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“If it Contradicts My Gender Role, I’ll Stop!” : Introducing Survival Analysis to Study the Effects of Gender Typing on the Time of Withdrawal From Sport Practice : A 3-Year Study

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SUMMARY

The present study examines the effects of gender role in teenage girls at the time of withdrawal from a sex-inappropriate sport : handball. Three-hundred and thirty-six French female handballers took a French version of the Bem’s Sex-role Inventory, and were followed during three sport seasons. Survival analysis – a powerful set of data analysis tools that are particularly useful in understanding behavioral processes that unfold over time- was used to examine the time of withdrawal from athletic involvement according to their gender role. Feminine and undifferentiated girls stopped the practice of handball - traditionally a male sport - significantly earlier than did masculine and androgynous girls. The results of this study suggest that involvement and perseverance of girls in sport will remain problematic as long as some activities are connoted as being stereotypically masculine, particularly for girls for whom conformity with stereotypic images of femininity is all-important.

RÉSUMÉ

L’objectif de cette étude était d’évaluer la persistance des joueuses en fonction de leur genre (i.e., leur sexualité psychologique) dans une activité stéréotypée masculine : le handball. Trois cents trente six handballeuses ont rempli la version française du Bem Sex role Inventory (BSRI), et ont été suivies durant trois saisons sportives. L’analyse de survie – une méthode statistique appropriée pour étudier les phénomènes comportementaux liés au temps – a été utilisée pour déterminer le moment d’abandon des joueuses en fonction de leur genre. Les joueuses « féminines » et « indifférenciées » ont abandonné le handball significativement plus tôt que les joueuses « androgynes » et « masculines ». Ces résultats mettent en évidence que la persévérance des filles en sport sera encore problématique tant que des activités seront stéréotypées masculines, en particulier pour les filles qui veulent se conformer aux images stéréotypées de la féminité.

Key words :

Female,
drop out,
gender role,
sport.

Mots clés :

Femme,
abandon,
genre,
sport.

In France, as in many Western countries (see for example, Ewing & Seefeldt, 1996 ; Russell, Allen, & Wilson, 1996 ; Wankel & Mummery, 1996) more and more people engage in sports. However, female participation in sports has been, and continues to be, far lower than that of males (1997 data of the French Ministry for Youth and Sports). Not only is there a sex difference in amount of participation, but there is also a difference in the types of sports played by males and females. Even if things are changing, sport remains one of those areas in life that are clearly divided into men’s and women’s worlds (Salminen, 1990). Several studies (e.g., Colley, Nash, O’Donnell, & Restorick, 1987 ; Koivula, 1995 ; Matteo, 1986) corroborated the existence of sports and physical activities traditionally

considered as appropriate for males (e.g. wrestling, boxing, weight-lifting, rugby), as appropriate for females (e.g. dance, figure skating, gymnastics, riding), and gender-neutral (e.g., tennis, swimming, jogging).

Parallel to this differentiated involvement in the sport according to one’s sex, dropout of sport does not affect girls and boys in the same manner. Females appear to withdraw from sport roles more frequently than males, particularly during adolescence (Gould, 1987 ; Russell et al., 1996 ; Sallis & Patrick, 1996 ; Wankel & Mummery, 1996).

Various theories can be useful in the study of sport participation and dropout (see Gould, 1987 ; Weiss & Chaumeton, 1992 ; Guillet, Sarrazin & Cury, 2000, for reviews). However, a model that seems particularly well suited to

studying the differences in involvement in sport according to one's sex is the gender role paradigm, particularly Bem's gender schema theory (Bem, 1981, 1985, 1993). Indeed, one explanation of the differences between boys' and girls' sport participation and withdrawal is the socialization of gender role. Very early social and cultural pressures inculcate in children and teenagers a perception of which activities are adapted to their sex. Sports and physical activity were and still are regarded as a male domain (Hallinan, Snyder, Drowatzky, & Ashby, 1990; Koivula, 1995; Martin & Martin, 1995; Matteo, 1986; Messner, 1988; Pedersen & Kono, 1990; Salminen, 1990), and the participation of women in sports as "... a woman in man's territory" (Birrell, 1983, p. 49). Here one can see an explanation for both the weaker rate of girls' sport participation and their higher dropout rate at adolescence, a period during which females may be most vulnerable to messages that urge them to conform to cultural images of femininity and appropriate sex role behavior (Mackie, 1987).

However, as there are differences in how strongly individuals use gender-based schematic information processing (Bem, 1981, 1985, 1993), one might expect differences between individuals in sport participation and withdrawal depending on gender role. Indeed, the theoretical propositions advanced by Bem suggest that individuals can be identified as gender-typed or non-gender-typed using a self-report instrument: the Bem Sex Role Inventory (BSRI; Bem, 1974)¹. The BSRI is a questionnaire in which the respondents are asked to indicate on a 7-point scale how well each of 60 personality attributes describes herself or himself. Although it is not apparent to the respondent, 20 of the attributes are stereotypically masculine, 20 are stereotypically feminine, and 20 are neutral. Each respondent receives a masculinity and a femininity score. Those who score above the median on the Sex-Congruent scale and below the median on the Sex-Incongruent scale are considered gender-typed. Those who show the opposite pattern are considered cross-gender-typed. Those who score above the median on both scales are considered androgynous while those who score below median on both scales are considered undifferentiated. Androgynous and undifferentiated people are considered non-gender-typed. According to gender schema theory, "the gendered personality... has a readiness to superimpose a gender-based classification on every heterogeneous collection of human possibilities that presents itself" (Bem, 1993, p. 154). In other

words, gender-typed individuals differ from non-gender-typed individuals in their use of gender as a dimension to encode and organize information even when other more relevant dimensions are equally available. They are motivated to avoid behaviors that violate and choose behaviors that conform to the cultural norm for masculinity and femininity. As a result, in the domain of sport, several studies have corroborated the theory, showing that (1) female athletes and sport participants are more likely to be masculine or androgynous than are female non participants (e.g., Colley, Roberts, & Chipps, 1985; Engel, 1994; Marsh & Jackson, 1986; Matteo, 1986; Salminen, 1990; see Gill, 1992, for a review), (2) gender-typed subjects are more likely than others to categorize the sports as appropriate or inappropriate on a gender basis and to restrict their participation to what they perceive as gender appropriate sport and exercise activities (e.g., Colley et al., 1987; Koivula, 1995; Mead & Ignico, 1992) and (3) gender-typed people cited more gender-based explanations and related gender-based reasons as more important to their decisions for rejecting sex-inappropriate activities than do non-gender-typed people (Matteo, 1988).

The present study was designed to examine the effects of gender role in teenage girls at the time of withdrawal from sport roles in a sex-inappropriate sport: handball². No study to our knowledge has examined the influence of gender role on the real dropout behavior from a sex-inappropriate activity, in the domain of sport. The former studies either compared the gender role of participants and non participants (e.g., Colley et al., 1985), or asked gender-typed and non-gender-typed teenagers to draw up a list of those sports they would like to practice (or those which appeared appropriate to them) and those they would not like to practice (e.g., Salminen, 1990), or investigated only the effect of gender-schematic processing on decisions to reject sex-inappropriate sports in situations where the subjects were encouraged to imagine that they were practicing these activities (e.g., Matteo, 1988).

Based on gender schema theory (Bem, 1981, 1985, 1993) and past studies, it was hypothesized that gender-typed females (i.e., feminine) would drop out of a sex-inappropriate sport more quickly than non-gender-typed females, to maintain a self-image as feminine according to the cultural norms of femininity. By contrast, cross-gender-typed (i.e., masculine) and androgynous females would practice a stereotypically masculine sport longer, because it corresponded to the gender role of the cross-gender-typed females, and because the flexibility of the role has been shown to be an advantage for the androgynous females (Bem, 1975; Bem & Lenney, 1976).

¹ Some criticism has been directed toward the use of the BSRI as a measure of global gender constructs (e.g., Gill, 1992; Spence & Hall, 1996), suggesting that the trait dimensions tapped by the BSRI cover only one class of gender-related variables, instrumental and expressive in nature. However, the use of the BSRI as a means of identifying gender-typed individuals has found support in several other studies (reviewed in Bem, 1985), and even though the BSRI measures only one dimension of the construct of gender (and not "all" masculinity and femininity), "it might be helpful in trying to understand one part of the heterogeneous collection of self-perceptions, beliefs, and behaviors that distinguish between females and males, without assuming that this automatically gives information about other dimensions of gender" (Koivula, 1999a, p.363).

² Like many collective sports, handball is on the whole evaluated as a stereotypically masculine activity (Fontayne, Sarrazin, & Famose, in press; Koivula, 1995). As a result, in France only 36% of handball players are girls.

Method

Participants :

Participants were 336 female handball players between the ages of 13 and 15 ($M = 14.07$ years, $SD = 0.79$ years). These athletes came from 53 different teams from a French league. They were ranked at the regional level and trained an average of 4 hours a week.

Questionnaire

As part of a larger study, subjects completed two questionnaires. The first was a background questionnaire, in which participants indicated their date of birth, years of handball experience, competition level and number of hours of training per week. Next, each subject completed a short version for French teenagers of the BSRI (Fontayne, Sarrazin, Famose, 2000, b). It is an 18-item questionnaire, with ten items that assess femininity (e.g., *I am affectionate*, *I am always ready to listen to others*), and eight items that measure masculinity (e.g., *I am forceful*, *I act as a leader*). In previous work with more than 1,200 subjects, this shortened version was found to be valid and reliable (Fontayne et al., 2000, a, b). In this study, the scales had acceptable alpha reliability coefficients (.85 and .76 for femininity and masculinity scale, respectively). Once the average of the items of each scale was computed, the median split method was used to determine the subject's gender role (Bem, 1981).

Procedure

Toward the middle of one sports season, the questionnaire described above was sent by mail to the 625 13 to 15-year old players of a French handball league. A postage-paid reply envelope was also provided. A letter accompanying the questionnaire explained that the purpose of the study was to know more about why girls played handball and how they felt about this sport experience. It was clearly stated to participants that the anonymity and confidentiality of their answers would prevail at all times. Three hundred thirty five questionnaires were returned (or 54%). Then, at the beginning of each of the following three seasons, the players were contacted by mail or by telephone in order to establish each year, the list of persistent and drop-out participants (i.e., those who did not re-register).

Statistical analyses

The purpose of this study was to examine *whether or not* players stayed or left and, for those who left, *when* they dropped out, as a function of their gender role. Survival analysis, which has its origin in biomedical statistics, is especially well suited to studying the timing of events in longitudinal data (see Singer & Willett, 1991). This method explicitly incorporates into a single analysis information on both whether dropout occurs and when it occurs. A primary

value of survival analysis, however, is to compare the dropout probability for individuals classified according to theoretically relevant variables (in this study, the gender role of the players). Finally, one major advantage of survival models compared with conventional statistical methods, such as linear regression, is the capacity to deal with *censored* observations. Censoring occurs for (1) some players with whom contact was lost, and (2) players who have continued to participate in the sport over the entire study period (in technical terms, these athletes have *right-censored* sport durations ; Singer & Willett, 1991). Rather than excluding censored observations from the analysis as more traditional methods would require, partial information can be gleaned from them. This partial information reveals, essentially, that if a subject was censored at some time, for example, t_2 , one knows at least that they did not voluntarily leave prior to that time. Thus their dropout time is at least t_2 .

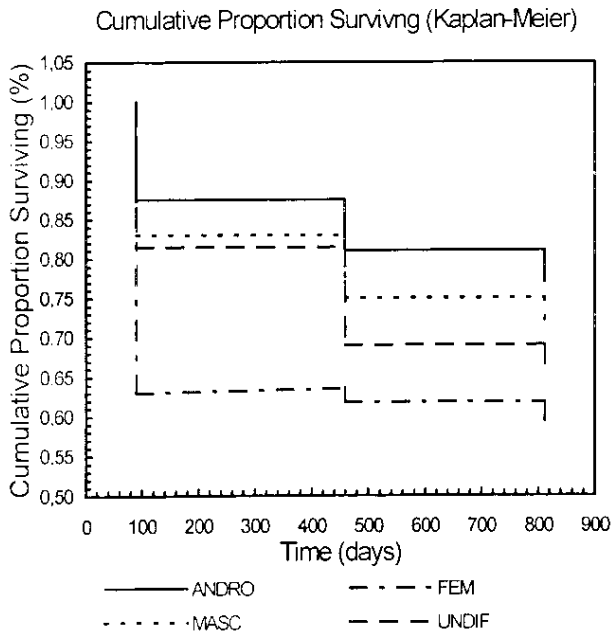
In general, survival analysis begins with the *survivor function*. It is the unconditional probability of staying beyond time t for an individual or group of individuals. In other words, the survivor function describes the day by day rate at which players "survive," or stay in sport without withdrawing. Several methods exist to calculate survivor function ; we used the most common Kaplan-Meier product-limit method (Kalbfleisch & Prentice, 1980).

To compare survival or dropout times among the four samples, we used nonparametric tests with censored observations. First of all, these tests consist of calculating an overall chi-square test, to check the existence of differences between the groups. Then, follow-up Gehan's generalized Wilcoxon tests allowed us to specify the difference between two groups (see Lee, 1980).

Results

The overall Chi-square test was significant : $\chi^2 (3, N=336) = 12.12, p < .001$. It revealed that there are some differences between groups of players. Follow-up Gehan's generalized Wilcoxon tests revealed that the cumulative percentage of those who persisted was higher in the androgynous group than the feminine ($p < .001$) and undifferentiated ($p < .01$) groups. The results also showed that masculine players continue longer than feminine players ($p < .04$). Finally, there were no significant differences between androgynous players and masculine players, and between undifferentiated and masculine players. The survivor function plot of the groups (see Figure 1) clarifies those differences. Clearly, the survival function in the feminine group shows a faster initial drop-off as compared to the other three groups. After 173 days (i.e., at the end of the first season), 62% of the feminine players "survived" versus 81% of the undifferentiated, 83% of the masculine and 87% of the androgynous players. After 498 days (i.e., at the end of the second season) a second difference between groups became evident. The survival function in the androgynous group showed a slower drop-off as compared to the other groups ; 80% of the androgynous players survived

Figure 1 : *Cumulative proportion of surviving (estimated using the Kaplan-Meier product-limit method). The figure shows the rates at which girls with different gender roles stayed in handball on given days.*



versus 75% of masculine, 68% of undifferentiated and 60% of feminine players. Lastly, after 823 days (i.e., at the end of the third season), results show that androgynous and masculine players have a greater chance to "survive" than the feminine and undifferentiated groups (respectively, 76% and 69% versus 56% and 50%).

Discussion

Adolescence seems a particularly vulnerable period with respect to withdrawal from organized sport programs. Although withdrawal from sport roles is characteristic of both males and females during adolescence, evidence suggests that participation in sport declines more dramatically for females than for males during this period (Gould, 1987; Russell et al., 1996; Sallis & Patrick, 1996; Wankel & Mumery, 1996). Adolescence is a period of change during which young women explore their identities, attempt to assert their independence, and come to terms with changes in their bodies and their developing sexuality. It is also a period in which females may be most vulnerable to messages that urge them to conform to cultural images of sex role appropriate behavior (Mackie, 1987). As sports are still regarded as a male domain (Hallinan et al., 1990; Koivula, 1995; Martin & Martin, 1995; Matteo, 1986; Messner, 1988; Pedersen & Kono, 1990; Salminen, 1990), it is possible that a conflict appears between the role of the athlete and the cultural prescription for femininity (Sage & Loudermilk, 1979; Anthorp & Allison, 1983). It may be that this conflict is most crucial for females for whom

stereotypic images of femininity and gender-defined behavioral prescriptions are most important. Indeed, gender schema theory (Bem, 1981, 1985, 1993) presumes that only gender-typed females (i.e., feminine girls) and on a lesser level cross-gender-typed females (i.e., masculine girls) use gender schemata when organizing information about themselves and the external world. By contrast, non-gender-typed individuals (i.e., androgynous and undifferentiated people) see the world less in gendered terms, particularly androgynous individuals who are more flexible and adaptable and generally more at ease than other individuals (Bem, 1975; Bem & Lenney, 1976).

This study was designed to examine the effects of teenage girls' gender role on the time at which they choose to withdraw from sport roles in a sex-inappropriate sport, by carrying out a follow-up of 336 players over three years. The results conform to gender schema theory and past studies. Survival analysis – a powerful set of data analysis tools that are particularly useful in understanding behavioral processes that unfold over time – revealed that gender-typed females dropped out of handball, a sex-inappropriate sport, more quickly than non-gender-typed females. At the end of the first year of practice, 38% of feminine players dropped out against approximately 16% for other girls. Performing cross-sex behavior could activate gender-schematic processing (Matteo, 1988) for gender-typed females, who could experience greater psychological discomfort and perhaps more negative feelings about themselves (Bem & Lenney, 1976). As a result, they are more likely to withdraw from the activity quickly.

By contrast, after three years of practice, results show that cross-gender-typed females and especially androgynous females persist more than the feminine and undifferentiated groups (respectively, 69%, 76% versus 56% and 50%). This result can be explained by the observation that (1) handball corresponds to the gender role of the cross-gender-typed females, and (2) role flexibility has been shown to be the advantage of androgynous personalities (Bem, 1975; Bem & Lenney, 1976). These data correspond to past studies which showed that female athletes and sport participants are more likely to be masculine or androgynous (e.g., Colley, et al., 1985; Engel, 1994; Marsh & Jackson, 1986; Matteo, 1986; Salminen, 1990).

If this study support the Bem's gender schema theory, another study seems necessary to more strongly corroborate the theory. It will fit to carry out research (1) with boys and (2) with a broader of activities (feminine and masculine stereotyped activities and neutral activity). Then, the examination of the reasons cited by the subjects for rejecting sex-inappropriate activities would deserve supplementary investigations to check if gender-based explanations are called upon. Finally, the gender role of the athletes is not the only reason for sport drop out. Others motivational mechanisms can be implied and would deserve additional investigations (see Guillet, Sarrazin & Cury, 2000).

In conclusion, the results of this study suggest that involvement and perseverance of girls in sport will remain problematic as long as some activities are connoted as be-

ing stereotypically masculine, particularly for girls for whom conformity with stereotypic images of femininity is all-important. In this respect, it seems that televised media have a considerable responsibility in this process, in so far as televised media sports coverage continues to reinforce divisions along gender lines and to reproduce traditional expectations regarding femininity and masculinity. For example, not only are there few images of female athletes, but in addition, women who participate in sports, especially activities considered as inappropriate for women, are often depicted in a depreciatory manner (Koivula, 1999b). If barriers remain in sporting practice, only the cross-gender-typed and androgynous girls try to climb over them.

Author's note

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