

Hidden Sexism: Facial Prominence and Its Connections to Gender and Occupational Status in Popular Print Media

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Abstract A total of 779 article-embedded photographs from six popular US magazines during 2004 (*Newsweek*, *Time*, *Fortune*, *Money*, *People*, and *Sports Illustrated*) were examined assessing the relationship between occupational status and gender and the depiction of men and women in print media. Results show individuals depicted in intellectually focused occupations had higher face-to-body ratios than individuals depicted in physically focused occupations. Gender differences in facial prominence did not reach significance. A gender by occupation interaction indicated men in intellectually focused occupations had higher face-to-body ratios than women in similar professions, whereas women in physical occupations had higher face-to-body ratios than men in similar occupations. This suggests a disparity in the media with regard to displaying men and women equally in similar occupational roles.

Keywords Facial prominence · Occupational status · Media · Gender

Introduction

Glancing through popular magazines, readers have the opportunity of seeing individuals depicted in a variety of ways depending on the particular advertisement or article in

which the photograph is embedded. Portrayals of human form vary, in part, depending upon the gender of the person portrayed (Sexton and Haberman 1974; Venkatesan and Losco 1975). Women are often depicted as dependent on men, as sex objects, and in the context of interpersonal relations (e.g., as mothers, companions, wives), unlike men. The present study examined a large sample of article-embedded magazine photographs from six publications during the 2004 calendar year, assessing gender, facial prominence, and occupational status of depicted individuals. Does a gender discrepancy still exist in today's media with regard to physical depiction? If yes, can this difference be explained in terms of a depicted individual's occupational role? Answers to these questions give insight into how popular print media support gender stereotypes and surreptitiously define gender roles.

Research examining facial prominence, although interesting and useful in examining portrayals of men and women, can be problematic when idiosyncratic thoughts, feelings, or beliefs contaminate the ability to objectively classify how a person is portrayed in the media. Sexton and Haberman (1974) claim that individuals might classify photographs differently even when the individuals refer to a single set of coding definitions. This admission is important in that it brings to light difficulties that can arise with subjective rating techniques. Low reliability can introduce bias, reducing a study's internal validity (Sexton and Haberman 1974). Minimizing the amount of subjective inference in a study cannot guarantee entirely valid results, but methods that rely more on objective and less on subjective measures can be of great use when studying a phenomenon. More objective measurement can advance the study of human media depiction.

This study used objective classification and measurement of article-embedded magazine photographs to sys-

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tematically examine men's and women's facial prominence spanning one calendar year across six magazine publications. This study set out to clarify previous gender findings by also examining occupational status. Previous studies have addressed occupational status and its possible role in how individuals are portrayed in the mass media. Sparks and Fehlner (1986) used a limited sample of American Presidential candidates, and Dodd et al. (1989) used four specific social role categories in place of occupational status. This study set out to examine how occupational status and gender are related to facial prominence using a diverse sample of photographs and a simplified occupational coding scheme.

Operationalization of Facial Measurement

In the 1980s, a standard scientific tool to measure media portrayal of the human form was developed that took into account basic information, was easy to use, and could be readily applied to both men and women. Archer et al. (1983) introduced the concept of face-ism in an attempt to operationalize facial framing. Face-ism, or face-to-body ratio, refers to the percentage of an individual depicted in a photograph representing his or her face. This objective measure has been used for the past three decades to operationalize how individuals are depicted in the mass media. Gender (Archer et al. 1983; Sparks and Fehlner 1986) and race (Zuckerman and Kieffer 1994) differences in depictions have been focal points of past research. Studies have examined media outlets such as magazines, newspapers, portrait photographs, and television (Archer et al. 1983; Costa and Ricci-Bitti 2000; Ragan 1982; Sparks and Fehlner 1986; Zuckerman and Kieffer 1994). Findings from these, and other studies not directly related to face-to-body ratio, have shed light on how individuals are depicted in various media presentations (Duncan and Sayaovong 1990; Iijima-Hall and Crum 1994).

Archer et al. (1983) designed the seminal study to objectively examine the face-to-body ratio phenomenon. They conducted a series of three studies establishing the utility of the face-to-body ratio. Face-to-body ratio is simply the ratio of the amount of face displayed (measurement from the top of the head to the lowest visible part of the chin) to the amount of total body displayed (measurement from the top of the head to the lowest visible part of the body) in a photograph. In study 1 of 3 they analyzed photographs in five American magazines, including *Time*, *Newsweek*, and *Ms. Magazine*, and two newspapers, *The San Francisco Chronicle* and *The Santa Cruz Sentinel*. Twelve issues of each magazine title were acquired and a total of 1,750 photographs were assessed (350 from each publication title). Guidelines were put in place so that certain types of photographs were excluded from the study,

making the photos as homogeneous as possible and to remove photographic shots that were not arbitrarily taken by the photographer or cropped by an editor to convey a certain meaning.

Gender Differences in Face-to-Body Ratio

Results from Archer et al. (1983) shed light on basic gender differences in face-to-body ratio. They found that the mean face-to-body ratio for photos of men was .65 (more than half of the photo was dedicated to facial features), whereas the face-to-body ratio for photos of women was .45 (more than half of the photo was dedicated to body features). This difference was not only significant, the means were almost one entire standard deviation apart. Clearly men and women are depicted differently in magazine and newspaper periodicals when photographs are assessed using the face-to-body ratio measurement. One interesting result was that gender differences were also significant in *Ms. Magazine*, a publication that promotes women's rights. Archer et al. propose that seeing a face-to-body ratio effect in this type of publication suggests that "sexual difference in representational style is widespread, deep-seated, and perhaps unconscious" (p. 728).

Change in Gender Differences in Face-to-Body Ratio with Time

Studies of face-to-body ratio have included cross-era examinations dating back to the fifteenth century. In study 3, Archer et al. (1983) examined artwork across six centuries (fifteenth to twentieth) using 920 separate portraits. Findings suggest that differential facial gender depiction has existed for at least the past six centuries. In fact, they found the facial ratio gender differences had increased over the past six centuries, with the differences from the seventeenth century forward being statistically significant.

Examining more recent magazine photographs, Nigro et al. (1988) also indicate facial prominence differences are changing with time. However, their results are contrary to the findings of Archer et al. Nigro and colleagues analyzed face-to-body ratio in 1970 and 1980 using photographs from both *Time* and *Newsweek* of those 2 years. Analyses revealed that women gained more facial prominence during 1980 than did men for *Time*. In 1980, facial prominence gender differences were not significant for *Newsweek*. This finding supports the idea that gender differences in facial prominence have been decreasing, at least since the early 1970s, and in some cases, in the 1980s.

In contrast, Dodd et al. (1989) found no indication that gender differences in facial prominence changed over six decades (1930–1980). Only one sample year from each

decade (excluding the 1940s) was included in the study. Gender differences were found to fluctuate over the course of time, but never showed a significant decrease or increase. The results of Dodd et al. again are limited with regards to their sample, but suggest that the trend of gender differences might be leveling off since the 1930s.

In summary, cross-era studies find gender differences in facial prominence have increased, decreased, and remained stable over time; differing sources of media in conjunction with nonidentical time frames could be responsible for the various findings (Archer et al. 1983; Dodd et al. 1989; Nigro et al. 1988).

Theories of Gender Differences in Face-to-Body Ratio

Theories attempting to explain gender differences in face-to-body ratio are few and far between. Archer et al. (1983) posited that men are valued more for cerebral or mental qualities and therefore are depicted with more face showing than women, who are hypothesized to be valued for emotional or physical qualities. Zuckerman (1986) continued along this line of thinking and after collecting additional data, found that gender differences with regard to facial prominence were more pronounced for “traditional” publications (*Time*, *Newsweek*, and *US News and World Report*) when compared to “women-oriented” publications (*Ms.*, *Working Woman*, and *Rochester Woman*). In addition, Zuckerman found that facial prominence, collapsed across gender, was significantly higher in the “women-oriented” publications than the “traditional” publications. Zuckerman’s findings suggest that traditional magazines might be associated with more traditional views of sex roles, where the physicality of women is accentuated, and that this connection has the possibility of partially explaining facial prominence differences among publication genres.

It should be mentioned that the “cause” of the observed gender differences may be found in multiple areas of image production. Models, photographers, videographers, editors, directors, and various design executives all have chances to alter photographs prior to their ultimate distribution to the general public. This being the case, studies involving examinations at each level of possible alteration could be beneficial in attempting to explain the etiology of this phenomenon.

Zuckerman and Kieffer (1994) found that gender differences in facial prominence were relatively small for magazines that promoted feminist ideals, and that race differences between paintings of Black and White individuals were minimal when the artist was Black. It was suggested that personal value systems might be an underlying influence in the realm of how an artist, photographer, or photo editor chooses to depict the human form. Zuckerman and Kieffer acknowledge that this

tentative explanation is pure conjecture and that further studies are needed to validate their explanation for this phenomenon.

Zuckerman and Kieffer (1994) have also attempted to address the etiology of the consistent differential gender representations with regard to face-to-body ratio in terms of dominance theory. They suggest that the depiction of a larger face in relation to its frame is akin to greater proximity, which in turn might signal an increased level of threat. They also suggest taking everyday colloquial sayings into account. To face another person means to stand up to and challenge an individual; saving face refers to stopping emotional damage before it escalates.

Although explanations of this phenomenon are scarce, and appear rather simplistic, they do provide a platform for further investigation into both the etiology and consequences of differential human depictions.

Consequences of Gender Differences in Face-to-Body Ratio

Multiple media outlets (e.g., newspapers, magazines, and television) allow face-to-body ratios to be presented to multiple populations with ease. This widespread dissemination of gender differences in face-to-body ratio could possibly have negative consequences on the viewing public. Iijima-Hall and Crum (1994) examined gender differences in depictions in television beer commercials and suggested that the way in which women are depicted “raises concerns about the dehumanizing influence of these images in beer commercials” (p. 329). Images that portray women in scant outfits with increasing focus on body-centered images can support and perpetuate negative stereotypes about women. According to Iijima-Hall and Crum this body-centered imagery “shows that women largely remain stereotyped as unintelligent, attractive bodies with no personality” (p. 330).

Other media outlets have been shown to contain stereotyped messages specifically directed toward younger viewers (Duncan and Sayaovong 1990). For example, examining the first six 1989 issues of *Sports Illustrated for Kids*, Duncan and Sayaovong found that there were more photographs of men participating in athletic sport than women. Further examination revealed men and women were depicted differently with regard to level of physical action in the shot: Men were more likely to be shown in action (movement) or ready for action, while women were more likely to be shown in a posed manner and essentially inactive. Men were also depicted in more leadership roles (coach, official, or judge) than women. Duncan and Sayaovong conclude that due to the impressionable nature of the readers of this magazine (generally those 8 to 13 years of age), the impact of these images portraying

women as inactive and lacking leadership roles could affect children's socialization. These inactive and nonleadership roles in conjunction with women being depicted in physically focused ways could possibly affect children's socialization in increasingly negative ways.

Occupational Differences in Face-to-Body Ratio

The gender of an individual in a photograph is reasonably simple to determine; such a simple variable may not necessarily explain differences in face-to-body ratio. Other readily available variables exist, such as occupational status. The inclusion of this variable in past studies has provided both additional information regarding the phenomenon at hand and the impetus for the current investigation. Sparks and Fehlner (1986) studied occupation categorization and the face-to-body ratio effect by assessing various photographs depicting American presidential and vice presidential candidates during the 1984 presidential campaign, the first (and only) year in which a woman was a candidate for the office of Vice President of the United States of America. Analysis revealed no significant differences with respect to facial prominence between the three male candidates (Reagan, Bush, and Mondale) and the one female candidate (Ferraro). This finding could be attributed to either limited representations of women candidates, or an actual lack of significant gender differences in occupational depiction. Sparks and Fehlner continued their study and randomly selected photographs of both men and women from the publications where the presidential candidates' photographs were located. They found a significant gender difference with respect to facial prominence when non-presidential candidate photographs were obtained. This suggested the existence of nonsignificant gender differences in relation to face-to-body ratio when examining one specific intellectually focused occupation. This finding was not upheld by Sparks and Fehlner in a third study. This suggests that more research needs to be conducted to gain a better understanding of the relationship between these variables.

Occupational status was also examined by Dodd et al. (1989) with regard to differences in facial prominence utilizing three arbitrary social role categories. Photographs of public officials, professionals, and sport and entertainment personnel were analyzed using the face-to-body ratio established by Archer et al. (1983). The face-to-body ratio was found to be significantly greater for men than for women. Mean face-to-body ratios for categorized social roles were as follows: public official (.65), sports and entertainment (.52), professional (.53), and miscellaneous (.53). These social role indexes were found to be significantly different, with the public official social role being higher than the other three roles. They concluded that gender differences, with respect to face-to-body ratio, were

negligible when social role was taken into account. Unfortunately, photos used in this experiment were purposely taken from the cover of the chosen magazines, and photographs located inside the publications were purposefully ignored. Could the study of these ignored photographs clarify or strengthen the previously mentioned findings? Possibly a more global categorization system needs to be used when grouping occupations for analysis. Instead of comparing commonly used occupation groupings such as professional, actor, politician, etc., it might be more beneficial to use groupings that are more general in nature, such as how occupations are viewed by others. This issue can be operationalized using a dichotomous variable consisting of focus on intellect and focus on physical characteristics. Using these variables in conjunction with face-to-body ratio in an attempt to explain differences in human depiction could be beneficial to those interested in the etiology of media-driven human depiction.

Focus of Current Study

The present study focuses upon what mediating variables may be influencing the pervasive differences in media depictions of men and women. Is one of these mediators occupational status, a variable that has been examined, but because of possible methodological flaws, was not totally reliable? This study has been designed to examine the influence of gender on face-to-body ratio when controlling for occupational status.

One salient topic addressed by many preceding studies is that of gender differences. When photographing individuals for use in media display, various qualifiers with regard to the depicted individual can exist. Generally (with exception of vague layouts), individuals can readily be qualified by gender and occupation, especially when it comes to easily recognizable individuals, such as celebrities. The current study sets out to examine if occupational status, as an underlying predictor variable for face-to-body ratio, is being overlooked. Are men depicted with higher face-to-body ratios than women? Do individuals depicted in intellectually focused occupations have higher face-to-body ratios than those in physically focused occupations? Do gender differences remain, when controlling for occupational status?

Research Questions/Hypotheses

This study set out to address specific hypotheses related to gender and occupational status and how these variables are related to face-to-body ratio.

1. Face-to-body ratios of women will be significantly lower than those of men.
2. Face-to-body ratios of individuals in intellectually focused occupations (e.g., executive/businessperson,

politician, scientist/educator) will be significantly higher than those of individuals in physically focused occupations (e.g., sports figure, actor/entertainer, model).

3. Will gender differences with regard to face-to-body ratio remain after controlling for occupational status?

Method

Sample

This study required the collection of print media from various sources. For the purpose of this study, article-embedded photographs located in magazines were assessed for facial prominence as detailed below; photographs embedded in advertisements were not used. This study did not utilize human subjects, but instead archived print media on file in the Henry Madden Library, located at California State University, Fresno and the Visalia branch of the San Joaquin Valley Library System. Magazines were viewed in their originally published format. A convenience sample of photographs was drawn from six periodicals: the news-centered magazines *Newsweek* and *Time*; business-centered magazines *Fortune*, and *Money*; and the entertainment-centered magazines *People* and *Sports Illustrated*. These publication titles were chosen in an attempt to include a wide range of intended readership. After a pilot study (described below) was conducted, photographs from 24 magazine issues, four issues from each magazine, were used in the final analysis. Magazines consisted of a single issue from January, April, July, and October of the 2004 calendar year. Issue sequences were sought so that one issue per calendar quarter was used.

A cross-sectional non-experimental design was used, utilizing archival data. Magazines were retrieved and assessed page-by-page in search of photographs that adhere to Archer et al. (1983) guidelines for photograph eligibility. Eligibility requirements for photograph selection were as follows: (a) only one human subject could be located in the photograph; (b) photographs could not aim to capture a particular part of the body; (c) photographs that contain a nonhuman co-subject, such as a vehicle or animal, could not be used; (d) photos printed multiple times were only assessed once; (e) no photographs of disembodied heads were utilized for coding. These rules, according to Archer et al., were formulated to ensure that photographs being assessed were taken by the photographer without a predetermined face-to-body ratio in mind, and that a co-subject or product would not dictate how the human form was depicted. In addition, only photographs in articles or news stories were used, photographs embedded in adver-

tisements were not included in this study. A preset minimum of 100 photographs was to be included in this study, a minimum easily reached with a final total of 779 photographs used for statistical analysis.

Coding

Two coders (one for overall coding, and one for reliability analysis) located eligible article-embedded photographs and collected various information including the gender (male/female) of the individual depicted and an occupation classification of the depicted individual (e.g. executive/businessperson, sports figure, actor/entertainer, model, politician, scientist/educator, or unclassifiable). For the purposes of this study, photographs were further categorized into two groups based on occupation rating: executive/businesspersons, politicians, scientists/educators, and similar intellectually focused occupations were classified as intellectually focused photographs, where sports figures, actors/entertainers, models, and similar physically focused occupations were classified as physically focused photographs.

Classifying occupational status can be difficult. Previous studies including occupational status as a variable did not use consistent categories. Sparks and Fehlner (1986) categorized occupations into government officials, business executives, actors/actresses, authors, journalists, entertainers, and other. Dodd et al. (1989) used a more simplified method of categorizing occupations into four general areas borrowed from Miller (1975): public official, professional, sports/entertainment, and miscellaneous. The current study used a combination of these two methodological approaches in an attempt to keep the classifications simple. Two main categories, proposed solely by the author/primary coder were used: intellectually focused occupations and physically focused occupations.

The coders recorded the month of the selected publication, the year, and the page number of each eligible photograph. After the initial information regarding the photographed subject was collected, coders proceeded to take measurements as follows: (a) A measure in millimeters (mm) of the linear length from the top of the head to the lowest visible part of the chin and (b) a measure in millimeters (mm) of the linear length from the top of the head to the lowest visible part of the body. Coders then recorded these measurements and divided the two measurements using the length of the face as the numerator and the length of the entire subject (face and body) as the denominator. This simple calculation produced a face-to-body ratio (percentage of the photograph dedicated to the face of the subject) that was used as the dependent variable in this study. The final face-to-body ratio for each photograph varied from .00 (no face depicted) to 1.00 (no body depicted). Coders were also instructed to note if individuals were depicted in an odd or

unconventional way that might impede accurate facial measurement data collection. A total of 27 (3.5%) photographs were deemed by the primary coder as being depicted in an odd or unconventional way. Discussion with the secondary coder as to how the photograph should be measured occurred and agreement was gained for each unconventionally shot photograph.

Instrument Reliability

Utilizing selection criteria advanced by Archer et al. (1983), the physical variables gathered (measurements of face and body) should be fairly reliable due to strict guidelines in selection and simplicity of physical linear measurement. Nevertheless, to assess reliability, the second coder rated a subset of the photographs. Three magazine issues were randomly selected from the 24 final issues, and the secondary coder (blind to the research hypothesis) coded photographs in each magazine.

Pearson's product-moment correlation coefficient was utilized to assess interrater reliability between the original coder's and the second coder's face and body measurements. Cohen's Kappa was utilized to assess interrater reliability between the original coder's and the second coder's classification of gender and occupational status. Any disagreements were settled by discussion among the raters.

A total of 166 photographs from three selected monthly magazine titles of the present data were used in this reliability analysis (January and April issues of *People* and the July issue of *Fortune*). The issues were selected by randomly drawing three issues from the total possible sample. These issues were coded by the second rater who was a college graduate trained in photograph measurement pertaining to this experiment.

Interrater reliability was satisfactory for the three categorically coded variables using the common criteria of .70 (Cohen, 1960). Kappa values for location, gender, and occupational status were .96, .99, and .85, respectively. Two continuous variables were also examined for interrater reliability. Face length as measured by the first coder was highly correlated with the second coder's face length measurements, $r(166)=.99, p<.05$. Total figure length (face + body) as measured by the first coder was also highly correlated with the second coder's total figure measurements, $r(166)=.99, p<.05$.

Instrument Validity

Face-to-body ratio measured in this study is highly face valid. Conceptualization of face-to-body ratio leads one to logically use physical measurements to operationalize the construct. Misinterpretation of the dependent variable, as it is defined here, is highly unlikely given the tangible

construct of physical measurement. It is expected that the physical measurements (length of face and body) acquired using a standard measurement tool (ruler), will be valid indicators of the construct measured (face-to-body ratio). Logical analysis was used in validity assessment of gender and occupational status. Basic classification of gender (male and female) was fairly straightforward in that individuals present in photographs were easily discernable as either male or female. Occupational status (intellectually focused and physically focused) was, however, less clear-cut. When the occupation of the individual in the photograph was not easily discerned by simple visual inspection, individuals were categorized using the context of the article in which the photograph was found. Admittedly, this type of classification would be increasingly difficult for photographs of occupationally unclassifiable individuals; however, such photographs were not used in this study.

Results

Pilot Test

Initially photographs were coded from a 12-month span of *People* magazine encompassing the entire 2004 calendar year, with one issue per month selected. The unexpectedly large sample size retrieved from this title ($N=582$) warranted an augmentation of the initially proposed collection of nine separate magazine titles. Analyses revealed that, for *People* magazine, the month of the publication was not associated with the gender of the person depicted, the occupation of the person depicted, nor the face-to-body ratio of the person depicted. These findings supported a data collection adjustment in that a subset of months (January, April, July, and October) could be safely selected without compromising later findings.

In addition to the change discussed above, it was also proposed to be more selective as to which magazine titles were chosen for inclusion. A total of six of the original nine magazines were chosen for inclusion (see Table 1). Three categories of magazines (entertainment/sports, news, and business-centered) were included in the final sample with two titles per category chosen based on readership rates. For the entertainment/sports category, *People* and *Sports Illustrated* were selected. For the news category, *Time* magazine and *Newsweek* were selected. For the business centered category, *Fortune* and *Money* magazine were selected. Each of these was selected because they had the highest readership with the exception of *Fortune* magazine, which carries a national readership rate base of approximately 830,000 people while *Forbes* magazine carries a national readership rate base of approximately 900,000

Table 1 Magazine readership for six publications in 2004.

Magazine Title	Readership (in subscriptions)
People ^a	3,350,000
Sports Illustrated ^b	3,150,000
Time ^c	4,000,000
Newsweek ^d	3,100,000
Fortune ^e	830,000
Money ^f	1,900,000

Subscription figures rounded to nearest thousand.

^a *People* (2005)

^b *Sports Illustrated* (2005)

^c *Lifestages* (2004)

^d *Newsweek* (2005)

^e *Fortune/FSB* (2005)

^f *Money... demographics* (2005)

(Forbesmedia.com, 2005). *Fortune* was chosen for inclusion, even with a slightly smaller readership, due to critical issues of *Forbes* magazine not being available for coding in the library at time of data collection.

Primary Study

Varying numbers of photographs came from each title: 246 from *People*, 135 from *Sports Illustrated*, 108 from *Money Magazine*, 79 from *Fortune*, 119 from *Time*, and 92 from *Newsweek*. Of the total, 553 (71.0%) photographs were of men. With regard to occupational status, 41.2% of the photographs coded were intellectually focused, while 58.8% were physically focused.

Gender and occupational status were related (χ^2 (1, $N=779$)=34.98, $p<.05$). In physically focused photographs, 59.5% of photographs were of men and 40.5% were of women. In intellectually focused photographs, men accounted for 79.0% of the photographs, and women accounted for only 21.0%. Magazine title and occupational status were also related (χ^2 (5, $N=779$)=248.33, $p<.05$). While intellectually focused photographs dominated the overall data set, two magazines differed from the rest in the way occupational status was distributed in their layout.

People and *Sports Illustrated* were found to be dominated by physically focused photographs. *Money*, *Fortune*, *Time*, and *Newsweek* were found to be dominated by intellectually focused photographs (see Table 2).

Test of Hypotheses

A 2 (gender) \times 2 (occupational status) univariate analysis of variance (ANOVA) was performed to address all three hypotheses related to this study. Hypothesis one, that face-to-body ratios of women will be significantly lower than those of men, was not supported ($F(1, 775)=0.01$, $p>.05$). Men ($M=.46$, $SD=.25$) did not differ from women ($M=.43$, $SD=.21$) with regard to face-to-body ratio.

A post hoc analysis involving different combinations of magazine titles was conducted in an attempt to explain this non-significant gender finding. A three-way ANOVA did not reveal significant differences across the six magazine titles when using gender and occupational status as the remaining two variables. This suggests that with regard to gender and occupational status, the six magazines examined in this study did not differ in the way they depicted men and women of varying occupations. This finding was further clarified by six individual ANOVAs (one for each publication title) and three individual ANOVAs (one for each magazine genre) examining gender and occupational status as before. None of these analyses revealed significant gender differences, while occupational differences emerged in five of the nine analyses (magazine titles: *People*, *Sports Illustrated*, and *Fortune*, and magazine genres: entertainment and business).

Hypothesis two, that face-to-body ratios of individuals in intellectually focused occupations (e.g. executive/businessperson, politician, or scientist/educator) will be significantly higher than those of individuals in physically focused occupations (e.g. sports figure, actor/entertainer, or model), was supported ($F(1, 775)=30.04$, $p<.05$). Intellectually focused photographs ($M=.51$, $SD=.24$) displayed significantly more face than physically focused photographs ($M=.38$, $SD=.21$).

Table 2 Sample sizes and percentages for women and men of physical and intellectual occupational status in six publications.

Photograph	People	Sports Illustrated	Newsweek	Time	Money	Fortune	Total
Physical							
Women	95 (38.6)	13 (9.6)	12 (13.0)	8 (6.7)	0 (0.0)	2 (2.5)	130 (16.7)
Men	60 (24.4)	90 (66.7)	12 (13.0)	26 (21.8)	1 (1.0)	2 (2.5)	191 (24.5)
Intellectual							
Women	38 (15.4)	2 (1.5)	13 (14.1)	19 (16.0)	20 (18.5)	4 (5.1)	96 (12.3)
Men	53 (21.5)	30 (22.2)	55 (59.8)	66 (55.5)	87 (80.6)	71 (89.9)	362 (46.5)
Total	246 (31.6)	135 (17.3)	92 (11.8)	119 (15.3)	108 (13.9)	79 (10.1)	779 (100.0)

Percentage of column total given in parentheses.

Table 3 Face-to-body ratio means, standard deviations, and sample sizes for women and men of intellectual and physical occupational status.

Gender	Means			Standard deviations			Sample sizes		
	<i>I</i>	<i>P</i>	Total	<i>I</i>	<i>P</i>	Total	<i>I</i>	<i>P</i>	Total
Women	.45	.42	.43	.21	.21	.21	96	130	226
Men	.52	.35	.46	.25	.21	.25	362	191	553
Total	.51	.38	.46	.24	.21	.24	458	321	779

I Intellectual, *P* Physical

Hypothesis three, that when controlling for occupational status, gender differences in face-to-body ratios will remain, was supported ($F(1, 775)=13.57, p<.05$). As shown in Table 3, men depicted in intellectually focused occupations were displayed with the highest face-to-body ratios, while men in physically focused occupations were displayed with the lowest face-to-body ratios. Women in both physically focused and intellectually focused occupations shared intermediate values. Additional tests were used to examine gender differences by occupational status. Because Levine's test for homogeneity of variance reached significance ($F(3, 775)=6.77, p<.05$), independent samples t-tests were used instead of simple effects analysis (simple effects use pooled error variance). Face-to-body ratio gender differences for individuals in intellectual occupations reached significance ($t(170.90)=2.77, p<.01$); men in intellectually focused occupations were found to have significantly higher face-to-body ratios than women in similar professions. The associated Cohen's *d* value of .33 revealed a small effect size for this comparison (Cohen 1988). Similarly, face-to-body ratio gender differences for individuals in physically focused occupations also reached significance ($t(273.43)=-2.76, p<.01$); women in physical occupations were found to have higher face-to-body ratios than men in similar occupations. The associated Cohen's *d* value of .32 again revealed a small effect size for this comparison (see Fig. 1).

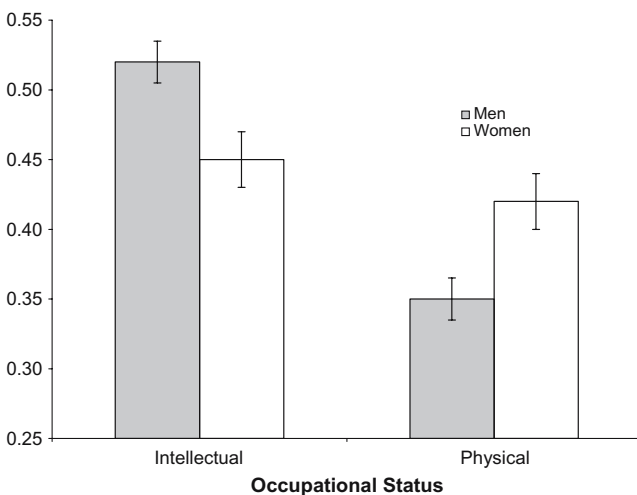


Fig. 1 Mean face-to-body ratio (+SE) for men ($n=553$) and women ($n=226$) of intellectual and physical occupational status.

Discussion

The first hypothesis of this study, that face-to-body ratios of women would be significantly lower than those of men, was not supported; 46% of the average man's photograph was dedicated to the face and 43% of the average woman's photograph was dedicated to the face. This nonsignificant gender finding was unexpected, in that previous studies examining face-to-body ratio have found consistent gender differences, including one previous study examining social role depiction (Dodd et al., 1989). Archer et al. (1983) reported women's face-to-body ratios similar to the current finding of 45% dedicated to face on average. However, men's face-to-body ratios in the Archer et al. study were found to be consistently higher when compared to the current data, .65 versus .46. Face-to-body ratios for men and women found in the Dodd et al. study show face-to-body ratios for men and women of .58 and .53, respectively.

One possible explanation for gender not emerging as a significant factor in the present study could have been the choice of media material. The current study examined article-embedded photographs in three different genres of popular magazines: entertainment-centered (*Sports Illustrated* and *People*), news-centered (*Time* and *Newsweek*), and business-centered (*Fortune* and *Money*). Almost all previous research in the field of facial prominence included data from both *Time* and *Newsweek* (Archer et al. 1983; Dodd et al. 1989; Nigro et al. 1988; Sparks and Fehlner 1986; Zuckerman and Kieffer 1994). Two studies included *Ms. Magazine* (Archer et al. and Nigro et al.), and one study broadened the examination to include two California newspapers (Archer et al.). The fact that the present study examined a total of six magazines, four of which were not previously included in the aforementioned research, could have made a difference in the face-to-body ratios of men and women in the current study. People of intellectual occupational status were represented in this study by inclusion of two business-centered magazines.

These findings suggest the possibility that, similar to the findings of Nigro et al. (1988), gender differences with regard to face-to-body ratio have diminished over time, at least since the last time face-to-body ratio was studied extensively in the mid to late 1980s. This fact that gender differences did not emerge for *Time* magazine or *Newsweek*

supports this conclusion, keeping in mind that Archer et al. (1983) found gender differences in a sample that included both *Time* magazine and *Newsweek*. These data seem to suggest that over the last 20 years the way in which men and women are depicted in print media, namely popular magazines, has changed. However, this change was not facilitated by the *removal* of the bias detected in the mid 1980s, rather just a *change* in the way face-to-body ratio is manifested, namely through differential occupational depiction.

The second hypothesis, that face-to-body ratios of individuals in intellectually focused occupations would be significantly higher than those of individuals in physically focused occupations was supported: individuals portrayed in intellectually focused occupations were portrayed with higher face-to-body ratios than individuals portrayed in physically focused occupations. Following the logic of Archer et al. (1983), who suggested an individual's portrayal in the media being related to what is valued about him or her in society, it may be concluded that individuals in intellectually focused occupations are valued for their cerebral qualities, while individuals in physically focused occupations are valued for qualities related to physicality such as attractiveness or physical strength. Archer et al. suggested the idea of personal identity in that "essential aspects of personal identity are thought to be centered in different anatomic locations" (p. 733). Although this idea was initially in reference to the perceived characteristics of men and women and the subsequent gender difference found with regard to face-to-body ratio, it suggests the idea that differing anatomic locations could be related to occupational qualities in addition to gender.

The third, and final, hypothesis addressed by this study, that when controlling for occupational status, gender differences in face-to-body ratio would remain, was supported. The omnibus ANOVA revealed an interaction effect between gender and occupational status. Analyzing the interaction using pair-wise comparisons further supported this finding. It was found that men were portrayed with more facial prominence in intellectual occupations than women, and with less facial prominence than women in physical occupations. This finding suggests that photographers, editors, and individuals in the position to dictate how individuals are depicted in magazines, might place differential facial priority on men and women with regard to occupational status.

These data suggest that somewhere during the photographic/layout/editing process in popular magazines, men are differentially highlighted for their cerebral qualities when being depicted in intellectual occupations, and differently highlighted for their physical qualities when being depicted in physical occupations; women's cerebral and somatic qualities are not similarly highlighted. It has

been shown in the past that positive attributes such as intelligence, ambition, and attractiveness are affected by facial prominence (Archer et al. 1983). Schwarz and Kurz (1989) found that judgments of competence were affected by facial prominence, where individuals depicted with higher facial prominence were judged to be more competent (as measured by a combined adjective list including intelligent, assertive, ambitious, and makes decisions easily).

Although overall gender differences did not surface in this study, gender differences were found with regard to face-to-body ratio when taking occupational status into account. This interaction effect suggests that a subtle form of sexism is present in the way men and women are depicted in print media. This study shows that men and women are depicted in both intellectual and physical careers, but it is the way they are depicted that is of interest here. When examining individuals in intellectual occupations, photographs of men are disproportionately dedicated to their face when compared to photographs of women in similar occupations. This suggests that the cerebral qualities associated with intellect are more readily attributed to men than to women. Likewise, in physical occupations, which place precedence on somatic qualities, men are once again being depicted with a higher proportion of the associated essence, in this case attention to bodily characteristics. These differential depictions suggest that men are superior to women in both occupational fields, by portraying men as both more intelligent and in possession of superior physical prowess.

Up to this point, studies have examined trait attributions and their connections to facial prominence without taking into account the occupational status of the individual being depicted. In addition to further examining the newly discovered tendency to depict men and women differently based on their occupation, further investigation should be done to examine attribute ratings and how those ratings interact with what occupation a depicted individual is purported to be assuming.

Although this study found a significant occupational difference with regard to face-to-body ratio, while not replicating the ubiquitously cited gender effect, one must remember that the current study used photographs of individuals being displayed in various professional positions and that a disordinal interaction was found when comparing gender and occupational status to face-to-body ratio. Disordinal interactions have the ability to reveal group differences on one variable even when a main effect of that variable does not reach statistical significance. In this case gender differences were found, although controlling for occupational status was required to reveal group differences.

The methodological adjustment of purposefully sampling and subsequently including various occupations was

needed in order to secure individuals depicted in a variety of occupational foci. Archer et al. (1983) proposed and subsequently utilized a strict set of guidelines that had been cited and used by the majority of researchers studying “face-ism” to selectively dictate specific photograph inclusion. Out of the five specific criteria set forth by Archer et al., one criteria was adjusted in this study so as to include a professional category methodically ignored by previous research, that of the professional athlete in photographs that captured a particular “body region, movement, problem, or gesture (e.g., performing athletes, people modeling clothes or cosmetics, using power tools, in weight loss ads, etc.)” (Archer et al., p. 727). With this population being excluded in previous research a large number of men depicted with low face-to-body ratio had been systematically ignored. In *Sports Illustrated*, approximately 67% of the photographs in this study were of men in varying athletic depictions.

Methodological Advantages

In this study, both the strengths and the weaknesses of the design need to be taken into account before generalizing the findings to popular media as a whole. This study utilized a large sample size that covered multiple reader audiences composed of three specific magazine genres. The broad nature of this data collection allowed the inclusion of various readerships representing various media markets. Unlike previous studies, a point was made to represent different media genres in order to be able to draw conclusions based on a wide variety of material.

The inclusion of multiple media genres was not the sole way of representing the popular media in a balanced fashion. This study was also designed to take into account the longitudinal aspect of the collection of media based data. Information from a full calendar year, representing all four seasons, was collected. This was done in an attempt to prevent seasonal bias, where monthly related fashion or recreational activities related to weather might have dominated a more time-focused data collection.

It should be noted the actual individuals that made up the four groups examined in this study were heterogeneous; a few single individuals were not overrepresented in any one group. For example, although certain individuals, such as Martha Stewart, were coded more than once in this study across different magazines, the total number of depictions of Ms. Stewart did not breach 5% of the total sample of intellectual women, and no other individuals were represented with more frequency than Ms. Stewart.

Methodological Concerns

Although steps were taken to include data from a variety of sources and to include data from all four seasons, this study

is not free from methodological problems that might prevent direct comparison to previous studies related to facial prominence. This study did introduce a novel operationalization of occupational status as a dichotomous variable. This categorization had not been used before in face-to-body ratio research. Ultimately, this classification represents “perceived” occupational status, as absolute occupational status information is not always provided in the context of the article. Examining the connection between “perceived” and “absolute” occupational status should be the focus of future research. In addition to the novel operationalization of occupational status, this study also included in its examination photographs in *Sports Illustrated* magazine. The inclusion of athletes from *Sports Illustrated* was needed to accurately represent the sports/entertainment genre of the current study. However, this again does not allow direct comparison to previous research that adhered strictly to Archer et al. (1983) guidelines. It however does not preclude the results of this study assisting in the clarification of gender differences found in face-to-body ratio.

The question of whether or not specific rules should be followed with respect to photograph inclusion should be addressed in future research. Studies comparing group differences in face-to-body ratio while entertaining the idea that inclusion may be systematically ignoring important information should be conducted. Until then, occupational status should be added to the list of variables that seem to influence the way individuals are photographed for representation in the popular media.

One might suspect that the actual readership of the magazine titles chosen could be problematic when generalizing these findings to popular media at large. As previously mentioned, gender differences with regard to face-to-body ratio did not significantly differ by magazine title, even though 2006 rate card data, obtained from the six publication websites, suggest that five of the six magazines sampled (*Fortune*, *Sports Illustrated*, *Money*, *Newsweek*, and *Time*) have a readership make-up that is primarily male based. Future research could take this information into account and strive for a more balanced sample when it comes to actual publication readership.

The methods involved in this study, somewhat simple but arduous, allowed a broad look at how and with what frequency men and women are portrayed in a selection of fairly popular magazine titles. This study shows that when thumbing through popular American magazines, men outweigh women in sheer quantity of instances displayed, representing close to 71% of this total sample. In addition to this gender bias, the single most frequent display was that of the intellectual man, comprising 46% of the total sample examined, versus 12% intellectual women. Clearly there is a disparity that exists in the media with regard to

displaying men and women equally in varying occupational roles. Where does this disparity come from? Future research should address the nature of this phenomenon; where along the photographic process are the decisions to frame individuals differently made, if consciously or unconsciously? One thing is certain: differing representations of individuals based on gender and occupational status do exist. The question is: how do representations support or refute stereotyped conceptions of men and women, and do differences with regard to facial prominence support a gender stereotype that we might not want passed to subsequent generations?

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References

- Archer, D., Iritani, B., Kimes, D., & Barrios, M. (1983). Face-ism: Five studies of sex differences in facial prominence. *Journal of Personality and Social Psychology, 45*, 725–735.
- Cohen, J. (1960). A coefficient of agreement for nominal scales. *Educational and Psychological Measurement, 20*, 37–46.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Earlbaum.
- Costa, M., & Ricci-Bitti, P. E. (2000). Face-ism effect and head canting in one's own and other's photographs. *European Psychologist, 5*, 293–301.
- Dodd, D. K., Harcar, V., Foerch, B. J., & Anderson, H. T. (1989). Face-ism and facial expressions of women in magazine photos. *The Psychological Record, 39*, 325–331.
- Duncan, M. C., & Sayaovong, A. (1990). Photographic images and gender in Sports Illustrated for Kids. *Play and Culture, 3*, 91–116.
- Forbesmedia.com–Forbes rates (2005). Retrieved January 27, 2005 from <http://forbesmedia.com/forbes/forbrates.php>.
- Fortune/FSB media kit (2005). Retrieved January 27, 2005 from <http://www.fortune.com/fortune/mediakit/rates-NorthAm.html>.
- Iijima-Hall, C. C., & Crum, M. J. (1994). Women and “body-isms” in television beer commercials. *Sex Roles, 31*, 329–337.
- Lifestages fidelity circulation of Time magazine (2004). Retrieved January 27, 2005 from http://www.time-planner.com/planner/circulation/circulation_content.html.
- Miller, S. H. (1975). The content of news photos: Women's and men's roles. *Journalism Quarterly, 52*, 70–75.
- Money...demographics (2005). Retrieved January 27, 2005 from <http://www.moneymediakit.com/moneymktg/Demographics.html>.
- Newsweek media kit (2005). Retrieved January 27, 2005 from <http://www.newsweekmediakit.com/newsite/us/editions/national.shtml>.
- Nigro, G. N., Hill, D. E., Gelbein, M. E., & Clark, C. L. (1988). Changes in the facial prominence of women and men over the last decade. *Psychology of Women Quarterly, 12*, 225–235.
- People Magazine rate card '05 (2005). Retrieved January 27, 2005 from <http://people.aol.com/people/web/adinfo/ratecard.pdf>.
- Ragan, J. M. (1982). Gender displays in portrait photographs. *Sex Roles, 8*, 33–43.
- Schwarz, N., & Kurz, E. (1989). What's in a picture? The impact of face-ism on trait attribution. *European Journal of Social Psychology, 19*, 311–316.
- Sexton, D. E., & Haberman, P. (1974). Women in magazine advertisements. *Journal of Advertising Research, 14*, 41–46.
- Sparks, G. G., & Fehlner, C. L. (1986, Autumn). Faces in the news: Gender comparisons of magazine photos. *Journal of Communication, 70–79*.
- Sports Illustrated rate card no. 63 (2005). Retrieved January 27, 2005 from <http://sportsillustrated.cnn.com/adinfo/si/2005RateCard63.pdf>.
- U.S. News and World Report 2005 media kit: Audience profiles (2005). Retrieved January 27, 2005 from http://www.usnews.com/usnews/media/print/2005_audience_profile.htm.
- Venkatesan, M., & Losco, J. (1975). Women in magazine ads: 1959–71. *Journal of Advertising Research, 15*, 49–55.
- Zuckerman, M. (1986). On the meaning and implication of facial prominence. *Journal of Nonverbal Behavior, 10*, 215–228.
- Zuckerman, M., & Kieffer, S. C. (1994). Race differences in face-ism: Does facial prominence imply dominance? *Journal of Personality and Social Psychology, 66*, 86–92.