Patient Satisfaction with the Primary Care Physician and Usage of Physician Rating Websites: How Do They Relate to Each Other?

Sonja Bidmon

1 Introduction

Assessing the quality of care from the patients' perspective has usually been conceptualized as patient satisfaction (van Campen et al. 1995). Several literature reviews have been performed with regard to the existing methods of measuring patient satisfaction with the primary care physician (e.g., Evans et al. 2007; van Campen et al. 1995; Anhang Price et al. 2014) and researchers have shown increased interest in investigating the antecedents and consequences of patient satisfaction (see e.g., Mittal 2016). As a matter of fact, traditional advertising by physicians is restricted by law and ethical considerations in many countries, thus it is not widespread at all (Bidmon, Roettl, and Terlutter 2016). The past ten years have seen increasingly rapid advances in the topic of online physician-rating websites (PRWs), with many studies being conducted in the US (e.g., Gao et al. 2012; Gray et al. 2015), but also in GB (e.g., Galizzi et al. 2012; Jain 2010), in Germany (e.g., Emmert and Wiener 2017; Emmert, Sander, and Pisch 2013; Emmert and Meier 2013; Emmert et al. 2017; Emmert, Meszmer, and Schlesinger 2018) and awakening interest also in China (e.g., Zhang et al. 2018; Hao et al. 2017; Hao 2015). Rating websites have become a widespread phenomenon in several life domains and all of them function in a similar way. Patients gather information about a physician and his/her practice and service (Terlutter, Bidmon, and Roettl 2014), and then enable patients to rate and discuss different aspects of the patient-physician relationship online (Lagu et al. 2010). Even more widespread is the passive role of users who read reviews as a valuable tool in the decision process, which physician to choose. In 2012, 29.3 % respondents of a German sample knew about PRWs and 26.1 % had already used a PRW (Terlutter, Bidmon, and Roettl 2014). In a study in Germany conducted by McLennan et al. (2017) in 2016, 31.16 % of the respondents could be classified as PRW users. Thus, usage of PRWs seems to be on the rise, albeit very slowly.

From the physician's point of view, however, PRWs allow them to inform a potential patient target group about their offers (Moick and Terlutter 2012). PRWs can be interpreted as a means of advertising from a physician's perspective. Patients take multiple factors into consideration besides the favourability of the physician's location or the opening hours of his/her surgery (Roettl, Bidmon, and

E. Bigne und S. Rosengren (Hrsg.), *Advances in Advertising Research X*,
European Advertising Academy, https://doi.org/10.1007/978-3-658-24878-9_2

Terlutter 2016). Thus, new ways of communicating physicians' assets are in demand and PRWs have become a crucial point with regard to the digitalization of everyday life. To our best knowledge, there has not been a single study conducted in Austria, which investigates the awareness of PRWs and their usage and investigates how users and non-users of PRWs differ with regard to sociodemographic variables, health status und with regard to patient satisfaction with their PCP. The target group of the present study are individuals, who must have visited a PCP during the last 12 months and must be Internet affine, which was ascertained by using an online survey as research approach.

2 Theoretical Framework and Research Questions

As has been elaborated above, usage of PRWs seems to be on the rise only slowly with regard to the proportions of respondents who are aware of PRWs and who have used them in the past (see e.g., Terlutter, Bidmon, and Roettl 2014; McLennan et al. 2017). There has been little discussion about PRWs in Austria so far, but as the Austrian and German health system is comparable and Internet usage is also comparable in these countries (see e.g., Eurostat 2017; Statista 2017a, 2017b; Statistik Austria 2017), it can be assumed that awareness and usage of PRWs are similar. Thus, our central research question is:

RQ1: How is the status-quo of awareness and usage of PRWs in the present Austrian sample?

The present study is based on the challenges of a changing patient-physician relationship as proposed by Roettl, Bidmon, and Terlutter (2016). Emanuel and Emanuel (1992) list four models of a patient-physician relationship, which can best be described by differing opinions about the goals of the patient-physician interaction, about the values of the patient as well as about the level of a patient's autonomy. These are: the paternalistic model, the informative model, the interpretive model and the deliberative model. The shift from the original paternalistic model to the deliberative model can be characterized not only as a path towards more empowerment of the patient in the medical treatment decision process (Emanuel and Emanuel 1992; Dixon 2010; Hoving et al. 2010), but as a path from a top-down process towards a more consensual system of making decisions together (Roettl, Bidmon, and Terlutter 2016). This, however, is more time-consuming for both the patients as well as for the physicians. From the patient's point of view, the changing patient-physician relationship leads to a more sophisticated and more discerning selection process, whenever he/she is in need of choosing a physician. Similar to choosing options in different areas of everyday life (e.g. accommodation, products, employers), physician-rating websites could be fruitful in this decision process. Additionally, waiting times should become a crucial

point in the whole patient-physician relationship. Thus, patients being less satisfied with the patient-physician relationship in terms of waiting times should come along with a higher tendency to switch the physician and to make use of PRWs in order to choose a new physician. This leads to our first two hypotheses:

H1: Users of PRWs should reveal lower patient satisfaction especially with regard to waiting times in the face of the changing patient-physician relationship than nonusers.

H2: Users of PRWs should reveal a higher tendency to switch the PCP than nonusers of PRWs.

A study conducted with 1,006 randomly selected German patients, who were drawn from an e-panel of GfK Healthcare, revealed that, on average, users of PRWs were to a higher proportion female, better educated, younger and suffered to a higher proportion from a chronic disease (Terlutter, Bidmon, and Roettl 2014). This leads to our third hypothesis:

H3: Users of PRWs should be younger, better educated, to a higher proportion female and should reveal a worse health status than nonusers of PRWs.

3 Method

3.1 Participant Recruitment and Measurement of the Interesting Variables

In order to test the hypotheses, an online survey was conducted by applying Lime Survey. Invitations for participation in the study were sent out with the help of the Facebook account of the Marketing Department at a small Austrian university as well as with the help of the Facebook network of a corresponding marketing research lecture's participants. The initial sample consisted of 413 respondents. In a first step, a thorough data check was executed following the recommendation of Wirtz (2004) to exclude all questionnaires with more than 30 % missing items and those which terminated the online survey ahead of time. As usual, the data was checked for answer patterns (e.g. flatliners, inconsistent answers). To sum up, n=329 usable questionnaires were left for analysis after executing this thorough data check. Based on common missing data analysis, all of the missing data for the patient satisfaction items were imputed with SPSS (version 24). 29.6 % (95/329) of the respondents were male, 66.7 % (214/329) were female, 3.1 % (10/329) did not disclose their gender. The average age of the sample was 27.75 (SD=9.51) years, respondents were between 16 and 71 years old. 46.1 % (142/308) of all respondents who disclosed their educational background, revealed the general qualification for university entrance, 31.8 % (98/308) had completed a university degree, and 10.4 % (32/308) had completed a vocational

school, 7.8 % (24/308) had completed an apprenticeship, the rest was miscellaneous (12/308). The questionnaire consisted of questions regarding demographics (gender, age, highest level of education, occupation) and a broad range of items measuring patient satisfaction with the PCP, who was defined as the physician whom the respondents visit in the first instance in case of medical problems. Endurance of the patient-physician relationship was measured, too. The first part of the online survey referred to the physician, the second part dealt with patient satisfaction measurement and delivered statements to judge different aspects of the patient-physician relationship: the supply of information delivered by the PCP, the professional competence in the eyes of the patients and different aspects of the surgery organisation (e.g., tangibles, staff, waiting times). These items were adopted from the Qualiskope A (Gericke et al. 2004a, 2004b), a profound and well-established German patient satisfaction measurement scale. The scale items were measured with 5-point Likert scales (1=strongly disagree, 5=strongly agree, no answer). Additional items were supplemented on the basis of a profound exploratory research phase with additional items, which led to a total of 48 items measuring patient satisfaction with the PCP on an attribute level. Patient trust and WOM intention were measured with single items (Gericke et al. 2004a, 2004b; Bitzer, Dierks, and Schwartz, 2002; Scholl et al. 2011). The intention to switch was measured by the single item "Will you switch to another physician in the near future?" As an incentive for participation in the study, a prize game was offered.

3.2 Awareness of PRWs and Definition of Users and Nonusers of PRWs

In order to assess whether individuals knew about PRWs, they had to answer the following question: "Do you know about physician rating websites? (These function in a similar way to hotel rating web-sites)"(1=yes, 2=no). The segmentation of the respondents into the user/nonuser category of PRWs was based on the respondents' answers to the single item "Have you ever used a physician rating website (e.g., www.docfinder.at, www.arztsuche24.at, www.doc-suche.at) yourself?" (1= yes, 2=no).

4 Results

4.1 Exploratory Factor Analysis to Determine the Underlying Dimensions of Patient Satisfaction with the PCP

In order to reduce complexity and empirically determine the underlying satisfaction dimensions, an exploratory factor analysis (EFA) for the 48 patient satisfaction items on an attribute level was calculated.

Following the recommendation of Nunnally and Bernstein (1994), to exclude items with factor loadings below .45 and to do the same with items with strong

loadings on more than one factor, 13 items were excluded step-by-step from further analysis. A principal component analysis (varimax rotation, Kaiser normalization) with the 35 remaining items measuring patient satisfaction with the PCP on an attribute level led to five factors (based on the eigenvalue criterion) explaining 66.66 % of variance. All factor loadings were higher than 0.52. According to the contents of the appendant items, the underlying dimensions were denominated as follows: supply of information by the PCP (F1), quality of the patient-physician relationship (F2), competency and thoroughness of the PCP (F3), quality and friendliness of the surgery's staff (F4), organisation of the doctor's surgery (waiting times and tangibles) (F5). The reliability for each dimension is at least .84 (see Table 1 for details).

Table 1. Denomination of the five dimensions of patient satisfaction with the PCP derived from EFA according to item content and Cronbach's alpha.

Factor	*Factor denomination*	*Cronbach's alpha*	*n of items*	*Sample item* [a]
F1	Supply of information by the PCP	0.93	8	*My primary care physician delivers satisfactory information on the physical examinations.*
F2	Quality of the patient-physician relationship	0.91	9	*My primary care physician takes patients seriously.*
F3	Competency and thoroughness of the PCP	0.92	7	*My primary care physician makes referrals in a timely manner.*
F4	Quality and friendliness of the surgery's staff	0.91	5	*The staff is very helpful.*
F5	Organisation of the doctor's surgery (waiting times and tangibles)	0.84	6	*The waiting time in the waiting room is adequate.*

[a] Note: The original items were in German; English translation is merely for the purpose of this book chapter. Answer scale (translation): 1=strongly disagree, 5 = strongly agree, 0= no answer. n = number

4.2 Calculation of Weighted Factor Sum Scores for each of the Underlying Dimensions of Patient Satisfaction with the PCP

In a further step, for all of the 35 remaining items, which had been left for the final EFA, the factor loadings of the purified scales were used to calculate the weighted factor sum score for each of the five dimensions. This procedure was proposed by Distefano, Zhu, and Mîndrila (2009), justified and explained in detail and applied in a similar context by Bidmon and Terlutter (2015).

4.3 Awareness and Usage of PRWs (RQ1)

With regard to knowledge about PRWs, 44.5 % (143/321) knew of PRWs, 53 % (170/321) did not know about PRWs and 2.5 % (8/321) refused to answer the question related to awareness of PRWs. To assess usage of PRWs, 35.8 % (115/321) were classified as users of PRWs, 61.7 % (198/321) as nonusers of PRWs, 2.5 % (8/321) refused to answer this question.

4.4 Differences between Users and Nonusers of PRWs

4.4.1 Differences with regard to Patient Satisfaction with the PCP (H1) and Intention to Switch (H2)

In order to test the hypotheses, t-tests were calculated for the weighted means of factor sum scores for each patient satisfaction dimension with the PCP between users and nonusers of PRWs (see Table 2 and Table 3 for all of the respective descriptives).

Table 2. Descriptives of the weighted factor sum scores for the patient satisfaction dimensions with the PCP for users vs. nonusers of PRWs.

Factor	*Weighted factor sum score names (see Table 1)*	*Group*	*n*	*Mean*	*Standard deviation (SD)*	*Standard error of mean (SE)*
F1	WF1_Inf	users	115	0,02	0,57	0,05
		nonusers	198	0,07	0,57	0,04
F2	WF2_PPR	users	115	-0,06	0,83	0,08
		nonusers	198	0,03	0,75	0,05
F3	WF3_Comp	users	115	-0,05	0,83	0,08
		nonusers	198	0,01	0,81	0,06
F4	WF4_´Staff	users	115	-0,09	0,89	0,08
		nonusers	198	0,05	0,84	0,06
F5	WF5_Org	users	115	-0,14	0,78	0,07
		nonusers	198	0,06	0,73	0,05

As can be seen with regard to patient satisfaction from Table 4, there are no significant differences between users and nonusers of PRWs with regard to the dimensions F1 (Supply of information by the PCP), F2 (Quality of the patient-physician relationship), F3 (Competency and thoroughness of the PCP), F4 (Quality and friendliness of the surgery's staff), but, as has been expected, with regard to F5 (Organisation of the doctor's surgery (waiting times and tangibles)). Users are less satisfied with the organisation of the doctor's surgery (waiting times and tangibles) compared to nonusers of PRWs ($t_{df=311} = -2.29$, $p = .02$). Thus, H1 was supported. Afterwards, t-tests were also calculated for the intention to switch the

physician, and other consequences of patient satisfaction: intention to recommend (WoM) and trust in the PCP.

Table 3. Descriptives of the weighted factor sum score for overall patient satisfaction with the PCP and consequences (for users vs. nonusers of PRWs): intention to switch, intention to recommend (WoM), trust in the PCP (1=totally disagree, 5= totally agree).

Variables	*Group*	*n*	*Mean*	*Standard deviation (SD)*	*Standard error of mean (SE)*
Overall satisfaction with the PCP					
Overall satisfaction (weighted factor score) [a]	users	115	0,10	0,83	0,08
	nonusers	198	-0,02	1,00	0,07
Consequences of patient satisfaction with the PCP					
Intention to switch [b]	users	115	4,17	1,19	0,11
	nonusers	198	4,43	1,00	0,07
Intention to recommend (WoM)	users	115	3,98	1,24	0,12
	nonusers	198	4,14	1,09	0,08
Trust in the PCP	users	115	4,07	0,98	0,09
	nonusers	198	4,23	0,88	0,06

[a] Overall satisfaction was measured with two items, therefore a weighted factor sum score was also calculated similar to the patient satisfaction dimensions.
[b] Intention to switch was recoded to enhance interpretability of the results, so that a higher score reveals a higher intention to switch.

The results showed that users reveal a higher tendency to switch to another physician ($t_{df=207.76}$ =-1.978, p=.042). No significant differences were found between users and nonusers of PRWs with regard to overall patient satisfaction, trust towards the PCP and intention to recommend the PCP to friends (WoM). Hence, H2 was supported (see Table 4).

Table 4. t-Tests for patient satisfaction with the PCP and its consequences for users vs. nonusers of PRWs.

		Levene test of equality of variances		*t-Test*						
				t-value	*df*	*p*	*Mean difference*	*SE of difference*	*95 % CI of difference*	
		F-value	*p*						*lower*	*upper*
Dimensions of patient satisfaction with the PCP on an attribute level (weighted factor sum scores)										
WF1_Inf	ve	0,02	0,88	-0,67	311,00	0,50	0,05	0,07	-0, 18	0,09
	vu			-0,67	238,45	0,50	0,05	0,07	0,18	0,09
WF2_PPR	ve	2,69	0,10	-0,96	311,00	0,34	0,09	0,09	-0, 27	0,09
	vu			-0,93	217,05	0,35	0,09	0,09	-0,27	0,10
WF3_Comp	ve	0,00	0,95	-0,62	311,00	0,54	0,06	0,10	-0, 25	0,13
	vu			-0,61	233,85	0,54	0,06	0,10	-0, 25	0,13
WF4_Staff	ve	0,67	0,41	-1,34	311,00	0,18	0,13	0,10	-0, 33	0,06
	vu			-1,32	226,82	0,19	0,13	0,10	-0, 34	0,07
WF5_Org	ve	0,33	0,57	-2,29	311,00	0,02*	-0,20	0,09	-0,37	-0,03
	vu			-2,26	226,38	0,03*	0,20	0,09	-0,38	-0,03
Overall patient satisfaction with the PCP										
Overall satisfaction[a]	ve	6,58	0,01	1,07	11,00	0,28	0,12	0,11	0,10	0,34
	vu			1,13	74,77	0,26	0,12	0,10	0,09	0,33
Consequential variables of patient satisfaction with the PCP										
Intention to switch[b]	ve	5,85	0,02	-2,07	311,00	0,04	0,26	0,13	-0,51	-0,01
	vu			-1,98	207,75	0,05 *	0,26	0,13	-0,52	0,00
Intention to recommend (WoM)	ve	0,68	0,41	-1,14	311,00	0,26	0,15	0,13	-0,42	0,11
	vu			-1,10	214,44	0,27	0,15	0,14	-0,43	0,12
Trust in the PCP	ve	0,05	0,82	-1,52	311,00	0,13	-0, 16	0,11	-0, 37	,05
	vu			-1,47	217,40	0,14	-0, 16	0,11	-0, 38	,06

[a] Overall satisfaction (weighted factor sum score) was measured with two items, for which also a weighted factor sum score was calculated similar to the patient satisfaction dimensions

[b] Intention to switch was recoded to enhance interpretability of the results, so that a higher score reveals a higher intention to switch.

Note: ve= variances equal, vu= variances unqueal

4.4.2 Differences with regard to Sociodemographic Variables and the Health Status (H3)

Table 5 presents the results from the group comparisons with chi-square tests and t-Tests for users and nonusers of PRWs with regard to age, gender, education, endurance of the patient-physician relationship and health status. In order to be able to interpret the results in a better way, in case of small cell allocations, the categories were recoded and summarized for education (below matura examination level, matura examination level and higher than matura examination level) and endurance of the patient-PCP relationship (up to one year, more than one year). The results demonstrate that more women than men had used PRWs in the past (χ^2_1=4.54, p=0.02), more people with a patient-PCP relationship enduring up to one year had used PRWs (χ^2_1=4.18, p=0.036), more respondents with a higher

education had experience with gathering information through PRWs (χ^2_2=6.34, p=0.042). No significant differences were found between users and nonusers of PRWs with regard to age ($t_{df=282.78}$ =0.00, p=.99) and their health status ($t_{df=311}$ =1.01, p=.315). Thus, H3 was partially supported.

Table 5. Differences between users and nonusers of physician-rating websites (PRWs) in reference to sociodemographic variables and health status.

Variables	*Users*	*Nonusers*	*Total*	*χ^2 (df)*	*t (df)*	*P (2-sided)*
Age (years), mean (SD)	n=110	n=186	N=296		.00 (282.78)	.99
	27.75 (7.57)	27.75 (10.51)	27.75 (9.51)			
Gender, n (%)	n=115	n=194	N=309	4.54(1)		.02 *
Male	27 (23.5)	68 (71.6)	95 (100)			
Female	88 (41.1)	126 (58.9)	214 (100)			
Education, n (%)	n=115	n=193	N=308	6.34(2)		.042 *
Below matura examination level	17 (27.42)	45 (72.58)	62 (100)			
Matura examination level	50 (35.21)	92 (67.79)	142 (100)			
Higher than matura examination level	48 (46.15)	56 (53.85)	104 (100)			
Endurance of the patient-physician relationship with the PCP [a], n (%)	n=115	n=198	N=313	4.18(1)		.036 *
More than one year	102 (35.17)	188 (64.83)	290 (100)			
Less than one year	13 (56.52)	10 (43.48)	23 (100)			
Health status,[b] n (%)	n=115	n=194	n=309		1.01 (307)	.32
Health status, mean (SD)	1.93 (.90)	1.83 (.82)				

a The categories were dichotomised in order to enhance interpretability.
b Health status was measured with the item "How would you judge your health status according to the school-grade system (1=very good, 5=inadequate)?".

5 Discussion and Conclusion

The results of the present study show that usage of PRWs seems to be similar in Austria (35.8 % usage) as compared to Germany (31.16 % usage), but awareness (44.5 %) seems to be much lower in Austria than in Germany (72.5 %), as

referred by McLennan et al. (2017). Thus, awareness and usage cling together to a greater extent in Austria than in Germany. Lower awareness may be the result of a smaller supply of PRWs in Austria. There are several relationships between usage or nonusage of PRWs and sociodemographic variables, with regard to the endurance of the patient-physician relationship and with regard to different facets of patient satisfaction. It seems that an unsatisfactory organisation of the doctor's surgery especially with regard to waiting times may come along with a higher intention to switch the PCP. Also in the present study, users of PRWs are to a higher degree better educated and female, which is comparable to what was found by Terlutter, Bidmon, and Roettl (2014). Users of PRWs are less satisfied with the organisational aspects of the PCP's surgery, which may lead to a higher intention to switch the physician. No age effects were found, which is contrary to the study of Terlutter, Bidmon, and Roettl (2014).

This is the first study combining patient satisfaction data with PRW usage. It seems that especially in the case of dissatisfaction with the doctor's surgery organisation and unsatisfactory waiting times, people use PRWs to a greater extent, maybe in order to choose a new physician. From an advertising perspective, especially for physicians with recently opened surgeries, PRWs could be an excellent means to acquire new customer segments with a special focus on the main target group of PRW users: female and better educated patients.

Obviously, waiting times are a crucial determinant of patient satisfaction in the face of an incrementally digitalized and empowered patient with regard to the changing patient-physician relationship (Emanuel and Emanuel 1992). Physicians should think about offering online treatment and using digital channels to communicate with their patients. Patients are not only willing to digitalize their personal life, but are also willing to undergo online treatment (Roettl, Bidmon, and Terlutter 2016) and pay for online treatment. This could be a convenient way for occupational groups with scarce time and would reduce the waiting times in the surgery additionally. Thus, excellent time management could be used as the USP and advertising message of a doctor's surgery. Besides, especially highly satisfied and loyal patients could be invited to post reviews on PRWs about the PCP.

In future investigations it might be interesting to explore in greater detail, why people use or refrain from using PRWs and what the main barriers of usage are. Dissatisfied patients, being interested in switching to a different physician, should therefore be more interested in PRW usage. Although PRWs are on the rise, they are not as popular as rating websites are in other areas of life. Although these result-based deliberations are obvious, a severe limitation of the study is, strictly speaking, that due to a cross-sectional approach, no causal dependencies can be ascribed. Because the present study can be classified as exploratory in nature, further studies on the current topic are strongly recommended.

6 Acknowledgement

The author is grateful to Mag. Johanna Roettl for her efforts in preparing the questionnaire in Lime Survey and for co-teaching in the marketing research lecture mentioned (see methodology section). I would like to express my thanks additionally to the corresponding marketing research lecture's participants for their help in data collection through sending out the link to the survey through their Facebook accounts.

7 References

Anhang Price, R.; Elliott, M. N.; Zaslavsky, A. M.; Hays, R. D.; Lehrman, W. G.; Rybowski, L.; Edgman-Levitan, S. and Paul D. Cleary, P. D. (2014) "Examining the Role of Patient Experience Surveys in Measuring Health Care Quality," in: Medical Care Research and Review, 71 (5), 522–54.

Bidmon, S.; Roettl, J. and Terlutter, R. (2016), "A Gender Perspective on Physician-Rating Websites (PRWs): Results from a Web-Based Survey," in: Zabkar, V. (ed.): Proceedings of the 15th International Conference on Research in Advertising (ICORIA) 15, 1-13, Ljubljana, Slovenia.

Bidmon, S. and Terlutter. R. (2015), "Gender Differences in Searching for Health Information on the Internet and the Virtual Patient-Physician Relationship in Germany: Exploratory Results on How Men and Women Differ and Why" in: *Journal of Medical Internet Research*, 17 (6), e156.

Bitzer, E. M., Dierks, M. L. and Schwartz, F. W. (1999), "Zufriedenheit in der Arztpraxis aus Patientenperspektive – Psychometrische Prüfung eines standardisierten Erhebungsinstrumentes. [Satisfaction in the doctor's surgery from a patients' perspective – psychometric examination of a standardised instrument],".in *Zeitschrift für Gesundheitswissenschaften*, 7(39), 196-209. (in German).

Campen, C. V.; Sixma H.; Friele, R. D.; Kerssens, J. and Peters, L. (1995), "Quality of Care and Patient Satisfaction: A Review of Measuring Instruments," in: *Medical Care Research and Review,* 52 (1), 109–33.

Distefano, C.; Zhu, M. and Mîndrila, D. (2009), "Understanding and Using Factor Scores : Considerations for the Applied Researcher. Practical Assessment" in*: Research & Evaluation,* 14 (20), 1–11. http://pareonline.net/pdf/v14n20.pdf (last accessed: 2018-03-21)

Dixon, R. F. (2010), "Enhancing primary care through online communication," in: *Health Affairs*, 29(7), 1364-1369.

Emanuel, E. J. and Linda L. Emanuel, L. (1992), "Four Models of the Physician-Patient Relationship" in: *JAMA 267,* Vol. 16, 2221–26.

Emmert, M. and Meier, F. (2013), "An Analysis of Online Evaluations on a Physician Rating Website: Evidence from a German Public Reporting Instrument," in: *Journal of Medical Internet Research,* 15 (8), e157.

Emmert, M.; Meszmer, N. and Schlesinger, M. (2018), "A Cross-Sectional Study Assessing the Association between Online Ratings and Clinical Quality of Care Measures for US Hospitals: Results from an Observational Study," in: *BMC Health Services Research*, 18 (1), 82.

Emmert, M.; Sander, U. and Pisch, F. (2013), "Eight Questions about Physician-Rating Websites: A Systematic Review," in: *Journal of Medical Internet Research,* 15 (2), e24.

Emmert, M.; Sauter, L.; Jablonski, L.; Sander, U. and Taheri-Zadeh, F. (2017) "Do Physicians Respond to Web-Based Patient Ratings? An Analysis of Physicians' Responses to More Than One Million Web-Based Ratings Over a Six-Year Period," in: *Journal of Medical Internet Research*, 19 (7), e275.

Emmert, M. and Wiener, M. (2017), "What Factors Determine the Intention to Use Hospital Report Cards? The Perspectives of Users and Non-Users," in: *Patient Education and Counseling,* 100 (7), 1394–1401.

Eurostat, (2017), "ICT usage in households and by individuals," retrieved from: http://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&pcode=tin00134&plugin=1 (last accessed 2018-03-21).

Evans, R. G.; Edwards A.; Evans, S.; Elwyn, B. and Glyn Elwyn, G. (2007). "Assessing the Practising Physician Using Patient Surveys: A Systematic Review of Instruments and Feedback Methods," in: *Family Practice*, 24 (2), 117–27.

Fischer, S. and Emmert, M. (2015), "A review of scientific evidence for public perspectives on online rating websites of healthcare providers," in: Gurtner, S., & Soyez, K. (Eds.), *"Challenges and opportunities in health care management. Springer International Publishing,"* 279-290, Cham et al.: Springer.

Galizzi, M. M.; Miraldo, M.; Stavropoulou, C.; Desai, M.; Jayatunga, W.; Mitesh, J. and Parikh, S. (2012), "Who Is More Likely to Use Doctor-Rating Websites, and Why? A Cross-Sectional Study in London," in: BMJ Open 2 (October), 1–10.

Gao, G. G.; Greenwood, B. N.; Agarwal, R. and McCullough, J. (2015), "Vocal Minority and Silent Majority: How Do Online Ratings Reflect Population Perceptions of Quality," in: *MIS Quarterly*, 39(3), 565-589.

Gao, G. G.; McCullough, J. S.; Agarwal, R. and Jha. A. K (2012), "A Changing Landscape of Physician Quality Reporting: Analysis of Patients' Online Ratings of Their Physicians over a 5-Year Period," in: *Journal of Medical Internet Research,* 14 (1), e38.

Gericke, C. A.; Schiffhorst, G.; Busse, R. and Haeussler, B. (2004a), "Messung der Patientenzufriedenheit in ambulanter haus-und fachärztlicher Behandlung: das QUALISKOPE-A," in: *Das Gesundheitswesen*, 66(08/09), 251.(in German)

Gericke, C. A.; Schiffhorst, G.; Busse, R. and Haeussler, B. (2004b), "A validated questionnaire for measuring patient satisfaction in general and specialist ambulatory medical care: the Qualiskope-A," in: *Gesundheitswesen (Bundesverband der Aerzte des Oeffentlichen Gesundheitsdienstes (Germany))*, 66(11), 723-731.

Gray, B. M.; Vandergrift, J. L., Gao, G. G.; McCullough, J. S. and Lipner, R. S. (2015), "Website Ratings of Physicians and Their Quality of Care," in: *JAMA Internal Medicine,* 175 (2), 291–93.

Hao, H. (2015), "The Development of Online Doctor Reviews in China: An Analysis of the Largest Online Doctor Review Website in China," in: *Journal of Medical Internet Research*, 17 (6), e134.

Hao, H.; Zhang, K.; Wang, W. and Gordon Gao, G. G. (2017), "A Tale of Two Countries: International Comparison of Online Doctor Reviews between China

and the United States," in: *International Journal of Medical Informatics*, 99, 37–44.

Hoving, C.; Visser, A.; Dolan, P. and Borne. B. V.D, (2010), "A history of patient education by health professionals in Europe and North America: from authority to shared decision making education," in: *Patient Edu-cation and Counseling,* 78(3), 275-281.

Jain, S. (2010), "Googling Ourselves — What Physicians Can Learn," in: *Health Care*, 6–7.

Lagu, T.; Hannon, N. S.; Rothberg, M. B. and Lindenauer, P. K. (2010), "Patients' evaluations of health care providers in the era of social net-working: an analysis of physician-rating websites," in: *Journal of General Internal Medicine*, 25(9), 942-946.

McLennan, S.; Strech, D.; Meyer, A. and Kahrass, H. (2017), "Public Awareness and Use of German Physician Ratings Websites: Cross-Sectional Survey of Four North German Cities," in: *Journal of Medical Internet Research*, 19 (11), e387.

Mittal, V. (2016), "Measuring & Managing Patient Satisfaction: Implementing Customer-Focused Strategy in Healthcare Using Patient Satisfaction Strategy Maps (PSSM), Rice University, Houston, TX 77005, retrieved from: https://ssrn.com/abstract=2756196 (last accessed 2018-11-29)

Moick, M. and Terlutter, R. (2012), "Physicians' motives for professional internet use and differences in attitudes toward the internet-informed patient, physician–patient communication, and prescribing behaviour," in: *Medicine 2.0*, 1(2), e2.

Montgomery, K. C. and Chester, J. (2009), "Interactive Food and Beverage Marketing: Targeting Adolescents in the Digital Age," in: *The Journal of Adolescent Health : Official Publication of the Society for Adolescent Medicine 45 (3 Suppl)*, Elsevier Ltd, S18-29.

Nunnally, J. C. and Bernstein, I. H. (1994), *Psychometric theory*. New York, NY: McGraw-Hill.

Roettl, J.; Bidmon, S. and Terlutter, R. (2016), "What Predicts Patients' Willingness to Undergo Online Treatment and Pay for Online Treatment? Results from a Web-Based Survey to Investigate the Changing Patient-Physician Relationship," in: *Journal of Medical Internet Research*, 18 (2), e32.

Scholl, I.; Hölzel, L.; Härter, M.; Dierks, M. D.; Bitzer, E. M. and Kriston, L. (2011), "Fragebogen zur Zufriedenheit in der ambulanten Versorgung–Schwerpunkt Patientenbeteiligung (ZAPA) [Questionnaire on satisfaction in ambulatory treatment – emphasis on patient participation (ZAPA)," in: *Klinische Diagnostik und Evaluation*, 4(1), 50-62, (in German).

Statista, (2017a), "Statistiken zur Internetnutzung in Österreich nach Zielgruppen im Jahr 2017. [Statistics on internet usage in Austria by target groups in 2017] (in German)," retrieved from https://de.statista.com/themen/2876/internetnutzung-in-oesterreich/ (last accessed 2018-03-21)

Statista, (2017b), "Anteil der Internetnutzer in Österreich 2017. [Percentage of Internet users in Austria 2017] (in German)," retrieved from https://de.statista.com/statistik/daten/studie/298276/umfrage/internetnutzer-in-oesterreich-nach-zielgruppen/ (last accessed 2018-03-21)

Statistik Austria, (2017), "Europäische Erhebung über den IKT-Einsatz in Haushalten 2017. [European survey on ICT usage in households] (in German)," retrieved from https://www.statistik.at/web_de/statistiken/energie_umwelt_innovation_mobilitaet/informationsgesellschaft/ikt-einsatz_in_haushalten/index.html (last accessed 2018-03-21)

Terlutter, R.; Bidmon, S. and Johanna Roettl, (2014), "Who Uses Physician-Rating Websites? Differences in Sociodemographic Variables, Psychographic Variables, and Health Status of Users and Nonusers of Physician-Rating Websites," in*: Journal of Medical Internet Research*, 16 (3), e97.

Wirtz, M. (2004), "Über das Problem fehlender Werte: Wie der Einfluss fehlender Informationen auf Analyseergebnisse entdeckt und reduziert warden kann [On the Problem of Missing Data: How to Identify and Reduce the Impact of Missing Data on Findings of Data Analysis]," in: *Die Rehabilitation*, 43(2), 109–115 (in German).

Zhang, W.; Deng, Z.; Hong, Z.; Evans, R.; Ma, J. and Zhang, H. (2018), "Unhappy Patients Are Not Alike: Content Analysis of the Negative Comments from China's Good Doctor Website," in: *Journal of Medical Internet Research*, 20 (1), e35.