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Relevance between Marketing Route of Social Media and Consumer Age Group for Choosing Dental Clinics

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Background: The purpose of the study was to evaluate the relationship and route of dental Social Media marketing by age group and support effective dental marketingy by age group.

Methods: A study was conducted on 265 people, aged 20 to 64 years, who lived in Seoul, Gyeonggi area and regularly used one or more of the social media platforms, Naver Band, Facebook, Instagram, KakaoStory, Twitter, or YouTube more than once a day. A 27-question questionnaire survey of approximately 10 minutes was conducted, and the collected data was statistically analyzed using the PASW program, with the significane level set to 0.05.

Results: "Introduction of acquaintances" was the most common route to visit the dentist. Regarding the use of social media platforms based on age group, 'Instagram' had the highest frequency among people belonging to the age groups of 20 to 29 years and 30 to 39 years; 'YouTube' had the highest frequency among those aged 40 to 49 years; and 'Naver Band' had the highest frequency among those aged 50 to 65 years.

Conclusion: The most frequently used social media by consumers according to age included Facebook, YouTube, and Instagram. However, social media was found to have no significant impact on the choice of dental institutions, as the number of people who visited the dentist through "Introduction of acquaintances" was the highest, and "Introduction of acquaintances" did not have experience accessing the dentist site after dental marketing. If this study could provide customized marketing information for each age group through social media, it is expected that the marketing effect of dental institutions through social media would be maximized in the future.

Key Words: Age group, Dental clinics, Internet access, Marketing, Social media

Introduction

Social media refer to online platforms that enable bidirectional sharing of opinions and information and formation of diverse relationships among the general public[1,2]. The diversification and advances of social media to blogs and YouTube, where users create and share content, and social networking service (SNS), such as Facebook and Twitter, have shifted the communication paradigm throughout society[3,4]. The dramatic advances of the internet has enabled sharing and quick dissemination of information in an array of fields online[5,6]. Owing to the consequent advantages in collecting information about medical technologies, consumers have developed markedly higher expectancies for healthcare services[7].

SNS, a type of social media, is a platform through which users network with others by sharing their lives and thoughts[8]. These sites help overcome the temporal and spatial limitations that hinder sharing or delivery of information[9]. Further, SNS has advanced beyond a vehicle for self-expression, and it has become an important means that influence users' decisions to consume or purchase a product[10]. Hence, SNS has become a critical strategic component in healthcare marketing and communication to

address patients' needs[11].

Advances of information technology (IT) in recent years have made is easy to for the public to acquire information about healthcare and healthcare facilities[12]. These features serve a pivotal role in the healthcare market, and the use of SNS for promotion and counseling is rising among healthcare organizations[13,14]. As a result, SNS has become an essential aid in consumers' choice of healthcare services[15].

In a previous study[16], the highest percentage of patients perceived that their health-related decision making, such as choosing a hospital, will be highly influenced by SNS (47.6%), followed by moderate influence (25.0%) and substantial influence (16.7%), showing that SNS has a grave impact on patients' choice of a hospital. Further, another study[10] recommended future studies to investigate the use of SNS among the growing user population not only in their 20s and 30s but also in their 40s and 50s in order to develop age-appropriate SNS utilization strategies.

In this context, this study aims to identify the specific social media with a profound influence on each age group in order to shed light on the effective social media marketing strategies and age-appropriate marketing insights for dental care facilities, ultimately to promote efficient decision making among consumers in choosing the most appropriate dental facility for their needs.

Materials and Methods

1. Study population

The study population was set to adults aged 20 to 64 years who live in Seoul or Gyeonggi (regions with good access to dental clinic advertisements) and who regularly use one or more of the following SNS at least once a day: Naver Band, Facebook, Instagram, KakaoStory, Twitter, YouTube. The sample size was determined using the G*power program through a χ^2 test, and the minimum sample size was calculated to be 265.

2. Instruments

A 27-item structured, self-report questionnaire was administered online via Google Forms from April 30, 2021 to July 31, 2021 on individuals who expressed consent to participate in the study. The questionnaire comprised four items for general characteristics, four items for social media utilization, four items for dental service utilization, nine items for utilization of dental clinic social media marketing, and six items for satisfaction with dental clinic visited based on social media marketing.

3. Analysis

Participants' general characteristics, social media utilization, dental service utilization, utilization of dental clinical social medial marketing, and satisfaction with dental clinic visited based on social media marketing were analyzed with frequency analysis. To identify the frequently utilized social media and the media through which they encountered dental clinic marketing by age group, we analyzed them according to general characteristics using χ^2 tests. The collected data were statistically analyzed using the PASW Statistics 18 software (IBM Corp., Armonk, NY, USA), with the significance level set at 0.05.

Results

Of 265 participants, 174 (65.7%) were femlae, and 116 (43.8%) were between the age of 20 and 29 years. A total of 188 (70.9%) of the participants were currently working

Table 1. General Characteristics of the Study Participants

Variable	Category	Value
Sex	Male	91 (34.3)
	Female	174 (65.7)
Age (y)	20~29	116 (43.8)
	30~39	52 (19.6)
	40~49	52 (19.6)
	50~64	45 (17.0)
Academic career	Elementary school graduation	0 (0.0)
	Middle school graduation	2 (0.8)
	High school graduation	75 (28.3)
	Attending university or above	188 (70.9)
Job	Unemployed	9 (3.4)
	Housewife	27 (10.2)
	Student	79 (29.8)
	Office workers	48 (18.1)
	Service workers	37 (14.0)
	Specialized technical	34 (12.8)
	Etc	31 (11.7)

Values are presented as number (%).

on or obtained a bachelor's degree or higher, and in term of occupation, 79 (29.8%) were currently students (Table 1).

The most common duration of daily social media use was 3 hours or more (n=94, 35.5%), and the most common

device used to access social media was a smartphone (n=249, 94.0%). The most frequently accessed social media site was YouTube (n=102, 38.5%), and the most common daily access frequency was 10 times or more (n=85, 32.1%) (Table 2).

Regarding an interest in oral health management, 116 (43.8%) stated that they are "somewhat interested." Ninety-four (35.5%) visited a dental clinic once per year, and 83 (31.3%) stated that they have a "moderate" or "mild" fear of visiting a dentist. Regarding the route of visit, 162 (61.1%) visited a dental clinic recommended by an acquaintance (Table 3).

The most desired information about dental clinics was "discount promotion events" (n=71, 26.8%), and 150 (56.6%) had seen a written dental clinic advertisement. Regarding the most popular type of social media, 54

Table 2. The Status of Social Media Use

Variable	Category	Value
Average time spent daily on social media	30 minutes to 1 hour	42 (15.8)
	1 hour to less than 2 hours	54 (20.4)
	2 hours to less than 3 hours	75 (28.3)
	More than 3 hours	94 (35.5)
A device that I usually use when I use social media	Smart phone	249 (94.0)
	Tablet PC	10 (3.8)
	Computer, laptop	6 (2.2)
Social media that people use the most	Instagram	84 (31.7)
	Facebook	26 (9.8)
	Twitter	9 (3.4)
	Naver Band	26 (9.8)
	KakaoStory	18 (6.8)
	Youtube	102 (38.5)
The number of connect times per day	Less than 3 times	44 (16.6)
	3 to less than 5 times	66 (24.9)
	5 to less than 10 times	70 (26.4)
	More than 10 times	85 (32.1)

Values are presented as number (%).

Table 3. The Status of Dental Clinic Use

Variable	Category	Value
Oral health interest rate	Not at all interested	6 (2.3)
	Not very interested	13 (4.9)
	Neutral	82 (30.9)
	Somewhat interested	116 (43.8)
	Very interested	48 (18.1)
The number of visits to the dentist in a year	Not visited	46 (17.4)
	1 time	94 (35.5)
	2 time	79 (29.8)
	3 time	23 (8.7)
	4 time	7 (2.6)
	More than 5 times	16 (6.0)
Fear of going to the dentist	None	22 (8.3)
	Very mild	46 (17.4)
	Mild	83 (31.3)
	Moderate	83 (31.3)
	Severe	31 (11.7)
The way your choosing a dentistry	Internet reviews	42 (15.8)
	Word-of-mouth advertisement	15 (5.7)
	Internet publicity	14 (5.3)
	Acquaintance introduction	162 (61.1)
	Etc	32 (12.1)

Values are presented as number (%).

Table 4. Practical Use of Dental Social Media Marketing Information

Variable	Category	Value
Dental information that you want	Discount event	71 (26.8)
	Disease information	50 (18.9)
	Dental information	41 (15.5)
	Treatment method	54 (20.4)
	Location	8 (3.0)
	Counseling	37 (14.0)
	Etc	4 (1.5)
Exposed to dental advertisements	Yes	150 (56.6)
	No	115 (43.4)
From which social media did you get marketing information	Instagram	54 (36.0)
	Facebook	30 (20.0)
	Twitter	0 (0.0)
	Naver Band	11 (7.3)
	KakaoStory	2 (1.3)
	YouTube	49 (32.7)
	Etc	4 (2.7)
Dental information obtained through social media	Discount event	71 (47.3)
	Disease information	27 (18.0)
	Dental information	21 (14.0)
	Treatment method	22 (14.7)
	Location	8 (5.3)
	Etc	1 (0.7)
Have you ever contacted dental clinic due to the advertisement from social media	Yes	33 (22.0)
	No	117 (78.0)
Experience of accessing dental sites	Yes	61 (40.7)
	No	89 (59.3)

Values are presented as number (%).

(36.0%) had seen the marketing information on Instagram, and 71 (47.3%) obtained information about a "discount promotion" (n=71, 47.3%) through social media. The majority (n=117, 78.0%) of the participants claimed that they did not contact the dental clinic after seeing an advertisement, and 89 (59.3%) have not accessed the website of the dental clinic after seeing an advertisement (Table 4).

Regarding having visited the dental clinic for treatment after seeing an advertisement on social media, 57 (38.0%) said "yes," while 93 (62.0%) said "no." Among people who claimed to have been very satisfied or satisfied with

the dental service at the clinic, the most common reason was "same service as marketing information" (n=8, 50.0%). Regarding the intent to revisit the dental clinic, 15 (93.8%) said "yes," while 1 (6.3%) said "no." The most common reason for "very dissatisfied" or "dissatisfied" was "distance" (n=12, 40.0%) Twenty-three (76.7%) said they are willing to revisit the dental clinic if the unsatisfactory factors are resolved, while 7 (23.3%) said they are still not willing to revisit the dental clinic (Table 5).

The most popular social media by age group were Instagram in 20 to 29 years group (n=51, 44.0%) and 30 to 39 years group (n=24, 46.2%), YouTube in the 40 to 49 years group (n=27, 51.9%), and Naver Band in the 50 to 64 years group (n=18, 40.0%) (p<0.001) (Table 6).

The media through which the participants most frequently encountered social media advertising of dental clinics was Instagram in the 20 to 29 years group (n=29, 45.3%) and 30 to 39 years group (n=19, 48.7%) and YouTube in the 40 to 49 years group (n=14, 58.3%) and 50 to 64 years group (n=11, 47.8%) (p<0.001) (Table 7).

Discussion

According to the Information Security Survey by the Ministry of Science and ICT, 74.4% of internet users aged 12 to 69 years use SNS. It means that nearly all age groups utilize social media as a means to search for and share their desired information in the modern society. Based on such popularity of social media, companies have launched various marketing campaigns on social media, and marketers have focused on an efficient delivery of information about a service or product to consumers[17].

In addition to companies that sell goods, dental care facilities also are attempting to utilize this new media

Table 5. Patients' Satisfaction after Visiting the Dentist Using Social Media Marketing

Variable	Category	Value
Experience of visiting and receiving dental treatment after seeing dental social media marketing	Yes	57 (38.0)
	No	93 (62.0)
Reason for answering very satisfied or satisfied	The same service as marketing information	8 (50.0)
	Price	5 (31.3)
	Distance	2 (12.5)
	Response	1 (6.3)
	Etc	0 (0.0)
Whether to revisit the dentist	Yes	15 (93.8)
	No	1 (6.3)
Reason for answering dissatisfied or very dissatisfied	Same service as marketing information	9 (30.0)
	Price	5 (16.7)
	Distance	12 (40.0)
	Response	1 (3.3)
	Etc	3 (10.0)
Response whether or not to revisit when the answer is improved	Yes	23 (76.7)
	No	7 (23.3)

Values are presented as number (%).

Table 6. General Characteristics of Frequently Used Social Media Platforms

Age (y)	Types of social media						p-value
	Instagram	Facebook	Twitter	Naver Band	KakaoStory	YouTube	
20~29 (n=116)	51 (44.0)	14 (12.1)	5 (4.3)	0 (0.0)	0 (0.0)	46 (39.7)	<0.001
30~39 (n=52)	24 (46.2)	8 (15.4)	4 (7.7)	3 (5.8)	1 (1.9)	12 (23.1)	
40~49 (n=52)	8 (15.4)	1 (1.9)	0 (0.0)	5 (9.6)	11 (21.2)	27 (51.9)	
50~64 (n=45)	1 (2.2)	3 (6.7)	0 (0.0)	18 (40.0)	6 (13.3)	17 (37.8)	

Values are presented as number (%).

Table 7. Platform That Was Received Marketing Information on Dental Social Media by Age Group

Age (y)	Types of social media							
	Instagram	Facebook	Twitter	Naver Band	KakaoStory	YouTube	Etc	p-value
20~29 (n=64)	29 (45.3)	19 (29.7)	0 (0.0)	0 (0.0)	0 (0.0)	13 (20.3)	3 (4.7)	<0.001
30~39 (n=39)	19 (48.7)	7 (17.9)	0 (0.0)	1 (2.6)	0 (0.0)	12 (30.8)	0 (0.0)	
40~49 (n=24)	5 (20.8)	4 (16.7)	0 (0.0)	0 (0.0)	0 (0.0)	14 (58.3)	1 (4.2)	
50~64 (n=23)	1 (4.3)	0 (0.0)	0 (0.0)	9 (39.1)	2 (8.7)	11 (47.8)	0 (0.0)	

Values are presented as number (%).

platform in their marketing strategies, and healthcare consumers also collect and choose information about healthcare services through social media[18]. While SNS marketing strategies by healthcare organizations, client satisfaction, and service quality are actively researched, studies were predominantly focused on the younger generations in their 20s and 30s. Thus, we determined that studies on the association between social media and age groups of consumers are relatively lacking. Upon the belief that the efficiency of marketing will vary according to the type of social media frequently used by different age groups, we aimed to investigate the association between the social media marketing channels of dental clinics and consumer age groups.

Smartphones were the most frequently utilized devices to access social media in all age groups. Further, YouTube was the most frequently used social media, followed by Instagram. As Facebook was the most frequently used social media in the study by Park and Cho[16], it seems that the popularity has shifted from Facebook to YouTube and Instagram. In other words, the way of accessing information through social media has changed in users in their 20s to 50s.

Healthcare consumers were found to choose their desired dental care facility most frequently based on the recommendation of their acquaintances. This is still in line with previous results of Park and Cho[16] and Shin and Su[19], where new patients (healthcare consumers) are heavily dependent on the oral communication of people who have relevant experiences when choosing the healthcare facility due to the lack of information about the specific hospital and expertise. In other words, despite the shift in the popular social media platforms and increased utilization of social media in general, social media

marketing by dental care facilities did not have an adequate positive impact on healthcare consumers.

Regarding prior exposure to written dental clinic advertisements, a higher percentage of participants have been exposed to such advertisement (56.6%) compared to those who have not (43.4%), and the most desired information to be obtained through social media marketing of dental clinics was discount promotions (26.8%), followed by treatment methods (20.4%) and disease (18.9%). This is consistent with the results of Shin et al.[11], where the most desired message was promotions at the dental clinic (40.0%) but is in contrast with the results of Sagong et al.[7], where the most important reason for utilizing social media was to obtain information about diseases (28.3%).

There were more participants (62.0%) who have not visited the dental clinic for dental care after seeing the clinic marketed on social media than those who have visited (38.0%), and in the former group, the most common reason for satisfaction with the service at the clinic was being given service as advertised (50.0%), followed by cost (31.3%) and distance (12.5%). This shows that building trust between patients and dental care facilities and dental professionals is as important as simply providing information through social media marketing.

The most frequently used social media was Instagram in the 20 to 29 years (n=51, 44.0%) and 30 to 39 years group (n=24, 46.2%), YouTube in the 40 to 49 years group (n=27, 51.9%), and Naver Band in the 50 to 64 years group (n=18, 40.0%) (p<0.001). With the exception of the 30 to 39 years group, the percentage of individuals using the most popular social media in that age group was only slightly different from that of individuals using YouTube, the most frequently used social media across all

age groups.

The social media through which the individuals most frequently encountered dental clinic marketing was Instagram in the 20 to 29 years and 30 to 39 years group and YouTube in the 40 to 49 years and 50 to 64 years groups (p < 0.001). This shows that the social media through which users encounter dental clinic marketing is generally the same as the most frequently used social media in the age group.

The findings of this study have limited generalizability, as adults aged 20 to 64 years only in Seoul or Gyeonggi were enrolled. Further, the sex and age distribution of survey respondents was uneven, with the participants being predominantly young adults in their 20s and female, and compared to the sample size, only a small number of participants answered the item about satisfaction with dental service given at a dental clinic visited after seeing the clinic marketed on social media. Hence, more diverse analyses could not be performed. Nevertheless, this study is significant in that it shed light on the most influential social media platforms among not only young adults in their 20s and 30s who most frequently utilize social media but also in other age groups and identified the type of information about dental clinics that consumers wish to obtain from social media marketing. Subsequent studies should conduct a more detailed survey of types of information consumers wish to obtain from social media marketing of dental clinics and their satisfaction with the dental care after visiting the clinic. Patient satisfaction is a subjective and abstract construct and a psychological attitude that cannot be observed directly. Thus, the construct must be defined concisely and clearly, using different dimensions and factors in the instrument to measure the construct[20]. Moreover, studies should continue investigating the topic such that marketers can develop interactive social media marketing strategies that establish trust in patients, as opposed to simple information-focused messages.

Notes

Conflict of interest

No potential conflict of interest relevant to this article was reported.

Ethical approval

This study was approved by the Institutional Review Board at Konyang University (IRB File No. KYU-2021-033-01) prior to beginning the study.

Author contributions

Conceptualization: Shin-Young Lee and Young-Ju Lee. Data acquisition: Mi-Gyeong Kwak and Mi-Jeong Kim. Supervision: Sang-Hwan Oh. Writing−original draft: Shin-Young Lee, Jung-Hwa Song, Young-Ju Lee, and Hye-Ju Hong. Writing−review&editing: Sang-Hwan Oh, Shin-Young Lee, and Young-Ju Lee.

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References

1. Park JW: A study on the influence of characteristics of information from a SNS on the utilization of information of hospitals and the continuous use intention of medical consumers. Gimcheon Univ Rep 37: 111-128, 2016.

2. Cho EY, Park JW, Kim HW: Lessons learned from the failure cases in social media marketing. Knowl Manag Res 16: 91-111, 2015.
   https://doi.org/10.15813/kmr.2015.16.2.005

3. Chang YH: A study on the marketing performance using social media- comparison between portal advertisement, blog, and SNS channel characteristics and performance-. J Digit Converg 10: 119-133, 2012.
   https://doi.org/10.14400/JDPM.2012.10.8.119

4. Dang JY, Lee SY: Health care and social media: building relationships via social networks. Korea J Hosp Manag 17: 99-109, 2012.

5. Kim KH: A study on the hospitals' e-business marketing

strategy for service trade. Int Commer Inf Rev 15: 437-454, 2013.

6. Noh HN, Kwon CL, Hwang SH: The influence of selecting dental hospital by hospital marketing: focus on patient satisfaction. J Korean Acad Esthet Dent 23: 95-104, 2014.
https://doi.org/10.15522/JKAED.2014.23.2.95

7. Sagong M, Jung SH, Park JS, Cho KW: The effects of SNS information characteristics on hospital selection and satisfaction degree. Korean J Health Serv Manag 8: 15-25, 2014.
https://doi.org/10.12811/kshsm.2014.8.1.015

8. Lee BH, Kim JS: The effect of internal marketing on customer orientation of dental hygienists. J Dent Hyg Sci 16: 37-44, 2016.
https://doi.org/10.17135/jdhs.2016.16.1.37

9. Han SY, Ma EJ, Hong DS, et al.: The effect of using SNS to interpersonal relation and quality of life: focused on the moderating role of communication capability. J Inf Syst 22: 29-64, 2013.
https://doi.org/10.5859/KAIS.2013.22.1.29

10. Kim YS: Consumption behavior analysis of dental image and utilization by hashtag. Korean J Clin Dent Hyg 5: 1-8, 2017.

11. Shin BR, Shin IH, Park JM: Study on users' responses to facebook messages from dental clinics. J Implantol Appl Sci 22: 18-34, 2018.
https://doi.org/10.32542/implantology.20180003

12. Yang HY: A study on customer loyalty and word-of-mouth effect according to character trait of patient in dental clinics. J Korea Acad-Ind Cooper Soc 12: 5819-5826, 2011.
https://doi.org/10.5762/KAIS.2011.12.12.5819

13. Jung YM: The research on marketing activities and financial performance in small and medium hospitals. Korea J Hosp Manag 15: 33-46, 2010.

14. Im AJ, Han SY, Lim HJ: The effects of dental medical institutions of user reactions by mobile message type. J Korean Soc Sch Community Health Educ 20: 81-91, 2019.
https://doi.org/10.35133/kssche.20190831.07

15. Ahn SY, Kim KH: A study on internet marketing strategy through homepage comparison between national-public general hospitals and private general hospitals. Korean J Hosp Manag 19: 21-31, 2014.

16. Park SY, Cho YS: Influence of social network service(SNS) information on intention to dental office use. J Korean Soc Dent Hyg 16: 121-127, 2016.
https://doi.org/10.13065/jksdh.2016.16.01.121

17. Lee TH, Bae SK, Cho KW: A study on hospital promotion using ubiquitous contents- focused on dermatology in Seoul city-. Korean J Health Serv Manag 7: 149-159, 2013.
https://doi.org/10.12811/kshsm.2013.7.2.149

18. Heo EJ, Jung MS: Analysis of research trends in Korean medical and nursing service marketing. J Korean Acad Nurs Adm 24: 352-363, 2018.
https://doi.org/10.11111/jkana.2018.24.4.352

19. Shin YH, Suh CJ: A study on WOM and determinants of hospital choice. Korea J Hosp Manag 16: 31-52, 2011.

20. Cho YS, Kwon HK, Chung WG: Dimensions and measures in patient satisfaction with dental care. J Korean Acad Oral Health 29: 407-417, 2005.