the use of hypothetical situations presented in written format (see Appendix B). Normative expectations were manipulated by telling the study subjects about their need for more information about the medication described in the situation. Predictive expectations were manipulated by telling study subjects about their prior experiences with the pharmacy and the pharmacy's reputation. Performance level was manipulated by means of two videotaped consultations by a pharmacist (Bateson and Hui, 1992). For each videotape (produced professionally in hi-8 format), the pharmacist talked directly to the video camera during taping to provide the impression that the pharmacist was talking to the person viewing the videotape. The low performance videotape consisted of the pharmacist handing the prescription over the counter and saying thank you. The high performance videotape was the same as the low performance tape in every way except now the pharmacist discussed the medication with the "patient" following the Omnibus Budget Reconciliation Act of 1990 Federal Guidelines (Omnibus Budget Reconciliation Act of 1990, 1990). Nystatin oral suspension was the medication used for this study. It was selected because (1) it was a drug that potentially could be prescribed for the study population and (2) it required consultation to assure proper administration, storage, and length of use.

Manipulation checks (Perdue and Summers, 1986) were conducted for each of the three independent variables during the development of the experiment. Manipulation checks for the two levels of performance were conducted by asking seven pharmacists to view the two videotaped presentations and rate the counseling from 1 =

terrible to 5 = excellent. The mean score for the low performance was 1.0 and for the high performance was 4.1.

Manipulation checks for the levels of normative and predictive expectations followed a two-step process. First, 18 pharmacists were asked to read a situation and report whether or not they believed there was a need for the pharmacist to talk with the patient for normative expectation situations and whether or not they believed that a pharmacist would talk with the patient for predictive expectation situations. Normative and predictive expectation situations were kept separate at this point. The results suggested that the manipulations were obtaining the desired effects. For the low normative expectation situations, only three percent of the pharmacists reported that they believed there was a need for the pharmacist to talk with the patient, while 100 percent reported there was a need in the high normative expectation situation. For low predictive expectation situations, only six percent of the pharmacists reported that they believed that the pharmacist would talk with the patient, while 100 percent reported that the pharmacist would talk with the patient in the high predictive expectation situation.

To assure that the manipulations would not have an interactive effect when combined into one form, the manipulations were tested simultaneously using a random sample of 100 college students who were not enrolled in health care programs. Situations were ordered randomly for each individual and mailed. After reading for each situation, respondents were asked to report "how necessary it is for a pharmacist to talk with you about how to use this prescription" using a scale from 1 = not at all necessary to 5 = extremely necessary" (to assess the manipulation for normative expectations). Also, they were asked "how likely it is that the pharmacist will talk with you about the prescription when you get it filled" using a scale from 1 = not at all likely to 5 = extremely likely" (to assess the manipulation for predictive expectations). To encourage response, the students were informed that two respondents would be selected randomly to receive \$100 gift certificates to the university bookstore. Of 93 deliverable surveys, 42 students (45.2 percent) responded. Results of these manipulation checks are presented in Table 1. The results show that the

desired manipulations were obtained. Also, the results show that the effects of the manipulations are independent of each other when presented together (interaction terms not significant).

The pretest for the experiment was conducted using one individual who was not trained or working in health care, but did have training in research methods. After making changes in the procedures based on her comments, the main study was conducted.

For the main study, eighteen college students (not enrolled in health related programs) were recruited from The Ohio State University campus. According to Bratcher et al. (1970), 18 subjects per group were required for $\alpha = 0.05$, power = 0.90, and $C = 1.5$. College students were selected because they were conveniently located to the research laboratory and less likely than others to have had prior experience with consultation. Little experience with consultation was desired for this study since prior experience would confound the effects of the manipulations for independent variables.

Each of the individuals who volunteered for the study visited the research laboratory on eight separate days. At each visit, subjects received one of the eight study situations in random order and

were asked to report their service encounter satisfaction and perceived service quality on a questionnaire. After the final visit, each volunteer received a \$100 gift certificate redeemable at the university bookstore.

Factor analysis was conducted for items used to measure service encounter satisfaction and perceived service quality to help support their discriminant validity. Varimax rotation was used to maintain orthogonality of factors and to have items load highly on a given factor and very little on other factors. To support validity, items used to measure each variable should have high factor loadings (≥ 0.50) for the variable they were designed to measure and low factor loadings (< 0.50) for other variables. Cronbach coefficient alpha was used to assess reliability for the measures of service encounter satisfaction and perceived service quality. Repeated measures Analysis of Variance was used, with a significance level of 0.05, for hypothesis testing and for exploring interactive effects among the study variables.

RESULTS

Table 2 contains factor loadings for items used

Table 1
Manipulation Checks for Normative and Predictive Expectations^a

Normative Expectations (n = 42)

	<u>Low Normative/ Low Predictive</u>	<u>Low Normative/ High Predictive</u>	<u>High Normative/ Low Predictive</u>	<u>High Normative/ High Predictive</u>
Normative Expectations ^a (mean)	2.7	2.8	4.4	4.4

ANOVA Results: Normative Expectation Manipulation, $F = 79.25$, $p < 0.001$; Predictive Expectation Manipulation, $F = 0.05$, $p = 0.82$; Two-Way Interaction, $F = 0.23$, $p = 0.63$.

Predictive Expectations (n = 42)

	<u>Low Normative/ Low Predictive</u>	<u>Low Normative/ High Predictive</u>	<u>High Normative/ Low Predictive</u>	<u>High Normative/ High Predictive</u>
Predictive Expectations ^b (mean)	1.7	4.4	1.8	4.3

ANOVA Results: Normative Expectation Manipulation, $F = 0.00$, $p = 1.00$; Predictive Expectation Manipulation, $F = 233.30$, $p < 0.001$; Two-Way Interaction, $F = 0.66$, $p = 0.42$.

^a Normative Expectations were measured on a scale from 1 = not at all necessary to 5 = extremely necessary.

^b Predictive Expectations were measured on a scale from 1 = not at all likely to 5 = extremely likely.

to measure service encounter satisfaction and perceived service quality. The factor structure for these two constructs supports their discriminant validity. Cronbach coefficient alpha for the six-item measure of service encounter satisfaction was 0.99 and the six-item measure of perceived service quality was 0.98.

Table 2
Factor Loadings for Items of Multi-Item
Dependent Variables
(n = 144 responses for each item)

<u>Item^a</u>	<u>Factor 1</u>	<u>Factor 2</u>
Service Encounter Satisfaction		
SAT1	0.90	0.36
SAT2	0.88	0.38
SAT3	0.87	0.43
SAT4	0.87	0.43
SAT5	0.87	0.42
SAT6	0.87	0.39
Perceived Service Quality		
QUAL1	0.46	0.84
QUAL2	0.46	0.84
QUAL3	0.38	0.86
QUAL4	0.47	0.84
QUAL5	0.30	0.88
QUAL6	0.36	0.89

^a See Appendix A for wording of items

Table 3 contains results from repeated measures ANOVA for service encounter satisfaction. The results show that Hypothesis 1 was not supported, but Hypotheses 2 and 3 were supported by the results. That is, normative expectations did not significantly affect satisfaction, but predictive expectations and performance level did affect satisfaction as hypothesized. The two-way interactions normative expectations/performance and predictive expectations/performance were statistically significant ($p < 0.0001$ and $p = 0.0011$, respectively). The three-way interaction for normative expectations/predictive expectations/performance was statistically significant as well (p

$= 0.0067$).

Table 4 contains results from repeated measures ANOVA for perceived service quality. The results show that Hypothesis 4 was not supported. Hypothesis 5 and Hypothesis 6 were supported by the results. Thus, normative expectations did not significantly affect perceived service quality, but predictive expectations and performance level did affect perceived quality as hypothesized. Also, the interaction between normative and predictive expectations was statistically significant ($p = 0.0136$).

Table 3
Repeated Measures ANOVA Results for
Service Encounter Satisfaction^a
(n = 18)^b

<u>Variable</u>	<u>t</u>	<u>significance of t</u>
Normative ^c	-0.9	0.3765
Predictive ^d	-3.0	0.0090
Performance ^e	14.6	<0.0001
Normative x Predictive	1.8	0.0979
Normative x Performance	5.6	<0.0001
Predictive x Performance	3.9	0.0011
Normative x Predictive x Performance	-3.09	0.0067

^a Service Encounter Satisfaction = the summary psychological state resulting when emotion surrounding disconfirmed expectations is coupled with an individual's prior feelings about the experience under consideration. It was measured as the sum of six items with scores ranging from 6 to 42.

^b Service Encounter Satisfaction was measured eight times for each of the 18 study subjects yielding a total of 144 observations.

^c Normative = Manipulated as high or low normative expectations (pretrial belief about what should occur).

^d Predictive = Manipulated as high or low predictive expectations (pretrial belief about what will occur).

^e Performance = Manipulated as high or low level of pharmacist consultation provided.

DISCUSSION AND CONCLUSIONS

Service performance was the key determinant of satisfaction which is consistent with previous research (Tse and Wilton, 1988). In addition, the

Table 4
Repeated Measures ANOVA Results for
Perceived Service Quality
(n = 18)^b

<u>Variable</u>	<u>t</u>	<u>significance of t</u>
Normative ^c	-1.6	0.1189
Predictive ^d	3.7	0.0016
Performance ^e	8.7	<0.0001
Normative x Predictive	2.8	0.0136
Normative x Performance	0.5	0.6067
Predictive x Performance	0.9	0.3795
Normative x Predictive x Performance	-1.5	0.1635

^a Perceived Service Quality = an individual's assessment of overall excellence or superiority of consultation services provided. It was measured as the sum of six items with scores ranging from 7 to 42.

^b Perceived service quality was measured eight times for each of the 18 study subjects yielding a total of 144 observations.

^c Normative = Manipulated as high or low normative expectations (pretrial belief about what should occur).

^d Predictive = Manipulated as high or low predictive expectations (pretrial belief about what will occur).

^e Performance = Manipulated as high or low level of pharmacist consultation provided.

significant two-way interactive effects for normative expectations and predictive expectations with performance suggest that the positive relation between performance and satisfaction is more pronounced when normative and predictive expectations are high. Thus, as suggested by Boulding et al. (1993), the level of expectations for a service might affect how service performance is perceived.

The main effect of normative expectations on satisfaction was not statistically significant. But, a significant negative relation between predictive expectations and satisfaction was found. This finding is consistent with the disconfirmation of expectations view of satisfaction and suggests that individual's with high predictive expectations are less likely to be satisfied than those with low expectations after perceiving a relatively low level of service performance. The significant three-way interaction among normative expectations,

predictive expectations, and performance is difficult to interpret since many explanations could be provided.

Taken together, these findings show the complexity of satisfaction judgments and the roles that expectations might play in them. It appears that predictive expectations serve as a "threshold" or a "sensitizing" point for individuals in that it is more difficult to satisfy individuals who have high predictive expectations with a particular level of performance. However, if these high expectations are positively disconfirmed by performance, the level of satisfaction that is experienced is actually enhanced by the high predictive expectations.

Regarding evaluation of service quality, performance level still showed the greatest effect on perceived quality, but different expectations were shown to allow for two individuals who experience identical performance to have different evaluations of the encounter (Boulding et al. 1993). The results also showed that higher expectations regarding what level of consultation the pharmacist will provide leads to a higher perception of quality which is consistent with the Dynamic Process Model of Service Quality. This positive relation is opposite to the negative relation found between predictive expectations and service encounter satisfaction. Thus, the same expectation is used differently when evaluating a specific service encounter versus the quality of the service overall. Future research is needed to help determine how individuals integrate their evaluations of specific service encounters with the assessment of the overall quality of a service. It appears that the perception of overall quality is resistant to change, even after a low level of performance might be experienced. In these cases, individuals might attribute a poor performance episode to a cause outside of the service provider's control.

This study had some limitations which should be considered when drawing conclusions from the results. While the repeated-measures factorial design provides the advantage of controlling extraneous variables that could affect the internal validity of the study, external validity suffers. Findings from this study should be confirmed by field studies in more naturalistic settings. Another limitation is that videotaped presentations were used to simulate prescription dispensing situations.

Although researchers have reported that this is a valid method (Bateson and Hui, 1992), relevance of the results to all prescription dispensing situations in general is questionable. Also, the incentive given to study subjects could have affected their responses. Finally, the study was conducted for a specific health care service that recently has been introduced to individuals. Therefore, the roles of normative and predictive expectations in service encounter evaluation might be unique to this particular health service.

In conclusion, the results showed that normative and predictive expectations play differential roles in patients' evaluation of service encounter satisfaction and perceived quality for pharmacist consultation if patients use these expectations as comparison standards. Also, the results showed differential roles that a particular type of expectation will serve depending upon the level of performance that was perceived by an individual.

These findings raise questions for future research. For example, how are expectations formed for pharmacist consultation services? Do patients in naturalistic settings use expectations as comparison standards for assessing service encounter satisfaction and service quality for these services? Do expectations exert a direct effect on evaluations or do expectations affect how performance is perceived which then exerts a direct effect on evaluations (Boulding et al., 1993)? Are normative and predictive expectations stored in memory and retrieved for use only under certain conditions? Are they used for different reasons under different service performance conditions? More research is needed to help understand the processes that are used for evaluation of health care services such as pharmacist consultation.

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APPENDIX A

Items Used for Measuring Service Encounter Satisfaction and Perceived Service Quality

Unless otherwise noted, responses were made on the rating scale 1 = very strongly disagree to 7 = very strongly agree.

Service Encounter Satisfaction

- SAT1 I was satisfied with the consultation provided by the pharmacist.
- SAT2 I was pleased with the pharmacist's consultation.
- SAT3 The consultation provided by the pharmacist was useful.
- SAT4 The pharmacist's consultation was helpful.
- SAT5 The consultation provided by the pharmacist was valuable.
- SAT6 I was thankful for the consultation by the pharmacist.

Perceived Service Quality

- QUAL1 The quality of consultation provided at this pharmacy is outstanding.
- QUAL2 The consultation provided at this pharmacy is superb.
- QUAL3 This pharmacy is a reliable source of prescription drug information
- QUAL4 The overall quality of pharmacist consultation provided at this pharmacist is (1 = terrible to 7 = excellent).
- QUAL5 When compared to an average pharmacy, consultation provided at this pharmacy is: (1 = extremely inferior to 7 = extremely superior).
- QUAL6 The overall quality of consultation services at this pharmacy is: (1 = extremely low to 7 = extremely high).

APPENDIX B

Hypothetical Situations Presented in Written Format for the Manipulation of Normative and Predictive Expectations

High Normative Expectations

About a week ago you experienced a sore throat and a bad taste in your mouth. Your symptoms kept getting more bothersome so you decided to see the doctor to find out what the problem was. Your doctor diagnosed that you had an infection in your mouth and prescribed a medication to take care of the problem. You mentioned to the doctor that you've never had this infection before. The doctor said that you shouldn't worry because the medication will clear up in no time. You leave the doctor's office without receiving any information about the medication that was prescribed for you and aren't sure how you're supposed to use it. After leaving the doctor's office, you believe it is necessary to receive more information about the prescription from another source.

Low Normative Expectations

About a week ago you experienced a sore throat and a bad taste in your mouth. Your symptoms kept getting more bothersome so you decided to see the doctor to find out what the problem was. Your doctor diagnosed that you had an infection in your mouth and prescribed a medication called Nystatin to take care of the problem. The doctor explained that Nystatin is an antibiotic used to treat infections of the mouth and throat. You should take one teaspoonful four times a day. When you take it, shake the bottle, measure out one teaspoonful, and swish the medicine around in both sides of your mouth just like mouthwash. Then go ahead and swallow the medicine. The doctor said to keep taking it for about 48 hours after the symptoms go away to make sure that the infection doesn't

come back. Side effects are rare with the medication, but some stomach upset or diarrhea are possible. They should go away, but if not, give the doctor a call. You can store the bottle at room temperature. Then, the doctor asked if you had any questions and gave you some written information to remind you how to use the drug when you get home. You left the doctor's office completely confident in how to use the medication, with no need to get more information elsewhere.

High Predictive Expectations

You decide to purchase the prescription at a pharmacy that sells prescriptions at higher prices than other pharmacies, but provides personal counseling services on all prescriptions. Your friends have recommended this pharmacy to you because the pharmacists give useful information about how to use the prescriptions, what they are for, and what types of things to look out for while taking them. The pharmacists always ask how much you already know about the prescriptions and then reinforce or build on what you tell them. In your experience with this pharmacy, you've talked with the pharmacist every time you've gone there and received valuable information. You also appreciate the pharmacist's willingness to answer your questions.

Low Predictive Expectations

You decide to purchase the prescription at a pharmacy that sells prescriptions at deeply discounted prices. You have heard from your friends that, while the prices are low, the pharmacists never give out any information about prescriptions and are too busy to answer questions. You've purchased prescriptions at this pharmacy before and have never talked with the pharmacist even once.

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