Investigating word-of-mouth (WOM) factors influencing patients' physician choice and satisfaction

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ABSTRACT

Objectives: This study aims to determine the word-of-mouth constructs related to physician choice and to investigate relationships between the constructs and satisfaction. Method: A questionnaire consisted of three parts was conducted on people (n=1193) living in the province of Eskisehir, Turkey. The first part contained sixteen statements related to word-of-mouth messages about choosing a physician. A traditional approach to scale development was utilized. Items in the second part were concerned with satisfaction as the dependent variable. The final part included demographic variables. Results: The results of confirmatory factor analysis (CFA) revealed four valid WOM constructs (communication skill, expertise, reputation and success, and institutional facilities) and structural equation model (SEM) indicate that these constructs have both directly and indirectly effect on patient satisfaction. The results also showed that institutional facility mediated relationship between remaining factors and satisfaction. Conclusions: The relationships between physicians and patients have an indirect effect on potential patients. By understanding sources of patients' satisfaction and dissatisfaction, physicians can develop appropriate relationship strategies to minimize the adverse effects of negative word-of-mouth on costs, quality and patient turnover. The results of the current study provide suggestions for better health care management and further insight into the challenges of improving patient satisfaction.

Keywords: Buzz marketing, Health marketing, Marketing-stimulated word-of-mouth, Word of mouth, Word-of-mouth marketing.
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INTRODUCTION

Word-of-mouth (WOM) is considered to be one of the most powerful forces in the marketplace and especially valuable to service providers [1]. Arndt [2, 3] defined WOM as "oral, person-to-person communication between a receiver and a communicator whom the receiver perceives as noncommercial". The interactivity, speed, and lack of commercial bias of WOM make it a very effective source of information about prospective consumer choices, particularly with regard to services for which prepurchase experience may be limited [3]. Lessig and Park [4] found that when seeking information about physicians, consumers are particularly interested in consulting opinion leaders or other individuals they believe have expertise in the area [5]. WOM is particularly important when services are complex or are perceived as high risk.[6] Thus, WOM communication is pertinent for many health care services, however, it is complex and difficult to evaluate [1]. From Lim and Chung's perspective, WOM is particularly important in health care service marketing due to the heterogeneity of health care service quality, the higher risks associated with health care, and the intangible nature of health care services.[7] In order to make the best possible decision, consumers use WOM referrals for reassurance or confirmation that they are making the right decision in terms of their health care service decisions. Referrals lower the risks related to health care services [8]. Many people rely on recommendations for physicians from experienced family members and friends [9]. Roughly four out of every ten new patients say information from a family member, friend, relative, neighbor or co-worker is the reason

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they chose a new physician. Similar research carried out by UK HealthCare found that experience-based WOM marketing was responsible for one out of every four new patients [10].

Patients' WOM is becoming increasingly important for hospitals and treatment providers [8]. Moreover, as Harris [11] mentions, in many health care services, patients have an important role in gaining optimum health care services by taking an active and informed role in treatment decisions and switching physicians if care is unsatisfactory [8]. Many scholars have stated that in health care marketing, personal sources of information, specifically WOM, have a more decisive effect on consumption (e.g., purchase decisions) than do commercial sources of information, specifically advertising [5]. Although an extensive body of literature is available, empirical WOM research on choices and satisfaction related to physicians and health care services is limited. Thus, taking into account the research gap within the literature on health care services, this research aims to identify the possible WOM constructs that influence satisfaction with physicians in the health care area.

CONTEXT: WOM DIMENSIONS
Communication skill
In previous research, a linkage between the communication skills of a physician and consultation or treatment satisfaction is shown [12] [13]. Some scholars repeatedly demonstrate the importance of physicians' communication skills. High quality physicians' communication skills such as listening, coaching, questioning, and explaining [14] have been naturally linked to other WOM constructs. Through good communication, a physician gets to know the patient's problems and creates a therapeutic relationship [13]. Current models of the physician-patient relationship, such as 'relationship-centered care', include affect and emotion as central components [15]. Communication during medical visits can be evaluated as an important WOM construct. Moreover, communication is an integral component of the process and outcomes of physicians' care [12]. The patients' feelings of trust and intimacy are important during the communication process and consultation. Good physician-patient communication is associated with a higher level of patient satisfaction and compliance [13]. For this reason, the quality and friendly structure of communication between physicians and patients has an important effect on satisfaction. Therefore, communication skills can be considered as an exogenous and an important factor that leads to satisfaction. Therefore, there are relationships between communication skills and other constructs. This leads to the following hypotheses:

H1: Communication skills are positively associated with physician expertise.
H2: Communication skills are positively associated with reputation and the medical success of physicians.

Reputation and success
The reputation and the medical success of physicians can cause current patients to disseminate positive WOM messages. Health care consumers are able to acquire information from more knowledgeable consumers about the reputation and success of physicians. A person's reputation is linked to both satisfaction and trust [16]. A physician's reputation has a role in how patients gain trust in their medical service providers. "Medical relationships are often initiated on the basis of recommendations of family and friends, so trust initially may be based on reputation" [17]. In addition, the role of a physician's reputation correlates with trust and satisfaction among patients [18]. In most cases, many experienced health care consumers express their opinions about successful physicians. With respect to the factors that determine WOM in health care services, it has often been suggested that there is a relationship between reputation and medical success of a physician and the institutional facility. Based on these theoretical propositions, the following research hypothesis is proposed:

H3: Reputation and medical success of physician is positively associated with the institutional facility.

Expertise
Expertise means that a source has the knowledge, experience, or skill about a specific subject [19]. In this research, expertise indicates the medical knowledge and ability to successfully diagnose and treat patients. Furthermore, expertise plays a vital role in a patient's satisfaction after consultation based on the notion that former patients frequently consider the physician's expertise level in terms of the success of the treatment. Majority of patients prefer physicians with excellent medical skills [20]. Similarly, in research conducted by Peleg et al., [21] the majority of participants consider the professional level of the physician to be very important. Therefore, many of consumers tend to express their beliefs to friends, relatives and family members. For this reason experienced and former patients convey messages about their experiences, the medical success, and the expert status of their physicians. On these grounds, in order to examine the relationship between expertise and institutional facilities and

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their effect on satisfaction, the following hypotheses are developed:

H4: Expertise of physician is positively associated with the institutional facility.
H5: Expertise of physician is positively associated with satisfaction.

Institutional facility
Institutional facilities have an indirect effect on health care communications. Tangible dimensions (facilities, equipment, and appearance of the staff) are important dimensions of the SERVQUAL scale and have an effect on the satisfaction of consumers. After consultation, patients evaluate their physician's performance based on the WOM they received and their overall satisfaction. In this study, it is proposed that as a mediator of the other three WOM constructs, institutional facility affects satisfaction. Based on this proposition, it is also believed that the equipment of a medical institution is related to satisfaction. Based on this approach, the following hypothesis is developed:

H6: The construct of institutional facility is positively associated with satisfaction.
Overall, in order to explain the relationships among the research constructs, the following conceptual model is developed. Figure 1 displays the constructs and their relationships hypothesized in this research.
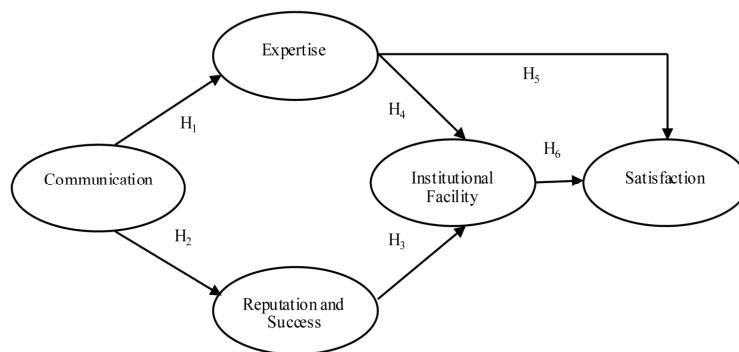

Fig 1: The Conceptual model.

MATERIALS AND METHODS

Survey instrument development: The questionnaire developed for this study consisted of three parts. The first section contained sixteen statements related to word-of-mouth messages about choosing a physician. In this section, a traditional approach to scale development was utilized, following the steps proposed by Churchill [22]. Following the scale development procedures outlined by Newell and Goldsmith [23], the initial pool of items hypothesized to be indicators of the four dimensions were evaluated for content validity. The scale resulted from a combination of exploratory qualitative focus group interviews, a review of the word-of-mouth literature, and a pretest study. In addition to information derived from the focus groups, statements for the first section of the questionnaire were adapted from previous research [24] and were designed according to the types and applications of WOM strategies. A five-point Likert-type anchored scale ("5" Very Important, "1" Not Important) was used for the sixteen WOM statements about physicians. The reliabilities for the four scales ranged from 0.66-0.88.

Items in the second section were concerned with satisfaction as the dependent variable. Three satisfaction items were adapted from Torres et al. [16] The satisfaction items were: (1) I am very satisfied with advice provided by experienced people; (2) If I had to do again, I would choose same advice; (3) The experience with my advisors has been satisfactory. The participants were asked to indicate their level of agreement with these three items on five-point Likert-type anchored scale ("5" Strongly Agree, "1" Strongly Disagree). The reliability of the three satisfaction scale was 0.92. The final section included demographic variables.
Ethical approval: The questionnaire regarding this study was approved by Research Ethics Board of Anadolu University (permission number 26701) in Turkey.

Sample: The sample consisted of people living in the province of Eskisehir, Turkey. A self-administrated and

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researcher-aided questionnaire was distributed by twelve trained surveyors. The venues of the research were public areas of private and public hospitals, homes, business venues, and the streets. Due to the importance and sensitivity of the issue, surveyors first briefly explained the research purpose, and then gave the questionnaires to willing participants. Assistance was provided to respondents who needed further explanations in filling out the questionnaire. In cases of refusal, the surveyors thanked the individual and approached another candidate. The explanation and administration of the questionnaire took approximately fifteen minutes. In total, 1650 questionnaires were distributed, and 1193 were returned for a response rate of 72.3%.

RESULTS

Characteristics of sample: Of the eligible 1193 respondents, 49.3% were male and 50.7% were female. The respondents ranged in age from 18 years to 69 years. Respondents' ages were grouped as 25 and under (34.1%), 26 to 35 (29.8%), 36 to 45 (16.8%), 46 to 55 (12.3%), and over 55 (7.1 %). University students (24%), public officials (12.6%), other occupations such as unemployed, farmer and teacher (12.4%), housekeepers (11.7%), laborers (10.6%), and tradesmen (8.8%) constituted the majority of participants. The monthly household income showed a wide distribution. The respondents' average monthly incomes were grouped as USD $500 or less (35%), $501-$1000 (33.2%), and more than $1000 (19.8%). With regard to educational level, 53.9% held some type of university degree, 24.4% graduated from high school, and 16.5% had less than a high school degree. Lastly, a total of 1042 individuals (87.3%) reported that they received WOM advice from others about their choice of and experiences with physicians.

Assessment of constructs: Prior to exploratory factor analysis (EFA) and confirmatory factor analysis (CFA), both univariate and multivariate non-normality were examined. Univariate normality was examined based on skewness and kurtosis. The most extreme values among all the variables were 4.27 for kurtosis and -1.94 for skewness for only one variable. As suggested by Curran, West and Finch [25], kurtosis should be less than 7.0 and skewness should be less than 2.0 [26]. EFA using orthogonal rotation (varimax) was chosen for factor analysis. For the WOM variables, the Kaiser-Meyer Olkin (KMO) was 0.90, indicating that the sample was adequate for factor analysis [27]. The BTS was 3176.53 (p<.001), indicating that the hypothesis variance and covariance matrix of variables as an identity matrix were rejected, and therefore, factor analysis was appropriate.

Table 1: Constructs and items of WOM.

Constructs	ß	Mean	±sd	t	α
Communication skill (COMMU)					
Physician's communication style with patients	0.78	4.52	0.72	24.34	
Being informative about the disease	0.75	4.57	0.64	23.58	
Communication established by the physician to understand patients	0.84	4.44	0.76	22.83	0.88
Listening and understanding patients	0.82	4.55	0.68	21.13	
Easy communication with physician	0.78	4.46	0.73	21.46	
Expertise (EXPER)					
Physician's expertise and knowledge	0.80	4.72	0.53	22.89	
Physician's knowledge and ability to diagnose	0.85	4.71	0.53	8.88	0.85
Physician's ability to suggest treatment	0.81	4.73	0.51	22.55	
Reputation and success (REPSU)					
Recognition of the physician in the field	0.79	4.18	0.91	21.38	
Success of the physician in the field	0.70	4.43	0.76	17.08	0.72
The number of people treated by the physician	0.62	3.56	1.13	26.96	
Physician's experience in the profession	0.62	4.46	0.77	24.29	
Institutional facilities (INSFA)					
Institution of the physician	0.73	3.47	1.17	26.81	
Analysis and diagnosis facilities of the physician's institution	0.60	4.42	0.73	19.81	0.66
Equipment status of the physician's institution	0.69	4.33	0.80	18.51	
The number of people receiving services from the hospital	0.62	3.51	1.11	26.17	
Fit statistics: X^2(142) = 1274.33, p < 0.001, CFI = 0.96, IFI = 0.96, NFI = 0.96, NNFI = 0.96, RMSEA = 0.082, SRMR = 0.055, GFI = 0.90, AGFI = 0.86					

The analysis yielded a four factor solution accounting for 63% of the variance related to WOM. The eigenvalue cutoff (equal or greater than 1.0) suggested a four factor solution. The four factors were titled: (1) communication, (2) expertise, (3) reputation and success, and (4) institutional facility (Table 1). All four factors met the minimum factor loading criterion (equal to or greater than 0.5).

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Table 2 displays the means, standard deviations and correlation coefficients. The bivariate relationships revealed that all of the variables significantly correlated (0.29-0.52). Construct-based scales were generated by summing the relevant items. By running descriptive statistics, mean and standard deviation were found for the each factor. According to the descriptive statistics, the construct of expertise had a higher mean score (4.72) compared to the remaining three constructs.

The sixteen items selected in the EFA were used to build a confirmatory factor analysis model (CFA) which was conducted to examine the reliability and validity of the measurement model. As shown in table 1, the chi-square value is significant, which is usually the case for research utilizing a large sample [28]. Because the sample size used in this study was large ($X^2_{(146)}$= 1274.33), the value of chi-square was statistically significant (p<0.001). Therefore, many researchers rely on the goodness-of-fit (GFI), the comparative fit index (CFI), the incremental fit index (IFI), the non-normed fit index (NNFI), the standardized root mean square residual (SRMR), and the root mean square error of approximation (RMSEA) [29] [30]. All these statistics were within the acceptable ranges, indicating good fit to the data. Table 1 presents the values of fit statistics. The GFI was 0.90, equal to the 0.90 recommended [31]. Moreover, the adjusted goodness of fit index (AGFI) was 0.86, which is slightly low, but acceptable.[28] CFI and NNFI indicate how much better the hypothesized model fits compared to the base model. Any value greater than 0.9 in CFI and NNFI indexes indicate an acceptable fit with the data [32]. In this study, CFI (0.96) and NNFI (0.96) exceeded the preferred level of 0.90. SRMR and RMSEA measure the poorness of fit.[33] SRMR and RMSEA should be below the cut-off value 0.08 or 0.10 [34]. In the measurement model, the RMSEA value of 0.082 was close the cut-of point and well below 0.10. In addition, the SRMR value (0.055) was also below 0.08.

Table 2: Correlation matrix and descriptive statistics.

Constructs	1	2	3	4
COMMU	1.00			
EXPER	0.40*	1.00		
REPSU	0.32*	0.38*	1.00	
INSFA	0.36*	0.29*	0.52*	1.00
Mean	4.51	4.72	4.16	3.93
±sd	0.58	0.46	0.66	0.69
* p < 0.01				

One of the most critical elements in generating the content validity of the items in a survey is conceptually defining the domains of the constructs [35]. The content validity of the items and constructs was established through the adoption of validated instruments by previous studies [36]. In order to examine construct validity, reliability coefficients and the percentage of variance was examined. As also reported in table 1, three of the four reliability coefficients exceeded the 0.70 cut-off value as recommended by Nunnally [37]. As a result, the percentage of variance explained by the items for these three constructs was greater than 50%. Sanzo et al. [38] defined a factor loading exceeding 0.5 as evidence of convergent validity. As shown in table 1, the factor loadings were greater than 0.6 and statistically significant which indicates acceptable item convergence on the intended construct. As suggested by Meehl [30], in CFA models, most of the loadings should be 0.60 or above, indicating that each measure is accounting for a consistent portion of the variance of the underlying latent variable.[29] Child [39] states that a factor loading value of 0.50 and above is considered good, whereas 0.45 is fair and 0.32 and below is poor. Discriminant validity is the degree to which measures of different constructs are unique enough to be distinguished from other constructs [40]. As shown in Table 2, the correlation coefficient values were significant and ranged from 0.29 to 0.52, with no correlations exceeding the 0.90 or greater critrion [41]. Overall, many of the fit statistics, validity, and reliability evidence suggested the confirmation of the proposed CFA model.

Structural model evaluation: Structural equation modeling (SEM) was conducted to test the hypothesized relationships among constructs using Lisrel 8.80. The path coefficients and model fit indexes of the hypothesized structural model are shown in Figure 2. The fit of the structural model is satisfactory. The model fit indices exceed their respective common acceptance levels, indicating that the model fit the data well. The chi-square value is significant ($X^2_{(146)}$ =1528.82, p<0.001), which is usually the case for research using large sample sizes. All of the remaining overall goodness of fit indices for the model are consistent with the recommended level: root mean square error of approximation (RMSEA) = 0.089, non-normed fit index (NNFI) = 0.95, goodness of fit index (GFI) = 0.88, comparative fit index (CFI) = 0.95, incremental fit index (IFI) = 0.95, adjusted goodness of fit index (AGFI) = 0.85, and standardized root mean square residual (SRMR) = 0.086. Overall, the fit indices suggest that the model fits the data well.

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The structural model displays the relationships between the constructs of WOM and satisfaction behavior (figure 2). Except the H5 hypothesis (β=-0.01; t=-0.41; p>0.05), all of the standardized coefficients in the structural model were significant (p<0.001). H1 and H2 were supported by positive and significant path coefficients from communication [COMMU] to expertise [EXPER] (β=0.54; t=17.96; p<0.001) and communication [COMMU] to reputation and success [REPSU] (β=0.48; t=14.57; p<0.001). H3 and H4 were supported by positive and significant path coefficients from reputation and success [REPSU] to institutional facility [INSFA] (β=0.57; t=12.43; p<0.001) and expertise [EXPER] to institutional facility [INSFA] (β=0.23; t=7.31; p<0.001). Similarly, H6 was also supported by a positive and significant path coefficient from institutional facility [INSFA] to satisfaction [SATIS] (β=0.24; t=6.53; p<0.001). Therefore, five hypotheses related to WOM and health care satisfaction were supported. The results suggest that expertise, reputation and success, and institutional facilities can be mediators between communication and satisfaction, while institutional facilities also can mediate the relationships between expertise, reputation and success and satisfaction.
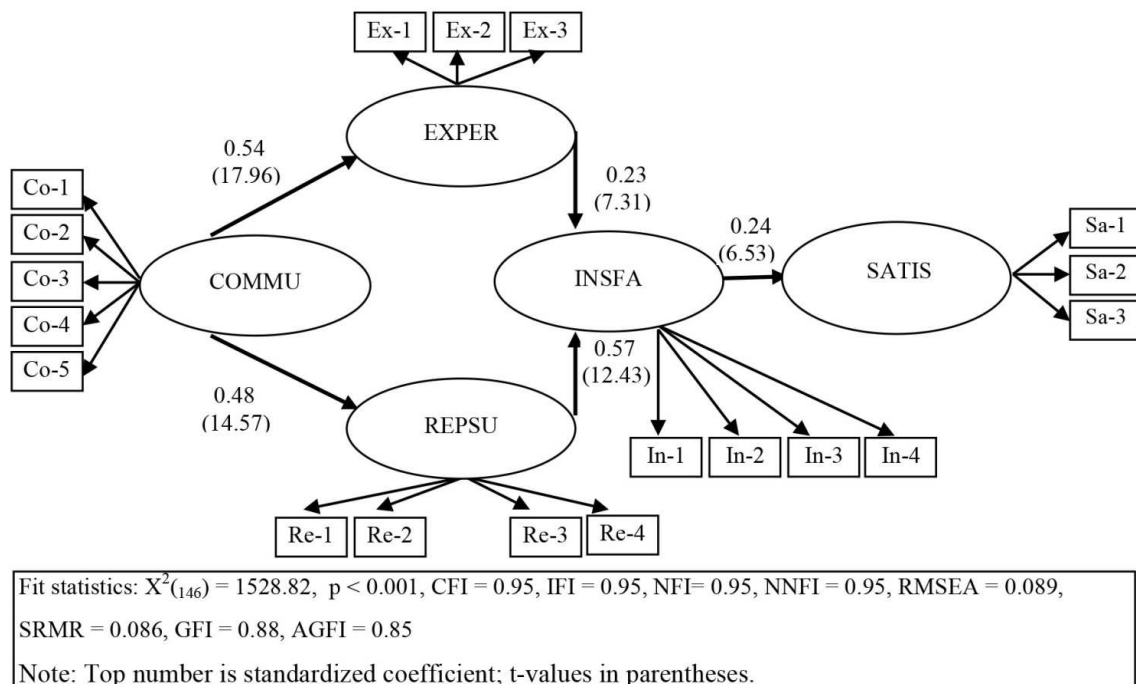

Fit statistics: $X^2_{(146)}$ = 1528.82, p < 0.001, CFI = 0.95, IFI = 0.95, NFI= 0.95, NNFI = 0.95, RMSEA = 0.089, SRMR = 0.086, GFI = 0.88, AGFI = 0.85

Note: Top number is standardized coefficient; t-values in parentheses.

Fig 2: Structural model of WOM.

DISCUSSION AND CONCLUSION

The first goal of the study was to develop a reliable WOM scale related to physicians. The results suggested that WOM constructs could be conceptualized and measured with four dimensions: communication, expertise, reputation and success, and institutional facility. The second goal of this study was to examine the reliability and validity of the scale. The CFA results revealed that all four WOM constructs had acceptable reliability and validity evidence. The third goal of this study was to examine the relationships between the four WOM dimensions and satisfaction. The results of hypothesized model indicated that five of six proposed hypotheses were supported. The results suggested that the mediating constructs of expertise, reputation and success, and institutional facilities had significant relationships. Research findings from this study and from previous studies also indicate that when choosing physician services, consumers use WOM referrals.

The findings in this research demonstrate the importance of four WOM constructs and their relationships to patients' feelings of satisfaction. First, an overall positive relationship between WOM communication produced by experienced patients and new patients' satisfaction with a physician is identified. This finding corroborates previous research [1] suggesting that experienced consumers can affect new consumers that are looking for service providers.

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Secondly, the study provides empirical evidence that the association between physicians and their health care institution's equipment is critical for creating feelings of satisfaction.

In conclusion, this study proposed a new scale that can be used to measure WOM about physicians. The results also indicate that, in general, there are meaningful relationships between WOM construct (communication, expertise, institutional facility, and reputation and success) and the desirable outcome of satisfaction. This research has significant implications for improving health care organizations and public and private hospitals.

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