

A study on the social phenomenon and perception of sports sexual violence through big data analysis of social media

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Abstract

Background: With the recent exposure of the violence and sexual violence suffered by the Olympic gold medalist speed skater, Suk-hee Shim, the closed culture of Korean sports circles has surfaced once again. This study aims to analyze what knowledge system, meaning or policy agenda is indicated by the Korean public's social perception of policies on sports sexual violence.

Research method: Data associated with 'sports sexual violence' were collected through Textom from social media of the nation's major portal sites (Naver and Daum) from January 8, 2018 to May 31, 2019. Textom was also utilized for data refinement and matrix creation. Semantic network analysis and its results were visualized using the NetDraw network visualization tool in UCINET 6.

Results: The key words – 'sports circles', 'eradication', 'measure', 'violence', 'Ministry of Culture, Sports and Tourism/MCST', and 'National Human Rights Commission of Korea' – showed a high frequency and centrality. In particular, from the words 'sports circles', 'eradication', 'measure', 'National Human Rights Commission of Korea' and 'research', it was shown that tackling the causes of sports-related sexual violence and setting up response measures for eradication and prevention are important. Second, using CONCOR analysis of sports sexual violence, eight clusters were formed: Group 1: Background of establishing a dedicated organization, Group 2: Government response, Group 3: Installment of National Human Rights Commission, Group 4: Corruption in ice sports, Group 5: Government commitment, Group 6: Expanded investigation into the sports circles, Group 7: Accusation, Group 8: Basic rights.

Conclusions: The public perception is that, given the number of cases of sexual violence that have occurred in the sports community, and the inadequate responses to addressing these crimes, sports circles have lost their capacity for self-regulation. This requires a comprehensive inspection of the sports community. Moreover, it was revealed that the public requests that the government should take the initiative to provide fundamental measures to protect the human rights of victims through the operation of a dedicated body, such as the National Human Rights Commission. [*Ethiop. J. Health Dev.* 2020;34(Special issue-3):28-39]

Key words: Sports sexual violence, semantic network analysis, social media, perception

Background

As of 2014, the number of sexual violence cases per 100,000 people in Korea was 58.2. This compares with 23.7 just 10 years ago, and represents an increase of 145.5%. Given that the crime of sexual violence is trending downward in major advanced countries (12.4% in the USA, 12.3% in Germany, and 29.7% in Japan), the current status in Korea is highly concerning (1).

The rate of sexual violence in sports circles in Korea has been found to range from 16% to 64% (2), and a recent survey of both male and female athletes in professional sports showed that 14.2% of the respondents had experienced sexual violence since they joined their team, 69.5% of whom said they did not inform anyone, including any internal/external agency, colleagues or instructors (3). In general, the incidence of sexual violence is hard to prove compared to other types of crimes, and most victims tend to conceal the fact due to social prejudice and shame, which makes such crimes less likely to be reported (4). Thus, it can be predicted that, in Korean sports circles, there are more victims of sexual violence than is reported.

The world of sports in Korea is exposed to the risk of sexual violence, due to the power relations that exist in the hierarchical culture that has long existed in the country. The structural environment created by the inhumane elite sports system and practices in which on-site coaches are bound to monopolize power in making decisions on schools, career, participation in competition, and salaries, can be said to be the cause of

the problem (5). In particular, since sports-related sexual violence has continued to occur, the effectiveness of deterrents has ceaselessly been called into question (6). Meanwhile, the measures recently put together by the government, including the study of sexual violence, operation of report centers, punishment, and so on, are criticized as being unrealistic to enforce or monitor (7).

The majority of domestic research on this topic looks into the current condition and perception of sexual violence, as well as response measures (8-19). These sets of advanced research have mostly analyzed survey results statistically or collected opinions through interviews, as found using online research data sets. In particular, most of the studies were based on surveys to suggest institutional alternatives and measures to eradicate and prevent sports sexual violence. In addition, most of studies have looked at data outcomes directly related to the matter, including the athletes, parents, and instructors, without looking at the responses of the general public. As such, moving away from the conventional method of research, it is deemed necessary to analyze the social perception of sports-related sexual violence and approach it from a new perspective through a differentiated research method.

Recently, 'big data', specifically 'text big data', has been utilized in various education-related research in Korea (20-22). These studies are becoming more and more important in that they discover and provide information that is indispensable to the field, or valuable information necessary for decision making

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(23). In recent years, the object of big data analysis has been to go beyond texts towards a review of social media. Social media refers to online tools and platforms that are used by the public to share opinions, thoughts, experience and perspectives. Content shared on social media can be in the form of text, images, audio, video, and so on, and can be uploaded to the likes of blogs, social networks, instant message boards and podcasts. While the primary purpose of conventional media was delivery of information from one to many, social media contains some form of interaction, as it is based on a many-to-many relationship, whose main purpose is to share information and simultaneously form relationships with others. It enables interaction more than general media that delivers information, and may include perceptions such as reflection or critique by the public audience on the topic being delivered (24). Therefore, big data analysis of social media can be used as a tool to identify public perceptions of social issues, including sports-related violence. Big data analysis can be used in which semantic network analysis works to identify the relationship of various words associated with sports-related sexual violence and cluster analysis, which taps into the algorithm to identify the characteristics and central themes from large and unstructured sets of documents, which may be optimal methods for conducting this research model.

As such, this study seeks to approach and analyze the issue of sports-related sexual violence from a social and environmental perspective, rather than from an individual perspective of victims or perpetrators. Research on sports-related sexual violence in Korea has until now focused on an analysis of victims' experiences and perceptions, including fact-finding surveys of individuals to come up with countermeasures. However, there has been little research that objectively conducts analysis from an external view on issues that have been generated under unique and unusual circumstances in Korean sports circles, such as its peculiar top-down hierarchical culture and camp training, severed from the outside world. The optimal method of research utilized to that end is big data analysis of social media, including semantic network analysis and cluster analysis, which can help identify social phenomena from social and environmental perspectives. Such social media analysis is deemed effective in identifying particular patterns and directions expressed when major key words on sports sexual violence form relations (25), as well as the position and roles of major clusters in the entire

network.

This study aims to provide information on public opinion in order to draft improved policies on sports sexual violence by scientifically analyzing opinions through a big data analysis of social media. The specific research issues to achieve this study purpose are as follows. First, relevant key words are collected from social media to identify the social perception towards policies that address sports sexual violence, based on which research on social big data is carried out. Second, semantic network analysis is conducted on words that appear simultaneously to look into social perception, combined with an analysis of key words by stage. Lastly, CONCOR analysis is performed to identify the status and position between key words. Based on the research results conducted, academic/practical implications are described, along with the limitations of research and possible future research directions.

Research method

Data collection: As the object for analysis, this study selected social media of Naver and Daum, the nation's flagship portal sites, which represent 80% of market share in terms of data search (26). Blogs, News, and Cafe were chosen as the analysis channels of social media in this study, for which the researcher used the big data solution software Textom. Blogs, News and Cafe were chosen as they are useful in reflecting social perception in posts and comments on those channels, and they serve as a platform for information sharing and communications between individuals, enabling a vibrant use of Social Networking Service(SNS) big data (27). Textom is a solution that enables users to collect data to refine and generate matrix data on a web environment (on Textom's webpage). The key word used for the data search was 'sports sexual violence'. As large numbers of nodes could lead to difficulty in visualization during network structure analysis, the top-ranking 50 key words were mainly analyzed in order that only the nodes that can play significant roles in the entire networks can be used for simplification. The duration of data crawling was set from January 8, 2018 (the date that Olympic gold medalist Shim exposed the habitual violence and sexual violence she suffered from her coach) to May 31, 2019, in order to reflect the recent trends as well as level of social interest. The data collected for the research was a total of 5,195 social media postings. The information of analysis data is shown in Table 1.

Table 1: Information of analysis data

Category	Details and data crawling	
Scope of crawling	Naver	Blogs (1,000)
		News (779)
		Cafe (771)
	Daum	Blogs (889)
		News (717)
		Cafe (950)
Duration	Jan 8, 2018 – May 31, 2019	
Tool	Textom	
Search word	Sports sexual violence	
Analysis tool	UCINET 6.0, NetDraw	

Precleaning process: The data collected for this study went through primary cleaning according to the purpose of the study. In this process, singular/plural, abbreviations, and various input errors were corrected, and some synonyms, antonyms, vague expressions, and general terms were excluded from the analysis and corrected in order to increase the accuracy of cleaning. The data cleaned in this stage were uploaded on Textom again for secondary cleaning of nouns. Upon the secondary cleaning, 89 data items were found to be overlapping, all of which were deleted except for one dataset. The data garnered upon final analysis was 5,106.

Analysis procedure and method: This study used the line of vocabulary needed for semantic network analysis on Textom, which is based on the KrKwic program. The strength of Textom lies in data mining, as it collects large data from various channels such as portal sites and social media, and analyzes the network through a computerized refinement process. It also offers a visualization analysis package of various forms, optimized for purposes of users by allowing for implementation on the web for Korean language analysis (28). Next, it visualizes the relationship among the key words based on the line of vocabulary through the NetDraw program in UCINET 6. Here, the specific procedure of analysis was divided into four stages, as shown in Figure 1.

The first stage was the selection of key words for crawling; the second stage involved the collection of words simultaneously appearing with key words on sports sexual violence on social media channels following revelations about the ‘Suk-hee Shim’ case. The third stage involved the generation of a matrix that enables semantic network analysis after refining the

data; the fourth stage involves the semantic network analysis based on the one-mode matrix, formed word by word, through UCINET 6. In this study, NetDraw was utilized for visualization of the results of the analysis.

Meanwhile, for the data refining and matrix creation done in the third stage, the big data curation and analysis data-creating solution, Textom, was utilized. In this context, Textom is a big-data solution developed for the Korean environment using full-text software developed by Loet Leydesdorff, a professor at Amsterdam University in the Netherlands (29). Textom collects text data based on key words from web portals and social network services and refines it (30).

In the semantic network analysis, centrality analysis and CONCOR (CONvergence of iterated CORrelations) analysis were conducted. To complete the centrality analysis, the research utilized the degree centrality analysis to identify which word in the network plays the most central and key role; the betweenness centrality analysis to identify which word exerts influence as it serves as an agent among other words; and the eigenvector centrality analysis to find the most influential key word in the network which is one level elevated from degree centrality. Also, the CONCOR analysis identifies the clusters by repeating the correlations among words (31), whose results help identify the entire networking structure intuitively, as well as the special significance of the groups (32). In addition, the CONCOR analysis facilitated the identification of social perceptions of sexual violence in Korean sports.

Data integrity: In this research, triangulation and peer consultation were conducted to secure data integrity.

First of all, the researcher used a peer consultation method to prevent the interpretation of the derived results from having an overly narrow perspective. To that end, the researcher conducted iterative consultations with a doctor of public health

management, two doctors of sports sociology, and an expert in big data. In this way, the objectivity of the research was secured and defects that might appear in the interpretation of the results were minimized.

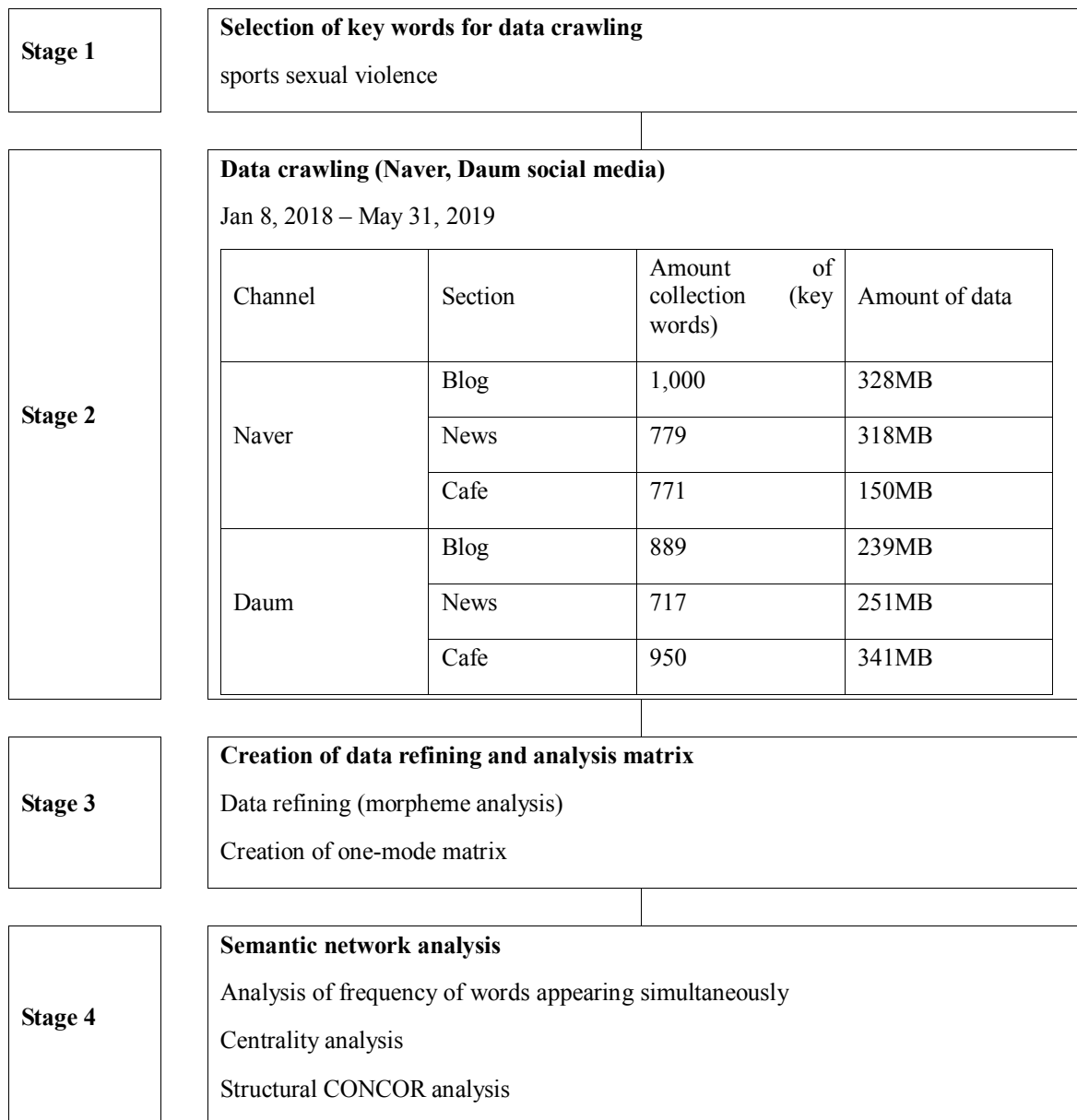


Figure 1: **Analysis procedure and method**

Findings

Results of key word extraction: Prior to identifying the group of words forming a cluster by applying the network analysis and CONCOR analysis, the researcher conducted the key word analysis on 'sports sexual violence' based on big data of social media, for which the big data collection and analysis program

Textom was used. In this context, the data on 'sports sexual violence' was collected and analysis was conducted to refine big data collected, producing the frequency of words appearing simultaneously. The frequencies of the top 50 words related to 'sports sexual violence' are shown in Table 2.

Table 2: 50 top ranking key words on 'sports sexual violence'

Rank	Key word	Freq.	Percentage	Rank	Key word	Freq.	Percentage
1	sports circles	2,538	1.851%	26	expose	316	1.851%
2	eradicate	1,676	1.222%	27	human rights	314	1.222%
3	measure	1,285	0.937%	28	special investigation team	305	0.937%
4	violence	888	0.648%	29	society	294	0.648%
5	National HR Commission	860	0.627%	30	perpetrator	289	0.627%
6	announce	759	0.553%	31	national assembly	282	0.553%
7	investigate	713	0.520%	32	Korea	271	0.520%
8	victim	701	0.511%	33	short track speed skating	268	0.511%
9	KSOC	671	0.489%	34	target	254	0.489%
10	coach	649	0.473%	35	MOE	239	0.473%
11	Suk-hee Shim	622	0.454%	36	corruption	233	0.454%
12	government	603	0.440%	37	people	232	0.440%
13	MCST	597	0.435%	38	launch	229	0.435%
14	previous	550	0.401%	39	word	226	0.401%
15	punishment	526	0.384%	40	minister	224	0.384%
16	issue	484	0.353%	41	steer	223	0.353%
17	me too	435	0.317%	42	education	219	0.317%
18	event	389	0.284%	43	total inspection	218	0.284%
19	woman	376	0.2742%	44	include	212	0.274%
20	Jae-beom Cho	371	0.271%	45	expand	211	0.271%
21	athletes	357	0.260%	46	plan	209	0.260%
22	president	349	0.254%	47	press briefing	198	0.254%
23	prepare	339	0.247%	48	image	196	0.247%
24	national team	337	0.246%	49	protect	195	0.246%
25	lawmaker	334	0.244%	50	operate	194	0.2434%

In research question 1, the researcher analyzed the characteristics that are displayed in social perceptions of policies on sports sexual violence. Upon analysis of the frequency of the key words, the top 50 key words were found to be 'sports circles' (2,538), 'eradicate' (1,676), 'measures' (1,285), 'violence' (888), 'National Human Rights Commission (860)', 'announce', 'investigate', 'victim', 'Korean Sport & Olympic Committee/KSOC', and 'coach'. The social perception of sports sexual violence expressed in social media is

that the public requests that the cause of the issues be investigated and measures to prevent recurrence of these events be prepared.

Results of semantic network on sports sexual violence through big data analysis of social media: Research question 2 shows the relationship of key words found in the result of research question 1. To this end, the top 50 key words analyzed through social media data on 'sports sexual violence' were converted to a matrix, *Ethiop. J. Health Dev.2020; 34(Special issue 3)*

which went through semantic network analysis via UCINET 6. The characteristics of semantic networks are usually expressed in indicators such as density and degree of connection (33). As a result of semantic network analysis, the density was 37.702, and the

connection degree of the key words was 92,370, and the average connection degree by node was 1847.4. The result of the semantic network analysis is visualized in Figure 2.

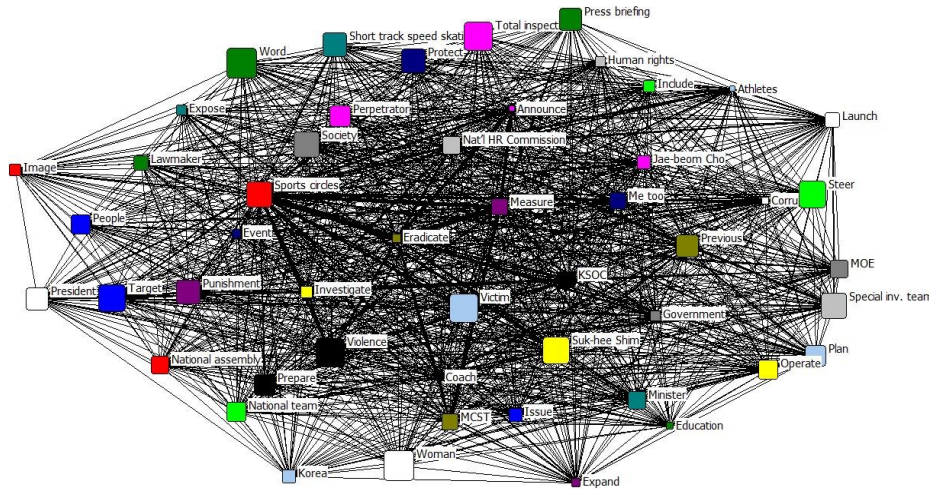


Figure 2: Visualization of semantic network analysis of 'sports sexual violence'

In the semantic network analysis, node represents the degree of major words and frequency, link represents the frequency of two words appearing simultaneously, and thickness is proportional to the frequency of appearing simultaneously. In addition, based on the

network of major key words on 'sports sexual violence', centrality from degree centrality, betweenness centrality, and eigenvector centrality were produced, and the degree of impact each word has on 'sports sexual violence' was analyzed (see Table 3).

Table 3: Result of centrality analysis of key words on 'sports sexual violence'

Word	Degree		Eigenvector		Betweenness		Word	Degree		Eigenvector		Betweenness	
	Coef	Rank	Coef	Rank	Coef	Rank		Coef	Rank	Coef	Rank	Coef	Rank
sports circles	.184	1	.463	1	.156	1	exposure	.020	27	.055	36	.114	29
eradicate	.140	2	.455	2	.156	1	human rights	.020	27	.055	36	.104	31
measures	.114	3	.386	3	.156	1	special investigation team	.034	15	.092	15	.060	46
violence	.065	6	.201	6	.156	1	society	.012	42	.032	44	.156	1
National Human Rights Commission	.070	4	.191	7	.156	1	perpetrator	.017	36	.044	40	.156	1
announcement	.066	5	.259	4	.156	1	National Assembly	.016	38	.057	35	.101	32
investigation	.053	8	.146	9	.156	1	Korea	.008	49	.020	49	.089	38
victim	.042	12	.112	11	.156	1	short track speed skating	.027	20	.073	22	.131	23
KSOC	.037	13	.112	11	.156	1	target	.019	30	.058	34	.088	39
coach	.044	11	.109	13	.156	1	MOE	.020	27	.071	26	.076	42
Suk-hee, Shim,	.048	9	.127	10	.156	1	corruption	.018	33	.072	23	.114	29
government	.045	10	.157	8	.156	1	people	.010	44	.033	43	.080	41
MCST	.056	7	.211	5	.156	1	launch	.024	23	.072	23	.028	50
previous	.037	13	.086	19	.156	1	word	.009	45	.022	47	.117	28
punishment	.029	19	.081	20	.120	27	minister	.017	36	.069	27	.122	25
issue	.026	22	.076	21	.156	1	steer	.018	33	.064	29	.087	40
me too	.023	24	.066	28	.156	1	education	.008	49	.020	49	.097	33
event	.021	25	.064	29	.126	24	total inspection	.016	38	.051	38	.121	26
women	.009	45	.021	48	.092	36	include	.009	47	.024	46	.097	33
Jae-beom, Cho	.030	18	.072	23	.156	1	expand	.019	30	.063	31	.047	47
athletes	.034	15	.093	14	.067	43	plan	.019	30	.087	17	.066	45
president	.020	26	.060	32	.039	48	press briefing	.013	41	.042	41	.093	35
prepare	.027	20	.089	16	.156	1	image	.012	42	.039	42	.033	49
national team	.031	17	.087	17	.147	21	protect	.015	40	.046	39	.140	22
lawmaker	.018	33	.060	21	.091	37	operate	.009	47	.028	45	.067	43

The words that had a huge impact upon centrality analysis were found to be ‘sports circles’, ‘violence’, ‘eradicate’, ‘investigate’, ‘measures’, and ‘victims’, ranking high in frequency and all centrality. The words are closely related to other words and form significance. In particular, with degree centrality and eigenvector centrality analysis, the words such as ‘announce’, ‘Ministry of Culture, Sports and Tourism/MCST’, ‘Suk-hee Shim’, and ‘government’ were analyzed with higher frequency. Based on these findings, the text data with the key words included on social media were analyzed, and the central theme related to sports sexual violence is the investigation into the issues, the establishment of punishment and response, and the enactment of legislation on this issue.

Result of CONCOR analysis of sports sexual violence through big data analysis of social media: In this research, UCINET 6 was utilized for visualization in order to analyze the network connectivity and patterns, and CONCOR analysis was conducted to identify the similar relationship of words and the cluster of common factors. Using CONCOR analysis, one can gain a group of words forming a cluster, and each cluster is granted the name based on the understanding of the preceding research and relevant knowledge, research questions, and the text of social media where the particular groups are expressed after first considering the correlation of the meaning of those words (34).

The CONCOR analysis of ‘sports sexual violence’ through big data on social media led to the formation of eight groups (see Figure 3). Group 1 was formed around words such as ‘perpetrators’, ‘education’, ‘woman’, ‘total inspection’, ‘problem’, ‘victim’, ‘national assembly’, ‘lawmaker’, ‘event’, ‘include’, ‘Korea’, ‘word’, and ‘society’, and was thus named ‘Background of establishing a dedicated organization’. Group 2 was formed around words such as ‘eradicate’, ‘announce’, ‘plan’, ‘minister’, ‘Ministry of Education/MOE’, ‘measures’, ‘prepare’, ‘corruption’, ‘government’, ‘sports circles’, and ‘Ministry of Culture, Sports and Tourism/MCST’, and was thus named ‘Government response’. Group 3 was formed around words such as ‘special investigation team’, ‘press briefing’, ‘athletes’, ‘National Human Rights Commission’, and ‘launch’, and was named ‘Installation of National Human Rights Commission’. Group 4 had words such as ‘national team’, ‘short track speed skating’, ‘previous’, ‘Suk-hee Shim’, ‘coach’, ‘Jae-beom Cho’, and was named ‘Corruption in ice skating sports’. Group 5 was named ‘Government commitment’ with the words ‘president’, ‘punishment’, ‘investigation’, ‘people’, ‘target’, and ‘image’. In Group 6, the words ‘steer’, ‘operate’, ‘expand’, and ‘KSOC’ were found, giving it the name ‘Expanded investigation into the sports circles’. Group 7 had words such as ‘me too’ and ‘exposure’, and was named ‘Accusation’. Lastly, Group 8 contained words such as ‘human rights’, ‘protect’, and ‘violence’, and was named ‘Basic rights’.

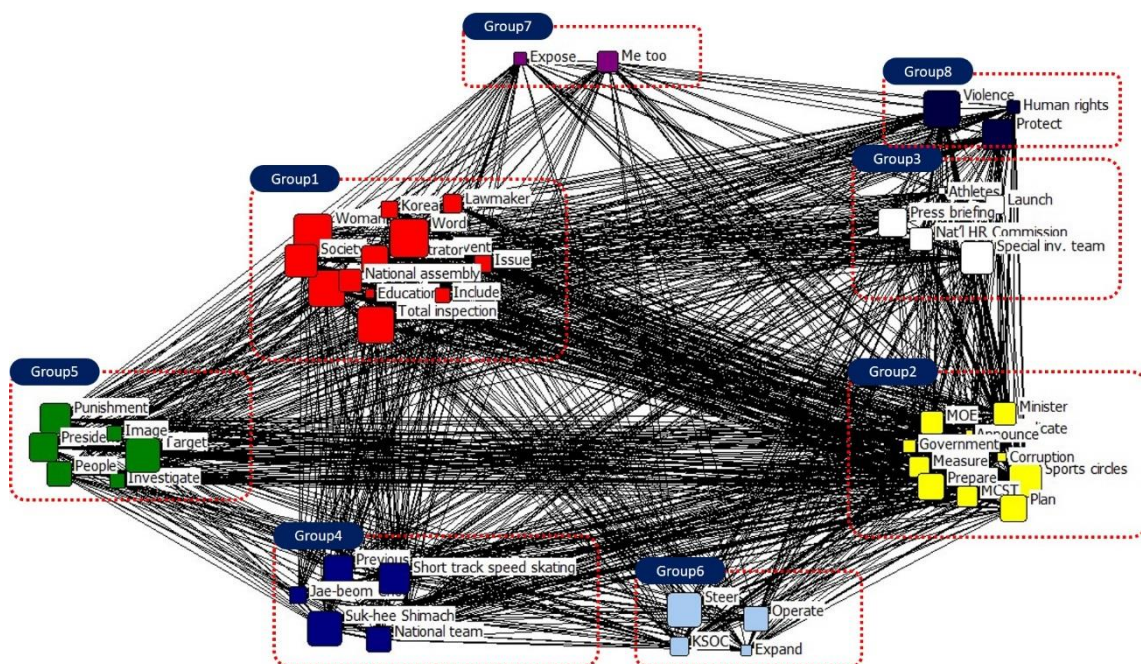


Figure 3: Visualization of CONCOR analysis of ‘sports sexual violence’

Discussion and conclusions

Not long after Olympic gold medalist Suk-hee Shim was found to have been habitually assaulted by her coach, the fact that she has also been the victim of sexual violence came as a shock to Korean society. Cases of sexual crime have long existed in the world of sports, and sports circles have failed to bring them to the fore or punish the perpetrators. Looking at this chronic issue yet again and responding by slapping the

perpetrator on the wrist will only get the Korean sports circles so far, rather than remediate this issue going forward.

As such, this study aimed to conduct big data analysis of social media to analyze public perceptions of the policies on ‘sports sexual violence’ in a systematic way, thereby providing basic information on the establishment and the operation of new policy. The

results and recommendations for the future are as follows.

First, the key word and semantic network analysis of sports sexual violence showed that words such as 'sports circles', 'eradicate', 'measures', 'violence', 'National Human Rights Commission', 'announce', 'MCST', 'investigate', 'Suk-hee Shim', and 'government' had relatively higher frequency and centrality value, and also play significant roles in the data network. The public perception is that the sports circles have lost the capacity for self-regulation when it comes to a series of sports-related sexual violence that took place in the sports community, and has been immature in its response, which requires a comprehensive inspection of the sports community. Moreover, it was revealed that public request that the government should take the initiative to provide fundamental measures to protect the human rights of the victims through the operation of a dedicated body, such as the National Human Rights Commission.

In particular, this study showed that 'sports circles', 'eradicate', and 'measures' were the top three ranking key words in terms of frequency and centrality. This means that only when fundamental problems of our sports circles – including the deep-rooted elitism, coach-oriented power structure, silenced voices, violation of rights to education, violation of individual freedom and dignity from camp training (35) – are tackled at the roots, can we expect that human rights issues such as sports sexual violence can be resolved. Many experts argue that considering the unique nature of sexual violence taking place on the field, measures should include: moral education, installment of a consultation and monitoring body, eradication of performance-oriented culture, improvement of camp training, strengthened criminal responsibility, and a strengthened pricing system of coaches, and so on (12,18,19,36,37). This shows that the experts also emphasize the importance of recognizing the gravity of the issues and preparing the actual measures in order to operate more effective policies, deemed to add significance to the result of this study.

Eventually, the overall result of semantic network analysis shows that the public wants an investigation into the internal organization of closed sports circles and the preparation of fundamental measures. It is deemed that as responses to sports-related sexual violence have failed to fulfill public expectations, the public expects the government to play a more active role to root out sports sexual violence by thoroughly investigating the violence occurring in various sports circles.

Second, upon grouping the sub-groups by considering the connectivity among key words in order to make a more detailed analysis of the words on social media, a total of eight groups were formed. Group 1 was named 'Background of establishing a dedicated organization', Group 2 'Government response', Group 3 'Installment of National Human Rights Commission', Group 4 'Corruption in ice skating sports', Group 5 'Government commitment', Group 6 'Expanded

investigation into the sports circles', Group 7 'Accusation', and Group 8 'Basic rights'.

Group 1 is about the social perception of the need to establish a dedicated organization to promptly deal with issues of sports sexual violence that relentlessly occur in Korean society. The dedicated organization can play a role in integrating and managing policies related to sexual violence in sports circles and take care of the 'whole nine yards', including a center for reporting, preventive education, administrative measure(s) once a report is received, and the resolution of the issue for the victim's benefit. This could enable a more systematic and professional resolution of issues by separating victims from their abusers (38). With an improvised system and operation of an *ad hoc* organization whenever sports sexual violence occurs, the government's policies have been considered to be very ineffective so far. However, in the aftermath of so-called 'case of Suk-hee Shim', the poor practice of handling irregularities of human rights in sports circles have been put under fire once again, heightening public interest in the establishment of a dedicated organization.

Group 2 urges the government and relevant ministries to come up with a strong countermeasure that can eradicate sports sexual violence. So far, sports public organizations have not been able to adequately respond to the punishment of perpetrators and the protection of victims when sports violence occurs (39). As a result, the public has expressed a lot of concerns about the government and sports associations' response to sports sexual violence. Accordingly, the public calls for the government's active involvement in establishing a more effective system for the protection and support of victims.

Against the backdrop of the operation of the National Human Rights Commission and Special Investigation Body, as shown in Group 3, and as mentioned above, there is the lack of capacity for self-regulation to resolve the issue of sexual violence in sports circles. The government has made a series of attempts to gain a foothold to improve policy and system changes, by putting forward comprehensive measures at a pan-government level, such as with the initiation of the Special Investigation Body and Innovation Committee, which was created to address the issue of sexual violence in sports circles (39). That said, there are numerous social requirements for an effective remedy, given concerns that sexual violence similar to previous cases could be still ongoing in the nation's sports circles, and that new cases may come to light. In addition, Group 5 also calls for strong governmental commitment that leads to an investigation that the people can accept, along with the initiation of a thorough inquiry and punishment to eradicate rampant sexual violence in sports circles. In particular, the public wants to see strong commitment from the government to root out pervasive sex-related issue in sports circles by extensively looking into other potential cases, in addition to the cases already reported.

Group 4, corruption in ice skating-related sports, is the result derived from the sexual violence against a national athlete, Suk-hee Shim, which triggered this

study. The public interest in the case of Suk-hee Shim, who disclosed habitual violence and sexual violence from her childhood coach, was reflected in a negative evaluation of ice skating governing bodies.

Meanwhile, Group 6 has the result to ask for an expanded investigation into pervasive sexual violence throughout sports circles in general. It is necessary to establish and operate an independent (autonomous), professional and reliable organization that is separate from the internal procedures of sports governing bodies, including sports facilities and the Korean Sport & Olympic Committee. In fact, most of the events that caused public outrage have not been resolved in the internal system of sports. In particular, despite the fact that the victim reported to the internal system, rather, a problem such as threatening the safety of the victim has been continuously revealed, and thus an extensive investigation of sports circles is needed.

Group 7's 'Accusation' can be interpreted as society's negative views on the reality that help cannot be sought for these individuals, due to the absence of a proper means of reporting abuse. Under the influence of the MeToo movement (#MeToo), a variety of sexual violence cases have come to surface, which previously would have been covered up. It has swept all realms of society and sports circles, and there are no exceptions. In terms of sports circles, however, there were bigger ramifications because many student athletes have been 'raised' by coaches or instructors on behalf of parents during camp training. These students are in a difficult position to resist their coaches, who can make or break their career and worse still, in some cases, victims are ostracized, generating even greater fear (40). In other words, in case of 'power-related sexual violence in an organization', where a perpetrator takes advantage of his or her predominant position, it is difficult for a victim to actively report any incident of sexual violence. In particular, as sports sexual violence is easily concealed even if it occurs, it has a low reporting rate and it has not been readily punished under the legal system (41). Thus, social perception has criticized the current structure in sports circles, as there is no other option but disclosure or MeToo movement as a last resort, so as to criticize the current structure of the sports field. It is necessary to raise victims' awareness of reporting, and to reinforce the system to protect athletes who are vulnerable to sexual violence (42).

Group 8 is the result regarding the basic rights of athletes. As for violence and sexual violence that occur in the sports sector, efforts should be made to go beyond harsh punishment of a perpetrator's deviant behavior, and work to overhaul the system itself that enables violence and sexual violence to take place in the first place and be concealed. In other words, the structure of giving rise to and concealing sexual violence, and of forcing silence, should be dismantled, such as in relation to sports nationalism, sports power, medal-centrism and elite sports policy. For this, it is necessary to have a fully-fledged discussion about the formulation of a 'Framework Act on Sports'. The Act should stipulate a paradigm shift of sports policy to center on the 'intrinsic value of sports' and a 'sports-for-all' system, as well as a mid- and long-term plan

and policy measures to ensure that the paradigm shift will occur. In addition, the Act should include the purpose, basic concept, duties of the national and local governments, and the establishment of basic sports plans and underlying policy measures. As for prevention of and action against sexual discrimination and violence, an additional organization should be formed to put in place a system that encompasses counseling, case handling and action to prevent reoccurrence (39). The fundamental cause of sexual violence in Korean sports today is that a small number of elite athletes are restricted from participating in formal education courses and are simply treated as athletes, such as machines. Therefore, an educational environment should be granted to students engaging in sports activities so that they can exercise their right to an education, as stated in the Constitution, and the provision of such an environment and its enforcement should be the duty of the government. However, under the banner of elite sports, the right to learning that student athletes deserve to enjoy have been violated, causing hinderance to creating independent human beings who live as members of society. Thus, efforts should be made to break away from a winner-takes-all culture under excessive competition and protect basic rights, such as the right to learn, and by doing so, athletes should build up their capacity to make judgements and solve problems on their own to get out of the blind spots of human rights.

Based on CONCOR analysis, Equivalence difference in the public perception of sports sexual violence was understood. In particular, it would be effective for policy makers and administrators to understand what the public understands about the operation of policies on sports sexual violence, and reflect them when establishing new policies. Thus, they should pay attention to the fact that these key words are the main area of interest and consideration of the people interested in learning more about this issue. It means that our policies would need a more systematic approach in which a legal foundation, different from the past, which can tackle the issue from the roots, is provided so as to prevent the same detrimental events from taking place again in the future.

Limitations of this study

Despite the above-mentioned implications, this study is not without limits. The analysis was conducted on the information garnered from cafe, blog, and news data from two major social media portals (Naver and Daum), and the scope of text data was limited due to various physical limitations. It is deemed that future research will have increased completeness, if various structured data on sports sexual violence is collected, together with unstructured data that is available on social media.

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