



Digit ratio and celebrity worship

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ABSTRACT

The current study tested the hypothesis that digit ratios would be associated with celebrity worship, especially among adolescents. Our sample consisted of 45 male and 61 female participants aged 12–14 years ($M = 13.20$, $SD = 0.71$). We measured the digit ratios on the participants' right hands and used the 23 items of the revised Celebrity Attitude Scale (CAS) to explore the degree to which participants engaged in celebrity worship. The average digit ratio was 0.95 ($SD = 0.04$) among male participants and 0.97 ($SD = 0.05$) among female participants. The mean CAS scores were 50.06 ($SD = 20.63$) for male participants and 64.49 ($SD = 18.04$) for female participants. The digit ratios for the entire sample were positively correlated with CAS scores ($r = 0.29$, $p < 0.005$). However, the digit ratios were positively correlated with CAS scores among female ($r = 0.51$, $p < 0.001$) but not male ($r = -0.13$, $p = .394$) participants. Our research found evidence of a significant positive correlation between 2D:4D ratios and celebrity worship in females but not in males, which indicated that females with lower digit ratios were less likely to worship celebrities.

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1. Introduction

Although a correlation between digit ratio and celebrity worship may seem unlikely, I propose relationships between variables that link the two constructs. Individuals tend to demonstrate different degrees of unidirectional loyalty toward celebrities, which is homologous to nonhuman dominance relationships (Barkow, 1975). Indeed, given that digit ratios, especially for males, are negatively correlated with dominance and masculinity (Bailey & Hurd, 2005; Neave, Laing, Fink, & Manning, 2003), digit ratios and celebrity worship may be associated through a common connection to dominance and submission (Wilson, Near, & Miller, 1996). Thus, the current study aimed to explore the relationship between digit ratio and celebrity worship.

Manning, Scutt, Wilson, and Lewis-Jones (1998) suggested that the relative lengths of the second and fourth fingers (2D:4D ratio) was negatively correlated with prenatal testosterone. Evidence for this hypothesis was subsequently reviewed by Manning (2002, 2008), and Breedlove (2010), and significant sex differences in 2D:4D support the role of sex hormones in the development of digit length (Putz, Gaulin, Sporter, & McBurney, 2004). Furthermore, recent experimental work on the fetuses of mammals (rats and mice) has essentially confirmed that the 2D:4D ratio is negatively associated with prenatal testosterone and positively associated with prenatal estrogen (Manning, 2011; Talarovicova, Krskova, & Blazekova, 2009; Zhengui & Martin, 2011). Digit ratios (2D:4D)

are a sexually dimorphic trait, and are smaller for males than females in humans (Manning, 2002). If digit ratios are taken as an indicator of prenatal exposure to testosterone, the relationship between individual thoughts and behaviors and digit ratios should follow the same pattern as the relationship between these phenomena and testosterone.

In a related vein, individuals tend to admire and even worship celebrities. Over 75% of young adults reported an experience of strong attraction to a celebrity at some point in their lives; these celebrities were primarily musicians or movie stars but also included a variety of other figures (Boon & Lomore, 2001). A secondary attachment to celebrities may enable a young person to act out an imaginary relationship at a safe distance as a kind of “dress rehearsal” for adult relationships (Steele & Brown, 1995). Celebrities provide adolescents with a secondary group of pseudo-friends during a time of increasing autonomy from parents, but an intense focus on a single celebrity may ensue in difficulties with regard to achieving such autonomy (Giles & Maltby, 2004).

Past studies have suggested that celebrity worship or obsession is closely correlated with personality traits, including fantasy proneness (Maltby, Day, McCutcheon, Houran, & Ashe, 2006), self-esteem (North, Sheridan, Maltby, & Gillett, 2007), and narcissism (Ashe, Maltby, & McCutcheon, 2005). Celebrity worshippers have been described as “foolish,” “irresponsible,” and “submissive” (McCutcheon & Maltby, 2002). Furthermore, idolization of pop stars is an age- and sex-related phenomenon (Roe, 1983) that can be interpreted in terms of sex differences in testosterone levels, as reflected in digit ratios. This line of reasoning is supported, in part, by evidence that girls tend to idolize singers more than

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do boys (Raviv, Bar-Tal, Raviv, & Ben-Horin, 1996). Indeed, teenage boys may have a more realistic chance of attaining fame themselves, whereas girls may be more likely to resign themselves to achieving fame via association with a famous partner (Garratt, 1990).

Based on this perspective, digit ratios may be associated with the probability of engaging in celebrity worship. Individuals have different degrees of identification with, and worship of, celebrities. On average, females have both higher digit ratios than males, and more susceptibility to celebrity worship. We hypothesized that individuals with lower digit ratios would show less celebrity worship than would those with higher ratios, and that this relationship would be separate from each variable's association with sex. We further hypothesized that differences in celebrity worship would also be correlated with digit ratios within each sex. The current study was designed to explore the relationship between digit ratios and celebrity worship.

2. Method

2.1. Participants

One hundred and seven students were recruited from classes in a Korean middle school; one student failed to complete the questionnaire, resulting in a final sample of 106. The sample consisted of 45 male participants and 61 female participants aged 12–14 years ($M = 13.20$, $SD = 0.71$). Because the sample was ethnically homogenous, consisting entirely of Koreans, ethnic differences in 2D:4D (Manning, 2002) were controlled in this study. In general, idolization, expressed especially in worshiping and modeling behaviors, has been shown to be most prominent in the youngest age groups (ages 10–11, 13–14, and 16–17 years) and to decrease in intensity as a function of age (Raviv et al., 1996). We selected seventh graders as participants in our study because the phenomenon of idolization is especially characteristic of early adolescents, rendering this group the most potentially fruitful sample in which to explore this issue.

2.2. Procedure and measures

The current study hypothesized that individuals with higher levels of testosterone would demonstrate less celebrity obsession than would individuals with lower levels of testosterone. First, participants were asked to complete the Celebrity Attitude Scale (CAS), which contains items rated on a 5-point scale from “strongly disagree” to “strongly agree.” Our study used a Korean version of the original CAS. Participants were told by their teacher that their responses were confidential and that the purpose of the study was to examine a number of psychological factors that may be related to individual interest in celebrities. Questionnaires also solicited information on demographic variables such as sex and age. Second, we photographed participants' hands to determine digit ratios.

We used the 23 items of the revised CAS to explore the degree of celebrity worship. The original CAS, a 34-item questionnaire using a Likert scale (“strongly agree” = 5 and “strongly disagree” = 1) (Maltby, Houran, Lange, Ashe, & McCutcheon, 2002), was developed to identify the personality traits that were associated with stronger attraction toward celebrities; the revised CAS is a 23-item questionnaire that has been shown to have adequate validity and reliability (Maltby, McCutcheon, Ashe, & Houran, 2001; McCutcheon & Maltby, 2002). The Korean CAS demonstrated adequate internal reliability (Cronbach's $\alpha = 0.811$) in the present sample. The CAS addresses three aspects of celebrity worship: entertainment–social attitudes, intense personal feelings, and borderline pathological issues. Each item is rated on a 5-point Likert

scale, yielding total scores between 23 and 115. Established studies have demonstrated no significant gender difference in CAS scores (Maltby et al., 2001, 2002, 2006; McCutcheon & Maltby, 2002; McCutcheon, Ashe, Houran, & Maltby, 2003). However, our participants were in their early teens, whereas participants in past studies have been in their twenties.

We included the traditional 2D:4D measure as a proxy for prenatal androgen exposure. The current study focused on digit ratios in the right hand because these tend to be more strongly expressive of risk-taking or aggression (Manning, 2002). We scanned participants' right palms on the glass plate of a scanner and ensured that details of the major creases could be seen on the scans. Finger lengths were measured from the ventral proximal crease to the fingertip by means of the Adobe Photoshop measuring tool using Millet and Dewitte's (2007) procedure. When a band of creases appeared at the base of the digit, we measured from the most proximal crease (Millet & Dewitte, 2006). To check for reliability, a second independent rater also measured finger lengths. The intraclass correlation coefficient for the two measurements of 2D:4D was 0.98, which indicated a high level of internal consistency.

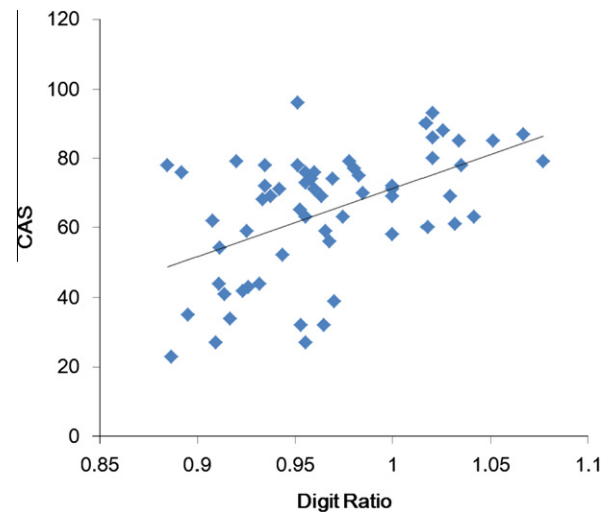


Fig. 1. Scatterplot of digit ratios and Celebrity Attitude Scale (CAS) scores for female participants ($n = 61$).

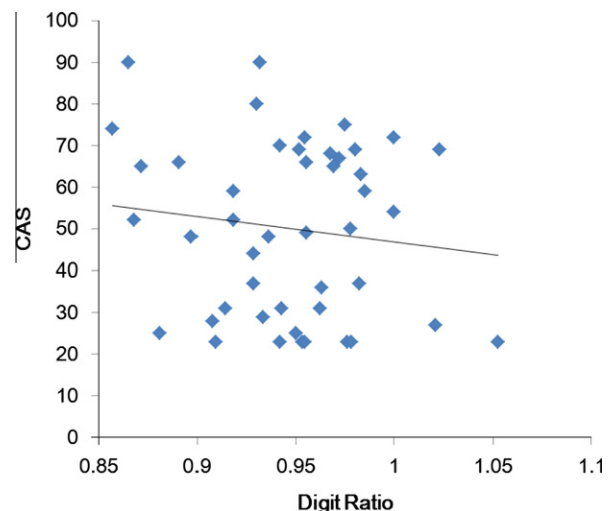


Fig. 2. Scatterplot of digit ratios and Celebrity Attitude Scale (CAS) scores for male participants ($n = 45$).

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