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Running head: STEREOTYPE ENDORSEMENT AND GIRLS' SOCCER PERFORMANCE

Stereotype endorsement and perceived ability as mediators of the girls' gender
orientation-soccer performance relationship.

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Abstract

Objective: This study investigated girls' endorsement of the stereotype that girls are not good soccer performers through three questions: (1) Did stereotype endorsement predict soccer performance? (2) Was this relationship mediated by perceived ability? and (3) Was stereotype endorsement related to gender role orientation?

Method: One-hundred-and-two junior high school girls from the 6th to the 9th grade ($M_{age} = 13.5$ years, $SD = 1.23$) reported their beliefs about girls' and boys' performance in soccer, perceived ability and gender role orientation. Next, their soccer performance was observed during matches in compulsory physical education classes. A path-analytic model tested the relationships among the variables using a product-moment correlation matrix and a maximum likelihood estimation procedure.

Results: Stereotype endorsement (i.e., the belief that girls' performance in soccer is poor) negatively predicted performance, this relationship being mediated by perceived ability. Moreover, masculinity positively predicted perceived ability, and this relationship was partially mediated by stereotype endorsement.

Conclusion: This study reinforces the idea that girls' sports performance may be related to gender stereotypes. Interpretations of the results in light of Eccles et al.'s expectancy-value model and stereotype threat theory are discussed, along with implications for practice.

Key words: Gender stereotypes; Stereotype endorsement; Sports performance; Perceived ability; Gender role.

Introduction

Although female sports participation has recently increased (e.g., Riemer & Visio, 2003), boys perform still better in physical education (PE) classes (French Ministry of Education, 2000). This may be due to the influence of the stereotype that many sports are masculine, which has been shown to affect perceived ability in sports (e.g., Fredricks & Eccles, 2005). However, although one may have knowledge of a cultural stereotype, his or her personal beliefs may or may not be congruent with the stereotype (Devine, 1989). In other words, it is important to investigate stereotype endorsement in order to have a deeper understanding of the influence of gender stereotypes on sports performance, and this was the goal of the study.

A few research reported an effect of stereotype endorsement on perceived ability (e.g., Bonnot & Croizet, 2007; Schmader, Johns, & Barquissau, 2004), but only one study to our knowledge has investigated its effects on performance (Belcher, Lee, Solmon, & Harrison, 2003): girls considering hockey as masculine performed lower than girls perceiving it as neutral. However, these latter girls watched a same-sex model proficiently executing the task, and this may have explained the results (e.g., Gould & Weiss, 1981). A first goal of this study was to examine stereotype endorsement as a predictor of performance and the mediation of this relationship by perceived ability. Second, as research has shown that people who endorse the attributes considered as appropriate to their sex (e.g., women endorsing feminine attributes) are likely to assess the appropriateness of sports on a gender basis (e.g., Koivula, 1995), a second goal was to study masculinity (M) and femininity (F) as antecedents of stereotype endorsement. The tested model is presented in Figure 1.

Method

Participants and procedure

One-hundred-and-two girls ($M_{age} = 13.5$ years, $SD = 1.2$) from the 6th to the 9th grade of three French junior high schools participated in this correlational study. Data were collected in PE classes during compulsory soccer lessons, a sport perceived as masculine in Europe (Koivula, 1995). Students filled out a questionnaire, and after a 10-minute warming up, the teacher constituted three-player teams of same level students (i.e., high-level players together and low-level players together). Next, students played four-minute matches based on the “up-and-down” rule, which favours an equal rapport of strength: the fields were numbered, and at the end of each game, the winning team “moved up” from for example field #3 to #2, whereas the losing team “moved down”. The experimenter, who was an experienced soccer player and blind to participants’ responses to the questionnaire, observed the players of one team per game, each team being observed once.

Measures

Perceived ability in soccer was assessed by three items on a 7-point scale ranging from (1) very poor to (7) very good (e.g., “I think that my level of performance in soccer is:”), used by Duda and Nicholls (1992) and adapted to soccer ($\alpha = .74$).

Stereotype endorsement was assessed with Bonnot and Croizet’s (2007) measure, including two items relative to the level of soccer performance students personally assigned to girls and boys (e.g., “personally, I think that girls’ performance in soccer is”) on a scale ranging from (1) very poor to (7) very good. The order of these two items was counterbalanced. The more participants believed that girls’ performance was poor controlling for boys’ performance, the more they endorsed the stereotype.

Masculinity and femininity. Participants filled out the validated French short version for teenagers of the Bem Sex Role Inventory (Fontayne, Sarrazin, & Famose, 2000) on a 7-point Likert scale. Athleticism, leadership, and self-confidence compose the M orientation ($\alpha = .77$). Tenderness and sensitivity to others compose the F orientation ($\alpha = .69$).

Soccer performance. A measure elaborated by Gréhaigne, Godbout, and Bouthier (1997) was used. Unlike standardized tests assessing only technical skills, this measure also assesses tactical skills, indexing thus more accurately one's overall soccer ability. Four elements compose it: (1) *offensive balls* (OB): the successful passes to a partner; (2) *successful shots* on goal (SS); (3) *conquered balls* (CB): the balls intercepted or stolen from an opponent, and (4) *lost balls* (LB): the balls lost to the other team. The formula used to calculate performance was: $(OB+SS+CB) / (10+LB)$. The more the index is positive, the higher the performance. Gréhaigne et al. (1997) showed a good interobserver reliability of this index between four raters (.90) using the intraclass correlation technique, and a good performance stability (.87) over a one-week period. They also reported a good concurrent validity, the index being related with a different soccer performance measure ($r = .74$). In the current study some matches were videotaped on a random basis, and a second observer rated four teams (i.e., 12 students), representing approximately 10% of the sample. The intraclass correlation was very good (.92), showing a good interobserver reliability.

Results

A path-analytic model tested the presumed relationships among the variables with the EQS 6.1 program, using a product-moment correlation matrix and a maximum likelihood estimation procedure¹. The adequacy of the proposed model² was evaluated using four indices: (a) the chi-square distribution under the null hypothesis, (b) the normal fit index (NFI; Bentler & Bonett, 1980), (c) the comparative fit index (CFI; Bentler, 1990), and (d) the root mean square error of approximation (RMSEA). The adequacy of the model was good: $\chi^2(2) = 1.59, p = .45, NFI = .98, CFI = 1, RMSEA = .00$. Figure 1 shows the standardised path coefficients. First, belief that girls' performance in soccer is poor³ negatively predicted perceived ability ($\beta = -.26, p = .002$), which significantly predicted performance ($\beta = .30, p = .002$). Belief about girls' performance did not predict performance ($\beta = -.13, p = .18$), after

controlling for the effect of perceived ability, whereas the direct correlation between these variables was significant ($r = -.21, p < .05$). This suggests that perceived ability mediated this relationship. Next, M marginally predicted belief about girls' performance ($\beta = -.18, p = .07$), and significantly predicted perceived ability ($\beta = .44, p < .01$) and belief that boys' performance in soccer is good ($\beta = -.21, p = .04$). This suggests that stereotype endorsement partially mediated the relationship between gender role and perceived ability. Finally, the analyses did not reveal any significant relationship involving F.

Discussion

First, results showed that the more girls believed in the negative ingroup stereotype associated with soccer (i.e., that girls' performance is poor), the lower they performed, this relationship being mediated by a low perceived ability. These findings provide an extension to the literature by showing that stereotype endorsement may predict not only perceived ability, but also actual performance. They also demonstrate the role of perceived ability in the mediation of this relationship, reinforcing Eccles et al.'s expectancy-value model (e.g., Fredricks & Eccles, 2005). These results may be understood in terms of a stereotype internalisation hypothesis: the exposure to cultural stereotypes during the socialisation process may lead some people to believe that the stereotypes are true for themselves, resulting in poor performance in the stereotyped domain (e.g., Bonnot & Croizet, 2007).

Stereotypes may also affect performance in other ways. For example, a more situational interpretation would be to consider the results in terms of *stereotype threat* (e.g., Steele & Aronson, 1995): when a negative ingroup stereotype is made salient in a testing situation, people may fear confirming the stereotype, this extra pressure impeding their performance. A study recently showed that females may be susceptible to this effect in soccer (Chalabaev, Sarrazin, Stone, & Cury, 2008). However, stereotype threat is not supposed to affect perceived ability (e.g., Steele & Aronson, 1995, Study 1), but instead to create an

1 “interpretative framework” that when difficulty is experienced during the task, it reduces self-
2 efficacy, which may evolve during the task and is thus a more situation-specific self-
3 assessment than perceived ability (Ryan & Ryan, 2005). In this study we did not examine
4 girls’ self-efficacy during the task, but rather their perception about their general soccer
5 ability prior to the evaluation. In sum, if Eccles et al.’s expectancy-value model seems to be
6 more appropriate to interpret our results, it is important to note that stereotypes may affect
7 performance in many ways that may add up to each other. It would be interesting to
8 distinguish in future studies the gender stereotypes effects due to stereotype internalisation
9 from the effects due to the presence of stereotypes in the social context.

10 Next, results showed that M negatively predicted stereotype endorsement, but not F.
11 According to the differentiated additive androgyny model (e.g., Marsh & Byrne, 1991), the
12 contribution of M is more important in masculine domains whereas the contribution of F is
13 more important in feminine domains. This idea has been corroborated in the sports areas (e.g.,
14 Guillet, Sarrazin, Fontayne, et Brustad, 2006), and could thus explain why F did not affect
15 stereotype endorsement and perceived ability in soccer.

16 Although this research reveals both some consequences and antecedents of stereotype
17 endorsement, the results need to be considered with care. As with all path analytic studies, it
18 is always possible that a relevant variable was omitted. Also, we cannot talk about causal
19 relations between the variables: indeed, symmetrical relations may exist. For example, based
20 on the *identity bifurcation* theory (Pronin, Steele, & Ross, 2004), identification to soccer (i.e.,
21 non-endorsement of the stereotype) may lead to the depreciation of feminine characteristics in
22 favour of masculine ones.

23 To conclude, this study reinforces the idea that girls’ poor performance in PE classes
24 is in part due to the influence of gender stereotypes and highlight the role of personal beliefs
25 in this relationship. This implies that it could be useful to design intervention programs based

- 1 on changing girls' perceptions about gender appropriateness of sports in order to enhance
- 2 their performance in masculine sports.

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Footnotes

1. The correlation matrix is available from the first author of the article.

2. Different models were also tested but not reported in the paper. For example, the direct relations between M, F and performance were formulated, but the paths between these variables were not significant ($ts < |1.09|$). Thus, this model is not discussed any further. Moreover, the interaction between M and F was not significantly related to the other variables and was thus not included in the model tested in this study.

3. In order to clarify the interpretations, the response to the belief about girls' performance item was reversed.

Figure Captions

- 1
- 2 *Figure 1.* Results of the path analysis model testing the relationships between the variables of
- 3 the study.

Figure 1.

Note. $^\dagger p < .10$; $* p < .05$; $** p < .01$.