

**Consumer perceptions of information features in healthcare service advertisements and
attitudes toward advertising**

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Abstract

Purpose With the increasing dependence on market-based distribution of healthcare resources in the U.S., spending on healthcare service advertisements directly targeting consumers has also increased. Previous research has shown that the ads fail to deliver information deemed essential by regulators. Nevertheless, the attitude of consumers toward healthcare service advertising has been more positive than negative. In this exploratory study, we created a taxonomy of advertising information features to better describe the relationships between information features in the advertisements and consumer attitudes toward them.

Design/methodology/approach A cross-sectional survey was conducted with one hundred twenty-eight healthcare consumers in a western state in the United States.

Findings Factor analysis generated seven groups of information features. Among them, information features about access, cost, and quality of care were rated as most helpful whereas providers' clinical qualifications and communication were rated least helpful. The advertising attitude measure was validated to contain two subscales, one regarding healthcare service advertising and the other regarding physicians who advertise. People who highly rated the consumerism features had more positive attitudes toward healthcare service advertising and people who highly rated provider clinical qualification features had more negative attitudes toward advertising physicians.

Originality This study made methodological improvements in healthcare service advertising research that would be crucial for its theoretical development. It also shed light on consumer

characteristics and perceptions about information features that could influence their attitudes toward healthcare service advertising.

Keywords healthcare service advertising, DTCA, ethics, attitude, advertising, physician, information

Paper type Research paper

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Introduction

With an increasing dependence on market-based distribution of healthcare resources in the U.S., spending on healthcare service advertisements (ads)¹ directly targeting consumers has drastically increased (Schwartz and Woloshin, 2019). For example, the rapid penetration of high-deductible healthcare plans shifted many decisions about the use of healthcare services and choice of providers from the hands of primary care providers to individual consumers (Agarwal *et al.*, 2017). Accordingly, the importance of direct-to-consumer advertising and other marketing communications for patient recruitment has risen as well (Kyrus, 2021).

Because the American Medical Association (AMA) took a strong moral stand against advertising by its members and in fact prohibited its use until the 1980s, healthcare service ads virtually did not exist until the last quarter of the 20th century. In 1982, the situation changed when the Federal Trade Commission (FTC) challenged the advertising ban as anti-competitive and won its case in the U.S. Supreme Court (Signs, 2015). Since then, healthcare service advertising directly targeting consumers has proliferated. Surprisingly, research to determine its effectiveness has not kept pace with its explosive growth.

Still, two streams of research shed light on the messages conveyed in the ads and consumer attitudes toward the advertising. In content analysis studies, researchers examined ads for various specialties and types of organizations (e.g., cancer centers, hospitals, academic medical centers, private practices, bariatric surgery centers, plastic surgery clinics, etc.) that

¹ In this paper, the term “healthcare service advertising” is used instead of other similar terms such as medical advertising, physician advertising, and hospital advertising. The term “healthcare” is inclusive of both physicians and hospitals. The term “service” is essential to differentiate the ads examined here from product and device ads.

appeared in diverse media channels (e.g., newspapers, magazines, television, internet, etc.) and reached similar conclusions: The ads generally contain little information that could help prospective patients make informed decisions and instead often resort to strong emotions and promised overly optimistic outcomes (e.g., Larson *et al.*, 2005; Muhlestein *et al.*, 2013; Salant and Santry, 2006; Vater *et al.*, 2014). Despite the ads' many shortcomings, surveys have consistently shown that consumers hold more favorable than unfavorable attitudes toward healthcare service ads (e.g., Moser and Freeman, 2014; Moser *et al.*, 2016).

To better understand the seeming disconnect between the poor informational value of healthcare service ads and consumers' positive attitudes toward them, we conducted a survey in which consumers were asked to rate various informational features in healthcare service ads for their helpfulness. We also asked them to indicate their attitudes toward healthcare service ads. In order to improve the current measures of consumers' perceptions of the advertising features and attitudes toward advertising, we created a taxonomy of healthcare service advertising information features and validated an existing advertising attitude scale as well. Furthermore, we examined the relationships between preferences for the various information features and attitudes toward healthcare service advertising, along with demographic and insurance status-based differences in the preferences for advertising information features and attitudes toward advertising.

Consumers' attitudes toward advertising can be formed by its value in multiple dimensions, including information as well as entertainment, credibility, irritation, and incentives (Arora and Agarwal, 2019). In this study, we focused on the informational features because they have been the major argument of healthcare service advertising advocates (e.g., Signs, 2015; Zivotofsky and Zivotofsky, 2014; Zwier, 2014). Within the limited scope, the current exploratory

study is expected to contribute to healthcare service marketing research and practice by providing unique insights into consumer perceptions of ads and their informational features.

Theoretical Background

Information features in healthcare service advertisements

The rationale behind the FTC's challenge against the AMA's physician advertising ban was the potential benefits of advertising to consumers. By making truthful information about the price, quality, or other aspects of services such as office hours and acceptance of Medicare or credit cards readily available, the regulators thought, advertising could increase access, reduce cost, and raise the quality of care (Signs, 2015). Hence, most advertising content analysis studies focused on whether the ads actually contained the information felt to be critically important to consumers (e.g., Larson *et al.*, 2005; Muhlestein *et al.*, 2013; Park *et al.*, 2021).

Unfortunately, the studies found that healthcare service ads generally do not live up to expectations. The ads reliably conveyed information about services provided and other basic information about how to obtain the services, but rarely contained information about the price and quality. Moreover, they were more likely to use emotional appeals and depend on patient testimonials, often setting unrealistic expectations. Newspaper ads by top academic medical centers frequently used emotional appeals, prestige, references to a specific symptom or disease, introductory lectures, and special offers to attract patients (Larson *et al.*, 2005). In the ads, claims of benefits were not substantiated and information about the risks associated with the services rendered was virtually absent. When the ads promoted a single intervention, it was often either an unproven or cosmetic procedure. Likewise, the websites of Medicare-registered hospitals emphasized the service lines, access, awards received, and amenities offered, while neglecting or scrimping the information about price, quality, and patient safety (Muhlestein *et al.*, 2013).

Unsubstantiated claims of treatment benefits, omission of risk and price information, and frequent use of emotional appeals and patient testimonials without disclaimers also characterized cancer center ads in national magazines and on television (Vater *et al.*, 2014). Similarly, bariatric surgery center websites turned to emotional appeals conveyed through patient testimonials (Slant and Santry, 2006). Magazine ads and websites for plastic surgery also commonly used patient testimonials and emphasized benefits with little reference to the risks (Hennink-Kaminski *et al.*, 2010; Park and Park, 2017). A recent study that squarely focused on the information regarding access, quality, and cost demonstrated that television and online ads for local clinics and hospitals consistently provided access information, but rarely conveyed information about the quality and cost of the advertised services (Park *et al.*, 2021).

Research specifically investigating what information consumers seek from healthcare service ads is rare. In a qualitative study (Perrault, 2016), consumers who watched introductory video biographies of family physicians identified the providers' personalities, bedside manners, communication styles, and credentials as useful information. In addition, they wished that the video had contained information about the providers' experience, personal lives, and footage of their offices. In a survey investigating the perceived utility of 27 information features commonly found in plastic surgery ads, surgery risk and medical emergency preparedness were ranked as the most helpful information consumers are looking for, closely followed by financing options, before-and-after photos, patient testimonials, surgeries/procedures available, how to obtain consultation, price, the surgeon's education and training, and hygienic practices (Park and Allgayer, 2018). The study also reported that people with a higher level of exposure to plastic surgery ads rated every information feature as equally or more helpful than people with lower exposure and the difference was significantly different for six features. In addition, people who

perceived a higher level of risk involving plastic surgery rated some features (e.g., cost, safety) more helpful and other features (e.g., model photos, celebrity plastic surgery information) less helpful than those with lower perceived risk. The authors (Park and Allgayer, 2018) interpreted the differences between high- and low-exposure groups in their ratings of advertising features such as surgeon's media appearance, beautiful office photos, and celebrity plastic surgery information as cultivation effects where frequent exposure to ads misled people to see the low-value features as helpful. On the other hand, the higher perceived risk seemed to make people appreciate high-value information features such as cost and safety more while discounting low-value features such as model photos and celebrity plastic surgery information.

Although these two studies provide some insights into what consumers are seeking in healthcare service ads, three important issues need further exploration. First, the features studied by Park and Allgayer (2018) have limited applicability because many of them are specific to plastic surgery. Second, the features identified by consumers in Perrault (2016) are confined to the video biography format while healthcare service ads encompass many other forms. Third, the reliability of the findings in both studies could be questioned due to the individual item-based assessment of the features. Consumer perceptions about the information features in healthcare service ads can be measured more reliably if a few related individual features form a group of features and a composite score of the individual features is used for the group. The consolidated ratings of advertising information features can also facilitate comparisons amongst the feature groups and examination of their relationships with other constructs such as advertising exposure and attitudes toward advertising to further theoretical development in this line of research.

Consumer attitudes toward healthcare service advertising

Because of the historic professional stigma against advertising by physicians, early studies on healthcare service advertising were focused on consumer attitudes. In contrast to the professional organization's strong objection and its members' reticence (Allen *et al.*, 1985), the public was receptive to healthcare service advertising from the beginning. More specifically, they felt optimistic that advertising would allow them to better assess the quality and price of healthcare services and thereby optimize their ability to choose. The public also felt that healthcare service advertising would not be particularly damaging to the credibility of the medical profession as a whole and individual physicians (e.g., Gould, 1988; Leventhal, 1995; Miller and Waller, 1979).

The positive slant in consumer attitudes toward healthcare service advertising is good news for marketers. Favorable consumer reception of healthcare service advertising can counter calls for regulation levied by bioethicists and physicians (e.g., Delmas, 2014; Tomycz, 2006). In addition, positive consumer attitudes can contribute to desired conative outcomes. The cognitive structure model of advertising effects states that exposure to advertising messages triggers changes in consumers' cognitive structures by creating new concepts in memory and forging associations between existing concepts or between the new concepts and existing ones (Mitchell and Olson, 1981). In the process, consumers also form attitudes toward advertising which in turn mediates the relationship between advertising exposure and consumers' cognition and/or behavior related to the advertised brands or products (Mackenzie *et al.*, 1986). At the same time, the cognitive structure model also emphasizes that pre-existing cognitive structures influence how advertising messages are processed (Barnes and Dotson, 1989). Research has shown that more knowledgeable people have more complex cognitive structures (Joiner, 1998). Researchers

also discovered that there is context-specific cognitive complexity independent from generalized cognitive complexity (Zinkhan and Braunsberger, 2004), suggesting that people develop cognitive complexity regarding certain topics with personal experiences and/or interests.

There are a series of studies that examined consumers' attitudes toward hospital and physician advertising. Moser and his colleagues published the findings of cross-sectional surveys assessing consumers' agreement/disagreement with a battery of statements about physician and hospital advertising in one metropolitan area at five-year intervals for three decades, from 1985 to 2015. The surveys consistently showed more positive than negative perceptions of healthcare service advertising. In the latest 2015 survey consumers expressed positive sentiments for 13 out of 19 statements (Moser *et al.*, 2016). Consumers' attitudes toward hospital advertisements showed similar patterns (Moser and Freeman, 2014).

When the authors compared consumer attitudes in 10-year or 20-year intervals (Moser, 2008; Moser *et al.*, 2016; Moser and Freeman, 2014), they noticed changes in a few statements, but whether these were statistically significant was not determined. Instead, the authors reported statistically significant differences in consumers' attitudes toward physician and hospital advertising by demographic attributes (Johns and Moser, 1989; Moser *et al.*, 2016; Moser and Freeman, 2014). However, the single-item-based measurements offered limited reliability in assessing the demographic differences and the authors did not discern a pattern(s) from the single-item-based findings over time. Earlier, Marks and Totten (1990) could not replicate the socioeconomic and demographic differences in attitudes toward hospital advertising reported in previous studies (Babakus and Cavusgil, 1988; Jones and Moser, 1989), except for more stable and negative attitudes of older people toward advertising.

The age-based differences consistently found in the earlier studies (Babakus and Cavusgil, 1988; Jones and Moser, 1989; Marks and Totten, 1990) may reflect a generational difference between older people, grown up in the sociocultural atmosphere where physician advertising was banned, and younger people who came of age after the ban was lifted. On the other hand, the idiosyncratic differences in the statements assessing attitudes toward healthcare service advertising by gender, education, income, and race (Moser *et al.*, 2016; Moser and Freeman, 2014) suggest that the demographic characteristics themselves may not predispose people to be more positive or negative toward healthcare service advertising. Instead, certain experiences and expectations related to healthcare services and advertising may add complexity to individuals' cognitive structures, contributing to their attitudes toward healthcare service advertising.

Current study

There is not enough research for healthcare marketers to consult when deciding which information to prioritize in their ads. Our study contributes to the literature by identifying information features consumers appreciate in advertising. In doing so, we addressed the limited applicability of the existing measures due to their focus on one medical specialty (plastic surgery in Park and Allgayer, 2018) or one format (provider video biographies in Perrault, 2016). We also strived to raise the reliability of the measure for researchers and reference value for marketers by creating a taxonomy of the features and using a few composite scores instead of numerous single-feature scores to determine their informational utility to consumers. In addition, a smaller number of information feature groups identified by the taxonomy allowed us to compare them with one another for their value to consumers and further examine

sociodemographic differences in the assessments. These steps were taken under the guidance of Aims 1, 2, and 3.

Aim 1. Create a taxonomy of information features in healthcare service advertisements.

Aim 2. Compare information feature groups in the taxonomy for their informational utility to consumers.

Aim 3. Examine whether consumers' sociodemographic characteristics are related to preferences for certain information feature groups in healthcare service advertisements.

Research has consistently indicated that consumers' attitudes toward healthcare service advertising are positive overall. At the same time, the studies used multi-item measures of advertising attitudes and reported the results for each item (e.g., Leventhal, 1995; Miller and Waller, 1979; Moser *et al.*, 2016), leaving them vulnerable to threats to internal validity and reliability. Also, the large number of items made it difficult for researchers to examine the relationships between advertising attitudes and other variables of potential significance. Although Moser and his colleagues (2016) classified the 19 statements into five categories—physician and advertising, informational aspects of physicians' advertising, the importance of price, deception, and the future of physicians' advertising--the classification was based on face validity only without statistical testing. Hence, we developed Aims 4 and 5 to validate the attitudes toward healthcare service advertising scale and examine its relationship with the advertising information feature groups established under Aim 1.

Aim 4. Validate a scale assessing consumers' attitudes toward healthcare service advertising.

Aim 5. Examine whether preferences for certain information feature groups in healthcare service advertisements are related to attitudes toward the advertising.

Methods

Recruitment procedure

An online survey was conducted with a convenience sample by recruiting participants from a crowdsourcing platform for academic research. People who were 18 or older living in a Western state in the U.S. were invited to participate for a small monetary compensation.

The first page of the survey contained an informed consent form. Only those who agreed to participate in the survey were led to the next page where they were presented with 29 information features in healthcare service ads and asked to rate their helpfulness. The information feature questions were followed by attitudes toward advertising measures and questions about demographic attributes and health insurance status.

The final dataset included surveys from 128 people who took 12.93 minutes on average to answer all the questions. The first author's university institutional review board approved the recruitment and research procedures.

Participants

The age of participants ranged from 18 to 73 with an average of 34.56 ($SD = 10.99$). A majority of them were Caucasian ($n = 77$, 60%), with Hispanic ($n = 21$, 16%) and Asian/Pacific Islander ($n = 14$, 11%) as the next largest racial/ethnic groups. In terms of gender, participants were evenly split between women and men ($n = 63$, 49%), and two people answered "other." Some college credit with no degree ($n = 45$, 35%) was the most common education level, followed by a bachelor's degree ($n = 29$, 23%) and a high school diploma or equivalent ($n = 20$,

16%). Compared to the state Census data, this sample overrepresented Caucasians and people with a bachelor's degree, resulting in a higher education level than the actual population.

Measures

Information features in healthcare service advertisements

Twenty-nine information features were identified from previous content analysis studies (Park and Allgayer, 2018; Park *et al.*, 2021; Perrault, 2016). See Table I for the list. Participants were asked to imagine that they were potential patients and rate how helpful each of the features would be for their decision to use the service. The responses were obtained on a five-point scale, from 0 (not helpful at all) to 4 (extremely helpful).

Attitudes toward healthcare service advertising

The survey instrument used by Moser and his colleagues (2016) was adopted. We first assessed the content validity of individual items, eliminating three statements that were not explicitly related to advertising (e.g., "I presently have a high image of physicians.") and one statement markedly more abstract than the others ("The public would be provided useful information through advertising by physicians."). Subsequently, we presented a battery of 15 statements and captured the responses on a five-point scale ranging from -2 (strongly disagree), 0 (uncertain), to 2 (strongly agree).

Demographics

Questions regarding age, race/ethnicity, gender, and education were posed.

Insurance status

Instead of income, insurance status was measured. An item in Urban Institute's (2014)'s Health Reform Monitoring Survey was used. The question was what type of health insurance participants had among these seven choices: (1) no insurance, (2) employer-based, (3)

government-run marketplace, (4) Medicare, (5) income-based government medical assistance such as Medicaid and CHIP, (6) qualified public insurance (e.g., VA, tribal, etc.), and (7) others. The actual wording included a more detailed description and examples.

Analysis

For preliminary analysis, means and standard deviations were used to evaluate the helpfulness of the information features and advertising attitudes. Next, statistical analyses were conducted. In validating scales for advertising features (Aim 1) and attitudes toward healthcare service advertising (Aim 4), we followed the steps identified as the best practices in scale development/validation: 1) item development, 2) scale development, and 3) scale evaluation (Boateng et al., 2018). The items for advertising features and attitudes toward advertising came from previous studies and yet we reviewed them closely for content validity. Subsequently, we conducted factor analyses to identify sub-dimensions in the scales and tested the reliability of each. Applying this standard approach to Aim 1, we conducted factor analyses to assess whether the individual information features could be classified into fewer groups. We divided the 29 information features into two categories—one encompassing 17 features (Group I) related to access, cost, and quality and the other encompassing the remaining 12 features (Group II)—to achieve a statistically sound ratio (7.0 or above) between the number of observations and the number of information features (Mundfrom *et al.*, 2005). Subsequently, we ran two separate factor analyses. Principal components analysis was conducted to generate factors with eigenvalues of one or higher and varimax rotation was used to optimize the factor loadings. The information features in each factor generated from the analyses were tested for reliability using Cronbach's alpha statistics. The same process (i.e., factor analysis followed by a reliability test) was used to achieve Aim 4. Because there were only 15 statements assessing advertising

attitudes, a factor analysis including all 15 statements was conducted. For each information feature group or advertising attitude subscale confirmed through the factor analysis and validated through the reliability test, a composite score was calculated by averaging the component scores.

To identify which information features consumers found more helpful than others (Aim 2), we conducted repeated measures ANOVA that compared helpfulness ratings of information feature groups generated as a result of Aim 1. The same participants' helpfulness ratings of two different information feature groups (e.g., access features vs. quality features) were compared at a time. For Aim 3, we recoded age (33 and younger vs. older than 33 years of age based on the median first-time home-buying age), race/ethnicity (Caucasian vs. all others), gender (men vs. women), education (some college credit with no degree or lower vs. associate degree or higher), and insurance status (no insurance or income-based government medical assistance vs. all others) into dichotomous variables and conducted t-tests where the demographic characteristics and insurance status were the independent variables and helpfulness ratings of information feature groups were the dependent variables. Lastly, Aim 5 was accomplished by conducting multiple regression analysis where attitude toward healthcare service advertising was regressed on demographics, insurance status, and ratings of information feature groups.

Results

Perceptions of information features and attitudes toward healthcare service advertising

All but three features (doctor's medical society membership, doctor's affiliation with university and/or hospital, and amenities) were perceived as somewhat or more helpful. Seven features were rated between very helpful and extremely helpful: services provided, insurances accepted, location, price, hours of operation, evidence of patient safety, and flexible hours. See Table I for a list of the 29 information features and consumer ratings of their helpfulness.

Similar to the findings of previous studies, attitudes toward advertising were more favorable than unfavorable. See Table II for the 15 statements about healthcare service advertising and consumer ratings of their agreement/disagreement with the statements.

- Table I about here –

- Table II about here -

Aim 1. Create a taxonomy of information features in healthcare service advertisements

The factor analysis with 17 features related to access, cost, and quality of care generated four factors that accounted for 68% of the variance. Five information features (how to make an appointment, services provided, location, insurances accepted, hours of operation) loaded on one factor and all of them were concerning *access* to healthcare services. The second factor included three features (price, discounts or special promotions, and financing plans) about *cost*. Two items (acceptance of Medicaid and sliding-scale pricing based on patient's financial needs) constituted the third factor and the factor was named *equity*. The remaining seven features (promise of good medical outcome, evidence of good medical outcome, promise of patient safety, evidence of patient safety, promise of patient satisfaction, evidence of patient satisfaction, promise of patient-centered care) loaded on one factor which was named *quality*. See Table III for details.

- Table III about here -

The factor analysis with 12 features generated three factors that accounted for 66% of the variance. One factor included four features (doctor's bedside manner, doctor's personality, consumer rating, and office staff's attitude) and was named *provider communication*. Another factor included four features (doctor's education and credentials, doctor's experience, doctor's membership in medical societies, and doctor's affiliation with university and/or hospital), all of which were focused on *provider clinical qualification*. Three features loaded on one factor

(convenience, flexible hours, and amenities), and the factor was named *consumerism*. One feature, ranking/awards, was split between provider communication and clinical qualification factors and excluded in subsequent analyses. See Table IV for details.

- Table IV about here -

After the seven factors were identified, seven separate reliability tests were conducted with the component information features. All but one generated acceptable reliability (Access $\alpha = .75$, cost $\alpha = .83$, quality $\alpha = .92$, provider communication $\alpha = .84$, provider clinical qualification $\alpha = .83$, consumerism $\alpha = .76$). The equity factor had only two indicators, which is likely to have contributed to its relatively low reliability as a scale ($\alpha = .65$).

Aim 2. Compare information feature groups for their informational utility to consumers

Based on the taxonomy created under Aim 1, seven groups of information features were established: access, cost, equity, quality, provider communication, provider clinical qualification, and consumerism. Accordingly, a score for each group was generated by averaging the ratings of all elements in the group. Of the seven groups, access had the highest mean and the lowest standard deviation ($M = 3.28$, $S.D. = .61$), suggesting its high informational utility for consumers and little disagreement in the view. Cost was the second ($M = 2.86$, $S.D. = .95$), followed by quality ($M = 2.62$, $S.D. = 1.03$), equity ($M = 2.57$, $S.D. = 1.21$), and consumerism ($M = 2.52$, $S.D. = .88$). Provider communication ($M = 2.35$, $S.D. = .97$) was second to last, making provider clinical qualification ($M = 2.30$, $S.D. = .95$) the least appreciated information feature group. Table V shows statistical differences across the means.

- Table V about here -

Aim 3. Demographic and insurance status-based differences in information feature ratings

Five group-based differences were found. First, provider clinical qualification was more important for women ($M = 2.48$, $SD = .90$) than for men ($M = 2.13$, $SD = .98$), $t(124) = -2.081$, $p < .05$, Cohen's $d = -.371$. Second, younger people ($M = 2.81$, $SD = 1.10$) rated equity information as more important than older people ($M = 2.35$, $SD = 1.27$), $t(126) = 2.204$, $p < .05$, Cohen's $d = .390$. Third, less educated people ($M = 2.85$, $SD = 1.08$) rated equity information more important than their more educated counterparts ($M = 2.27$, $SD = 1.28$), $t(126) = 2.778$, $p < .01$, Cohen's $d = .492$. Fourth, less educated people ($M = 2.80$, $SD = 1.00$) also rated quality information more important than more educated people ($M = 2.41$, $SD = 1.04$), $t(126) = 2.152$, $p < .05$, Cohen's $d = .381$. Fifth, people with no insurance or income-based government medical assistance such as Medicaid and CHIP ($M = 3.05$, $SD = .94$) rated equity information more important than others ($M = 2.23$, $SD = 1.27$), $t(126) = 4.181$, $p < .001$, Cohen's $d = .715$. There were no race/ethnicity-based differences.

Aim 4. Validate attitudes toward healthcare service advertising scale

A factor analysis with all 15 statements identified three factors that together accounted for 64% of the variance. However, the factor loadings of individual statements were not clearly differentiated across the factors. Hence, another factor analysis was conducted with 13 statements, after eliminating two items that constituted the third factor ("When physicians advertise, the costs are passed on to their patients through higher prices." and "Patients generally can rely more on what a friend tells them about physicians than on advertising.") The second factor analysis generated two factors that accounted for 62% of the variance. The factor loadings also showed cleaner splits between the two factors. Seven statements loaded on one factor, and all of the statements were concerning healthcare service advertising itself. The remaining six

statements loaded on the other factor and the statements were more focused on the physicians who were using advertising. Hence, the first factor was named “attitude toward healthcare service advertising (A_{HA})” and the second factor was named “attitude toward advertising physicians (A_{AP}).” See Table VI for details. Subsequently, reliability tests were conducted with the component statements of the two factors. The reliability statistics were acceptable ($\alpha = .88$ for A_{HA} ; $\alpha = .71$ for A_{AP}). In sum, the attitudes toward healthcare service advertising measure was validated to comprise two subscales: 7-item A_{HA} and 6-item A_{AP} .

- Table VI about here -

Aim 5. Predict attitudes toward healthcare service advertising

Because the factor analyses resulted in two subscales, two regression models were created with A_{HA} and A_{AP} as the respective criterion variable. The model predicting A_{HA} was statistically significant, $R^2 = .22$, $F(12, 113) = 2.603$, $p < .01$. In this model, insurance status ($\beta = -.268$, $p < .01$) and consumerism features ($\beta = .315$, $p < .01$) were significant predictors. People with either no insurance or income-based government medical assistance had more negative attitudes whereas people who highly rated the consumerism features of healthcare service ads had more positive attitudes toward advertising.

The model predicting A_{AP} was also statistically significant, $R^2 = .17$, $F(12, 113) = 1.926$, $p < .05$. In this model, insurance status ($\beta = -.238$, $p < .05$) and provider clinical qualification features ($\beta = -.317$, $p < .01$) were significant predictors. People with either no insurance or income-based government medical assistance and people who highly rated provider clinical qualification features had more negative attitudes toward advertising physicians. See Table VII for detailed statistics

- Table VII about here -

Discussion

This study was conducted to organize information features in healthcare service ads into a coherent set for easy reference and the aim was met by creating a taxonomy of seven groups: access, cost, equity, quality, consumerism, provider communication, and provider clinical qualification. All elements in each group identified by the factor analyses addressed one type of information. In turn, the seven distinct groups together constituted an exhaustive list of information features one could expect from healthcare service ads.

All the groups were perceived to be somewhat helpful or better. Among the seven groups, consumers rated access as the most helpful information and two provider-related groups – provider clinical qualification and provider communication – as the least helpful. The primacy of access information is deemed logical and also corresponds to the high prevalence of access information in healthcare service ads (Park *et al.*, 2021). On the other hand, the under-appreciation of provider-related information vis-à-vis other types of information appears inconsistent with previous research where consumers named providers' clinical qualifications and communication as important for choosing providers (Perrault, 2016). Possibly, consumers were conditioned by existing healthcare service advertising practices where the emphasis is on strong emotions and claims of quality care with little explanation of how it is accomplished (e.g., Larson *et al.*, 2005).

The demographic and insurance status-based comparisons in the ratings of information features revealed some differences. The higher rating of provider clinical qualification information among women than men might reflect the role of women as the “chief medical officers” of their families who are disproportionately in charge of healthcare decisions for themselves and others (Kaiser Family Foundation, 2018). Insurance status also emerged as an

important factor. The difference in the rating of equity information between people with no insurance or income-based government medical assistance and others was clear as demonstrated by the large effect size. Insurance status was also responsible for the higher rating of equity information by younger people and less educated people, in comparison to older and more educated people respectively. When insurance status was controlled, the age and education-based differences in the rating of equity information were not statistically significant. Unlike the case of equity information, the difference in the rating of quality information between less- and more-educated people held when insurance status was controlled, suggesting a gap between the two groups. With abundant health information on the internet, today's consumers have many options for obtaining information about healthcare services and providers. At the same time, highly educated people may have access to more sources to learn about the quality of healthcare services and thus do not look to advertising for the potentially complex information whereas less educated people may not have the same level of access, knowledge about the sources, and/or health information self-efficacy and instead depend more on advertising.

The other major aim of this study was to validate the measure of attitudes toward healthcare service ads and it was also achieved by identifying the underlying factors and establishing the reliability of the two subscales indicated by the factor analysis. The two subscales had high face and content validity. The final seven- and six-item subscales also showed high internal consistency. The two dimensions in attitudes toward healthcare service advertising shed light on the unique nature of direct-to-consumer healthcare service advertising: Consumers cognitively differentiated healthcare service advertising itself and advertising physicians. In the current data, the two attitudes were positively correlated with each other and the size of correlation was moderate.

The subsequent regression analyses also showed a similarity and a difference between the two subscales, A_{HA} and A_{AP} . They were both predicted by insurance status. However, a higher rating of consumerism features – a composite of convenience, flexible hours, and amenities – predicted a more positive A_{HA} whereas a higher rating of provider clinical qualification – a composite of doctor’s education and credentials, experience, medical society membership, and affiliation with a university or hospital – predicted a more negative A_{AP} . The positive relationship between consumerism features and A_{HA} might be due to the high prevalence of the features in current healthcare service ads. With the cross-sectional data, however, we cannot rule out the possibility that people with a stronger consumerism orientation toward healthcare might consider the features more helpful and also hold a more positive view of healthcare service advertising. Similarly, the negative relationship between provider clinical credential information and A_{AP} might be due to the scarcity of such information in the ads. Or, there could be an underlying expectation about rigorous clinical training of providers that also predisposes people to be wary of physicians who use advertising to promote their services. Alternatively, skepticism over physicians who use advertising might prompt people to pay closer attention to providers’ clinical qualifications.

When looking through the lens of the cognitive structure model of advertising effects, these findings suggest that women and people with no insurance or income-based government medical assistance -- compared with men and people with other types of insurance respectively -- have more complex cognitive structures regarding healthcare service as a product category and find certain advertising features more helpful. The more complex cognitive structure may also render people with no insurance or income-based government medical assistance to be more critical of healthcare service advertising and physicians who advertise. Similarly, appreciation of

provider clinical qualification features may be related to a cognitive structure that makes people more critical of physicians who advertise. On the other hand, a cognitive structure that appreciates consumerism features in ads is linked to more positive attitudes toward healthcare service advertising.

Regarding the question, “why do consumers hold positive views on healthcare service ads when the ads have limited informational utility?” the current study provided some answers. Access information was the most important for consumers and previous studies showed that the ads reliably fulfill the expectation. At the same time, consumer attitudes toward healthcare service ads might be also influenced by non-informational attributes such as emotional appeals and reassurance of good outcomes that previous studies found to be common in the ads. Future studies should consider the non-informational utilities of the ads to account for consumer attitudes.

The relatively lower helpfulness consumers assigned to the providers’ clinical qualifications and communication skills is a cause for concern. This also flies against the “Truth in Advertising” campaign the AMA championed for close to a decade. According to the AMA, consumers are confused about the training of their healthcare providers, and thus advertising and other marketing materials should clarify who is a physician and who is not (AMA Advocacy Resource Center, 2018). But, in our data, consumers feel that this information is of limited interest to them.

Also, the significant difference between quality-related and provider-related information in the helpfulness ratings suggests that consumers might consider provider qualification—both clinical and communicative—and service quality as separate issues. This disconnect between service quality and provider qualification seems parallel to the disconnect between U.S. patients’

high satisfaction with the care they received and their low trust in physicians (Blendon *et al.*, 2014).

Implications for Research and Practice

This study laid the groundwork for healthcare service advertising research by validating the attitude toward healthcare service advertising scale. Based on the single item-by-item measurements that had been used to track consumers' attitudes toward healthcare service advertising for over three decades (Moser *et al.*, 2016), this research developed two subscales that could be examined in relation to other theoretical constructs. In addition, the discovery of the second dimension, A_{AP} , distinct from A_{HA} lends some support to the idea that healthcare service advertising could impact public perceptions of providers while carrying out its usual informational or educational function (Ortiz and Rosenthal, 2019). With the validated measures, researchers will be able to explore its relationship with other advertising-related variables (e.g., advertising exposure, intention to use the advertised service, etc.) as well as variables unique to the healthcare context (e.g., perceptions of healthcare professionals, healthcare system, etc.)

For healthcare marketers, the primary contribution of this study is the taxonomy of healthcare service advertising information features. By applying the taxonomy, they can produce ads that meet the informational needs and expectations of their target audiences. They also may consider the insurance status and education level of their target audiences when assessing what equity and quality information to provide. For example, underprivileged people found information about acceptance of Medicaid, needs-based sliding scale pricing, and quality of care significantly more helpful than their better-off counterparts. Unfortunately, studies have shown that healthcare service ads are severely lacking in such information (Larson *et al.*, 2005; Muhlestein *et al.*, 2013; Park *et al.*, 2021). Marketers need to bring up these issues with their

clients—providers in charge of private practices or marketing managers at healthcare organizations—and educate them about the health equity implications of what they include or decide to exclude from their ads. Healthcare marketing managers need to be aware of the history of healthcare service advertising regulation and consumer attitudes and understand the utility of the ads to keep the practice respectable in the eyes of the public and helpful to their various audiences.

For providers, the relatively low helpfulness ratings of provider clinical qualification and communication information should serve as a warning. Instead of spending time and resources at the state-level legislation to police how non-physician providers with doctoral degrees can call themselves in ads (AMA Advocacy Resource Center, 2018), the AMA could have asked their physician members to use their advertising to educate consumers about different levels of training and qualifications among providers. In the ads, they can also make the relationship between provider quality and the quality of healthcare services clearer.

Limitations

This study has several limitations. First, it used a convenience sample that was rather small in size. A larger sample would have allowed us to conduct the factor analysis of advertising features without dividing them into two groups. Also, the sample overrepresented Caucasians and college graduates compared to the census-based demographic profile of the state the study was conducted. Hence, the findings of this study need to be replicated with a larger and more representative sample. Second, as an exploratory study addressing multiple gaps in both the theory and methods of healthcare service advertising, we used one dataset to validate two measures and examined their relationships with other variables. This is certainly not optimal and calls for further research using different datasets. Third, this study is based on cross-sectional

data and thus no time order could be established in the relationships between information features and advertising attitudes. Fourth, with the limited number of variables captured in the survey, some results were difficult to explain. Fifth, the focus of the research was primarily on building constructs with internal validity. The local nature of healthcare advertising could justify the research method focused on the residents in a single market which served well for this research. However, future researchers will need to consider the external validity and applicability of the findings in other geographic areas.

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Table I. Helpfulness of 29 information features in healthcare service advertisements

N = 128

Information feature	Mean	SD
Services provided	3.53	0.70
Insurances accepted	3.52	0.86
Location	3.31	0.79
Price	3.21	0.92
Hours of operation	3.12	0.90
Evidence of patient safety	3.11	1.14
Flexible hours (evening and/or weekend hours, same-day appointment, etc.)	3.01	0.98
Evidence of patient satisfaction	2.99	1.20
Evidence of good medical outcome	2.96	1.09
How to make appointment	2.95	1.02
Price discounts or special promotions	2.84	1.19
Doctor's experience (years in practice, number of cases performed, etc.)	2.84	1.08
Convenience (location, online bill pay, parking, etc.)	2.81	1.10
Doctor's education and credentials	2.80	1.13
Sliding-scale pricing based on patient's financial needs	2.70	1.24
Consumer rating (Yelp, patient testimonials, etc.)	2.59	1.19
Financing plans	2.54	1.16
Promise of patient-centered care (good communication, respect for patients' needs, psychological comfort, etc.)	2.51	1.30
Acceptance of Medicaid	2.45	1.55
Promise of patient safety	2.39	1.38
Doctor's bedside manner (caring, interested, etc.)	2.34	1.14
Office staff's attitude (friendly, caring, pleasant, etc.)	2.29	1.26
Promise of patient satisfaction	2.20	1.36
Promise of good medical outcome	2.17	1.38
Doctor's personality (friendly, agreeable, fun, etc.)	2.17	1.14
Ranking/awards ("Top doc," "Patients' choice award")	2.02	1.20
Doctor's affiliation with university and/or hospital	1.87	1.27
Amenities (modern waiting room, luxury suites, free events and snacks, etc.)	1.74	1.15
Doctor's medical society membership	1.71	1.17

Response scale: 0 (*not helpful at all*), 1 (*not very helpful*), 2 (*somewhat helpful*), 3 (*very helpful*), 4 (*extremely helpful*).

Table II. Attitudes toward healthcare service advertising

Statement	Mean (SD)	N = 128 (%)		
		SD/D	U	A/SA
It is proper for physicians to advertise.	.48 (0.89)	10.2	41.4	48.4
In general, the image of physicians would be lowered by advertising.	-.43 (1.06)	52.3	25.8	21.9
Advertising by physicians would lower the credibility and dignity of their services.	-.54 (1.11)	59.4	19.5	21.1
Patients prefer to use the services (if needed) of physicians who advertise.	-.22 (0.99)	33.6	50	16.4
Patients would like to see more advertising by physicians.	-.39 (1.04)	41.4	43.8	14.8
Advertising by physicians provides useful information to (potential) patients.	.55 (1.11)	18.8	18.8	62.5
Advertising helps consumers make more intelligent choices between physicians.	.30 (1.10)	21.1	28.9	50.0
Advertising makes the public more aware of the qualifications of physicians.	.50 (1.13)	19.5	21.1	59.4
Advertising will increase the quality of physicians' services in the future.	-.33 (1.08)	41.4	36.7	21.9
When physicians advertise, the costs are passed on to their patients through higher prices.	.33 (1.11)	23.4	30.5	46.1
When physicians advertise, prices are lowered due to more competition.	-.41 (1.09)	46.1	35.2	18.8
Advertising by physicians is more deceptive than other forms of advertising.	-.43 (1.13)	46.9	33.6	19.5
Patients generally can rely more on what a friend tells them about physicians than on advertising.	.80 (0.98)	10.9	20.3	68.7
Patients are suspicious of physicians who advertise.	-.23 (1.17)	39.1	35.2	25.8
Advertising by physicians benefit only quacks and incompetents.	-.74 (1.14)	58.6	28.9	12.5

Response scale: -2 (*strongly disagree* [SD]), -1 (*disagree* [D]), 0 (*uncertain* [U]), 1 (*agree* [A]), 2 (*strongly agree* [SA])

Table III. Factor analysis of information features in healthcare service advertisements: Group I
N = 128

	Advertising information features factor loadings			
	Quality	Cost	Access	Equity
Appointment	.039	.125	.677	-.023
Services provided	.026	-.002	.750	.244
Location	.156	.205	.680	-.274
Insurances accepted	-.051	.138	.618	.258
Hours of operation	.043	-.020	.775	.070
Price	.053	.793	.052	.014
Discounts/other promotions	.075	.842	.109	.156
Financing plans	.192	.805	.154	.253
Acceptance of Medicaid	.217	.161	.170	.768
Sliding-scale pricing	.088	.496	.163	.627
Promise of good outcome	.835	.000	-.062	.174
Evidence of good outcome	.663	.397	.163	-.264
Promise of patient safety	.885	.019	.048	.147
Evidence of patient safety	.710	.452	.113	-.286
Promise of patient satisfaction	.871	.034	-.001	.235
Evidence of patient satisfaction	.737	.392	.113	-.150
Promise of patient-centered care	.843	-.037	.047	.137
Eigenvalue	4.570	2.853	2.622	1.577
% of total variance	26.884	16.781	15.423	9.278
Total variance	68.366%			

Table IV. Factor analysis of information features in healthcare service advertisements: Group II
N = 128

	Advertising information features factor loadings		
	Provider Communication	Provider Clinical Qualifications	Consumerism
Doctor's bedside manner	.819	.217	.189
Doctor's personality	.843	.191	.085
Consumer rating	.732	.071	.194
Doctor's education and credentials	.320	.759	.072
Doctor's experience	.332	.751	.052
Doctor's medical society membership	.136	.789	.245
Doctor's affiliation w/ university/hospital	.113	.786	.117
Office staff's attitude	.692	.355	.102
Convenience	.234	.031	.870
Flexible hours	.064	.093	.830
Amenities	.174	.307	.670
Ranking/awards	.516	.393	.100
Eigenvalue	2.995	2.853	2.076
% of total variance	24.955	23.777	17.301
Total variance		66.033%	

"Ranking/awards" did not clearly load on any of the three factors.

Table V. Rating of information feature groups in healthcare service advertisements

	Access	Cost	Quality	Equity	Consumerism	Provider comm.	Provider clinical qual.
M	3.28	2.86	2.62 ^a	2.57 ^{ab}	2.52 ^{abc}	2.35 ^{bcd}	2.30 ^d
SD	0.61	0.95	1.03	1.21	0.88	0.97	0.95

Response scale: 0 (*not helpful at all*), 1 (*not very helpful*), 2 (*somewhat helpful*), 3 (*very helpful*), 4 (*extremely helpful*).

Note. Means sharing the same superscripts are not statistically different from each other at $p < .05$ level.

Table VI. Factor analysis of statements assessing attitudes toward healthcare service advertising and advertising physicians

	<i>N</i> = 128	
	Attitudes (Factors)	
	Toward healthcare service advertising (A _{HA})	Toward Advertising Physicians (A _{AP})
Patients prefer to use the services (if needed) of physicians who advertise.	.696	.136
Patients would like to see more advertising by physicians.	.825	.114
Advertising by physicians provides useful information to (potential) patients.	.697	.359
Advertising helps consumers make more intelligent choices between physicians.	.788	.367
Advertising makes the public more aware of the qualifications of physicians.	.666	.452
Advertising will increase the quality of physicians' services in the future.	.757	.032
When physicians advertise, prices are lowered due to more competition.	.704	-.036
It is proper for physicians to advertise.	.422	.567
In general, the image of physicians would be lowered by advertising. ^a	.243	.811
Advertising by physicians would lower the credibility and dignity of their services. ^a	.267	.852
Advertising by physicians is more deceptive than other forms of advertising. ^a	-.002	.687
Patients are suspicious of physicians who advertise. ^a	.120	.767
Advertising by physicians benefit only quacks and incompetents. ^a	.064	.827
Eigenvalue	4.111	3.950
% of total variance	31.621	30.387
Total variance	62.01%	

^a Reverse-coded before factor analysis

Table VII. Predictors of attitudes toward healthcare service advertising (A_{HA}) and advertising physicians (A_{AP})

	$N = 126^a$			
	A_{HA}		A_{AP}	
	β	β	β	β
Age	-.04	-.02	.03	.05
Race/ethnicity ^b	-.02	.04	-.04	-.02
Gender ^c	.09	.08	.06	.12
Education	-.27**	-.17	-.18	-.18
Insurance status ^d	-.29**	-.27**	-.22*	-.24*
Feature: Access		-.17		-.01
Feature: Quality		.01		.00
Feature: Cost		.02		.04
Feature: Equity		.09		.03
Feature: Provider communication		.10		-.08
Feature: Provider clinical qualification		-.10		-.32**
Feature: Consumerism		.32**		.14
R^2	.11	.22	.06	.17
F	2.976*	2.603**	1.641	1.926*

β (standardized coefficient); F (F statistics); * $p < .05$; ** $p < .01$

^aOut of 128 respondents, two people marked "other" for their gender and thus their data were treated as missing for this analysis.

^b1 = Caucasian, 2 = all others; ^c1 = man, 2 = woman; ^d1 = all other insurances, 2 = no insurance or income-based government medical assistance