[Research Paper]

What Promotes Adolescent Girls' Makeup in South Korea? Fashion Leadership, Social Support from Friends, and Self-Esteem

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Abstract

In South Korea, it has become popular for adolescent girls to wear makeup. From social perspectives on their makeup use, however, it remains controversial among parents, teachers, and even the girls. This study examined the status of adolescent girls' makeup usage, identified factors that influence their makeup use, and laid the groundwork for establishing a social consensus on makeup use among adolescent girls in South Korean society. Data from South Korean adolescent girls were collected and analyzed using MANOVA for repeated measures, confirmatory factor analysis, and structural equation modeling. Adolescent girls were found to wear less makeup at school than outside of school. Additionally, their makeup use was influenced by both positive (e.g., fashion leaders and social support from friends) and negative factors (e.g., low self-esteem). The findings of this study suggest that instead of strict bans against the use of makeup by girls, educational programs are needed to help adolescent girls grow up with healthy perspectives.

Key words: Adolescent makeup, Fashion leadership, Self-esteem, Social support from friends, South Korean adolescents

I. Introduction

In South Korean society, adolescent girls wearing makeup has traditionally been considered socially prohibited deviant behavior (Hwang & Cheon, 2011). Until the 1980s, when Confucian culture and collectivism dominated South Korean society, adolescent appearance management was strictly regulated under the guise of protecting their mental health and promoting the ethical values and social orders of South Korean society (Ahn & Yang, 2001). Even as adolescent girls' makeup has become more widespread in recent years, conflict between various social groups concerning their makeup has still persisted (Lee, 2020). However, compared to Western cultures, this social conflict over

adolescent girls' makeup is a distinctive phenomenon in some Asian cultures, including South Korea. Western cultures have generally not strictly prohibited adolescent girls from wearing makeup, but rather have viewed it as an innocuous appearance management behavior or a rite of passage into adulthood (Freedman, 1984; Gentina et al., 2012; Sabiston et al., 2007). Instead of adolescent makeup, Western cultures deem excessive tattooing, tanning, and piercing as deviant appearance management behaviors because they can endanger the physical and mental health of adolescents (Carroll et al., 2002; Holman & Watson, 2013). Due to this social conflict over adolescent girls' makeup in South Korea, it is delayed in reaching a social consensus on adolescent girls' makeup for their healthy growth.

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makeup has intensified not only between older and younger generations but also among many social groups, such as between teachers and parents, as well as among adolescents themselves. In 1996, the South Korean constitutional court declared that dress and appearance regulations were unconstitutional (Han, 1997), and as a result, adolescent appearance regulations, including makeup, were erased from the Enforcement Decree of the Elementary and Secondary Education Act in 2020 (Lee, 2020). Generation Z in South Korea, who were born during the era of democratization when individuals' freedoms are guaranteed, have demanded the right to freely wear makeup so that they can express their freedom of dress and self-image (Lee, 2020). However, the older generation, the teachers or parents of South Korean adolescents, has generally been against adolescent girls wearing makeup because they were raised with rigorous appearance restrictions and internalized them (Hwang & Cheon, 2011). According to a survey conducted by a Korean education documentary released in 2020, 45.3 percent of teachers who taught in South Korean public schools complained that they had experienced conflict over the guidelines for adolescent makeup with their students or parents, and 90 percent reported that it was impossible to prohibit girls from wearing makeup solely on the basis of their schools' appearance regulations (EBS Docuprime, 2020). In terms of adolescent makeup perception, some South Korean adolescent girls have paradoxically perceived that friends who do not wear makeup at all are unsociable nerds, whereas friends who wear inappropriate heavy makeup regardless of the occasion are juvenile delinquents (Hwang & Cheon, 2011). Despite those controversial and paradoxical viewpoints on the makeup, little is known about the current situation of the makeup and the factors that are driving this phenomenon in South Korea. In this circumstance, we reasoned that understanding the status and influencing factors of their makeup in South Korea would assist in achieving social agreement on their makeup, thereby making the results of this study beneficial to their healthy development.

Few studies have directly verified the factors that influence the prevalence of South Korean adolescent girls' makeup, whereas several studies have examined the status of their makeup. According to the studies by Kang (2014a) and S.-E. Kim and Kim (2019) on adolescent girls' makeup in South Korea, the majority of female adolescent students (70 to 80 percent) answered that they wear makeup on a regular basis. However, those studies did not examine the types and degrees of makeup that they apply for diverse occasions. In light of this limitation, this study aimed to investigate in more detail the types and degrees of makeup used by South Korean adolescent girls for various occasions. In addition, this study inferred that the conflict over makeup among the adolescent girls is a paradoxical phenomenon influenced by both positive and negative antecedents, and previous related literature has supported our inference. However, the findings of the previous studies were not sufficient for specifically predicting the causal relationships between the adolescent girls' makeup and its positive and negative antecedents. As a result, we referred to studies in adjacent disciplines whose primary topics are similar to ours, such as adolescent psychology and adult makeup behavior, to supplement the lack of previous studies.

This study expected that fashion leadership, social support from friends, and self-esteem would influence South Korean adolescent girls' makeup. First, based on the findings of previous studies, we conjectured that adolescent girls' fashion leadership, which is an informal power to distribute new fashion trends to the public (Rogers & Cartano, 1962), is positively associated with their makeup. Workman and Johnson (1991) argued that wearing makeup in a variety of ways is an accessible way to express one's unique individuality. Consequently, it is predicted that fashion leader adolescents, who want to express their interest in fashion and their unique individuality, will favorably accept makeup as their appearance management tool. Second, we assumed that social support from friends, defined as positive resources an adolescent receives from his or her friends (Cohen & Hoberman, 1983; Zimet et al., 1988), positively influences South Korean

adolescent girls' makeup. Hwang and Cheon's (2011) study found that wearing makeup strengthens peer ties among South Korean adolescent girls, thereby presenting a novel solution for cultivating strong social bonds among adolescents. Based on the findings of Hwang and Cheon's (2011) study and the fact that social support from friends in adolescence is amplified by strong ties in peer relationships (Brown & Larson, 2009), it is anticipated that social support from friends will positively influence South Korean adolescent girls' makeup. Lastly, we predicted that self-esteem is one of the most influential factors in their makeup based on Yoh's (2015) study, which disclosed that wearing makeup has a therapeutic effect on boosting self-esteem in a sample of South Korean adult females. However, research on South Korean adolescent girls has shown incompatible results, confirming that low self-esteem increases their makeup (Han & Lee, 2009; K.-H. Kim & Kim, 2019; Lee & Oh, 2018). It is therefore expected that self-esteem has a negative effect on the use of makeup by South Korean adolescent girls. The catch here is that the relationship between self-esteem and makeup is inconsistent, meaning that the influence of self-esteem on makeup varies depending on who uses makeup as a method of appearance management. Given these arguments, we suggest that South Korean adolescent girls' makeup would entail both positive and negative antecedents; consequently, the following research questions were generated:

RQ1. What is the status of adolescent girls' makeup use in South Korea?

RQ2. What antecedents promote adolescent girls wearing makeup in South Korea to understand both the positive and negative attributes of wearing makeup?

This study would have meaningful implications for educators, policymakers, and researchers on the status of adolescent makeup in South Korea, including both the positive and negative aspects. In addition, the findings of this study could inform the older generation on how to ensure the healthy growth of South Korean adolescent girls.

II. Literature Review and Hypothesis Development

1. Adolescent Girls' Makeup Use in South Korea

Makeup is applied to manage one's appearance, to even out skin tone, conceal scars or blemishes, and emphasize facial features by applying cosmetics to the skin for a short period of time (Kaiser, 1997). Since people can easily wear and remove makeup, it can be used to create a personal image that is appropriate for specific situations (Workman & Johnson, 1991). For adult women, makeup is a relatively positive and healthy appearance management method to enhance one's distinctive personal image, since it has fewer side effects than more risky appearance management methods such as excessive weight control or cosmetic surgery (Kim & Lee, 2018; Roach-Higgins & Eicher, 1992). Previous studies on adult women's makeup have established that it is an effective strategy for resolving psychological problems, improving one's emotional state, and increasing a positive body perception (Lee et al., 2016; Yoh, 2015). However, adolescent girls' makeup in South Korea has long been regulated because teachers and parents believed that it decreased adolescent girls' interest in learning and accelerated friendships with delinquent adolescents (Kim & Kim, 2006).

In the 2000s, South Korean adolescent girls began to regularly wear makeup (Hwang & Cheon, 2011). In contrast to their parents' and teachers' generation, who began to wear makeup after graduating from high school, South Korean adolescent girls have begun wearing makeup to express their individuality, conceal physical flaws, and enhance their physical attractiveness (Kim, 2020). Before the 2000s, wearing makeup was strictly regulated to maintain a "studentish attitude," which means that adolescents must behave well and be "good students" (Park, 2002). Studentish adolescents show good manners in the classroom and school environment, demonstrate respect toward teachers and parents, and are dedicated to learning and

avoiding hindrances to their academic achievement (Park, 2002). Based on this perspective, the older generation has believed that wearing makeup is a problematic behavior that hinders studies, imitates adult women's behavior, and can lead to more delinquent behavior (Han, 1997; Lee et al., 2012; Lee, 2020). However, the appearance regulations imposed under the guise of compliance with a studentish attitude have been evaluated as excessively infringing on girls' basic freedom of self-presentation (Lee, 2020).

The perception of adolescent girls' makeup in South Korea has begun to gradually shift as wearing makeup has gained popularity. In 2009, Gyeonggi-province, which is the second largest public administrative district in South Korea, adopted the Student Rights Ordinance, which reflected the belief that adolescents' rights to self-presentation should be protected (Lee et al., 2012). Accordingly, an increasing number of parents and teachers have started to accept and understand that wearing makeup is a unique cultural characteristic of Generation Z (Park, 2017). Despite this declaration, many adults still believe that regulating the use of makeup is more beneficial for adolescent girls' healthy growth than protecting their freedom to wear makeup because the ordinance did not officially guarantee their right to express themselves by wearing makeup (Lee et al., 2012). Therefore, adolescent girls' makeup is a controversial issue, as there is no social consensus in South Korean society.

The negative impacts of social stereotypes on adolescent makeup are directed at South Korean adolescent girls themselves. Many girls who wear makeup hide the fact that they wear makeup from their parents and teachers, considering the negative stereotypes of the older generation toward their makeup. As a result, adolescent girls who begin to wear makeup for the first time have insufficient knowledge regarding cosmetics, their skin conditions, and information about how to wear makeup appropriately for specific times and places (Han, 2020; M.-K. Kim & Kim, 2019; Lee, 2020). Consequently, some adolescent girls occasionally wear awkward heavy makeup that is inappropriate for school, where they spend much of their time.

Thus, wearing inappropriate makeup interferes with their amicable school lives (Kim, 2020). However, because the status of adolescent girls' makeup is still unknown in South Korea, it is difficult to establish cosmetic guidelines in schools and to develop industrial protocols for adolescent makeup cosmetics that protect adolescent girls' healthy growth.

There are still disagreements over South Korean adolescent girls' makeup in schools, families, and even among adolescents themselves (Hwang & Cheon, 2011). The conflict over makeup use arises not only between teachers and students but also between teachers and parents, and even among students themselves (Lee, 2020). Even though the regulations on adolescent makeup lost their legal power, school regulations on wearing makeup have varied depending on teachers (Lee et al., 2012). In addition, some parents and teachers have passed on the responsibility of the regulations to each other (Lee, 2020). Furthermore, when South Korean adolescents have conflicting opinions regarding their makeup, they may also criticize each other by stigmatizing girls on the other side as nerds or juvenile delinquents based on how much makeup they wear (Hwang & Cheon, 2011). Therefore, it is essential to understand the current situation, including both the positive and negative aspects of South Korean adolescent girls' makeup, to lay the foundation for social consensus on their makeup.

2. Factors Promoting Adolescent Girls' Makeup

1) Fashion Leadership

The informal power that a person has in spreading a new trend to the general public is referred to as "fashion leadership" (Rogers & Cartano, 1962). Fashion leaders with a high fashion leadership level are interested in the latest trends and purchase new products earlier than others in their social group; thus, they influence other social members to purchase trendy products (Kaiser, 1997). With respect to makeup, fashion leaders have informal influence over other social members because makeup falls under the category of

trendy products. Compared to non-fashion-leading women, fashion-leading women rely more on fashion magazines and their friends for makeup information and knowledge, spend more resources on makeup, wear makeup more frequently, use more diverse types of makeup products, and enjoy more pleasure when shopping for makeup products (Bae & Sung, 2013; Coulter et al., 2002). Although few studies have directly explored the effect of adolescent girls' fashion leadership on their makeup, it is expected that adolescent girls' fashion leadership has a positive effect on their makeup based on the results of previous studies on adult women's makeup (Bae & Sung, 2013; Coulter et al., 2002). Therefore, the following hypothesis was derived:

H1. Fashion leadership of South Korean adolescent girls will have a positive effect on their makeup.

2) Social Support from Friends

Social support is a positive resource that an individual receives from others within a social relationship (Cohen & Hoberman, 1983). Adolescence is a transition period from childhood to adulthood, and social support received during this period has a beneficial influence on their mental health and stress alleviation (Kockar & Gençöz, 2004). Adolescents who receive positive social support develop an ability to manage stress; as a result, they can protect themselves from the detrimental impacts of stress (Cohen et al., 1988). Social supporters of adolescents include their parents, friends, and teachers (Zimet et al., 1988). Among those supporters, the importance and impact of social support from friends become more essential than those from their parents or teachers when they begin to spend more time with their friends (Brown & Larson, 2009). Failure to obtain social support from friends during this period has negative effects on their academic performance, and physical and mental health; they may even face extreme consequences such as bullying at school (Kim & Choi, 2022; Rigby, 2000). In contrast, developing positive social interactions

with friends and receiving social support from them during adolescence can result in favorable outcomes such as better academic achievement and improved psychological well-being (Brown & Larson, 2009).

As makeup has become increasingly popular among South Korean adolescent girls, wearing makeup has become a significant part of their peer culture for Generation Z adolescents (Han, 2020; Hwang & Cheon, 2011; Lee, 2020). Receiving social support from friends entails developing positive relationships with them, sharing mutual interests, and absorbing their peer culture (Brown & Larson, 2009). Particularly, adolescents who receive high levels of social support from friends are more likely to share and emulate major peer cultures (Hwang & Cheon, 2011), and appearance management is one of the essential elements across their peer cultures because interest in appearance during adolescence is relatively high across the entire lifecycle (Slater & Tiggemann, 2002). Since wearing makeup has become a part of the major peer culture among South Korean adolescent girls in recent years, this study inferred that South Korean adolescent girls receiving high levels of social support from friends favorably accept wearing makeup as their appearance management strategy. Some previous studies support our argument. Yoo's (2009) study on the relationship between adolescent peer groups and their appearance management found that adolescents tend to adopt their peer group's appearance management behaviors, even though those may not be recommended by older generations, and Holman and Watson (2013) found that adolescents tend to actively accept a popular appearance management method in their peer groups despite the method lacking social approval. Given the current situation in South Korean society, where adolescent makeup is not completely accepted, adolescent girls who receive strong social support from their friends are more likely to accept wearing makeup. Hence, the following hypothesis was formulated:

H2. Social support from friends that South Korean adolescent girls receive will have a positive ef-

fect on their makeup.

After pre-testing innovative products, fashion leaders provide information and recommendations on the products to their social members (Kaiser, 1997), and the ripple effect of fashion leaders influences the social members' consumption patterns (Goldsmith et al., 1993). As a result, fashion leaders are established as opinion leaders in society and maintain harmonious relationships with their social members (Summers, 1970). We expect that this phenomenon also exists for adolescent girls. Kim et al. (2008) showed that adolescent fashion leaders who observe and convey the latest trends serve as opinion leaders and foster favorable relationships with their friends. In addition, Gentina et al. (2014) found that adolescent fashion leaders play a central role in the network of their peer relationships, and this tendency is stronger among female adolescents than male adolescents. Also, Yun et al.'s (2014) study confirmed that female college students with high levels of fashion leadership play an essential role in receiving strong support from their peer group network, even though the study targeted college students who are older than adolescents. Accordingly, South Korean adolescent fashion leaders would likewise benefit from social support through seamless ties with their friends. Given this discussion, the following hypothesis was presented:

H3. Fashion leadership of South Korean adolescent girls will have a positive effect on the social support from friends that they receive.

3) Self-Esteem
Rosenberg (1965) defined self-esteem as the degree to which individuals perceive that they are competent and important, or that they are successful and valuable human beings. Rosenberg (1965) also noted that self- esteem is related to both negative and positive self- evaluation based on the degree to which individuals consider themselves valuable. Self-esteem also affects mental health, such as stress, depression, life satisfaction, and psychological well-being (Brown,

1993; Diener & Diener, 1995). In particular, the self-esteem formed during adolescence has a strong influence for a long time, even into adulthood (Steiger et al., 2014).

Self-esteem, which has a mutual effect on body satisfaction (Simmons & Rosenberg, 1975), is a well-known factor that influences appearance management behaviors, such as wearing makeup (Lee & Park, 2011; Moon & Yoo, 2003; Park & Chung, 2010). Particularly, the effect of self-esteem on makeup wearing varies depending on the makeup users. Several studies have found that adult women with high self-esteem are more likely to wear makeup (Moon & Yoo, 2003; Park & Chung, 2010), while adolescent girls with low self-esteem tend to accept makeup as their appearance management method (Lee & Oh, 2018). In adolescence, when the levels of body satisfaction are the lowest across the entire life stages, body satisfaction decreases as the gap between the ideal body image and perceived body image increases (Smolak, 2004). Accordingly, adolescents (particularly girls) who are not satisfied with their appearances are more likely to have low self-esteem (Dalgard et al., 2008). Consequently, they are likely to want to change their unsatisfactory appearance to be closer to their ideal image by any means, even if the means are socially unacceptable (Farrow et al., 1991). In Western cultures, adolescents with low self-esteem tend to enthusiastically engage in tattooing, tanning, and extreme eating control, and those appearance management strategies are generally considered unacceptable in their cultures due to the risk of health damage (Farrow et al., 1991; O'Dea & Abraham, 2000; Sales & Irwin Jr., 2009). Similarly, but not perfectly consistent with the West, adolescent girls with low self-esteem in South Korea tend to wear makeup, which has not been accepted as an adolescent girl's appearance management behavior by their parents and teachers' generation due to the older generations' belief that adolescent makeup hinders their healthy growth (Han & Lee, 2009; K.-H. Kim & Kim, 2019; Lee & Oh, 2018). On the contrary, based on previous research, we predicted that the makeup of adolescent girls with high self-esteem is

diametrically opposed to that of adolescent girls with low self-esteem. Shim and Kim (2008) argued that adolescents with high self-esteem are likely to be more psychologically stable and satisfied with their appearance than those with low self-esteem, and Kim and Kim (2011) insisted that these psychological characteristics of adolescents with high self-esteem impede the acceptance of socially unacceptable behaviors. Therefore, we concluded that South Korean adolescent girls with high self-esteem engage in fewer socially unacceptable behaviors, including wearing makeup, than those with low self-esteem. Nevertheless, given the consensus that makeup is not at high risk (especially for adults) among widespread appearance management methods, it is noteworthy that adolescent makeup is viewed as an unacceptable appearance management method (particularly from the perspective of the older generation) in South Korean culture. Given the above arguments, the following hypothesis was derived:

H4. South Korean adolescent girls' self-esteem will have a negative effect on their makeup.

Adolescent girls who lead fashion trends in South Korea are expected to have more positive self-esteem than adolescents who do not have high levels of fashion leadership. Since few studies have directly verified the relationship between adolescent fashion leadership and self-esteem, we referred to relevant previous research. According to Hwang's (2000) study, there is a positive relationship between elderly women's fashion leadership and self-esteem. Additionally, Taylor (2014) found that the self-esteem of adolescent girls increases after completing a leadership development program and implementing subsequent leadership activities. Along with the results of Taylor (2014), Wong et al. (2012) verified that adolescent girls who participated in a leadership training program for six months showed a modest boost in their self-esteem. Even though Taylor (2014) and Wong et al. (2012) drew their conclusions from general leadership enhancement programs that were not limited to fashion leader-

ship, we could infer that a high level of fashion leadership is one of the factors that contributes to adolescent girls' higher levels of self-esteem. With respect to the association between social support from friends and self-esteem, Hoffman et al. (1988) confirmed that substantial social support from major social supporters such as parents, teachers, and friends increases adolescents' self-esteem. Among the various sources of support, social support from friends has the most significant impact on improving self-esteem, since peer interactions have the greatest influence on adolescents throughout the entire life cycle (Brown & Larson, 2009; Hoffman et al., 1988). Therefore, both the social support from friends that South Korean adolescent girls receive, and the fashion leadership of South Korean adolescent girls could have a favorable influence on their self-esteem. Based on this discussion, we derived the following hypotheses:

H5. Social support from friends that South Korean adolescent girls receive will have a positive effect on their self-esteem.

H6. Fashion leadership of South Korean adolescent girls will have a positive effect on their self-esteem.

4) The Present Study

This study predicted that fashion leadership and social support from friends are antecedents that boost South Korean adolescent girls' makeup, whereas self-esteem decreases their makeup inconsistently. Given the positive effects of fashion leadership and social support from friends on self-esteem, it seems reasonable to anticipate that self-esteem has a favorable influence on the makeup, considering the causal relationships among fashion leadership, social support from friends, and South Korean adolescent girls' makeup. However, on the basis of the aforementioned literature reviews, we hypothesized that the negative impact of self-esteem on the makeup of South Korean adolescent girls (H4) would be exactly the opposite of the positive influence on adult women.

In our research model that was built to integrate the

hypotheses derived from the above literature reviews, self-esteem mediates the effects of fashion leadership and social support from friends on South Korean adolescent girls' makeup. Due to the inconsistent mediating impact of self-esteem on the relationships among fashion leadership, social support from friends, and the makeup, the signs of the influences of fashion leadership and social support from friends on the makeup are incongruent with the sign of self-esteem's influence on the makeup, and those inconsistent influences are referred to as the inconsistent mediating effect (Kim & Kim, 2020; MacKinnon et al., 2000, 2007). Although this inconsistent mediating effect may be deemed unreasonable, it has occasionally occurred in studies examining paradoxical and controversial sociopsychological phenomena (Kim & Kim, 2020). As previously mentioned, adolescent girls' makeup in South Korea is also a paradoxical and controversial phenomenon because (1) social consensus on their makeup has been delayed for a long time because adolescent girls, parents, and teachers have collided over the makeup, (2) adult women consider makeup as a relatively healthy way to manage their appearance, even though makeup is not permitted for adolescent girls, and (3) there is a significant gap in the social acceptance between the West and the East. Hence, we concluded that this inconsistent mediating effect reflects the contradictory and paradoxical perceptions of Korean culture towards adolescent girls' makeup. Given the above discussion, <Fig. 1> depicts the research model.
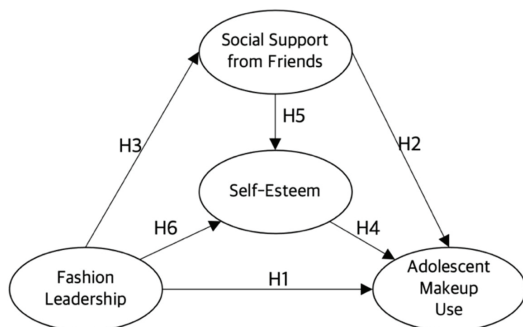

Fig. 1. Research model.

III. Methods

1. Data Collection and Sample Characteristics

Data were collected using a web-based online survey administered to South Korean 14–16-year-old adolescent girls living in Seoul and Gyeonggi Province, which have the highest populations in South Korea. Typically, the age range of adolescents is defined as between 11 and 20 years old (Reynolds, 2004). In South Korea, however, adolescents older than 16 years are assumed to be less interested in wearing makeup since they are preparing for university admission examinations, or their makeup is socially acceptable if they complete high school, enroll in university, or get a job. In addition, a survey about the state of South Korean adolescent girls' makeup, which collected data covering adolescents of all ages from elementary to high school students, verified that more than half of respondents began wearing makeup during middle school (Shim, 2019). Considering the social perceptions of adolescent makeup and the survey findings, we determined the age range of the sample. The sample was recruited from a panel of an online survey company in Seoul, South Korea. The survey company sent an email to adolescent girls whose parents had consented to their daughters' participation on the panel. The email detailed the qualifications for participation, the objectives of the study, privacy protections, and the risks and benefits of participation. Adolescent girls who agreed to participate in the survey had access to the survey URL, which was included in the email. Prior to the start of the survey, the participants were informed of the purposes of this study, the estimated time for completing the survey, compensation for participation, ethical guidelines for the use of the collected data, data storage and disposal policies, people who had authorization to access the data, and the participants' right to withdraw from the survey. The survey received 154 replies, of which 107 were analyzed after deleting unqualified and incomplete responses.

The respondents' ages ranged from 14 to 16 years

old: 19 (17.7%) 14-year-olds, 24 (22.4%) 15-year-olds, and 64 (59.8%) 16-year-olds. The average age of the respondents was 15.4 years old. Their school years were from the second year of middle school to the second year of high school, which are equivalent to from the eighth grade to the eleventh grade in the US. A total of 47 (43.9%) participants lived in Seoul, and 60 (56.1%) lived in Gyeonggi Province. A total of 100 respondents (93.5%) indicated that their families were middle-class, and their average monthly allowance was 64.9 thousand KRW, which is equivalent to 55 USD. They spent 18.5 thousand won per month on cosmetics on average. A total of 29 (17.1%) respondents stated that their academic grades were at the top levels, whereas 58 (54.2%) and 20 (18.7%) respondents answered that their academic grades were at the middle and bottom levels, respectively.

2. Items and Data Analysis

The online survey was conducted using a self-reported questionnaire to examine the two research questions of this study. We developed a questionnaire with items applied in relevant previous studies, and the items were modified considering the contexts of this study. All items were measured using a 5-point Likert scale, ranging from "*strongly disagree*" to "*strongly agree.*" For getting the answers to the RQ 1, "understanding the status of adolescent girls' makeup in South Korea," we used nine items from Seo and Choi's (2010) study on adolescent girls' makeup in South Korea. The nine items measured how much makeup the South Korean adolescent girls wore in three types: (1) face makeup (e.g., foundation, face primer, concealer, BB and CC cream that act as foundation, moisturizer, and sunscreen at once); (2) eye makeup (e.g., eyeshadow, eyebrow, eyeliner, and mascara); and (3) lip makeup (e.g., lipstick, lip gloss, lip balm, and liquid lipstick). In order to accurately measure the degree of adolescent girls' makeup in each makeup type, examples of makeup products corresponding to each type were provided in the questionnaire. These makeup types and the examples were determined based on the

Enforcement Regulation of Cosmetics Act (Ministry of Government Legislation, n.d.). The items also indicated their makeup use for three occasions, including (1) when they go out, (2) when they go to school, and (3) when they go about their daily lives, referring to Seo and Choi's (2010) study. Consequently, we measured how much Korean adolescent girls wear makeup in three situations and three makeup types using nine 5-point Likert scale items (e.g., "When I go to school, I wear eye makeup.").

For analyzing the research model with six hypotheses, which are targeted for the RQ 2, we measured South Korean adolescent girls' makeup as a construct of the research model. We applied three items from Seo and Choi's (2010) study that examined their perceptions, knowledge, and behavior related to their makeup. Fashion leadership was measured by four items from the study by Goldsmith et al. (1993). To measure social support from friends, we adopted four items from the Multi-dimensional Scale of Perceived Social Support developed by Zimet et al. (1988). We also used five items from the Rosenberg Self-Esteem Scale for measuring self-esteem (Rosenberg, 1965). The collected data were analyzed through MANOVA analysis for repeated measures, confirmatory factor analysis (CFA), and structural equation modeling (SEM) using SPSS 23.0 and AMOS 18.0.

IV. Results

1. South Korean Adolescent Girls' Makeup

To identify the status of South Korean adolescent girls' makeup, we compared the amount of makeup they wore on their faces, eyes, and lips for three occasions (i.e., going out, going to school, and going about their daily lives) by conducting MANOVA analysis for repeated measures. We also applied least significant difference (LSD) tests to confirm the statistical significance of differences in the amount of makeup they wore, including the makeup types and the occasions. The mean scores of the responses on the amount of face, eye, and lip makeup when they go out, go to

school, and go about their daily lives were analyzed.

The results showed that South Korean adolescent girls' makeup had different patterns based on the different occasions (Wilks' lambda = 0.495, F (2, 105) = 53.629, $p < 0.01$) and makeup types (Wilks' lambda = 0.646, F (2, 105) = 28.799, $p < 0.01$). The interaction effect between the occasions and the makeup types (Wilks' lambda = 0.842, F (4, 103) = 4.829, p < 0.01) was significant as well. With respect to the difference in the amount of makeup worn for each occasion based on the LSD test, the respondents said that they wore ma-

keup the most when going out (M = 3.925), whereas they wore makeup the least at school (M = 3.342). The amount of makeup in daily life (M = 3.688) was between the two other occasions. In terms of the differences according to the makeup types, the LSD test confirmed that South Korean adolescent girls applied lip makeup the most (M = 4.283) and eye makeup the least (M = 3.243). Wearing face makeup had a moderate value (M = 3.530) between the eye makeup and the lip makeup. The results of the MANOVA are shown in <Table 1> and <Fig. 2>.

Table 1. Results of the MANOVA: Makeup status of South Korean adolescent girls

Values / Types	Mean				Source	Wilks' Lambda	F	df1	df2	Sig.
	Occasion									
	Go out	Go to School	Go about Daily Lives	Total						
Face Makeup	3.757	3.393	3.439	3.530 B	Occasion	.495	53.629	2	105	.000***
Eye Makeup	3.542	2.897	3.290	3.243 C	Type	.646	28.799	2	105	.000***
Lip Makeup	4.477	4.037	4.336	4.283 A	Occasion * Type of Makeup	.842	4.829	4	103	.001***
Total	3.925 A	3.342 C	3.688 B							

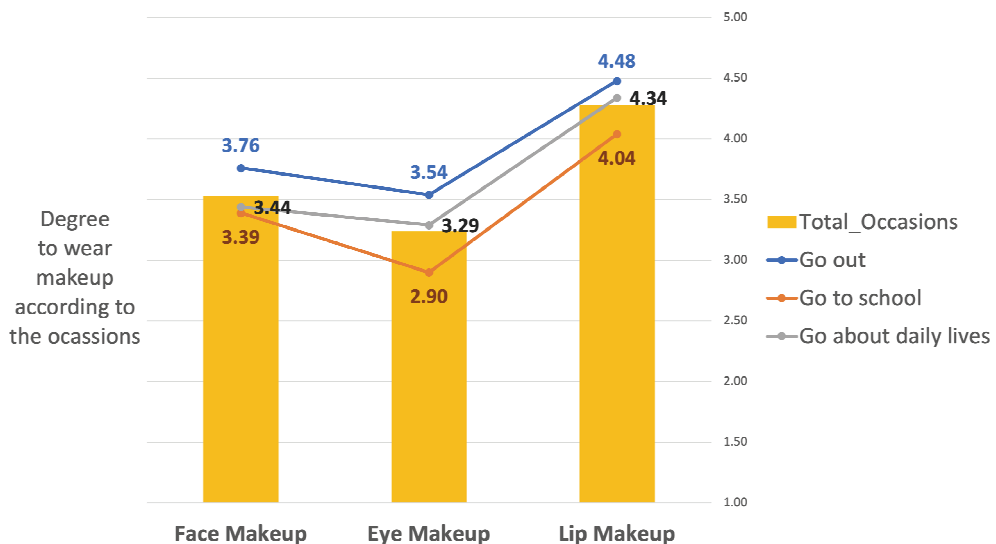**Note.** N=107, ***p <0.01, A > B > C

Fig. 2. Makeup status of South Korean adolescent girls.

2. Measurement Model Results

We conducted CFA to examine the reliability, convergent validity, and discriminant validity of the measurement model. First, Cronbach's α values were checked to confirm the reliability of the constructs, and all values met the reliability criterion with values ranging from 0.853 to 0.893, which were above the standard of 0.7 (Hair et al., 2006). The model fit indices proposed by Hair et al. (2006) were checked, and we verified that the model had a significantly good fit (X^2= 128.148, df = 96, p = 0.016, NFI = 0.907, IFI = 0.969, TLI = 0.960, CFI = 0.968, RMSEA = 0.056) based on Bagozzi and Yi's (2012) criteria. To test convergent validity, we applied the three criteria proposed by Fornell and Larcker (1981), and all constructs fulfilled

convergent validity. In detail, (1) path coefficients were significant, (2) all AVE estimates, ranging from 0.627 to 0.680, were higher than 0.50, and (3) all CR values, ranging from 0.857 to 0.894, were higher than 0.70. To confirm discriminant validity, we checked that the AVE estimates of all constructs were higher than the corresponding squared inter-construct correlation estimate, and the result satisfied the condition. <Table 2> presents details on each item, including the results of the CFA and the reliability analysis. <Table 3> details the inter-construct correlation estimates.

3. Results of Hypothesis Testing

This study tested the hypotheses by conducting SEM, and the model fit was examined using the in-

Table 2. Results of the confirmatory factor analysis

		Item	Factor Loading	t	AVE	CR	Cronbach's α
Fashion Leader ship	FL1	I try out new fashion before others, which gives the impression that I am a fashion leader.	.867	9.463***			
	FL2	People around me ask me about the information on the style that is trending recently.	.848	9.229***	.680	.894	.888
	FL3	I'm well-versed on trends and want to be the first to try them.	.806	8.707***			
	FL4	When others purchase clothes, I provide advice.	.774	-			
Social Support from Friends	SSF1	My friends sincerely try to help me.	.865	-			
	SSF2	When a bad situation arises, I can rely on my friends.	.736	10.158***			
	SSF3	I have friends with whom I can share both my joys and sorrows.	.790	8.193***	.633	.873	.866
	SSF4	I am able to discuss my concerns with my friends.	.829	8.007***			
Self-Esteem	SE1	On the whole, I am satisfied with myself.	.865	-			
	SE2	I feel that I have a number of good qualities.	.736	8.481***			
	SE3	I am able to do things as well as most people.	.790	8.084***	.627	.893	.893
	SE4	I feel that I'm a person of worth, at least on an equal basis	.732	8.526***			
	SE5	with others I take a positive attitude toward myself.	.829	10.097***			
Adolescent Makeup Use	AMU1	I frequently wear makeup.	.734	-			
	AMU2	I am familiar with popular makeup techniques.	.900	8.516***	.667	.857	.853
	AMU3	I know diverse types of makeup products.	.809	7.999***			

X^2= 128.148, df=96, p=.016, NFI=.907, IFI=.969, TLI=.960, CFI=.968, RMSEA=.056

Note. N=107; FL= fashion leadership; SSF= social support from friends; SE= self-esteem; AMU= adolescent makeup use

Table 3. Inter-construct correlation estimates

	FL	SSF	SE	AMU
FL	.680[a]			
SSF	.040[b]	.633		
SE	.096	.065	.627	
AMU	.394	.059	.037	.667

Note. a: Average variance extracted (AVE) for constructs are displayed on the diagonal.
 b: Numbers below the diagonal are squared correlation estimates of two variables.
 FL= fashion leadership; SSF= social support from friends; SE= self-esteem; AMU= adolescent makeup use

dices suggested by Hair et al. (2006). All indices showed statistically acceptable levels based on Bagozzi and Yi's (2012) criteria (X^2=128.148, df = 96, p = 0.016, NFI = 0.907, IFI = 0.969, TLI = 0.960, CFI = 0.968, RMSEA = 0.056).

The results of hypothesis testing are as follows. Both fashion leadership (H1: β = 0.630, p < 0.01) and social support from friends (H2: β = 0.270, p < 0.05) had a positive influence on the South Korean adolescent girl's makeup, therefore both H1 and H2 were supported. In contrast, self-esteem negatively impacted South Korean adolescent girls' makeup (H4: β = -0.138, p < 0.05); hence, H4 was supported. With respect to the relationships among fashion leadership, social support from friends, and self-esteem, all causal relationships among the three variables showed a positive impact. Therefore, H3, H5, H6 were all supported. In detail, fashion leadership positively influenced social support from friends (H3: β = 0.317, p < 0.01), and both social support from friends (H5: β = 0.443, p

< 0.01) and fashion leadership (H6: β = 0.273, p < 0.01) had a positive impact on self-esteem. What is noteworthy here is that only the influence of self-esteem on the Adolescent girls' makeup showed a negative relationship, while the other relationships among the four main variables constituting the research model were mostly positive. The results of hypothesis testing are shown in <Table 4> and <Fig. 3>.

This study examined the total, direct, and indirect effects of the relationships presented in the research model using the bootstrapping method of the AMOS program for a more precise understanding of the three influencing factors on South Korean adolescent girls' makeup (Shrout & Bolger, 2002). The number of samples re-extracted through bootstrapping was 5,000, and the significance was verified at the 95% confidence level. In terms of the total effects on South Korean adolescent girls' makeup, fashion leadership showed the greatest value (β = 0.658, p < 0.01) among the three antecedents. In terms of the influence of social

Table 4. Results of the structural equation modeling

		Structural Path	Standardized Estimate (β)	CR	p
H1	Supported	Fashion Leadership $\Rightarrow$ Adolescent Makeup	.630	5.089	.000
H2	Supported	Social Support from Friends $\Rightarrow$ Adolescent Makeup	.270	2.429	.015
H3	Supported	Fashion Leadership $\Rightarrow$ Social Support from Friends	.317	2.906	.004
H4	Supported	Self-Esteem $\Rightarrow$ Adolescent Makeup	−.138	−1.976	.048
H5	Supported	Social Support from Friends $\Rightarrow$ Self-Esteem	.443	4.252	.000
H6	Supported	Fashion Leadership $\Rightarrow$ Self-Esteem	.273	2.739	.006

X^2= 128.148, df=96, p=.016, NFI=.907, IFI=.969, TLI=.960, CFI=.968, RMSEA=.056
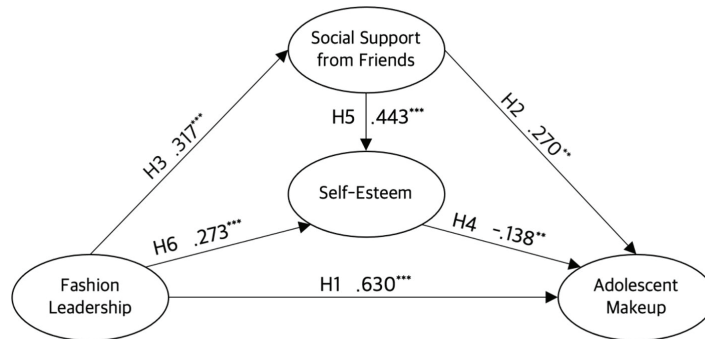
Fig. 3. Results of testing hypotheses.

support from friends on their makeup, the total effect ($\beta = 0.209$, $p < 0.01$) was smaller than the direct effect ($\beta = 0.270$, $p < 0.01$) due to its negative indirect effect. With respect to the influence of fashion leadership on self-esteem, the total effect ($\beta = 0.414$, $p < 0.01$) was greater than the direct effect because the direct effect ($\beta = 0.273$, $p < 0.05$) and indirect effect ($\beta = 0.140$, $p < 0.05$) were both positive. We also found that the intensities of the two influences on their self-esteem were similar because the total effects were analogous (the total effect of fashion leadership: $\beta = 0.414$, $p < 0.01$; the total effect of social support from friends: $\beta = 0.443$, $p < 0.01$). <Table 5> shows the detailed results of the total effects, direct effects, and indirect effects verified using the bootstrapping method.

The hypothesis testing procedure confirmed that all causal relationships had a positive impact except for H4, which indicates the negative influence of self-esteem on South Korean adolescent girls' makeup. In

other words, fashion leadership and social support from friends were facilitating factors that increase both their self-esteem and makeup. In this circumstance, many people would expect that self-esteem has a consistent positive effect on their makeup. Diametrically, however, South Korean adolescents' self-esteem negatively influenced their makeup in this study. Therefore, self-esteem that was boosted by fashion leadership and social support from friends negatively influenced the adolescent girls' makeup, showing an inconsistent mediation effect on the relationships between fashion leadership and the makeup and between social support from friends and the makeup. Generally, in a mediation model, the relationship between an independent variable and a dependent variable and the relationships involving mediating variables usually have a consistent sign, which means that all signs of the relationships in the mediation model are consistent (Kim & Kim, 2020; MacKinnon et al., 2000, 2007). In the

Table 5. Standardized total, direct, indirect effects

	Fashion Leadership			Social Support from Friends			Self-Esteem		
	TE	DE	IE	TE	DE	IE	TE	DE	IE
Social Support from Friends	.317**	.317**	-	-	-	-	-	-	-
Self-Esteem	.414***	.273**	.140**	.443***	.443***	-	-	-	-
Adolescent Makeup Use	.658**	.630**	.028	.209**	.270**	-.061	-.138**	-.138**	-

Note. TE= total effect; DE= direct effect; IE= indirect effect; ** $p < 0.05$, *** $p < 0.01$

results of this study, however, the sign of the self-esteem's influence on adolescent girls' makeup was the opposite sign of the influences of fashion leadership and social support from friends on the makeup. Consequently, the research model in this study could be evaluated as an inconsistent mediation model in which (1) the sign of a direct effect and a corresponding indirect effect are incongruent or (2) a suppression effect occurs where a direct effect is greater than the corresponding total effect (Kim & Kim, 2020).

V. Discussion and Conclusion

South Korea is a leader in the global cosmetic industry, creating a K-beauty culture (Wang & Lee, 2021). Similar to the spread of K-pop, many adolescents from numerous Western and Eastern countries have enjoyed the K-beauty culture (Russon, 2018). Despite this worldwide popularity, adolescent girls in South Korea are not free to enjoy their own cosmetic culture due to social conflict over their makeup. There is still considerable conflict between many South Koreans' expectations of "studentish attitudes" and the desire of adolescents to express their unique personalities (Hwang & Cheon, 2011; Lee, 2020). To understand what is driving this conflict, this study explored the status of South Korean adolescent girls' makeup on the three different occasions (i.e., going out, going to school, and going about their daily lives) and the three types of makeup (i.e., face, eye, and lip makeup). We also identified what factors affect their makeup by testing six hypotheses to understand both the positive and negative attributes that adolescent girls have about their makeup. The results provide meaningful findings that shed light on and help reach social consensus on adolescent girls' makeup in South Korean society. The findings may also lead to recommendations and appropriate plans to promote adolescent girls' healthy growth.

Adolescent girls' makeup in South Korea is still controversial even after the legal basis for restrictions related to wearing makeup in school was abolished in 2020 (Lee, 2020). After the legal amendment, adoles-

cents' makeup has become more prevalent in South Korea than before (Han, 2020). The results of Lee's (2020) study showed that 60% of adolescent girls wear makeup on a daily basis, and most schools continue to set only limited restrictions on their makeup. The results of the MANOVA tests verified that South Korean adolescent girls are able to determine the appropriate amount of makeup for specific contexts or occasions. They have tried to discriminate between (1) wearing makeup in school and (2) when they go out or go about their daily lives. These findings confirm the older generation's concerns about adolescents' makeup, namely that the younger generation is unaware of the appropriate makeup for the time and place and that their makeup would impede their learning and academic achievement, which are somewhat exaggerated. Particularly, the results of the MANOVA analysis showed that the adolescents in this study tended to wear less eye makeup, which is considered heavy makeup in South Korean society (Kim, 2018), compared to face and lip makeup in school. These findings imply that adolescent girls are attempting to adjust their makeup contingent upon the situations, to control their makeup considering the perspectives of their teachers, parents, and friends to decrease the conflict, and ultimately to draw social consensus on their makeup. However, other sources have reported that school regulations on adolescent girls' makeup are still enforced, even though such regulations are now illegal (Lee, 2021; Mbicnews, 2018). Therefore, we must carefully examine whether adjusting the amount of makeup depending on specific situations is a voluntary or involuntary behavior, regardless of the school's restrictions. Consequently, further studies should be undertaken regarding the makeup restrictions in schools to determine whether the adjusted makeup is spontaneous.

Based on the literature review, we hypothesized the effects of fashion leadership, social support from friends, and self-esteem on South Korean adolescent girls' makeup. The results showed that South Korean adolescent girls' fashion leadership was the strongest antecedent to their makeup because its total effect was the greatest among the three antecedents. Many pre-

vious studies have examined that high levels of fashion leadership among adult women increase their tendencies to wear makeup with a strong desire to express their own personalities (Bae & Sung, 2013; Coulter et al., 2002; Lee, 2013), but few studies have targeted adolescent girls to explore the influence of fashion leadership on their makeup. The results of the present study show that the fashion leadership of adolescent girls is a strong facilitator of their makeup. In particular, I. O. Kim and Kim (2019) identified that adolescents have the strongest interest in appearance across the entire lifecycle, which indicates a strong interest in appearance management methods, including makeup, and they verified that adolescent girls accept makeup as an appearance management tool for achieving their ideal appearance. Considering the results of I. O. Kim and Kim's (2019) study, we can infer that South Korean adolescent girls with strong trend-leading power—who introduce and spread new trends to their friends—adopt makeup as an appearance management behavior to show how unique and trendy they are.

Along with fashion leadership, social support from friends played a significant role in increasing the adolescent girls' makeup. Brown and Larson's (2009) and Kim and Choi's (2022) studies suggested that adolescence is the period when the influence of peers has the strongest power. Lee (2020) also contended that adolescents' makeup in South Korea is no longer taboo or that it is only a trend for some delinquent adolescents. Rather, it is a prevalent peer culture enjoyed by many ordinary adolescents. Hwang and Cheon (2011) indicated that adolescents in South Korea tend to perceive friends who have not tried to wear makeup at all as having poor social skills because they have not participated in their major culture to enhance social ties. Gentina et al. (2012) also explained that adolescents' makeup reflects their intention to shape their own autonomy from their parents by strengthening the relationship with their peers. In addition, Kim (2020) found that adolescents who actively participate in the makeup culture tend to adapt better to school based on their excellent academic achievement and amicable

peer relationships. Given the results of the previous studies and the present study, we conclude that South Korean adolescent girls, who perceive a sense of belonging to their peer group through social support from their friends, want to participate in the makeup culture.

In contrast, the self-esteem of the adolescents in South Korea played a significant negative role in enhancing their makeup, as we expected. Adolescence is a transitional stage from childhood to adulthood and is known as the period in a person's life when their body satisfaction is the lowest (Hoffman et al., 1988; Martin & Gentry, 1997; Steiger et al., 2014). Rapid physical changes that occur during adolescence to prepare for adulthood often lead to complaints about appearance that they did not experience as children (Dalgard et al., 2008). For example, skin troubles in adolescence, usually caused by hormonal changes, can easily undermine their body satisfaction as well as their self-esteem (Shin & Kim, 2019), which ultimately encourages adolescents to try using makeup to conceal their skin troubles (Shim & Kim, 2008). According to previous studies, adolescents with low self-esteem tend to actively accept controversial appearance management methods even if they are not socially accepted (Farrow et al., 1991; O'Dea & Abraham, 2000; Sales & Irwin Jr., 2009). The findings of this study confirmed that, despite the negative perception of adolescents' makeup among the older generation in South Korea, those with low self-esteem may accept the use of makeup, even at the risk of social criticism, to manage their appearance. Furthermore, according to a longitudinal study on adolescents' self-esteem by Shin and Choi (2016), the self-esteem of middle and high schoolers is strengthened by a relationship with their teachers, while that of elementary schoolers is strengthened by a relationship with their parents. Since participants in this study were middle and high schoolers, we predicted that those with high levels of self-esteem in this study may foster good relationships with the older generation by following the rules of their schools, which request that they use modest makeup.

It is noteworthy that fashion leadership and social

support from friends of South Korean adolescent girls increased their self-esteem, but enhanced self-esteem had an inconsistent relationship that weakened their makeup. In a mediation model, the sign of the influences involving a mediating variable is generally the same as the sign of the causal relationship between an independent variable and a dependent variable (Kim & Kim, 2020). In this study, however, the sign of the influence of self-esteem, which is a mediating variable in our research model, on South Korean adolescent girls' makeup is inconsistent with the sign of the influences of fashion leadership and social support from friends on the makeup. Due to this discrepancy, the inconsistent mediation effect, which is typically observed in controversial and paradoxical phenomena, occurred (MacKinnon et al., 2000, 2007). Furthermore, contrary to the results of this study, numerous previous studies targeting adult women have found that the higher one's self-esteem, the more actively they engage in appearance management behaviors, including wearing makeup (Kang, 2014b; Park & Chung, 2010). In addition, Lennon and Rudd (1994) suggested that women use various appearance management behaviors, including makeup, to achieve an attractive appearance, and that self-esteem and attractive appearance behaviors have a positive influence on each other. Hence, the inconsistency in this study is contrary to the results of previous studies on adult women and can be interpreted as a unique result only for adolescent girls in South Korea. The cause of this inconsistency cannot be clearly identified through the design of this study alone. However, it may be because of a combination of various sociopsychological factors, such as the lowest level of self-esteem in adolescence among the entire life cycle and the paradoxical social stereotypes on adolescent girls' makeup in South Korea. Follow-up studies are needed for a more precise understanding of the causes.

The current study investigated the status of adolescent girls' makeup and tested the hypotheses about it in South Korea to understand both the positive and negative attributes. We found that adolescent girls wear the appropriate amount of makeup considering the spe-cific occasions (i.e., they wore less makeup at school, where learning is more important than an attractive appearance) and social conventions (i.e., eye makeup, which is considered heavy makeup in South Korea, was the least common). This finding verified that the concerns of the older generation in South Korea are unfounded. In addition, we examined that South Korean adolescent girls' makeup is a paradoxical phenomenon in which both positive and negative antecedents coexist. On the positive side, their use of makeup showed a positive result in that girls who wore makeup were leading the latest trends among their peer groups, expressing their unique personalities, and developing healthy companionships based on the social support from their friends. However, unlike adult women, adolescent girls with low self-esteem were more likely to use makeup, raising the need for further research on this contradiction.

While the social debate over adolescent girls' makeup continues in South Korea, this study concludes that South Korean adolescent girls are able to control the amount and occasion for wearing makeup on their own. Therefore, rather than excessive regulations or restrictions, public schools should design counseling and education programs to strengthen the positive attributes and weaken the negative attributes of their makeup while maintaining their freedom of self-expression. For the development of effective programs, it is necessary to execute follow-up studies that identify more diverse influencing factors on their makeup and clarify what adolescent girls, teachers, and parents hope to achieve from the programs. Especially, adults around South Korean adolescent girls (e.g., teachers, parents) should also help provide healthy ways to heal relatively low self-esteem and to decrease the side effects of inappropriate application of makeup due to a lack of experience with and knowledge about makeup for a healthy transition to adulthood. In addition, cosmetics companies should launch adolescent cosmetics optimized for the skin and appearance concerns of adolescents through systematic research to identify those concerns. Along with the research, they should develop appropriate ingredients that do not irritate the

skin of adolescents who first begin using cosmetics. Promotion strategies for adolescent cosmetics do not boost their vulnerable self-esteem solely for economic gain. Lastly, the government ministries in charge of establishing educational policies should find out how adolescent makeup is treated in public schools and which rules are applied. They should then create standardized educational guidelines for preventing confusion over their makeup, which continues in the educational field despite the prohibition of appearance regulations.

VI. Limitations and Suggestions

Although the current study sheds light on adolescents' makeup in South Korea, there are still several limitations, as is true of most social research based on an online survey. First, this research focused only on middle and high schoolers, which limited the sample size. Since the period when teenagers start wearing makeup for the first time continues to be pulled down to younger ages (Lee, 2020), follow-up studies are needed to include adolescence from elementary school to high school. Second, the current research includes only individual-level meaningful variables related to appearance-management behaviors. Future studies should consider other antecedents that are known to influence adolescents' behaviors, such as academic achievement, relationships with their parents and teachers, and delinquent behavior. Third, this study measured South Korean adolescent girls' makeup as a general concept. Further research should measure their makeup concretely by reflecting on the actual makeup behaviors of South Korean adolescent girls. Specifically, their makeup use could be categorized into three sub-categories: skin care, which corresponds to the use of skin care cosmetics; skin cover makeup, which conceals skin imperfections through face makeup cosmetics; and full makeup, which covers one's face with heavy makeup. Follow-up studies should apply a research design involving the more detailed makeup categories to clearly understand the status of South Korean adolescent girls' makeup.

2. Ethics and consent

Not applicable

3. Availability of data and materials

The data used in this study can be provided by the corresponding author upon reasonable request and approved by the Ministry of Education of the Republic of Korea and the National Research Foundation.

4. Conflicting interests

SK has held the position of managing editor for Journal of the Korean Society of Clothing and Textiles since March 2023. However, this paper was submitted in September 2022, and the review process was completed in December 2022. Hence, there are no conflicts of interest that may arise from the author.

6. Authors' contributions

SK was mainly responsible for data collection and data analysis, and SY was mainly responsible for data interpretation and manuscript preparation. All authors have read and approved the final manuscript.

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