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Development of gender stereotypes relative to sport competence and value during
adolescence

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Abstract

Objectives. Sex stereotypes adoption is presumed to impact one's perceived competence and value and to ultimately lead to dropout of certain activities. Adolescence is deemed to represent a period during which sex stereotypes are reinforced. The purpose of this study was to examine through a longitudinal design how sex stereotypes concerning athletic competence and value differ across adolescence. **Design.** A three-wave longitudinal follow-up within five cohorts of adolescents ($N = 718$) was realized. **Method.** The participants completed a questionnaire assessing indirectly sport value and sport competence sex stereotypes. **Results.** Multilevel growth curve analyses indicated that (i) boys report higher levels of stereotypes, (ii) the level of stereotypes endorsement increases with age, (iii) the rate of change of stereotypes endorsement decreases, and (iv) its increase is more pronounced among girls. **Conclusions.** The hypothesis of an increase of sport stereotypes attached to sport is confirmed among girls. Methodological shortcomings are underlined and research perspectives are advanced.

Key-Words: adolescence; sport; self-concept; motivation

Development of sex stereotypes relative to sport competence and value during adolescence

Adopting an active lifestyle is associated with positive youth development (Mahoney, Harris, & Eccles, 2006), the quality of cognitive executive functioning (Guiney & Machado, 2013), and physical health across the lifespan (Bauman, 2004). Because adolescence represents a key period regarding extra-curricular activities such as sport (Boyd & Bee, 2008), it is crucial to identify the factors likely to affect sport participation in youth. Social psychologists advance that such decisions are partly influenced by sex stereotypes (Fredricks & Eccles, 2005), that is “shared social beliefs regarding the characteristics—both personality traits and behaviors—of social groups” (Leyens, Yzerbyt, & Schadron, 1994). Despite significant changes in the latter decades, sport is still viewed as a “male area” in western countries, and recent reports indicate that boys / men still participate more in sports, compared to girls / women (e.g., van Tuyckom, Scheerder, & Bracke, 2010).

According to a recent review (Chalabaev, Sarrazin, Fontayne, Boiché, & Clément-Guillotin, 2013), there are two main pathways in which sex stereotypes manifest in sporting contexts. First, as long as it is known by the individual, a stereotype can operate directly and affect his/her performance if it is activated in a valued situation (e.g., Chalabaev, Sarrazin, Stone, & Cury, 2008). Stereotypes can also operate indirectly, through an internalization process. One of the most fruitful theoretical frameworks devoted to the understanding of sex stereotypes transmission and internalization is the Eccles and collaborators’ Expectancy-Value Model (EVM; Eccles, Freedman-Doan, Frome, Jacobs, & Yoon, 2000). According to this model, the two most proximal variables determining a young individual’s choices and behaviors are his/her expectations of success in the activity and the value that he/she places into it. *Expectations of success* are the chances of success estimated in a given situation, and are assumed to be directly related to perceived ability or competence (Eccles et al., 2000).

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1 Numerous studies observed a significant link between expectations of success or perceptions
2 of competence, and physical activity or sport involvement in youth. Researchers reported
3 significant correlations between such perceptions and the time spent being physically active
4 (e.g., Bois, Sarrazin, Brustad, Trouilloud, & Cury, 2005; Eccles & Harold, 1991), and a
5 negative bound between perceived competence and dropout from the activity (Guillet,
6 Sarrazin, Fontayne, & Brustad, 2006). Next, subjective *value* refers to the relative importance
7 accorded to do well in the activity, its perceived usefulness, the inherent interest, potential
8 positive outcomes, and costs attached to engaging in it. The importance, usefulness, and
9 interest aspects of value were the most studied, and were found to be positively associated
10 with sport involvement (e.g., Eccles & Harold, 1991) and negatively associated with dropout
11 (Guillet et al., 2006).

12 Past research consistently observed significant differences in favour of boys and men
13 in the levels of perceived competence and value in sport (e.g., Fredricks & Eccles, 2005).
14 Eccles' (EVM) suggests that those differences are partly due to the endorsement of
15 stereotypes attached to the sport context (Eccles et al., 2000). Recent research supports this
16 hypothesis, indicating that the more adolescents adhere to stereotypes in favour of the other
17 sex, the less they feel competent and value their sport, and the less they intend to pursue it
18 (Authors, in press, Study 2). Dropout athletes were also found to endorse to a greater extent
19 sport competence stereotype in favour of the opposite gender (Authors, in press, Study 1).
20 Taken together, those results sustain the view that female adolescents who endorse pro-male
21 stereotypes relative to the sport area will tend to perceive themselves as less competent and to
22 value sport to a lower extent, and should be more prone to stop their participation.

23 According to Hill and Lynch (1983), adolescence represents a crucial developmental
24 period during which gender stereotypes are assimilated, in relationship with the pubertal
25 processes that increase the salience of gender. However, empirical studies exploring this issue

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1 remain scarce and are for the large part cross-sectional. The longitudinal studies of Galambos,
2 Almeida, and Petersen (1990), and of Alfieri, Ruble, and Higgins (1996) constitute exceptions
3 with this regard. Alfieri et al. (1996) interrogated 4th to 8th graders about the appropriateness
4 for boys/men and girls/women of certain stereotypical activities and traits. They observed that
5 the flexibility of gender roles (i.e., appropriate for both girls and boys) increases after they
6 transitioned from elementary to high school but then decreases. Galambos and colleagues
7 (1990) observed among 6th to 8th grade that boys significantly scored lower on scales
8 expressing beliefs in gender equality, compared to girls. If no developmental studies in the
9 sport area examined the evolution gender stereotypes, a handful of studies examined the
10 developmental trends of perceived sport competence and value as a function of sex. They
11 consistently indicated that those perceptions decrease during childhood and adolescence
12 (Jacobs et al., 2002; Marsh, 1989; Wigfield et al., 1997). They also reported that boys
13 perceived themselves as more competent in sport than girls during these developmental
14 periods, that they valued sport more than girls, and that gender differences in those
15 perceptions tended to increase (Jacobs et al., 2002; Marsh, 1989; Wigfield et al., 1997).

16 The EVM (Eccles et al., 2000) suggests that self-perceptions partly result from gender
17 stereotypes internalization into the self. If a significant proportion of adolescents endorse
18 more and more pro-male stereotypes in the sport domain, sport-related self-perceptions of
19 competence and value should be increasingly lower in adolescent females, compared to
20 males. Past studies (Jacobs et al., 2002; Marsh, 1989; Wigfield et al., 1997) are consistent
21 with this hypothesis of an increased endorsement of gender stereotypes relative to sport, but
22 did not directly test it. The purpose of this three-wave longitudinal study was precisely to
23 investigate the evolution of gender stereotypes relative to sport during adolescence. Based on
24 Eccles' model, two stereotypes were studied: the belief that sport is more important for boys
25 than for girls (value) and the belief that boys are more competent in sport, compared to girls

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(competence). It was expected that pro-masculine stereotypes endorsement would increase during adolescence and both linear and quadratic changes were examined. Considering the gender effects observed in past research (Galambos et al., 1990), it was hypothesized that boys would report higher scores than girls.

Method

Participants and Procedure

Data for these analyses come from a longitudinal study of students from 6th through 12th grade, relative to the Perceptions of Sport during Adolescence (Boiché & Sarrazin, 2007). The study was conducted in France between 2004 and 2006 and explored several psychosocial variables likely to account for sport motivation, including sex stereotypes. During the first wave of data collection, students from 6th, 7th, 8th, 9th, and 10th grades participated. Those cohorts were followed through the next two waves of data collection. In France, high school is divided into junior high school – for students aged about 11 to 15 years in grades 6 through 9 – and senior high school – for students aged about 15 to 18 years in grades 10 through 12. The high schools in which the data were collected were public and welcomed students from a variety of backgrounds - lower, middle and upper-class - in a middle-size city (one hundred and fifty thousand inhabitants). The sample comprised adolescents living in an urban or suburban area and was representative of the French adolescent population in terms of academic profile and socioeconomic background. Overall, 1015 students participated at wave 1; 790 at wave 2; and 893 at wave 3, and only 368 students participated at all three times of data collection. The analyses were conducted on those 718 students who participated in at least 2 waves of data collection (47% of boys at wave 1).

Measures

Endorsement of sport-related sex stereotypes. The measure developed by Bonnot and Croizet (2007) was used in the current study. Because traditional scales (e.g., “Men are better

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than women at sports”) can generate strong social desirability biases (Chalabaev et al., 2013), stereotypes endorsement was assessed by two items through which participants evaluated separately boys and girls on 7-point Likert scales. Two stereotypes were assessed, sport competence: “Personally, I think that performance of boys in sport is...”; “Personally, I think that performance of girls in sport is...”; answers ranging from 1 (*very poor*) to 7 (*very good*), and sport value: “Personally, I think that for boys doing sport is...”; “Personally, I think that for girls doing sport is...”; answers ranging from 1 (*not important at all*) to 7 (*very important*). For each stereotype, the score attributed to girls was subtracted to the one given to boys so that positive scores reflect pro-male stereotypes, negative scores pro-feminine stereotypes, and null scores the absence of sex stereotypes. The validity of such a measure was brought in previous work showing that the score it generates is correlated with traditional multi-item questionnaires of stereotype endorsement (Bonnot & Croizet, 2007). In the sport area, there is empirical support for its sensibility (full range of possible scores; Authors, in press, Study 1) and validity (significant bound between gender stereotype and perceived competence; Authors, in press; Study 2).

Data Analysis

Growth curve analyses were used to examine the evolution of stereotypes endorsement during adolescence, using a hierarchical multilevel design (Raudenbush & Bryk, 2002). Such analytical technique is appropriate when aggregated data are gathered, for example in the case of repeated measures in the same individuals. In the current study, the observations were considered as a first level of analysis, and the individuals represented the second level of analysis. Using the MLWin 2.19 Software, we tested a model for each stereotype including the following parameters: sex (to look for mean differences of stereotypes endorsement between males and females), age and the square of age (to examine the linear and/or quadratic trends of evolution of those beliefs during adolescence) and the

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1 interaction between sex and age (to test whether this evolution differed for males and
2 females).

Results

4 Two models were tested regarding the predictors of gender sport stereotype relative to
5 competence and value, respectively (see Table 1). Concerning sport competence, the effects
6 of three parameters were significant: (a) males reported higher levels of pro-masculine
7 stereotypes endorsement, compared to females; (b) the level of stereotype endorsement
8 globally increased during the period studied; (c) this evolution was not linear, it was strong at
9 the beginning of this period but then slowed (see Figure 1). There was also a marginal
10 interaction effect between age and gender, suggesting that the endorsement of this stereotype
11 was slightly stronger within females during the period studied. Regarding sport value, all
12 predictors included in the model appeared as significant: (a) males reported higher levels of
13 stereotypes endorsement, compared to females; (b) the level of this stereotype endorsement
14 tended to increase as individuals get older in the period of secondary studies; (c) the rhythm
15 of evolution slowed at the end of adolescence and (d) the rate of change was more
16 pronounced among females, compared to males (see Figure 1).

Discussion

18 Regular physical activity is recognized for its many benefits in terms of social,
19 cognitive and physical development (Bauman, 2004; Guiney & Machado, 2013; Mahoney et
20 al., 2006). Yet, there continues to be significant sex differences in terms of length and
21 intensity of participation, which are in disfavour of women in most European countries (van
22 Tuyckom et al., 2010). Eccles and colleagues' EVM (Eccles et al., 2000) assumes that a
23 complex causal chain linking the internalisation of environmental stereotypes to negative self-
24 perceptions of competence and value would contribute to such unbalance. However, little is
25 known on the evolution of stereotypes endorsement during adolescence. Adopting a three-

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1 wave longitudinal design within five cohorts of adolescents, the current study obtained a
2 clearer picture of these developmental trends.

3 As a whole, it appears that boys display significantly higher levels of pro-masculine
4 stereotypes endorsement, compared to girls, which is in line with past results (Galambos et
5 al., 1990). Our data further indicated that the hypothesis of an increase of stereotypes was
6 mostly verified among females, males tending in average to already hold pro-masculine views
7 of sport when they begin secondary studies. The greater disparities between sexes are reported
8 at the beginning of adolescence, whereas boys and girls apparently adhere similarly to pro-
9 masculine stereotypes at the end of adolescence. This evolution may partly explain why sport
10 participation decreases more dramatically among girls during adolescence (van Tuyckom et
11 al., 2010). Also, it appears that stereotypes relative to sport value are mostly in favour of
12 one's sex at the beginning of this period, whereas both boys and girls show slightly pro-male
13 beliefs at the end of it. This pattern of results is in line with some age differences observed in
14 a cross-sectional study relative to racial stereotypes by Copping and her collaborators
15 (Copping, Kurtz-Costes, Rowley, & Wood, 2013). The authors concluded that early
16 adolescence represented a developmental period during which there is a shift between in-
17 group biases to views that are consistent with beliefs in the wider society.

18 Different explanations may be advanced to account for the sex-differentiated patterns
19 observed in the study. First, actors of the *social environment* such as parents could be more
20 likely to transmit pro-masculine stereotypes to male children, as they are favorable to them.
21 More communication suggesting that sports represent a masculine domain in the direction of
22 boys could explain this earlier embracement of stereotypes. For instance, it was shown that
23 parents of boys spent more time watching sports on television, compared to parents of girls
24 (Eccles et al., 2000). Besides, it is well established that women sports only represents a small
25 part of events presented on television (7% in France according to a recent study of the

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Superior Council for Broadcasting, 2013). This may also result from a difference of *perception*: even if faced with similar quantity of information conveying gender stereotypes relative to sport, females could be less prone to adhere to a social perspective in disfavor of their gender. Last, the degree of endorsement seems to increase within females at a period where physical differences are increasing between sexes. It is possible that beliefs in gender equality are more difficult to sustain in the face of clear differentiation in height or strength. Of course, those potential explanations remain speculative and their validation is beyond the scope of the present article.

In spite of its innovative character, the current study is not exempt of certain limitations. A first limitation is linked to its sample's representativeness. Because we cooperated with high schools devoted to general studies, we did not consider the small percentage of French teenagers who either drop out from school or choose a more professional training. Past research indicated that more sexism is associated with lower educational levels (e.g., Pearson, 2009), suggesting that the levels of stereotypes observed would be higher when incorporating all adolescents of a given generation. Second, this study was based on a self-report scale to assess gender stereotypes. Even if the tool selected was aimed at limiting potential biases, certain scholars propose to include implicit tests, such as the Implicit Association Test, in research designs. For example, Cvencek, Meetzoff, and Greenwald (2011) used such a procedure to investigate sex stereotypes related to mathematics in American children. Future studies in the sport context could consider a similar perspective.

In conclusion, it seems that adolescence does represent a developmental period in which gender stereotypes relative to sport become stronger in girls. The presence of this kind of beliefs is likely to lead to a disengagement from this context. This can be seen as problematic considering the importance of early lifestyle choices in ulterior sedentary versus active habits, and the health benefits of regular physical activity through the lifespan.

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Table 1: Results of the growth curve analyses on stereotype endorsement during adolescence

Variables	Sport Competence		Sport Value	
	Effect	SE	Effect	SE
Fixed Effects				
Constante	-3.604*	1.871	-8.838*	.1.855
Sex	0.575*	0.253	1.238*	0.251
Age	0.577*	0.289	1.289*	0.282
Age ²	-0.019*	0.009	-0.041*	0.008
Sex × Age	-0.034 [†]	0.019	-0.074*	0.019
Random Effects				
Level 2 (Individual)				
Constante	0.400*	0.049	0.294*	0.045
Level 1 (measure)				
Log Likelihood	5517.596		5540.259	

Note: An effect is considered as significant at $p = .05$ when it is at least equal to 1.96 times its ET

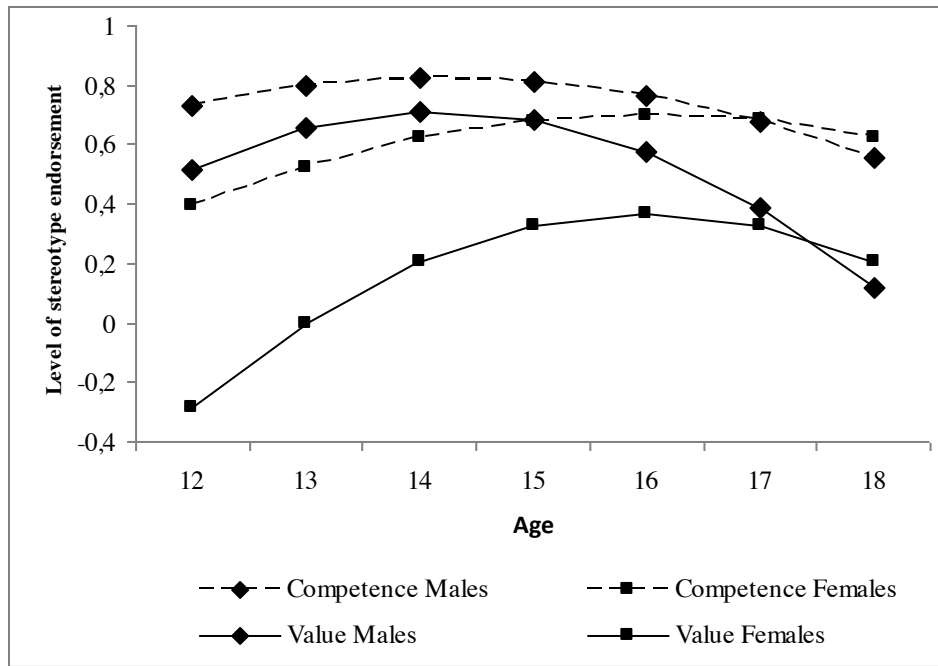


Figure 1: Evolution of Stereotypes Endorsement during Adolescence

- Sex stereotypes endorsement relative to sport increases during adolescence
- This increase is stronger in early adolescence and then slows down.
- Sex stereotype endorsement is higher in male adolescents, compared to females.
- The increase in sex stereotype endorsement is stronger in females than in males.