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

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1   Running head: STEREOTYPE ENDORSEMENT AND GIRLS' SOCCER PERFORMANCE

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1   Abstract

2   Objective: This study investigated girls' endorsement of the stereotype that girls are not good

3   soccer performers through three questions: (1) Did stereotype endorsement predict soccer

4   performance ? (2) Was this relationship mediated by perceived ability? and (3) Was

5   stereotype endorsement related to gender role orientation?

6   Method: One-hundred-and-two junior high school girls from the 6th to the 9th grade (Mage =

7   13.5 years, SD = 1.23) reported their beliefs about girls' and boys' performance in soccer,

8   perceived ability and gender role orientation. Next, their soccer performance was observed

9   during matches in compulsory physical education classes. A path-analytic model tested the

10   relationships among the variables using a product-moment correlation matrix and a maximum

11   likelihood estimation procedure.

12   Results: Stereotype endorsement (i.e., the belief that girls' performance in soccer is poor)

13   negatively predicted performance, this relationship being mediated by perceived ability.

14   Moreover, masculinity positively predicted perceived ability, and this relationship was

15   partially mediated by stereotype endorsement.

16   Conclusion: This study reinforces the idea that girls' sports performance may be related to

17   gender stereotypes. Interpretations of the results in light of Eccles et al.'s expectancy-value

18   model and stereotype threat theory are discussed, along with implications for practice.

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20   Key words: Gender stereotypes; Stereotype endorsement; Sports performance; Perceived

21   ability; Gender role.

1   Introduction

2   Although female sports participation has recently increased (e.g., Riemer & Visio,

3   2003), boys perform still better in physical education (PE) classes (French Ministry of

4   Education, 2000). This may be due to the influence of the stereotype that many sports are

5   masculine, which has been shown to affect perceived ability in sports (e.g., Fredricks &

6   Eccles, 2005). However, although one may have knowledge of a cultural stereotype, his or her

7   personal beliefs may or may not be congruent with the stereotype (Devine, 1989). In other

8   words, it is important to investigate stereotype endorsement in order to have a deeper

9   understanding of the influence of gender stereotypes on sports performance, and this was the

10   goal of the study.

11   A few research reported an effect of stereotype endorsement on perceived ability (e.g.,

12   Bonnot & Croizet, 2007; Schmader, Johns, & Barquissau, 2004), but only one study to our

13   knowledge has investigated its effects on performance (Belcher, Lee, Solmon, & Harrison,

14   2003): girls considering hockey as masculine performed lower than girls perceiving it as

15   neutral. However, these latter girls watched a same-sex model proficiently executing the task,

16   and this may have explained the results (e.g., Gould & Weiss, 1981). A first goal of this study

17   was to examine stereotype endorsement as a predictor of performance and the mediation of

18   this relationship by perceived ability. Second, as research has shown that people who endorse

19   the attributes considered as appropriate to their sex (e.g., women endorsing feminine

20   attributes) are likely to assess the appropriateness of sports on a gender basis (e.g., Koivula,

21   1995), a second goal was to study masculinity (M) and femininity (F) as antecedents of

22   stereotype endorsement. The tested model is presented in Figure 1.

23   Method

24   *Participants and procedure*

1   One-hundred-and-two girls (*M*age = 13.5 years, *SD* = 1.2) from the 6th to the 9th grade

2   of three French junior high schools participated in this correlational study. Data were

3   collected in PE classes during compulsory soccer lessons, a sport perceived as masculine in

4   Europe (Koivula, 1995). Students filled out a questionnaire, and after a 10-minute warming

5   up, the teacher constituted three-player teams of same level students (i.e., high-level players

6   together and low-level players together). Next, students played four-minute matches based on

7   the "up-and-down" rule, which favours an equal rapport of strength: the fields were

8   numbered, and at the end of each game, the winning team "moved up" from for example field

9   #3 to #2, whereas the losing team "moved down". The experimenter, who was an experienced

10   soccer player and blind to participants' responses to the questionnaire, observed the players of

11   one team per game, each team being observed once.

12   *Measures*

13   *Perceived ability in soccer* was assessed by three items on a 7-point scale ranging

14   from (1) very poor to (7) very good (e.g., "I think that my level of performance in soccer is:"),

15   used by Duda and Nicholls (1992) and adapted to soccer (α = .74).

16   *Stereotype endorsement* was assessed with Bonnot and Croizet's (2007) measure,

17   including two items relative to the level of soccer performance students personally assigned to

18   girls and boys (e.g., "personally, I think that girls' performance in soccer is") on a scale

19   ranging from (1) very poor to (7) very good. The order of these two items was

20   counterbalanced. The more participants believed that girls' performance was poor controlling

21   for boys' performance, the more they endorsed the stereotype.

22   *Masculinity and femininity.* Participants filled out the validated French short version

23   for teenagers of the Bem Sex Role Inventory (Fontayne, Sarrazin, & Famose, 2000) on a 7-

24   point Likert scale. Athleticism, leadership, and self-confidence compose the M orientation (α

25   = .77). Tenderness and sensitivity to others compose the F orientation (α = .69).

1   *Soccer performance.* A measure elaborated by Gréhaigne, Godbout, and Bouthier

2   (1997) was used. Unlike standardized tests assessing only technical skills, this measure also

3   assesses tactical skills, indexing thus more accurately one's overall soccer ability. Four

4   elements compose it: (1) *offensive balls* (OB): the successful passes to a partner; (2)

5   *successful shots* on goal (SS); (3) *conquered balls* (CB): the balls intercepted or stolen from

6   an opponent, and (4) *lost balls* (LB): the balls lost to the other team. The formula used to

7   calculate performance was: (OB+SS+CB) / (10+LB). The more the index is positive, the

8   higher the performance. Gréhaigne et al. (1997) showed a good interobserver reliability of

9   this index between four raters (.90) using the intraclass correlation technique, and a good

10   performance stability (.87) over a one-week period. They also reported a good concurrent

11   validity, the index being related with a different soccer performance measure (r = .74). In the

12   current study some matches were videotaped on a random basis, and a second observer rated

13   four teams (i.e., 12 students), representing approximately 10% of the sample. The intraclass

14   correlation was very good (.92), showing a good interobserver reliability.

15   Results

16   A path-analytic model tested the presumed relationships among the variables with the

17   EQS 6.1 program, using a product-moment correlation matrix and a maximum likelihood

18   estimation procedure[1]. The adequacy of the proposed model[2] was evaluated using four

19   indices: (a) the chi-square distribution under the null hypothesis, (b) the normal fit index

20   (NFI; Bentler & Bonett, 1980), (c) the comparative fit index (CFI; Bentler, 1990), and (d) the

21   root mean square error of approximation (RMSEA). The adequacy of the model was good:

22   $\chi^2(2)$ = 1.59, p = .45, NFI = .98, CFI = 1, RMSEA = .00. Figure 1 shows the standardised path

23   coefficients. First, belief that girls' performance in soccer is poor[3] negatively predicted

24   perceived ability (β = -.26, p = .002), which significantly predicted performance (β = .30, p =

25   .002). Belief about girls' performance did not predict performance (β = -.13, p = .18), after

1 controlling for the effect of perceived ability, whereas the direct correlation between these

2 variables was significant ($r = -.21$, $p < .05$). This suggests that perceived ability mediated this

3 relationship. Next, M marginally predicted belief about girls' performance ($\beta = -.18$, $p = .07$),

4 and significantly predicted perceived ability ($\beta = .44$, $p < .01$) and belief that boys'

5 performance in soccer is good ($\beta = -.21$, $p = .04$). This suggests that stereotype endorsement

6 partially mediated the relationship between gender role and perceived ability. Finally, the

7 analyses did not reveal any significant relationship involving F.

8   Discussion

9   First, results showed that the more girls believed in the negative ingroup stereotype

10 associated with soccer (i.e., that girls' performance is poor), the lower they performed, this

11 relationship being mediated by a low perceived ability. These findings provide an extension to

12 the literature by showing that stereotype endorsement may predict not only perceived ability,

13 but also actual performance. They also demonstrate the role of perceived ability in the

14 mediation of this relationship, reinforcing Eccles et al.'s expectancy-value model (e.g.,

15 Fredricks & Eccles, 2005). These results may be understood in terms of a stereotype

16 internalisation hypothesis: the exposure to cultural stereotypes during the socialisation process

17 may lead some people to believe that the stereotypes are true for themselves, resulting in poor

18 performance in the stereotyped domain (e.g., Bonnot & Croizet, 2007).

19   Stereotypes may also affect performance in other ways. For example, a more

20 situational interpretation would be to consider the results in terms of *stereotype threat* (e.g.,

21 Steele & Aronson, 1995): when a negative ingroup stereotype is made salient in a testing

22 situation, people may fear confirming the stereotype, this extra pressure impeding their

23 performance. A study recently showed that females may be susceptible to this effect in soccer

24 (Chalabaev, Sarrazin, Stone, & Cury, 2008). However, stereotype threat is not supposed to

25 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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1   Footnotes

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

3   2. Different models were also tested but not reported in the paper. For example, the

4 direct relations between M, F and performance were formulated, but the paths between these

5 variables were not significant ($ts < |1.09|$). Thus, this model is not discussed any further.

6 Moreover, the interaction between M and F was not significantly related to the other variables

7 and was thus not included in the model tested in this study.
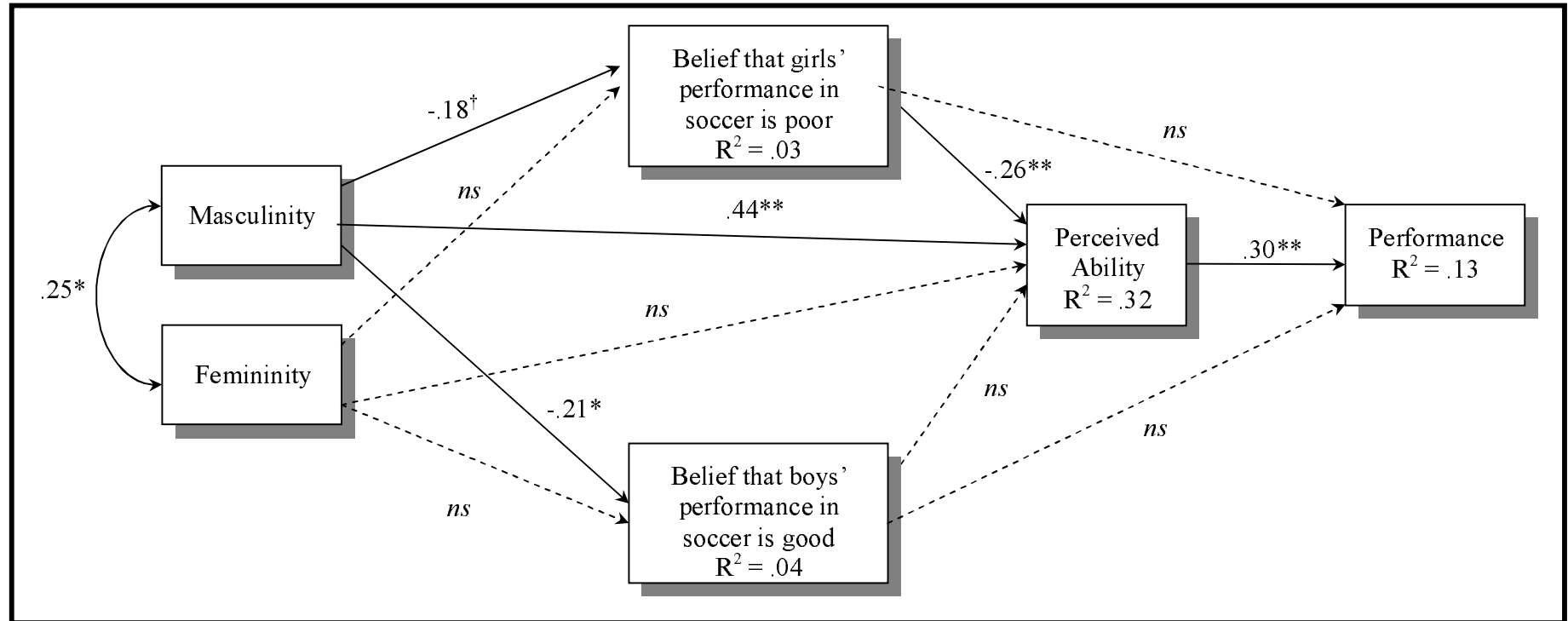
8   3. In order to clarify the interpretations, the response to the belief about girls'

9 performance item was reversed.

10

1   Figure Captions

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

3   the study.

Figure 1.

Note. † *p* < .10; * *p* < .05; ** *p* < .01.