

Doctors' Images Represented in the Korean Press: From a Perspective of the Korean Doctor's Role 2014

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This study examined doctors' images represented in the Korean press to identify overall public perceptions of doctors and to suggest areas for improvement to enhance their image. All news reports published in the two major Korean daily newspapers between years 2011 and 2015 related to doctors and the practice of medicine were searched and collected. The news reports were categorized into the five competency domains in the Korean doctor's role (i.e., patient care, communication and cooperation, social accountability, professionalism, and education and research). Each news item was coded as being either positive or negative and was given a score regarding the extent to which positive or negative image that it represents of doctors using the Doctor Image Scale (DIS) score. A total of 314 news reports were collected, a majority of which were on patient care (36%), professionalism (33%), and social accountability (23%). Positive stories slightly outnumbered negative ones (56% vs. 44%). The largest number of positive news reports was in patient care (n=82); negative news reports most frequently appeared in professionalism (n=99) and patient care (n=32). The total DIS score was also positive (+28): the highest positive DIS score was in social accountability (+164); the highest negative DIS score was obtained in professionalism (-226). This study revealed overall positive portrayals of doctors in the Korean press, yet doctors need to better comply with regulations and ethical guidelines and enhance their medical knowledge and clinical skills and to improve their image.

Keywords: Newspaper article, Patient care, Physician's role, Professionalism, Republic of Korea

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Received: July 24, 2018

1st revised: October 8, 2018

Accepted: October 19, 2018

INTRODUCTION

Traditionally, the roles expected of doctors have focused on the clinical competencies, where excellent medical knowledge and clinical skills is a major factor that contributes to the image of doctors held by the public. On the other hand, as the patient-doctor relationship has shifted away from personal contract and more emphasis is being placed on modern medicine as a social practice [1-3], there has been increasing attention on the doctors' non-clinical competencies, which encompass social competencies and medical professionalism [4,5]. As doctors are in a healthcare profession that provides medical services critical to the health of individuals and the public, as well as to social welfare, they have social accountability to maintain professional competency and moral values [1,4]. Therefore, the healthcare profession needs to make efforts to self-regulate themselves. One way to do so is to reflect on the perceptions of doctors held by the public and identify areas for improvement. Recognizing how doctors and their practice of medicine are portrayed in mass media offers an important window into public

thinking [6] and contributes to an understanding of the societal perceptions of them [7].

The relationship between mass media and members of the society is mutually complementary in that the media influence the people's perceptions and their perceptions also affect the media. In particular, much of the knowledge and information that humans acquire in modern days are gained indirectly from second-hand experience, such as from mass media, rather than from first-hand experience [8]. Previous studies from Australia and the United Kingdom examined the image of doctors represented in the press. An Australian study reported that negative stories on doctors were counterbalanced by positive ones [7]. In another study, Ali et al. [9] analyzed the image of British doctors portrayed in the press, which was measured on a three level scale: neutral, negative or positive. They reported that the ratio of negative to positive stories has increased over the last 20 years.

There have been studies of how doctors perceive healthcare and healthcare professions in the Korean context. Lee et al. [10] investigated general internists' perceptions of primary care and

related current issues, and they found the internists considered primary care to have an important role, but their evaluation of the overall status of primary care in Korea was negative. Kang et al. [11] surveyed Korean surgeons and found they had high occupational stress and low career satisfaction. Kim et al. [12] studied both psychiatrists and patients to investigate qualities and definition of a good psychiatrist. These previous studies investigated the issues mostly from doctor's perspectives and therefore did not focus on public perceptions of doctors. In another study, Ryu et al. [8] examined doctor's images and doctor-patient communication types in television dramas and found that interactive communication between doctors and patients gained more prominence in healthcare professions over the last 10 years. The review of relevant literature indicates research is lacking on public perceptions of doctors in the Korean context.

This study examined the image of doctors portrayed in the Korean press and explored the implications for enhancing it. To that end, the following three specific research questions were addressed: (1) Which competency domain in the Korean doctor's role is mentioned most frequently in the press?; (2) How positively or negatively are Korean doctors portrayed in the Korean press?; and (3) What competency domains do doctors need to work on to improve their image?

This study investigated the doctor's images represented in the Korean press based on the notion of Korean doctor's role published by the Korean Medical Association in 2014 [4]. This report identified five competency domains that doctors need to acquire and maintain: patient care, communication and cooperation, social accountability, professionalism, and education and research, which consist of a total of 65 sub-categories [4]. This framework can be used as a guideline for the development and maintenance of professional competencies and moral values expected of the healthcare profession as well as for the education of tomorrow's doctors [1,4].

METHODS

1. Study design and procedures

This study focused on the press among a variety of mass media. The press is regarded as a popular news medium in Korea because a recent national census showed that a vast majority of Koreans read newspapers either on paper or online [13]. In particular,

newspapers for the study were selected among the Korean press based upon the following criteria: (1) well known to the public with a long history as major news media in South Korea; (2) widely available to the public, either on paper or on the Internet; and (3) have websites with a search engine that allows one to search the news archives. We found two daily newspapers met these criteria: Chosun and Donga Daily.

All news reports in Chosun and Donga Daily pertinent to the members of the medical profession and the practice of medicine were searched. The news reports that were included for analysis in this study were published during a period of 5 years from 2011 and 2015. All types of news reports at the newspapers' websites were searched and the articles, including the headlines and the full texts, were collected. The archives were searched using relevant keywords, e.g., doctors and healthcare. The principal investigator, who is a medically qualified doctor, reviewed the full texts of those news reports and excluded those that were considered unsuitable for this study, such as the ones written for commercial purposes. Of 453 news reports found from the initial search, 121 items were excluded as a result. In addition, the news articles that covered the same incident and were reported in both newspapers were collapsed into one and counted as one instance.

We categorized the news reports in our data as either positive or negative portrayals of doctors. Previous research categorized the news reports according to whether the portrayal of doctors was positive, neutral, or negative [9]. We did not use the category 'neutral' in this study because there were no news reports that had a neutral representation of doctors in our data.

Furthermore, a discourse analysis method was used to analyze doctors' image represented in the Korean press. Discourse analysis is a research method for examining various forms of discourse for analyzing the meaning and structures, either qualitatively or quantitatively [14]. From a review of the relevant literature, we noticed there was a lack of research instruments for systematically analyzing the image of doctors from the texts published in the press. Therefore, we developed a coding scheme, entitled 'the Doctor Image Scale (DIS),' for this study, as shown in Table 1.

In this coding scheme, the criteria are given for gauging whether the news report is a positive or negative portrayal of doctors and each news item is given a score that illustrates the extent of the positive or negative image that the news represents of

doctors, which ranged from -3 to +3, where -3 being the most negative and +3 being the most positive. This framework allowed

Table 1. Coding scheme for Doctor Image Scale

Score	Criteria
Positive score	
3	Affect the public health, saving lives, committed, long-term voluntary work
2	Patient-centered care, advanced technology
1	General good work, short-term voluntary work
Negative score	
-1	General ethical issues, but legally justifiable
-2	Illegal acts, but do not harm humans
-3	Illegal acts and harm humans

an examination of the ratio of positive to negative portrayals of doctors and an assessment of the intensity of such an image by weighing the news stories differently according to their relative importance or impacts on human health.

The validity of a coding scheme can be established by using inductive and/or deductive approaches [15]. We used both inductive and deductive approaches by developing the initial construct of the coding scheme from a review of relevant literature and also by checking whether the data collected in this study fitted with the scheme after reviewing the content of all newspaper articles being studied. Furthermore, a panel of medical teachers knowledgeable of the Korean doctor's role framework and PhDs

Table 2. Examples of coding for positive portrayal of doctors in the Korean press (news with positive images of doctors)

Date	News headlines	Contents	Competency domain	Doctor image score
April 4, 2014	Stridor changed to wheezing, dysphagia to difficulty swallowing: "knowing what it means make feel less sick"	Changing medical terminologies to those for laypersons to make them easier to understand	Patient care	+1
August 6, 2015	First gastrofiberscope by doctor-camera technician collaboration: frontier in early detection and treatment of cancer using state-of-the-art optical technology	Development of a gastrofiberscope for early detection and treatment of stomach cancer	Patient care	+2
October 5, 2015	Impact of happy virus on patients: two middle-aged sisters simultaneously cured of stage III and I breast cancers	A doctor treated middle-aged sisters both of whom were diagnosed with breast cancers, which showed their positive mindsets contributed to positive outcomes	Patient care	+2
March 30, 2015	Doctor saved premature infant by helicopter transfer	A doctor saved a 23-week premature infant weighing only 520 grams by emergency helicopter transfer	Patient care	+3
November 21, 2013	Conductor collapsed on stage saved by doctor and firefighter in audience	Doctors and a firefighter who were in the audience at a concert performed emergency procedures successfully for a conductor collapsed on stage due to heart attack	Patient care	+3
April 20, 2015	8-Month pregnant cancer patient cured dramatically	A doctor successfully treated a pregnant patient of bladder cancer while keeping her baby safe	Patient care	+3
May 17, 2013	"Here comes the violinist doctor": laughter flowed amidst patients	A doctor has organized an orchestra and performed for patients at healing music concert for 10 years	Communication and cooperation	+1
March 13, 2015	15 Minute consultation per patient: an experiment at a university hospital	A university hospital extended consultation time for outpatients to better listen to them	Communication and cooperation	+2
August 28, 2012	Psychiatrists taking actions for prevention and treatment of school violence	Doctors of Korean Neuropsychiatric Association signed MOU with Korean government for prevention and treatment of school violence	Social accountability	+1
July 19, 2013	Going by the name 'Schweitzer Kim': doctor caring foreign workers exclusively	A Korean oncologist is committed to caring low-income international cancer patients	Social accountability	+2
December 15, 2011	Malaysian girl gained new life from pro bono work by Korean doctor	A Korean doctor did pro bono work of plastic surgery on a Malaysian girl suffered from facial burns	Social accountability	+3
August 10, 2015	First Korean doctor to provide care for Ebola cases in Africa: "unforgettable battle against the 'most formidable enemy' among infectious diseases"	The first Korean doctor to provide care for patients of Ebola cases in Africa in spite of the danger of infection	Professionalism	+1
August 3, 2012	Doctor society to make doctors receiving criminal penalties ineligible for practice	The Korean doctors' society has strengthened regulations and sanctions on doctors with such criminal records as sexual crimes and violence	Professionalism	+2
July 1, 2015	MERS outbreak subsiding: doctors and nurses are real heroes	Healthcare professionals devoted to halting the MERS epidemic	Professionalism	+3

MERS, Middle East respiratory syndrome.

Table 3. Examples of coding for negative portrayal of doctors in the Korean press (news with negative images of doctors)

Date	News headlines	Contents	Competency domain	Doctor image score
June 9, 2015	"Care needed for anxious general patients staying in hospitals"	Management of non-MERS patients in the hospitals with MERS cases	Patient care	-1
June 10, 2015	'Cocktail prescription weight-loss drugs' rampant, side effects ignored	Problems with the prevalence of cocktail weight-loss drug prescriptions and their side effects	Patient care	-2
December 4, 2013	Patient died of medical error by accidentally cutting artery: 200 million won compensation verdict to a university hospital	Compensation verdict to a university hospital on medical error during surgery	Patient care	-3
February 16, 2013	Doctor talking down to patients makes them to turn away	Problems with doctors talking down to younger patients	Communication and cooperation	-1
June 8, 2015	Emergency rooms exposed to risk of massive MERS infection while major hospitals reluctant to take patients with fever	Possible wide spread of infection due to major hospitals reluctant to take patients with fever during MERS outbreak	Social accountability	-2
June 5, 2015	Doctor in Seoul with tertiary infection attended a public event with around 1,500 people gathering	A doctor infected with MERS put a large number of people at risk of infection by attending a large public event	Professionalism	-1
June 09, 2015	Hospitals with an internal guideline "don't take in patients with fever" cause patients ping-ponged	Possible wide spread of infection during the MERS outbreak due to doctors reluctant to care patients with fever	Professionalism	-1
June 15, 2015	A university hospital's management focused on profit put people at risk	MERS cases got worse by inadequate management of a university hospital focused on profits over public health	Professionalism	-2
May 25, 2015	Doctor forged official records from armed forces hospital to become men of national merit	A doctor was found guilty of fabricating official records on his clinical practice at an armed forces hospital to receive benefits of men of national merit	Professionalism	-2
March 11, 2013	119 Doctors indicted for receiving 'black money'	119 Doctors indicted for receiving rebate from pharmaceuticals	Professionalism	-3
October 26, 2011	200 Fraudulent patients, doctors, life planners are caught	Doctors, patients, and life planners were indicted of issuing forged medical certificates to receive insurance benefits	Professionalism	-3

MERS, Middle East respiratory syndrome.

(Doctor of Philosophy) experienced in the discourse analysis method reviewed the instrument in a panel meeting to enhance the validity of this coding scheme.

2. Data analysis and ethical considerations

Four people analyzed the data using the aforementioned coding scheme. The raters consisted of one medical school faculty, one medical student, and two assistants who held BS (Bachelor of Science) degrees in humanities. The researchers discussed the Korean doctor's role for an in-depth understanding of this framework before data analysis and conducted a preliminary analysis of the data with a sample of news reports to enhance the credibility of the interpretations made from this analysis.

We analyzed each news item and coded them as either positive or negative towards doctors. We also categorized each news item into one of the five competency domains in Korean doctor's role

and also into the sub-categories in these domains. In addition, each researcher coded the news reports using the coding scheme as described earlier and discussed any discrepancies among them until they reached agreement. Tables 2 and 3 provides some examples of news headlines that were coded either positively or negatively.

Descriptive statistics of the data were conducted to determine if the doctors had been portrayed positively or negatively in the Korean press. To examine the ratio of positive to negative representation of doctors in the press, the frequency of news reports being coded positive or negative was counted and the number of negative news reports was subtracted from that of positive ones. In addition, the doctor image score was calculated for each competency domain by summing up the score of each news item obtained from the DIS.

This study was reviewed and informed consent was exempted

by the Institutional Review Board of Dongguk University, Gyeongju (approval no., DGU IRB 20170018-01).

RESULTS

1. Topics on doctors and medical practice reported in the press

Our search resulted in a total of 314 news reports on doctors and the practice of medicine. Of these, 193 appeared in the Chosun Daily, 139 appeared in the Donga Daily, and 18 appeared in both newspapers. Figure 1 shows the distributions of news reports by year and by each competency area identified in the Korean doctor's role. The news on doctors reported most frequently was in patient care ($n=114$, 36.3%), followed by professionalism ($n=105$, 33.4%), and social accountability ($n=73$, 23.2%). Only 7% ($n=22$) of the total news reports were on the other two competency domains, i.e., communication and collaboration, and education and research.

2. Doctors' image represented in the press

Illustrations A and B in Figure 2 show the distributions of news reports that represented doctors either positively or negatively. Among the 314 news reports under investigation, 177 of them (56.4%) portrayed doctors positively, whereas 137 (43.6%) portrayed them negatively. News reports with positive portrayal of doctors outnumbered those with negative portrayal of them by 40. Furthermore, the number of positive news reports was greater than that of negative ones in four out of the five competency domains, whereas there were more negative news reports than positive ones in the professionalism domain.

Of the 177 news articles that portrayed doctors positively, 82 items were in the patient care domain, and 70 were in the social accountability domain. This was followed in order by the communication and cooperation ($n=16$), professionalism ($n=6$), and education and research ($n=3$) domains. Meanwhile, 72.3% (99/137) of all the news reports with negative portrayals of doctors were in the professionalism domain, 23.4% ($n=32$) were in the patient care domain, and three items were in the communication and cooperation, and social accountability domains, respectively; none were in the education and research domain.

Illustrations C and D in Figure 2 present the results of an analysis of the doctors' image represented in the Korean press

using the DIS coding scheme. The total DIS score, which was a sum of DIS scores for each news item, was +28, indicating an overall positive image of doctors represented in the press. The DIS scores were positive in four of the five competency domains; the highest positive DIS score was in the social accountability domain (+164), followed by patient care (+71), communication and cooperation (+15), and education and research (+4). Meanwhile, a negative DIS score (-226) was obtained in one domain, professionalism.

3. Competency domains where doctors are represented positively

Doctors were most frequently positively portrayed in the press in the patient care domain, where 72% (82/114) of the news items in this category were positive stories. Three competencies are laid out for the patient domain in the Korean doctor's role, which are (1) medical knowledge and clinical skills, (2) professional attitudes, and (3) patient safety [4]. A majority of news items with positive portrayal of doctors in this domain belonged to two sub-categories. One of these two sub-categories was 'patient-centered attitudes, precise medical assessments, and appropriate clinical decisions,' which belonged to the competency of 'medical knowledge and clinical skills.' Thirty-seven out of 38 news items in this sub-category were positive stories. Another was 'recognition of the limitations of medicine and efforts to overcome those obstacles,' which was a sub-category of professional attitudes. All news items in this sub-category ($n=33$) were positive stories.

The second largest volume of news items with positive portrayal of doctors was in the social accountability domain, 96% of news reports in this domain (70/73) were positive stories and most of them fell into two sub-categories. Those were 'efforts to resolve problems in healthcare for the less privileged' ($n=45$), and 'support for healthcare related activities by world organizations and participation in international collaboration' ($n=12$). All of the news items in those two sub-categories were positive stories and none of them were negative ones. The social accountability domain also received the highest DIS score (+164), where over a half of news items in this domain (40/73) were rated '+3' and 20 items scored '+2' as measured by the DIS.

Doctors were also represented positively in the news reports related to the communication and cooperation domain. Among 16 news items with positive stories in this competency domain,

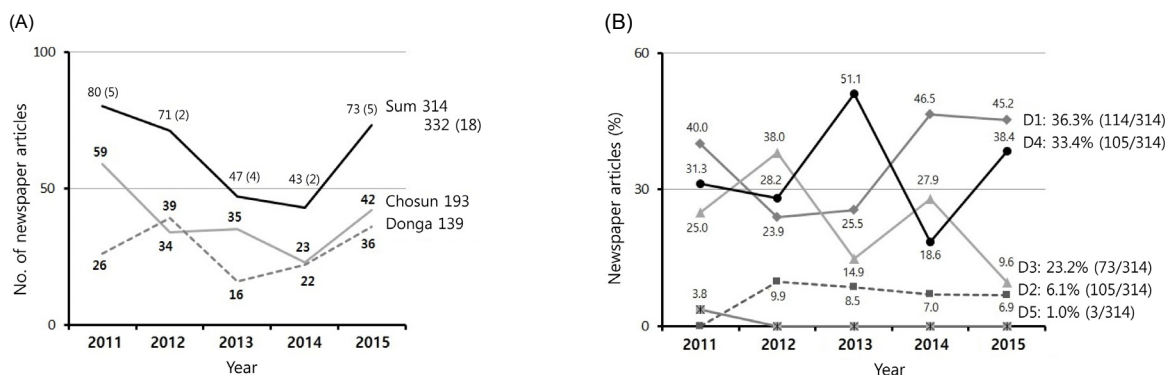


Figure 1. Distribution of news articles on doctors reported in the Korean press. (A) Number of newspaper articles by year and news agency (the number in parentheses indicate the number of news items appeared in both newspapers). (B) The frequency of newspaper articles categorized into the five domains of the Korean doctor's role by numbers and percentages. D1, patient care; D2, communication and cooperation; D3, social accountability; D4, professionalism; D5, education and research.

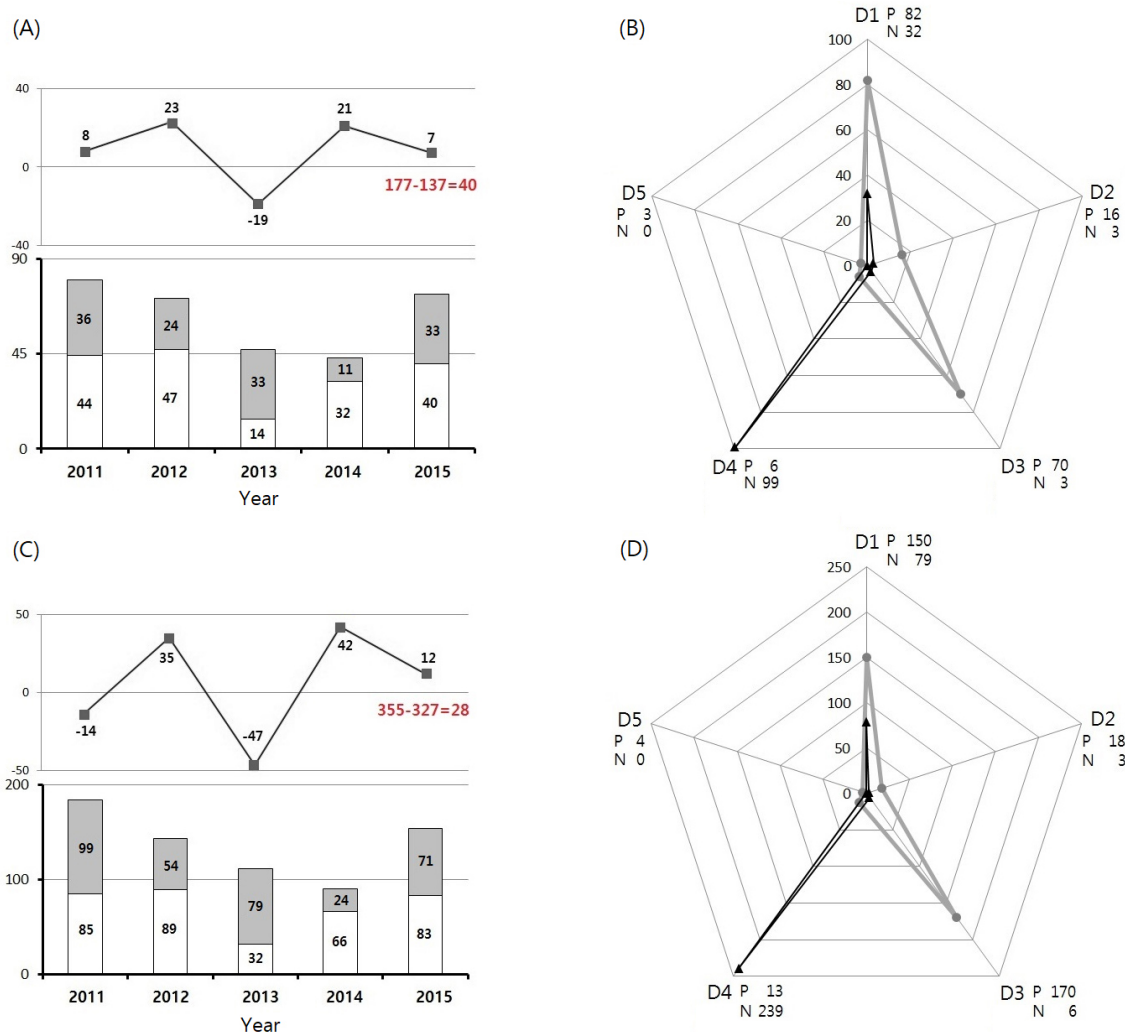


Figure 2. Distribution of news reports with positive and negative portrayals of doctors and DIS scores. (A) Number of news articles by year (white bars, positive stories; grey bars, negative stories; black squares above the bar, a sum of positive stories deducted by that of negative ones). (B) Number of news articles by competency domains in Korean doctor's role (grey dots, positive news items; black triangles, negative news items). (C) DIS scores by year (white bars, positive scores; grey bars, negative scores; black squares above the bar, a sum of positive scores and negative ones). (D) DIS scores by competency domains in Korean doctor's role (grey dots, positive scores; black triangles, negative scores). DIS, Doctor Image Scale.

five belonged to the sub-category of 'respect for competencies, experiences, and opinions of members in the healthcare team, and clearly defined roles and responsibilities.' Other seven news items with positive portrayal of doctors were in the sub-categories of 'communication and cooperation with various organizations for effective patientcare and promotion of public health' (n=4) and 'patient-doctor relationship built upon integrity and trust' (n=3). None of the items in those two sub-categories had negative portrayal of doctors.

4. Competency domains where doctors are represented negatively

The largest portion of news reports with negative portrayal of doctors was in the professionalism domain (n=99). These negative news items accounted for 94% (99/105) of the total items in this domain and attributed to 72.3% (99/137) of the total number of negative news items across all five domains in the Korean doctor's role. The professionalism domain comprised of four categories of competency: (1) patient care based upon ethics and autonomy, (2) patient-doctor relationship, (3) self-regulation of the medical profession, and (4) 'compliance with regulations and ethical guidelines on the practice of medicine' [4]. Among these four categories of competency in the professionalism domain, the one related to 'self-regulation of the medical profession' received the most negative coverage (n=94). The 'self-regulation of the medical profession' category consisted of four sub-categories and all the negative news in this category belonged to one sub-category, 'Be knowledgeable of and comply with regulations and ethical guidelines on the practice of medicine.' News items in this sub-category included rebates and illegal or unethical conducts of doctors in patient care.

The other five news items with negative portrayal of doctors in the professionalism domain related to 'patient care based on ethics and autonomy' (n=2), 'professionalism and self-management' (n=2), and 'patient-doctor relationship' (n=1). The professionalism domain also received a significantly negative DIS score (-226) and was the only competency domain with a negative DIS score. Over a half of news items in the professionalism domain (50/99) were rated '-3' and another 40 items scored '-2' in the DIS.

The second largest number of negative news items was in the patient care domain (n=32). Among those news items, 22

belonged to the sub-category of 'professional medical knowledge and clinical skills,' which belonged to the medical knowledge and clinical skills category. News reports in this sub-category related to medical errors by doctors that cause patient harm and all of them portrayed doctors negatively and none were positive stories. Other news items with negative portrayal of doctors in this domain were in the sub-categories of 'taking measures for patient safety' (n=5), and 'education of medication side effects and prevention of drug addiction and overuse' (n=3). In terms of the DIS scores, a half of the news items with negative stories in this domain (17/32) were rated '-3' and 13 items were scored '-2' on the DIS. Meanwhile, the patient care domain also received the largest volume of positive news coverage among the five competency domains (82/177), which lead to the overall positive DIS score in this domain (+71).

In addition, there were a small number of news items in which doctors were represented negatively in communication and cooperation and social accountability domains. Among 19 items that belong to the communication and cooperation, three items were negative stories. There were also three items with negative news reports in the social accountability domain, all of which were in a single sub-category, 'management of infectious diseases and cooperation for health promotion at the community and national levels.' All items in this sub-category were related to the Middle East respiratory syndrome (MERS) outbreak in 2015.

DISCUSSION

This study investigated the image of doctors represented in the Korean press on the five competency domains identified in the Korean doctor's role during a period of 5 years and examined the extent to which the image is positive or negative, which have implications for improving it. Unlike previous studies, where the image of Korean doctors was explored from dramatized events in TV dramas or cinemas, this study examined their image represented in real events reported in the press by analyzing news reports on doctors and the practice of medicine. In addition, this study used a systematic approach to evaluate the doctor's image using a coding scheme. Moreover, we examined how doctors were portrayed in the press in each competency domain using the Korean doctor's role framework as a more systematic approach for identifying and suggesting areas for improvement in doctors' competencies and roles to enhance their image.

Our findings show patient care and professionalism was the most frequently reported news topics, which covered both positive and negative portrayals of doctors. This indicates the press is particularly interested in the quality of patient care and doctors' professional conducts among the five domains in the Korean doctor's role. These two domains may have more prominent impacts on the public perceptions of doctors than others. In particular, approximately two-third of all news reports belonged to the domains related to non-clinical competencies of doctors, i.e., professionalism, social accountability, communication and cooperation, and education and research. This finding highlights the importance of non-clinical competencies of doctors in shaping their images.

This study revealed an overall positive image of doctors, as measured by both the volume of positive news reports versus the negative ones and as measured by the DIS scores. This finding is similar to the findings of previous studies conducted in other countries that negative portrayals of doctors were countered by positive ones [5,6]. In more detail, this study showed doctors were represented positively in four out of five competency domains in the Korean doctor's role and were negatively portrayed in the professionalism domain only. Doctors' image was most positive in the patient care and social accountability domains. These findings suggest the public holds in high regard the Korean doctors' patient-centered attitudes and clinical competencies as well as their commitments to social healthcare needs. In particular, there was a great deal of news reports of doctors committed to voluntary work for improving the people's health at the community, national, and international levels.

Although this study shows overall positive representation of doctors in the Korean press, it also should be noted that there was a significant amount of news reports with negative portrayals of them. This finding indicates there are some areas for improvement for Korean doctors to enhance their image. First, professionalism was the second most frequently reported news topics next to patient care and was the only domain that received a negative image score with a far greater volume of negative news reports than any other domains. As discussed earlier, it is possible that certain events that occurred during the period of this study, such as rebates and the MERS outbreak, sparked the public concerns on professional misconduct by doctors and healthcare providers, which might have affected the results. Nevertheless, this study indicates that professionalism is the area

that Korean doctors need to make the most efforts to improve their image, particularly by complying with regulations and ethical guidelines on the practice of medicine. Second, the patient care domain also received a large volume of negative news coverage. This finding suggests that Korean doctors need to make efforts to offer better patient care especially by enhancing their medical knowledge and clinical skills.

Limitations of the study should be acknowledged. The data was collected over a relatively short period of time. A longitudinal study will be needed to identify the image of doctors represented in the press using a larger sample to explore a more general trend. Such a longitudinal and comprehensive study would allow the changes in the topics of doctors covered frequently in the press to be tracked over time, which reflects the trends in the Korean doctor's role that the press is interested in and whether the image of doctors changes over time. Moreover, the data for this study were collected from only two newspapers known to hold conservative viewpoints; thus, there may be an issue over the representativeness of the sample of our study. Although we looked comprehensively into several major Korean newspapers to select the sample of our study, only two of them met our selection criteria as described earlier in the Methods. Future study using a more variety of news media is recommended to investigate whether doctors' images are portrayed differently across newspapers.

Furthermore, it is important to consider how objective the press is in selecting and reporting the news on doctors. It can be argued that news agencies tend to focus on reporting news more likely to attract the public attention. On one hand, such views may align with what the public wants to know; on the other hand, negative news is often likely capture the public attention more easily than positive ones. This is understandable as it is the duty of the press and in the interest of the public to inform them of pitfalls in the healthcare system. Therefore, the press may tend to highlight negative stories of doctors more than positive ones. Nevertheless, it is unclear how such characteristics of the press affected the results of the study.

In addition, a more systemic approach is warranted for evaluating the validity of the instrument used for this study. We made efforts to maintain the validity of our coding scheme by having it reviewed by a panel of experts, thereby using the 'external audit' method [16]. Furthermore, we used two methods of data analysis and finding consistency in their results; one by

just counting the frequencies of positive and negative news items without using the coding scheme and another by scoring them using the coding scheme. We found consistency in the results of these two different data analyses, which indicates the reliability of the coding scheme used in this study. Yet, as this was the first study to implement this research instrument using our coding scheme, future research is recommended to enhance its validity. In particular, future study is warranted to shed light on whether using the DIS represent doctors' images more accurately than by just calculating the frequency of news reports with positive or negative portrayals of doctors.

Our findings suggest that Korean doctors need to better comply with regulations and ethical guidelines on the practice of medicine and enhance their medical knowledge and clinical skills for better patient care to improve their image. This study has implications for professional development of doctors by offering the information needed to systematically monitor and evaluate the image of doctors and also to educate tomorrow's doctors in line with the Korean doctor's role. Such efforts are warranted to maintain public trust and social accountability of doctors and the healthcare system.

AUTHORS' CONTRIBUTIONS

All authors contributed substantially to the conception, design, and implementation of the study. KEY and JYH conceived and designed the study, KEY, JYH, KJK analyzed the data, and KJK wrote the draft of the paper. All authors reviewed and approved the final version of the manuscript.

ACKNOWLEDGMENTS

The authors would like to thank members of the research group of the Daegu-Gyeongbuk Division of the Korean Society of Medical Education for their valuable feedback on the coding scheme for the data analysis in this study and for reviewing the validity of this instrument. We are also grateful to our research assistants, Mr. Yo-Seob So, and Ms. Da-Mi Park for their assistance with data collection and analysis.

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