



The Role of Face Masks Changed by COVID-19 in Republic of Korea

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Abstract

Purpose: As SARS-CoV-2, which was the main cause of the global pandemic, has repeatedly mutated in various forms, the threat of the virus has decreased considerably, and the spread has also subsided. Therefore, the purpose of this study was to explore the change in the role of masks and sustainable mask consumption according to the change in perception of wearing masks during the pandemic. **Research design, data and methodology:** This study used a descriptive review method as a literature review, and utilized the literature search method in PubMed, Riss, Scopus, and Google Scholar databases. Among them, a total of 46 papers were selected in the final stage. **Results:** As a result, it can be seen that during the pandemic, masks changed their roles according to social trends as their perceptions changed from general perceptions of protecting from external environments or diseases to fashion items with quarantine functions. **Conclusions:** Masks will be continuously consumed as one of the fashion items with the function of quarantine that protects the respiratory tract from the external environment that is indispensable in our daily lives. Therefore, measures should be taken on sustainable consumption measures according to consumer demand for disposable masks.

Keywords : COVID-19, Pandemic, Mask Fashion, Change of Perception, Sustainability

JEL Classification Code : D80, D83, D91, I18, Q56

1. Introduction^a

The World Health Organization (WHO) Secretary-General said on March 11, 2020, that about 118,000 patients and 4,291 deaths were confirmed in 114 countries around the world, with COVID-19 (COVID19) declared a global pandemic (Park & Nam, 2021). By January 2023, it had caused more than 660 million infections and 6.7 million deaths worldwide (WHO, 2023). Pandemics are not only

putting people around the world on edge of fear and anxiety, but they are also changing their lifestyles and social cultures. Efforts were made according to various policies and attempts to prevent COVID-19, and various guidelines were prepared and implemented to prevent infection such as "wearing masks," "washing hands," "disinfecting hands," and "social distancing." (Jeong, 2022). In addition, the COVID-19 pandemic has flexibly limited population movement around the world. Since no country was able to

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survive the COVID-19 pandemic alone, it was essential to replenish health emergency supplies such as personal protective equipment (PPE) from time to time to prepare for the pandemic and prevent infection. Therefore, medical masks have become important medical protection products, and medical masks have become symbols of the fight against COVID-19. Since the outbreak of COVID-19, global mask companies have accelerated the increase in mask production through technological changes over time. As a result, the total production of medical masks increased rapidly, effectively alleviating the situation of "difficulty in finding masks" (Zhu et al., 2021). A study in the United States found that wearing a mask in public during the early stages of the COVID-19 pandemic reduced the incidence of covid-19 and provided evidence for tremendous health benefits (Nguyen, 2021). As such, preemptive quarantine measures against infectious diseases are very important in spreading and preventing diseases (Shin & Nam, 2021).

Meanwhile, in Korea, masks were mandatory, hand washing, and high-intensity social distancing measures were taken, and specific information on the movement path of confirmed patients was disclosed by local governments according to epidemiological investigations, preventing early spread and intensive disinfection of facilities. Accordingly, domestic K-quarantine, which successfully responded to MERS, is evaluated to have responded successfully to this infectious disease compared to other countries (Bok, 2020).

During the pandemic, Korea lifted social distancing and mandatory wearing of indoor and outdoor masks sequentially and switched to recommendations as the spread of Covid-19 increased. Currently, most of the mandatory wearing of masks except for some places has been lifted, but masks have to be worn continuously due to the daily use of masks and the prolonged pandemic. After the pandemic, masks have been attempted to change various designs with improved functionality and fashionability according to the trend of the times and consumers' consumption needs. Looking at previous studies related to this, Analysis of hygienic face mask structures and designs for adults (Im & Kim, 2020), and Analysis of trends and meanings of fashion masks under the pandemic influence (Li & Yim, 2021) There is a study of. In addition, there are studies on changes in fashion perceptions due to the spread of COVID-19 (Kang, 2021), which focused on changes in fashion perceptions, and analysis of changes in consumer perceptions of fashion products in a pandemic situation (Choi & Lee, 2020). However, although this study focused on changing the perception of mask fashion by focusing on Korea, it distinguished it from previous studies by emphasizing the importance of sustainable consumption. Currently, masks have become one of the essentials in our daily lives as a fashion item with a quarantine function. It

was thought that the use of eco-friendly materials and good consumption in consideration of the sustainability of mask consumption in the future will help reduce the amount of waste that has increased due to COVID-19 and further improve serious environmental pollution. The purpose of this study was to understand the trend of mask consumption according to the change in perception and to present a direction for sustainable consumption. Therefore, it is expected that this study will look at changes in perception due to changes in mask roles and help as basic data for eco-friendly fashion mask trends.

2. Literature Review

2.1. The Role of Masks during COVID-19

SARS-CoV-2 infection is a highly contagious viral infection that has claimed millions of lives over the past three years (Majeed et al., 2022). SARS-CoV-2 spreads from person to person through close contact, causing COVID-19 (Chu et al., 2020). COVID-19 transmission is mainly caused by inhalation of SARS-CoV-2 virions through droplets or aerosol virus particles. Thus, in terms of "source control" (for the benefit of the community) and "physical protection" (for the user), the face mask is said to be a two-way barrier to protect against non-ion droplets, as well as to maintain the physiological temperature and humidity of the nasal and mouth independently of external environmental conditions (Lu et al., 2020; Bubbico et al., 2021).

In the case of Korea, in order to prevent the "respiratory infection disease" of COVID-19, "sanitation such as washing hands, wearing masks, and social or physical distancing" were set as major quarantine measures (Ko, 2021), and the frame of the regulation has been continuously and flexibly changed according to the level of the spread of the epidemic. Nevertheless, the biggest reason why the number of confirmed patients is stably managed is the high level of consciousness of the people who are actively cooperating with social distancing (Moon, 2022). In addition, in the early stages of the epidemic, the 'public mask distribution' procedure was introduced to facilitate supply, and the government used a plan to disclose mask specifications for masks essential for suppressing the spread of infectious diseases (Kim & Cho, 2021). Controversy over supply and demand for masks has been resolved as the SARS-CoV-2 spread has subsided and the supply of masks has expanded. Mask sales data, which allows citizens to review face mask stocks at public retailers by visiting private web portals and developer-created websites or

downloading mobile apps, immediately drew public attention when released. A brief survey of satisfaction with mask stock service found that 98.6% of respondents were satisfied with the service. In particular, 45% and 43% of participants were satisfied with timely government service and data disclosure that reflected the needs of citizens, respectively. This shows that the disclosure of data and services developed to solve the mask shortage in a timely manner has been positively accepted, and the government is responding in various ways for the health and well-being of the people (Kim, 2020).

Currently, it is not yet time to relax, as the Omicron (B.1.1.529) strain of SARS-CoV-2 still requires a mask, which is concerned with improving the infectivity and avoidance potential of immunity from vaccines (Harvey et al., 2021; Greaney et al., 2021; Lowe et al., 2022). Therefore, wearing a mask is simple and sustainable, and it is an excellent health and economic quarantine rule along with health benefits (Chen et al., 2020; Kim, 2021). Table 1 summarizes the main research results on the importance of wearing face masks and effective quarantine measures in response to COVID-19.

2.2. Changes in the Perception of Wearing a Mask

According to the research results, it was confirmed that in Korea before COVID-19, the general public's wearing of masks was mainly aimed at blocking harmful environments such as fine dust, ultraviolet rays, and wind, the wearing rate was about 35 to 40%, and the frequency of wearing was the most once or twice a week. In addition, men tended to wear masks more than women and older people than young people, and outdoor activities and interest in skin and efforts to improve them were found to be factors affecting mask wearing. However, during the COVID-19 pandemic, the mandatory wearing of masks by men and women of all ages has shifted the perception to etiquette to protect health from droplet infectious diseases and not to spread them to others (Kang, 2015; Kim & Yoo, 2020).

The mandatory wearing of masks during the COVID-19 pandemic (global pandemic) has led to increased consumer demand and diversification of mask designs and colors (Li & Yim, 2021). And while wearing masks, face-to-face communication, in particular, was heavily influenced by infectious diseases, nevertheless we emphasized the recognition of the importance of nonverbal communication, such as body language, which can facilitate communication. In addition, technological development to help interpersonal interaction could play a central role in facilitating real-time connection and interaction between individuals. For example, communications over Zoom, Skype, Facetime, and Cisco Webex have been key to maintaining the socio-economic, educational, and health sectors during the

pandemic (Mheidly et al., 2020; Phutela, 2015; Mheidly et al., 2020).

Among the various ways to prevent the spread of COVID-19, wearing a mask is recognized as the most effective method and is still the best means for quarantine (Kang et al., 2021). Fashion consumption trends are rapidly changing as mask fashion perceptions change due to the spread of COVID-19 (Kang, 2021). It can be seen that people's anxiety and concerns about infection in the COVID-19 situation are greater than those of SARS and MERS, and this consumer perception is also reflected in fashion. As such, consumers' perception of masks has shifted from blocking yellow dust and fine dust to socio-cultural importance and fashion items (Choi & Lee, 2020). Table 2 summarizes the main research results on mask consumption, which has changed perception due to new socio-cultural importance.

2.3. Masks Turned into Fashion Items

Masks have been maintained, developed, and recreated as cultural symbols in all parts of the world. In modern times, masks have become representative protective functional items due to increased functional needs for biological and physical disasters, chemical disasters, and natural disasters, and their forms have changed to modern forms that are different from designs for shamanistic and ritual purposes in the past. Furthermore, these functional masks are changing and developing in various forms in line with the paradigm of the times and various human needs in fashion (Choi, 2013). The prolonged COVID-19 has caused socioeconomic damage and worrying damage in terms of national mental health to the extent that it cannot be compared to previous MERS or SARS. Looking at the changes in fashion consumption after COVID-19, it is said that consumption will be made as a compensation for psychological anxiety and anxiety stress over a long period of time due to the COVID-19 incident (Lee, 2020; Binseng et al., 2021; Son, 2022). Accordingly, with the COVID-19 pandemic, consumers have demanded fashionable masks with various functions and trendy designs (Kim et al., 2022). Wearing a mask is now part of everyday life. Early interest in masks was mainly related to their protective function of preventing viruses. However, as the pandemic progressed, people began to embrace the mask as a must-have fashion item, demanding a higher level of comfort that could be worn for hours in public and better suited to their image (Im & Kim, 2020).

As mask wearing has become an essential quarantine factor due to inevitable face-to-face activities, products called "mask straps" and designs applied to the jewelry market have become a trend in Korea. According to the trend of increasing use of mask straps, people began to

recognize masks as a style as well as quarantine products as they were used routinely due to the prolonged period of mask use. As a result, as the mask strap, which focused on functions, became visible through various broadcasting media, it began to have a unique and convenient design, reducing inconvenience for consumers when using masks and helping them wear hygienic masks (Koo & Lee, 2021). In addition to this atmosphere, mask fashion, which appeared in the airport fashion of celebrities, began to be popular among the general public, and now it is an era where not only the function of masks but also fashionability are required (Kim & Yeom, 2018). Table 3 summarizes the main research results on the consumption trend of mask fashion.

2.4. Good Consumption of Mask Wearers for Sustainability

Sustainable consumption has been a major policy goal at the national and international level as a key concept that connects global issues of sustainable development and consumers. It can be said that it is to protect the environment, use resources wisely, and consume them in a way that improves the quality of life for the present generation and future consumers (Schrader & Thøgersen, 2011; Jackson & Michaelis, 2003; Go & Lee, 2020).

Since SARS-CoV-2 was first confirmed in December 2019 in Wuhan, located in Hubei Province, China, COVID-19 has still greatly threatened the daily lives of many people around the world. In this situation, wearing a mask is becoming the most reliable means to prevent the spread of the coronavirus along with vaccines (Han et al., 2022). Due to the COVID-19 pandemic, which has recently led to the Omicron mutation of SARS-CoV-2, and fine dust, which has been a problem for a long time, masks have become a necessity for daily life (Kim et al., 2021). Mainly, face masks are made of petroleum-based nonrenewable polymers that are not biodegradable, harmful to the environment and cause health problems (Dharmaraj et al., 2021). The COVID-19 pandemic has driven mass consumption of personal protective equipment (PPE) worldwide.

Disposable face masks are one of the most consumed PPE to prevent viral transmission. However, mismanagement of these substances threatens the environment with new forms of plastic pollution (Torres & De-la-Torre, 2021). In addition, production of disposable face masks has contributed to negative environmental impacts such as global warming and water consumption, land toxicity, human non-carcinogenic toxicity, lack of fossil resources, ionizing radiation, human carcinogenic toxicity, and marine ecotoxicity. Practical environmental consequences associated with face masks are

unavoidable, but ways to positively mitigate the impact should be sought. As the demand for disposable face masks is increasing day by day, the nature of efforts to improve the ecological design of future face mask designs should be emphasized to analyze the disposable face mask production process from a new and critical perspective on life cycle impact (Alfarisi et al., 2022).

Therefore, research on the development of sustainable eco-friendly face masks for the emergence of SARS-CoV-2 mutant viruses and respiratory protection from fine dust and yellow dust should continue (Kim & Lim, 2018). Table 4 summarizes the research results on sustainable face mask alternatives that minimize environmental impact.

3. Methods

The method of this study is a literature review, and a descriptive review approach was used for this study. This descriptive review was prepared by setting the mask as the central keyword and referring to mask fashion, sustainability, and change of perception for the purpose of integrating and critically evaluating the literature. For literature research, a total of 255 references were selected using Google Scholar, RISS, Scopus, and PubMed, of which a total of 46 papers were selected in the final stage based on the last three years (2020-2022). 46 papers were considered ultimately appropriate for evaluating research objectives with respect to search criteria. This can distinguish the number of records identified, included, and excluded through the PRISMA literature review search results in Figure 1.

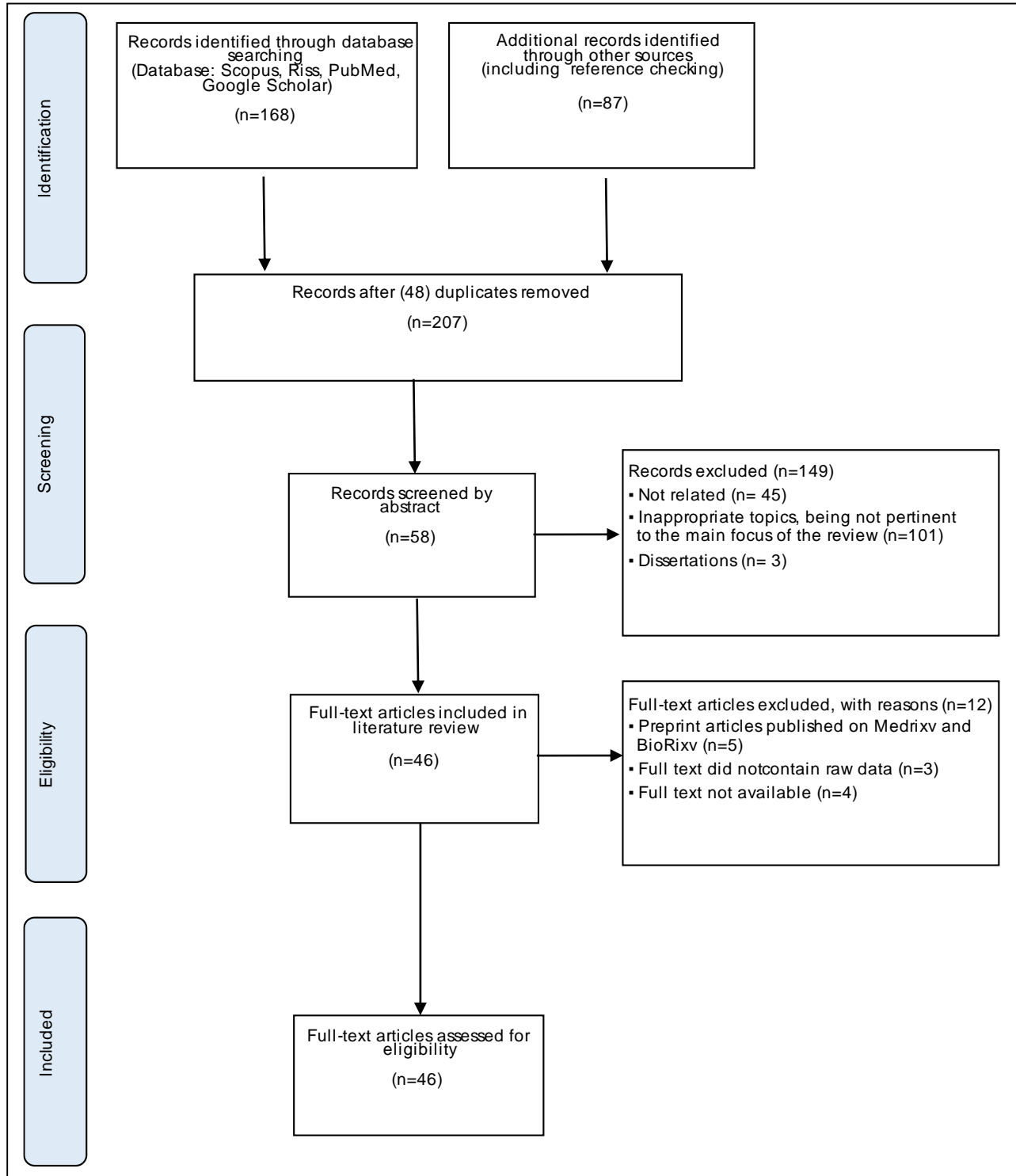


Figure 1: PRISMA Literature Review Search Results

Table 1: The Role of Masks during COVID-19

| NO | Journal name | Author | Year | Discussion |
|----|--|------------------------------|------|---|
| 1 | Studies in Religion | Byung-chul Ko | 2021 | Identify the contents of the conflict between the government and the religious community over the quarantine measures of COVID-19 and suggest ways to resolve them. |
| 2 | Journal of the Korea Convergence Society | Su-chan Moon | 2022 | Suggest appropriate management measures by supplementing the scientific evidence of the distancing system for the prevention of COVID-19. |
| 3 | Journal of Governmental Studies | Dong-hwan Kim and So-min Cho | 2021 | Presents the role of the government's quarantine policy institutional response standard in the context of policy dilemma |
| 4 | Sustainability | Kim, H. | 2021 | It suggests that the Korean government's open data and ICT technology can be combined to solve social problems effectively |
| 5 | Korean public health research | Hyun-woo Kim et al. | 2021 | Examine changes in mental health, quarantine rules, and health behaviors according to the psychological concerns of residents in Daegu due to COVID-19 and analyze their impact |

Table 2: Changes in the Perception of Wearing a Mask

| NO | Journal name | Author | Year | Discussion |
|----|---|--------------------------------|------|--|
| 1 | The Research Journal of the Costume Culture | Hong-yeon Lee and Eun-hyuk Lim | 2021 | An Analysis of the Characteristics and New Cultural Significance of Masks in vogue under the COVID-19 Pandemic |
| 2 | Frontiers in Public Health | Mheidly N. et al. | 2020 | Explore the impact on communication and education to cope with stress and exhaustion associated with online learning and communications caused by COVID-19 |
| 3 | The Korean Journal of Social and Personality | Min-hye Kang et al. | 2021 | Exploring cultural differences related to wearing masks, focusing on Korea and the United States |
| 4 | Journal of the Korean Society of Design Culture | Eun-mi Kang | 2021 | An Analysis of Changes in Consumers' Perception of Fashion Consumption Trends Before and After COVID-19 Through Big Data Analysis |
| 5 | Studies in Dress Culture | Younghyun Choi and Kyuhye Lee | 2020 | A Survey and Analysis of Fashion Consumers' Perceptions During the COVID-19 Pandemic |

Table 3: Masks Turned into Fashion Items

| NO | Journal name | Author | Year | Discussion |
|----|--|------------------------|------|---|
| 1 | Journal of fashion business | Binsam et al. | 2021 | Analysis of changes in fashion consumption culture in the post-COVID-19 era through big data analysis |
| 2 | Integrated Humanities Study | Mi-young Son | 2022 | A Study on the Effect of Household Consumption Expenditure in Korea on Consumption Expenditure of Fashion Products after COVID-19 |
| 3 | Journal of the Korean Society of Clothing and Textiles | Min-soo Kim et al. | 2022 | Use text mining to analyze big data to understand consumers' needs and perceptions of fashion masks |
| 4 | The Korean Society Of Knit Design | Im, H. B. & Kim, J. M. | 2020 | A Comparative Analysis of the Structure and Design of Adult Health Masks by Shape and Size |

| | | | | |
|---|---|------------------------------|------|--|
| 5 | Journal of the Korean Society of Design Culture | Minjung Koo and Hyungkyu Lee | 2021 | Presenting fundamental reasons and criteria for the growth of mask strap trends through lifestyle phenomena caused by COVID-19 |
|---|---|------------------------------|------|--|

Table 4: Good Consumption of Mask Wearers for Sustainability

| NO | Journal name | Author | Year | Discussion |
|----|---|---------------------------------------|------|--|
| 1 | Journal of Consumer Studies | Ae-ran Go and Jung-soon Lee | 2020 | Exploring sustainable fashion consumption and post-corona through literature research and analyzing changes in perception of sustainable fashion consumption using big data |
| 2 | The Korean Journal of Social and Personality Psychology | Eun Jin Han et al. | 2022 | People's opinions on wearing masks in the corona situation Comparative analysis of self-report questionnaire for overt attitudes and implicit association test (IAT) for implicit attitudes |
| 3 | Korean Society for atmospheric environment | In-young Kim et al. | 2021 | Developed a nose cap mask that can simultaneously prevent fine dust or COVID-19 infection even if the mask is taken off |
| 4 | Science of the Total Environment | Torres, F. G., and De-la-Torre, G. E. | 2021 | A review of sustainable face mask alternatives and innovative methods for recycling and repurposing plastic waste following PPE use management, focusing on the Peruvian case |
| 5 | Sustainability | Alfarisi, S. et al. | 2022 | To minimize environmental impact, the design of the earloop and the proportion of materials are changed to suggest a restructuring of the manufacturing process |

4. Result and Discussion

This study used the literature survey method to explore the correlation and sustainable consumption of role changes as fashion items in the function of changing perception of mask consumption during COVID-19 and preventing infectious diseases. The current pandemic situation continues, but the spread of COVID-19 worldwide and the resulting severity is weakening. Major countries around the world have also lifted the obligation to ease distance and wear masks.

Korea also completely lifted the mandatory wearing of masks outdoors from September 26, 2022, and as of January 30, 2023, most of the mandatory wearing of indoor masks was lifted and turned to recommendations. Currently, the mandatory wearing of masks has been lifted, but nevertheless, the majority of people wear masks indoors and outdoors. This suggests a positive meaning as a tool for habituation and protection from disease during the pandemic, and a negative meaning due to fear of a new mutant virus. From this, it can be seen that due to the mandatory mask for all citizens during the pandemic, the perception has changed to a social and cultural importance that is incomparable to that before the pandemic.

As a result of examining previous studies, the perception of wearing masks in general before the pandemic was a means of protecting against fine dust, yellow dust, and diseases. However, since the pandemic, masks have been

recognized as one of the fashion items with the function of quarantine, and are continuing to evolve according to the consumption trend. Therefore, it can be seen that the criteria for changing the role of masks are divided into before and after the pandemic. The people's socio-cultural awareness of wearing masks over the past three years showed a clear difference from before the pandemic. In the early days of the pandemic, when we had to focus solely on quarantine, the mask was just one of the tools for quarantine. However, as masks became an issue around the world, the trend quickly changed according to the eyes of the people, establishing itself as a fashion item in daily life. Due to the wearing of a mask during the pandemic, it is now awkward not to wear a mask. Even now, masks are changing according to the trend.

Meanwhile, it is no exaggeration to say that during the pandemic, it caused explosive consumption of personal protective equipment (PPE) worldwide. Mass production and consumption of disposable masks are moving in the form of huge waste, seriously polluting the global environment. Therefore, it is considered that it is necessary to focus on sustainable production and consumption that can minimize environmental destruction. As such, it is clear that masks have given us various meanings of benefits as a means of strong quarantine and fashion items for COVID-19 during the pandemic. In the past 3 years, wearing a mask due to COVID-19 has become a daily routine for us as if we are wearing clothes, and the demand for mask wearers is expected to continue in the future.

Therefore, we will have to find a sustainable way to meet the ever-increasing demand for personal protective

equipment (PPE). Therefore, R&D as a sustainable item that fits the trend by accurately judging the needs of mask wearers is required, and good consumption of a responsible attitude of consuming masks should also be continued.

5. Conclusion

This review focused on socio-cultural phenomena and sustainable consumption due to changes in consumers' perceptions of mask consumption during the pandemic. Through the results of this study, it can be clearly seen that masks have been transformed into a fashion culture as a symbol of COVID-19. This suggested that the attitude of consumers consuming masks was positive, and showed the infinite potential of the mask consumption market. This suggested that the attitude of consumers consuming masks was positive, and showed the infinite potential of the mask consumption market. In addition, in using disposable masks, sustainable consumption that maximizes the advantages and compensates for the disadvantages is judged as a core value. Therefore, it is expected that this study will be an important basic data for new changes in the mask consumption market and research on the development of eco-friendly products. However, since this review was reviewed focusing on the issues of the Republic of Korea, it has limitations in generalizing and expanding interpretation. In the future, additional studies are needed to supplement the limitations of the study according to continuous disposable mask consumption, and various follow-up studies are suggested.

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