Self-attributed facial prominence on social networks through one's own photography: Effect of type of network, age and gender

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Título: Prominencia facial autoatribuida en redes sociales a través de la propia fotografía: efecto del tipo de red, edad y género.

Resumen: Existen muchos estudios sobre el Face-ismo autoatribuido (FIA) en función de la red social (RS), sexo y edad, pero con estas variables por separado. Esta investigación lleva a cabo un estudio conjunto de las variables anteriores a través de una muestra aleatoria de 1050 perfiles de RS. Nuestra hipótesis es que el FIA es una función de la RS (citas: Badoo, social: Facebook, profesional: LinkedIn), sexo, edad y la interacción de Sexo×Edad. Los resultados muestran diferencias en FIA según la RS (más alto en la red profesional), con los hombres teniendo más prominencia facial que las mujeres. Esto incrementa según se hacen mayores, mientras que apenas aumenta en las mujeres con la edad (teniendo más prominencia corporal que los hombres) (interacción sexo×edad). Los resultados muestran que el FIA en línea es un fenómeno complejo, parece no tener una explicación teórica única y sencilla, y los estereotipos de género FIA aumentan con la edad. Consideramos también la necesidad de estudiar el fenómeno incluyendo una perspectiva de género para luchar contra el sexismo en los nuevos medios.

Palabras clave: Face-ismo autoatribuido. Género. Edad. Redes sociales. Autopresentación.

Abstract: There are many studies on Self-Attributed Face-ism (SAF) in considering social networks (SNS), sex and age, but with these variables separately. This research carries out a joint study of the above variables through a random sample of 1050 SNS profiles. Our hypothesis is that SAF is a function of SNS (dating: Badoo, social: Facebook, professional: LinkedIn), sex, age, and the interaction of sex×age. The results show differences in SAF depending on SNS (highest in the professional network), men having more facial prominence than women. It happens even more when they get older, whereas SAF hardly augments in women with age (having more body prominence than men) (sex x age interaction). Findings show that SAF on-line is a complex phenomenon, it seems not to have a unique and straightforward theoretical explanation, and SAF gender stereotypes grow with age. We also consider the need to study the phenomenon, including a gender perspective, to fight against sexism in new media.

Keywords: Self-Attributed Face-ism. Gender. Age. Social network sites. Self-presentation.

Introduction

Since the late 1970s, numerous studies have provided evidence of differences in the representation of women and men in pictures (Adams, Copeland, Fish & Hughes, 1980; Archer, Iritani, Kimes & Barrios, 1983; Copeland, 1989; Millard & Grant, 2006; Patton & Johns, 2007; Sczesny & Kaufmann, 2018), particularly in fields such as advertising (Belkaoui & Belkaoui, 1976; Furnham & Bitar, 1993; Ganahl, Prinsen & Netzley, 2003), politics (Konrath, Au & Ramsey, 2012; Konrath & Schwartz, 2007), and the internet (Szillis & Stahlberg, 2007). Whereas in men's pictures the focus is mainly on their faces (facial prominence), in women's pictures it is on their bodies (body prominence); they both correspond to social stereotypes which associate men with the mind and women with the body. This old phenomenon was coined as face-ism (Archer et al., 1983). However, the advent of social network sites (SNS) and the emergence of self-created mass profiles on the internet have provided new and controversial evidence about this issue. Photographs have become an essential means of self-presentation in social media (Chua & Chang, 2016). Women and men currently choose their own pictures to represent themselves on SNS, preferring to perpetuate or not perpetuate these differences in facial prominence in their main profile pictures posted on different SNS. However, little academic research has focused on using social media photographs, despite it becoming an increasingly popular phenomenon (Chua & Chang, 2016). Even fewer studies have considered the role of sex and age in self-representations on SNS, as most studies about face-ism on the internet have focused only on Facebook (Smith & Cooley, 2012), not taking into account the different uses of diverse SNS.

This study aims to fill this gap in previous research by examining the presence of Self-Attributed Face-ism (SAF) prominence on SNS pictures, considering the role of age, sex and the different SNS use.

Face-ism and Self-Attributed Face-ism

Face-ism is a quantitative ratio, wherein the distance from the top of the head to the bottom of the chin is divided by the distance from the top of the head to the lowest visible part of the body in the picture (Archer et al., 1983). It is also known as facial prominence or the face/body ratio.

Face-ism was initially studied in photographs from magazines, advertisements, or political campaigns, where people other than those in the pictures chose them (from the 1970s to the 1990s). However, nowadays, with the explosion and popularization of social networks, people choose their own pictures to represent them to the world. For this reason, we will use the term "self-attributed face-ism" (SAF) in this paper to highlight that now people choose their own pictures on SNS. Therefore, this study is not about traditional face-

ism, but rather about on-line SAF as a nonverbal, voluntary and unconscious phenomenon performed by SNS users.

The theoretical framework of face-ism has been a complex and controversial topic that has evolved with the emergence of new theories related to gender in recent decades. Social learning theory (Bandura & Walters, 1963) was the most relevant theory to explain SAF. It suggests that such responses are acquired through observational learning, where imitation plays an important role. The symbolic models of men (mind) and women (body) are integrated by observing real-life models or being exposed to social media models and messages (Coltrane & Adams, 1997). Therefore, this phenomenon occurs unevenly in different cultures (Cooley & Smith, 2013). Men and women's symbolic models are critical factors in shaping behavior or social norms, gender patterns, and sex roles (Bussey & Bandura, 2004). Face-ism was later analyzed by observing the power relations between men and women according to the social role theory of sex differences (Carli & Eagly, 2001; Eagly & Steffen, 1984). Thus, Dodd, Harcar, Foerch, and Anderson (1989) and Sparks and Fehlner (1986) suggested that the social role of the sitter is an essential factor in the regulation of facial prominence in a picture, and they showed that women in typically feminine social positions showed a higher percentage of the body. From the objectification theory perspective (Fredrickson & Roberts, 1997), women in Western societies are sexually objectified, and therefore, women's bodies would have a more relevant role in a picture.

Summing up, authors who have previously studied the complex phenomenon of face-ism have suggested various theoretical frameworks related to social learning and imitation of gender roles expressed through body image. However, there is a lack of a theoretical framework to understand the phenomenon when the person performs it, i.e., SAF. In this study, we propose some factors that might be affecting the continuity of the phenomenon on-line.

Self-Attributed Face-ism and gender

SAF differences are related to sexist attitudes, given that facial images are predominantly associated with attributes such as intelligence, ambition, and fierce competition (Schwarz & Kurz, 1989), ambition and dominance (Zuckerman & Kieffer, 1994), or a generally positive assessment (Levesque & Lowe, 1999). In contrast, images with a higher body proportion are associated with the sexual representation of the body and objectification (Heflick & Goldenberg, 2014).

Gender stereotypes associate men as being independent, goal-oriented, brave, and engaged in professional or leisure activities; by contrast, women are represented as emotional, dependent, and unambitious (Bussey & Bandura, 2004). An example of this is the case of female politicians. The study of Jungblut and Haim (2021) shows that, despite the party lines, female candidates in the 2019 European election among European Union's 28 member states resemble emotional gender stereotypes, especially since women are more often self-depicted as happy in their SNS. Thus, women and men prioritize different values: men consider work and self-promotion to be the most important values, whereas women give priority to mutual interdependence and, therefore, human bonds. This situation occurs in many cultures where there is a dominant group (men) and a subordinate one (women), and stereotypes shown in social media reinforce and perpetuate these differences (Lips, 2001). In this line,

Hypothesis 1. The pictures will present SAF differences between men and women, showing men's higher facial rate.

Self-Attributed Face-ism, gender and age

In recent years, some studies have also included age as a variable when studying on-line profiles, yielding opposite results. On the one hand, some studies show no difference in on-line identities constructed by boys and girls between 18 and 23 years old (Hum, Chamberlin, Hambright, Portwood, Schat & Bevan, 2011), suggesting that gender differences may be starting to dissolve among the younger generations. On the other hand, Smith and Cooley (2012) described age as a SAF moderator on Facebook. Based on the idea that older generations will keep stronger gender stereotypes, and then, the facial prominence of men pictures over women's ones, we propose:

Hypothesis 2. Age will influence SAF, increasing for older age.

Another critical issue related to SAF remains unexplored due to a lack of previous studies on it. Although age, sex, and SNS are proposed as moderators, no study has analyzed these variables' interaction (Hayes, 2018). Some features of the face-ism phenomenon, such as intelligence, professional competence, or dominance, could be affected by sex in interaction with age, increasing more quickly in men than in women. Thus,

Hypothesis 3. There will be a statistically significant interaction between age and sex to predict SAF; the rate of SAF growth will be different for men than for women, growing more for men.

Specific Social Network Sites

As Li, Chen, Cheng, Sang and Lee (2019) point out, people use the internet for various purposes (e.g., informational, relational, recreational, etc.). SNS usage includes not only hedonic (pleasure-oriented) but also utilitarian (rational and goal-oriented) gratifications (Xu, Ryan, Prybutok & Wen, 2015). In this line, SNSs different purposes range mainly from more professional and public ones (i.e., LinkedIn) to more private such as erotic dating ones (i.e., Badoo), including in the middle what we could call relational sites or "connecting with friends" ones (i.e., Facebook). Thus, the user's purpose of communication can dictate the selection of self-images (Sanderson, 2008).

We should not forget the role of sexuality when selecting these self-images; body representation in pictures is also affected by personal and social experiences of sexuality. Previous literature reviews on body representation and sexuality are abundant (Kuhn, 1985), but only some emerging scientific articles analyze this topic on SNS. In this sense, objectification of women and sexual inequality are evident in images on male-oriented pornography sites (Shim, Kwon & Cheng, 2015). Young users perceive the use of filters positively to increase their appeal. They want to see attractive images, despite knowing that they are not accurate representations of self and surroundings (Djafarova & Trofimenko, 2019). Then, according to the social role theory, a network's theme and objectives (professional objectives, erotic dating, or connecting with friends) could influence picture representation.

Hypothesis 4. SAF differences between SNS are expected, increasing professional networks (i.e., LinkedIn) and decreasing on erotic-dating networks (i.e., Badoo).

Figure 1 shows a conceptual representation of the hypotheses.

Figure 1
Conceptual representation of the hypotheses.
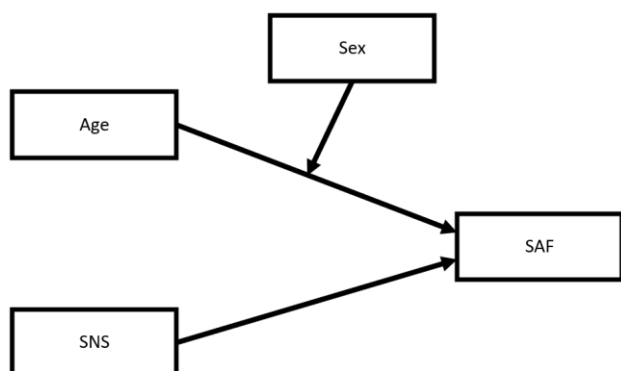
This study primarily aims to determine the variables that affect face-ism and make three main new contributions to current research on this issue. First, including age as an independent variable with a wide age range (16 to 73 years old). Second, going beyond previous studies on SAF focused on only one SNS, mainly Facebook, we analyze three SNS. And third, considering the interaction of the variables (or the moderation of variables, as other authors call it) age and sex in the different SNS for forecasting SAF.

Materials and methods

Sample

A random sample of 1050 profiles corresponding to three different SNS was analyzed: 350 pictures extracted from a general SNS (Facebook), 350 from a professional-oriented SNS (LinkedIn), and 350 ones from an adult-erotic dating SNS (Badoo). Of these, 525 were women's and 525 were men. The subjects' age range was between 16 and 73 years ($M = 36.32$, $SD = 8.96$), located in Spain.

Although an SNS profile can contain many pictures, we only measured the main profile picture in this study. We randomly selected SNS profiles with a public photograph, sex, and age, rejecting profiles without a person's picture in the portrait format or non-human photos. For example, we exclude images of more than one person, non-human portraits (animals, landscapes, etc.), and photographs of actions or body parts.

Variables

The Self-attributed face-ism (SAF) ratio is a quantitative measurement expressed as a percentage of the face in a picture (Dodd et al., 1989), as a statistical result is invariant to the unit of measure. SAF was measured in millimetres using a screen measuring tape. For example, in Figure 2 the length of the face is A (5.4), and its showed body length is B (7.4), so the face-ism ratio of this picture is A/B = 5.4/7.4 = .73. This value was multiplied by 100 to make the statistical results more interpretable, resulting in % SAF = 73 (the ratio of the length of the face to the visible part of the body in the portrait is 73%). A high face-ism score indicates a large representation of the face concerning the rest of the body, and vice versa.

Figure 2
Example of Self-attributed Face-ism ratio calculated on a picture, SAF = A/B = 5.4 / 7.4 = .73.
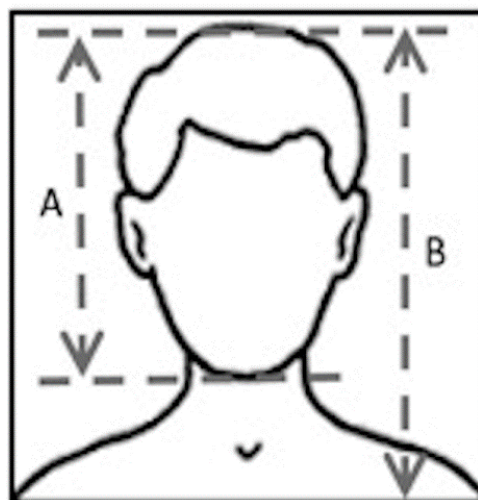
Sex is a nominal variable characterized numerically as a dummy variable (0: men, 1: women). Because it was impossible to measure gender as such a complex attribute, we con-

sider the sex that each person in the sample indicated in their profile.

Age is a numerical scale variable measured in years.

We transformed the Social Network Site (SNS) into dummy variables. Thus, SNS= [Facebook, LinkedIn], with Badoo as the reference group (Hardy, 1993; Hayes, 2018; Rosel, Jara & Herrero, 2014).

Data analysis

The data were statistically analyzed (SPSS 27), obtaining descriptive statistics and graphics. We performed a linear regression analysis using age, sex, their interaction (Sex×age), and SNS as independent variables (IVs), and SAF as the dependent variable (DV). Statistical significance was $p < .05$. Data can be unloaded in Universitat Jaume I repository: http://repositori.uji.es/xmlui/handle/10234/192402.

Results

Descriptive statistics for SAF were calculated for each sex: men ($M = 57.29$, $SD = 25.13$) and women ($M = 50.43$, $SD = 23.38$), as well as for each SNS: Badoo ($M = 39.45$, $SD = 21.37$), Facebook ($M = 53.29$, $SD = 23.51$), and LinkedIn ($M = 68.83$, $SD = 19.01$).

To test the hypotheses, we performed a multivariate regression analysis using SAF as DV. Furthermore, we used sex, age, sex × age interaction, and SNS as IVs. Table 1 shows the main statistical values of the linear regression model found ($F(5, 1044) = 75.06$; $R^2 = .264$; $p = < .001$) for SAF as DV, these values are formulated in regression algebra in Equation 1 of the Appendix, which also shows technical aspects of the results of Table 1 and its corresponding Equation 1. The whole model fits significantly, obtaining an adequate SAF prediction depending on IVs. Briefly, all our hypotheses have been confirmed.

Table 1
Regression equation coefficients for SAF depending on: age, sex, sex×age and SNS.

				Coefficients				
	b	*SE*	*Standardized b*	*t*	*p*	*Partial η²*	*δ*	*1-β*
Intercept	30.550	3.786		8.069	<.001	.181	141.045	1.000
Age	.343	.101	.125	3.409	.001	.011	11.622	.926
Sex	4.722	5.408	.096	.862	.389	.001	.742	.138
Sex×age	-.303	.147	-.238	-2.063	.039	.004	4.256	.540
SNS [*F(2,1044)*=161.69]					<.001	.237	323.387	1.000
Badoo (Rfrnc. grup)	0							
Facebook	13.282	1.613	.256	8.236	<.001			
LinkedIn	28.736	1.599	.553	17.968	<.001			

Note. Dependent variable, SAF. *η²*, partial eta squared (effect size). *δ,* noncentrality parameter. *1-β,* observed power.

Regarding *Hypothesis 1*, about the effect of sex on SAF, it has been confirmed. Although the coefficient of sex ($b = 4.722$, $p = .389$) is not significant, since it is nested under the sex × age interaction ($b = -.303$, $p = .039$) and this is significant, the variable sex must be left in the equation due to the rule of hierarchical interaction of variables when conducting regression analyses. Thus, if there is a statistically significant interaction (sex × age), all the variables that make up the interaction (age and sex in this case) should be included in the equation to avoid prediction errors (Hayes, 2018; Rosel et al., 2014). Furthermore, due to the interaction between sex × age, these two variables must be explained jointly (see the interpretation of Hypothesis 3).

Also *Hypothesis 2* about the effect of age ($b = .343$, $p = .001$) on SAF has been confirmed. It means that in the reference group of the sex variable (dummy for men = 0), for each year of age that a man increases, his SAF increases by .343% on average; in other words, after ten years, people increase their SAF by 3.43%. Figure 3 shows that the trend of SAF in men increases with age: the upper line (men on LinkedIn) show how men's SAF at 20 years old (top left) is 66.1, whereas it is 79.7 (top right) at the age of 60; in other words, at age 20 they represent their head in LinkedIn por-

traits with 66.1% of their body, but at age 60 they represent 79.7% of their head concerning the body viewed.

Hypothesis 3, referring to the interaction of sex×age, has also been statistically confirmed ($b = -.303$, $p = .039$). This indicates that the difference in slope of age to predict SAF is .303 points smaller in women than in men, and that this difference in slope is significant. For each SNS (see Appendix), the slope for men will be $b = .343$, whereas for women will be $b = .040$ (.343 - .303). Then, SAF increases in men with age, whereas women scarcely change (see Appendix, Equations 3, 5 and 7); in other words, in any SNS, the proportion of the head increases more in men than in women (see Figure 3). As an example (top right of Figure 3), in LinkedIn, the men have a 79.7% of SAF in their portraits, but women have a 66.4% of SAF.

The significant interaction means that the results of sex and age are not strictly 'additive' on the SAF (DV). The effect of sex is not constant on the DV but depends on the other variable of interaction (age). In our case, as age increases, the effect of sex also increases on SAF. If the interaction had been non-significant, in Figure 3, we would have seen six parallel lines (additivity), but since there is sex × age interaction, there are different slopes for each sex.

In the same way, *Hypothesis 4* has also been confirmed, as there are differences in SAF depending on where the interested party makes the representation of his/her own image, being the lowest SAF in Badoo, intermediate in Facebook and highest in LinkedIn. I.e., the more formal the social network, the greater the representation of one's own SAF concerning the body presented.

Figure 3
Forecasted values of the self-representation pictures, % of SAF; SAF values for men and women between 20 and 60 years of age depending on SNS.
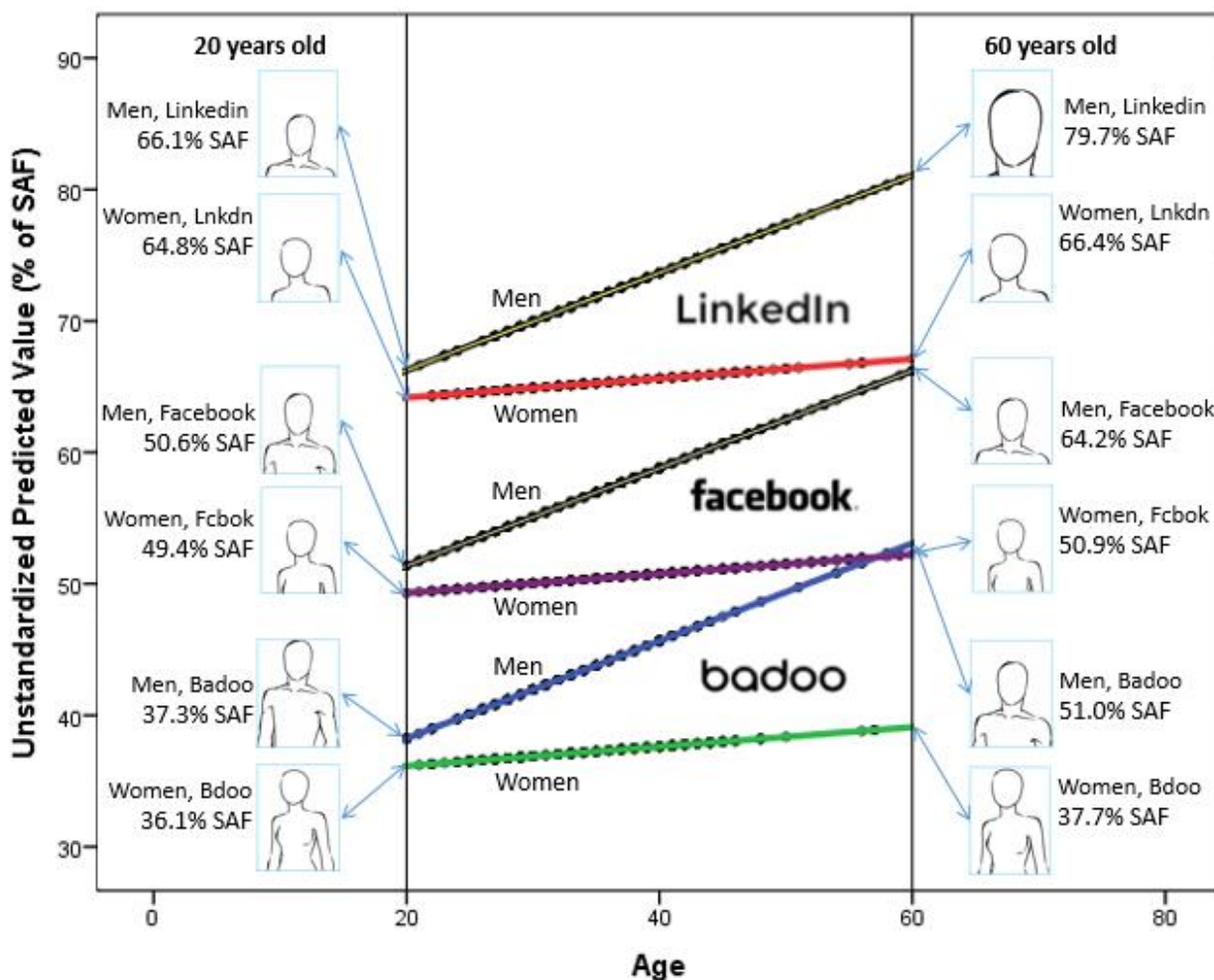
Regarding the precision of the coefficients obtained, it is observed that only the sex variable and the sex × age interaction have a statistical power below .80, and a low partial η^2, their non-centrality parameters are also very low. We have left these parameters in case other researchers wish to replicate or expand this study (Aberson, 2019). The sex variable, although its effect is not significant, must be left in the model by the rule of hierarchical interaction and the sex × age interaction, despite its statistical power is .540, low, and the effect size is .004, even turning out to be an effect of medium magnitude, since it is between .0035 and .1000 (Kirk, 1996), is left in the model because its effect is significant. In addition, the effects of the interaction, both in size effect and statistical power, are lower than those of the main variables;

in a revision of scientific publications (Aguinis, Beaty, Boik & Pierce, 2005), the median of all empirical effect sizes has been of .002 (our, of .004, is bigger), and with our effect size of .004, the found median power was of .300 (and our power is bigger, .540), only the 8.80% of the regression interactions had a power of 80% or more, so the limits for the size of the effect should be lowered (Aguinis, 2004; Aguinis et al., 2005). Therefore, the referred variables and interaction of ours hypotheses are confirmed.

Discussion

This study aimed to examine the presence of sexist SAF prominence on SNS pictures, considering the role of age and

the different SNS use. To do so, we explored sex and age differences in SAF in a sample of 1050 profiles from 3 different SNS. Our results revealed that the whole model and each variable are significant, including sex × age interaction. Therefore, all hypotheses were verified.

Concerning sex, the regression coefficient value does not have a definite meaning *per se* as a single IV but is meaningful only in terms of the sex × age interaction. We compared SAF averages based on sex, showing that overall differences were significant. Still, all these differences must be classified according to each sex group's age range because they begin to be significant after 22 years of age. Recent studies show that older users follow more traditional gender depictions following the face-ism phenomenon. In contrast, among younger people, women show even higher facial prominence than men do (Prieler & Kohlbacher, 2017), whereas young men not only depict their body but also manipulate its image, making specific parts of the body look larger, smaller, or skinnier prior to their sharing on SNS (Goia, McLean, Griffiths, & Boursier, 2021).

Regarding SNS, we observed a progressive increase for both sexes (Figure 3), according to the following sequence: Erotic-dating network (Badoo) < Social network (Facebook) < Professional network (LinkedIn). As a result, we can conclude that the network where a picture representation occurs is the most significant SAF moderator (overall for SNS). Summing up, the more professional-oriented is the SNS, the higher are the face-ism values present for both men and women. However, an age-sex interaction indicates that men tend to represent themselves with more face-ism, presumably to show intellectual traits and professionalism as they get older. At the same time, women do not increase face-ism, keeping a more corporeal image over the years.

Theoretical contributions

The contributions of this research are both theoretical and practical. Regarding theory, it is essential to stress the relation of our empirical results with some critical theories argued in previous studies to explain the face-ism phenomenon. Face-ism was first studied mainly in adverts (Belkaoui & Belkaoui, 1976; Furnham & Bitar, 1993; Ganahl et al., 2003) considering only sex as a moderator variable and explaining gender differences using Bandura' social learning theory, which states that these differences are basically acquired through observational learning and imitation. On the other hand, face-ism was also studied by including the social role of the photographed person (Dodd et al., 1989; Sparks & Fehlner, 1986), especially in political campaigns (Konrath et al., 2012; Konrath & Schwartz, 2007; Mattan & Small, 2021). It was done based on the gender social role theory (Carli & Eagly, 2001; Eagly & Steffen, 1984) to explain why women's heads are depicted more in competitive and professional environments than are men's. Later on, Smith and Cooley (2012) and Cooley and Smith (2013) studied the phenomenon using self-created internet profile pictures sug-

gesting that there are also significant SAF differences for men and women on the internet. Still, they excluded the social role because SAF was studied only on Facebook and not on other SNS where people play different social roles.

So, according to the results of this study, it seems that all those theories fall short by including only gender as a variable to predict SAF. It appears that age and the specific type of SNS also play a role. So, SAF on-line seems not to have a unique and straightforward theoretical explanation. The social learning theory and the gender social role theory do not explain why within each SNS, women barely change their facial prominence while men increase it considerably when ageing. One possible explanation would come from the objectification theory (Fredrickson & Roberts, 1997), proposing that women in Western countries are sexually objectified. According to the results of this study, women could integrate body objectification at a very early age and sustain it over the years, depicting more of the body in their profile pictures than men. And this would happen even when women's self-objectification experiences can trigger negative psychological states such as a more negative mood, lower self-esteem and confidence (Fox, Vendemia, Smith, & Brehm, 2021). Also, evolutionary psychology may explain that younger women tend to self-represent more of the body than both men and older women. It might be "due to an evolutionary tendency to represent fertility by displaying the waist-to-hip area – a strategy that, from an evolutionary perspective, increases the likelihood of producing offspring" (Read, Pavelko & Hwang, 2017, p. 3). In the same vein, evolutionary psychology might explain differences among different SNS. The increase of SAF on men and on professional SNS might be because the facial prevalence is an indicator of dominance, a dimension associated with status (Zuckerman, 1986, as cited in Read *et al.*, 2017); then, when older the men in a professional SNS, the biggest is the SAF. However, none of them explains why the youngest men and women have similar SAF values. It could indicate that the new generations are represented more equally, or perhaps the very phenomenon begins at an older age.

The more variables are included to study face-ism, the more complex seems to be the phenomenon. In this line, it might explain the not significant differences found in previous studies, focused on only one SNS or in a narrower range of age (mainly, young people) (for instance, Hum et al., 2011 and Sczesny & Kaufmann, 2018, focused on young people on Facebook and professional networks, respectively). The sex-gender construction is developed across biological, psychological, and social dimensions and is transformed through life experiences and learning. Probably, as a gender issue, it has complex theoretical frameworks integrated with multiple causes.

Practical implications

The present findings might have different practical implications. First of all, they might help plan and develop in-

tervention programs, addressed mainly (but not only) to girls who feel the pressure of self-objectification in SNS to be accepted by their peers in particular, and society in general, by self-depicting their body. This pressure is perceived over the years in the case of women, regardless of the SNS used. Psychologically empowering women will allow them to behave beyond gender stereotypes which form part of their own gender identity. Several training programs are developed at this moment in Spain that focused on psychological (Machín-Rincón & Cifre-Gallego, 2020) and economic empowerment (i.e., Laguna-Sánchez, Segovia-Pérez, de la Fuente-Cabrera, & Vargas-Pérez, 2021;) which might help them to get rid of it.

Focusing on age, our results show that young people (both boys and girls, although mainly girls) self-depict their body in social but mostly dating SNS. Even boys manipulate more their body pictures than girls (Gioia et al., 2021). Also, some studies show that older adolescents and girls are more likely to post images of themselves on another social SNS, Instagram, associated with peer norms (Van Ouytsel, Walrave, Ojeda, Del Rey, & Ponnet, 2020). Then, as proposed by Gioia et al. (2021), media literacy programs might be valuable tools to educate teenagers about their own actual body image, about culturally and peer-to-peer promoted body standards, and about their selfie-sharing on social media.

Also, results might have significant consequences in private and professional life, as it happens when searching for a job. In this case, older job seekers are less versed in on-line the self-presentations on professional SNS (i.e., LinkedIn) (Krings, Gioaba, Kaufmann, Sczesny, & Zebrowitz, 2021). Then, avoiding gender behaviours (i.e., not increasing face-ism when getting older in the case of men) might help them undo gender x age stereotypes that could facilitate their incorporation into the labour market.

Summing up, our results highlight the potential of gender stereotypes in our self-depiction on SNS, regardless of the type (dating, social, professional). We are aware that sometimes they are used strategically to take advantage of their image, as politicians do (either emphasizing or rescinding gender-based stereotypes) (Mattan & Small, 2021). However, from our point of view, society should work to undo those gender stereotypes to provide a more equitable and fair society for everybody regardless of their sex.

Limitations and future trends

Our study's main limitation lies in being cross-sectional and does not allow claims on causality. So longitudinal studies are needed to examine the causal dynamics. For example: will this growth in SAF depend on the sex × age interaction change over time in a longitudinal study? SAF differences may tend to disappear over time for younger generations, and therefore, SAF would be a good sexism indicator? Future research will have to elucidate this aspect. However, this study has a strength considering three important variables for the face-ism phenomenon at time: age, sex, and SNS, in addition to the interaction of age and sex. If each variable had been studied separately, the obtained parameters (coefficients, probabilities, errors, etc.) would not have evidenced real values, producing unreliable statistical coefficients (Gujarati, Porter & Gunasekar, 2013).

Today, a profile picture on Facebook offers a significant first attempt to construct one's on-line identity (Hum et al., 2011), but also to create their private (Badoo) and professional (LinkedIn) identities. SNS are becoming new virtual places where traditional body ideals and old gender stereotypes are reproduced, perpetuated, and reinforced. Given the media's role in influencing of women's self-image (Ghosh, 2005) and young women with an appearance comparison tendency reporting negative mood after exposure to SNS images (Fardouly, Diedrich, Vartanian & Halliwell, 2015), more intersectional research is needed to understand better the impact of gender on social representations and health. It would mean including more variables like social status, personality traits (i.e., competitiveness and narcissism; Martin, 2020), education and cultural levels, nationality, profession, ideology and culture (Nguyen, McDonald, Nguyen, & McCauley, 2020) and, especially in adolescents, peer norms (Van Ouytsel et al, 2020). Only by understanding this phenomenon and a whole, and the underlying mechanisms that support it, an equal future world is possible.

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Appendix

General equation (agree Table 1):

$$SAF = 30.550 + .343 \cdot age + 4.722 \cdot sex + [13.282 \cdot Facebook + 28.736 \cdot LinkedIn] - .303 \cdot sex \times age + e \qquad (1)$$

We have developed brief equations for each group, of sex (men and women), crossing with SNS groups (Badoo, Facebook and LinkedIn).

The predicted equation for Men and Badoo:

$$SAF'_{Men(sex=0), Badoo(Facebook=0, LinkedIn=0)} = 30.550 + .343 \cdot age + 4.722 \cdot 0 + [13.282 \cdot 0 + 28.736 \cdot 0] - .303 \cdot age \cdot 0 = 30.550 + .343 \cdot age \qquad (2)$$

The forecasted equation for Women and Badoo:

$$SAF'_{Women(sex=1), Badoo(Facebook=0, LinkedIn=0)} = 35.272 + .040 \cdot age \qquad (3)$$

The forecasted equation for Men and Facebook:

$$SAF'_{Men(sex=0), Facebook(Facebook=1, LinkedIn=0)} = 43.832 + .343 \cdot age \qquad (4)$$

The forecasted equation for Women and Facebook:

$$SAF'_{Women(sex=1), Facebook(Facebook=1, LinkedIn=0)} = 30.550 + .343 \cdot age + 4.722 \cdot 1 + [13.282 \cdot 1 + 28.736 \cdot 0] - .303 \cdot age \cdot 1 = (30.550 + 4.722 + 13.282) + (.343 - .303) \cdot age = 48.554 + .040 \cdot age \qquad (5)$$

The forecasted equation for Men and LinkedIn:

$$SAF'_{Men(sex=0), LinkedIn(Facebook=0, LinkedIn=1)} = 59.286 + .343 \cdot age \qquad (6)$$

The forecasted equation for Women and LinkedIn:

$$SAF'_{Women(sex=1), LinkedIn(Facebook=0, LinkedIn=1)} = 64.008 + .040 \cdot age \qquad (7)$$

Explanation of results of the Table 1 set out in Equation 1 of this Appendix.

The Facebook and LinkedIn dummy variables were placed inside brackets on the Equation 1 because they are components of the same entity, emphasizing that they are dummy variables belonging to the primitive SNS variable (Hayes, 2018; Rosel et al., 2014). From a methodological perspective, it is important not to separate each dummy variable (Badoo, Facebook and LinkedIn).

Our study has the categorical variables sex (2 categories) and SNS (3 categories), therefore it has 6 categorical groups,

and each of them has its own equation. Equation 1 can be disaggregated in six different equations (Appendix, Equations 2 to 7). Therefore, for each group in the study (Men-Badoo, Women-Badoo, Men-Facebook, Women-Facebook, Men-LinkedIn, and Women-LinkedIn), a different interpretation must be made because each group has its equation obtained from the general Equation 1. SAF increases with age, but there are slope differences for men and women because of the significant interaction with sex. The average slope was at .343 for men, while it was .040 for women, meaning that in men, on average, as age increases by one year, SAF increases by .343%; while in women as they age by one year, their SAF grows by .040%. This difference in SAF growth indicates that men tend to show facial or head prominence on all SNS, but mainly when they are older. In this way, they establish more significant intellectuality traits by renouncing corporeality (Konrath et al., 2012), while women do not portray their body on SNS pictures.

The regression equation results in Table 1 indicate no significant differences in the variable sex ($B_{Sex} = 4.722$, $p = .389$), but in their respective intercepts in each SNS. For example, on comparing intercepts of women and men on LinkedIn (Women: 54.008, Men: 59.286), results show a difference of 4.722 (value of B_{Sex}). That is, when all the other IVs have a value of zero (that is: in Badoo, as the reference group, and zero years), on the axis of the DV there is a difference of 4.722% in SAF between men and women. The same thing happens on each SNS. Figure 3 shows an increase in the intercepts from dating to professional networks, with an almost constant difference for men and women on all SNS.

We can observe the highest SAF values on a professional network (LinkedIn) for both men and women. For instance, in the case of a 40-year-old man on Badoo, we can observe a relative difference of 13.283% of SAF, compared to his SAF values on Facebook ($B_{Facebook} = 13.283$). Any relative difference in Facebook and Badoo for any fixed age or sex group would get the same value. The same happens on comparing Badoo with LinkedIn, but this time, SAF difference on an average would be 28.736% higher on LinkedIn than on Badoo ($B_{LinkedIn} = 28.736$). Similarly, the SAF difference would be 15.454% higher on LinkedIn ($B_{LinkedIn} - B_{Facebook} = 28.736 - 13.282$, see SNS dummy variable values, Table 1) than Facebook.

Figure 3 shows a representation of predicted SAF values for the age groups between 20 and 60 years compared by sex and SNS to visually display the relative change in SAF. For instance, in the case of Badoo, 36.1% was the predicted value of SAF for women at the age of 20 years while for *women at the age of 60, it was 37.7%, increasing only by 1.7% after forty years*. If we take the same example for *men*; SAF was 37.3% by the age of 20 years, rising to 50.9% by the age of 60 years, *increasing by 13.6%*.

Focusing on the differences within the same social network, we can check that women do not change in SAF between 20 and 60 years old. However, men do. In this way,

Table 1 shows that considering the standard error of the sex variable (5.408), the confidence interval for a contrast of values will be 10.600% (= 5.408·1.96), the estimated SAF of 20-year-old women on LinkedIn will be, Equation 7, equal to 64.808% (= 64.008 + .040·20), while the SAF at 60 years is 66.408%. In this case, the difference is 1.600, so women, on average, and within the same SNS, statistically do not change in SAF between 20 and 60 years of age. On the other hand, men significantly vary their SAF compared to those of 20 years, when they are 50.904 years old or older.