

Factor validity and Reliability of the Resistive Self-Regulatory Efficacy in Sport Scale (RSRESS) in a French sample

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The purpose of this study was to develop and validate the Resistive Self-Regulatory Efficacy in Sport Scale (RSRESS) in a French sample. The instrument was developed on the basis of the literature (Bandura et al., 1996). A series of four complementary studies was carried out with a total sample of 1306 athletes. In the first study, a preliminary version was developed and its clarity was evaluated. The initial factorial analysis identified a one-factor model with good internal consistency. The second study confirmed the factorial structure of the instrument and showed its partial invariance across genders. The third study demonstrated the temporal stability of the RSRESS. In the fourth study, the expected relationships between the RSRESS and both moral disengagement and affective self-regulatory efficacy (Bandura et al., 2001, 2003) were found, supporting the construct validity of the instrument. The RSRESS thus presents satisfactory psychometric properties and constitutes a reliable and valid instrument for developing future research on the role of self-regulatory efficacy in moral issues.

KEY WORDS: Invariance, Self-regulatory efficacy, Social pressure, Sport, Validation.

Several studies conducted by Bandura and collaborators (e.g., Bandura, Barbaranelli, Caprara, & Pastorelli, 1996; Bandura, Caprara, Barbaranelli, Gerbino, & Pastorelli, 2003; Bandura, Caprara, Barbaranelli, Pastorelli, & Regalia, 2001; Caprara, Regalia, & Bandura, 2002; Caprara, Scabini, Barbaranelli, Pastorelli, Regalia, & Bandura, 1998) have shown that different facets of self-efficacy play determining roles in adolescents' transgressive behavior. For

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Bandura (1997), self-efficacy refers to the individual's conviction of his or her ability to organize and carry out the necessary actions to successfully complete a task. Self-regulation is thus related to the individual's perceived capability to control his or her behavior or to carry out an activity (Bandura, 1977, 1997).

Perceived self-efficacy serves a regulatory function in all developmental periods, but plays a crucial role during adolescence, which is often a time of exploratory engagement in high-risk activities like substance abuse, unprotected sex, and transgressive conduct in various domains, including sport (Leffert & Petersen, 1995). Recent research has shown that several facets of perceived self-efficacy, such as academic efficacy and social efficacy (Bandura, Pastorelli, Barbaranelli, & Caprara, 1999), resistive self-regulatory efficacy (Bandura et al., 2001), and affective self-regulatory efficacy (Bandura et al., 2003), negatively predict adolescents' transgressive behavior in daily life situations.

Sport and physical activity contexts are favorable to the emergence of transgressive behaviors (see Weiss, Smith, & Stuntz, 2008). In these contexts, social pressure to transgress the rules may be exerted by a variety of agents (e.g., coach, referees, partners, opponent, sponsors, and media) and is quite common, particularly in competitive situations (Long, Pantaléon, Bruant, & d'Arripe-Longueville, 2006). Furthermore, according to game reasoning theory (Bredemeier & Shields, 1985, 1986), moral functioning in sport differs from that in everyday life contexts in terms of constraints of space, rules, time, values and consequences. Recently, a host of factors has been explored relative to transgressive behaviors, with sport-related efforts targeting sociocognitive self-regulatory mechanisms, including moral disengagement (Boardley & Kavussanu, 2007) and resistive self-regulatory efficacy (d'Arripe-Longueville, Corrion, Scoffier, Roussel, & Chalabaev, 2010; Lucidi et al., 2004, 2008).

Resistive self-regulatory efficacy refers to the belief in one's capabilities to achieve personal control of behavior when facing social temptation or pressure to behave transgressively (Bandura et al., 2001, 2003; Caprara et al., 1998). Negative peer modeling and peer pressure may especially increase developmental risks by promoting antisocial conduct in both everyday life (Bandura et al., 2001, 2003; Caprara et al., 1998) and physical activity contexts (e.g., Stuntz & Weiss, 2003). Cross-sectional and longitudinal studies have shown that resistive self-regulatory efficacy is related to the likelihood of antisocial conduct. For instance, Caprara and colleagues (1998) found that adolescents who reported a high sense of efficacy to resist peer pressure also reported open communication with parents about activities outside the home and low engagement in delinquent conduct and substance abuse. Bandura and colleagues showed that resistive self-regulatory efficacy negatively

predicted adolescents' transgressive behaviors (e.g., physical and verbal aggression, theft, cheating, lying), both directly (Bandura et al., 2001, 2003) and indirectly through moral disengagement and ruminative affectivity (Bandura et al., 2001). In addition, resistive self-regulatory efficacy negatively influenced moral disengagement, which is a self-regulatory process involving the cognitive restructuring of inhumane conduct or transgressive acts, the negative effects of actions, and one's role in causing harm (Bandura 1991, 1999). Furthermore, after controlling for prior levels of transgressive behavior and the quality of familial relationships, Caprara et al. (2002) found that resistive self-regulatory efficacy negatively predicted transgressive behavior.

In the studies of Bandura et al., resistive self-regulatory efficacy has been assessed by ten items that measure perceived efficacy to resist peer social inducements to engage in high-risk activities. The one-factor structure of the resistive self-regulatory efficacy scale (CPSE, Children Perceived Self-Efficacy) has been replicated both cross-nationally, with Italian, Hungarian, and Polish children (Pastorelli et al., 2001), and prospectively (Bandura et al., 2001; Caprara, 2001; Caprara et al., 1998, 2002). However, because the sport context differs from everyday life in terms of constraints of space, time, status and symbolic meaning, the psychometric instruments to assess moral variables in daily life may not be relevant in the sport context. In their research on doping substances in athletes, Lucidi and colleagues (2008) developed a doping-specific self-regulatory efficacy scale composed of ten items. Participants rated to what extent they felt confident in avoiding or overcoming typical situations that incite to doping. Yet, doping is an extremely transgressive behavior, and Lucidi et al.'s scale is not appropriate to measure more common transgressive behaviors such as cheating or aggression (Long et al., 2006). We think that a valid and reliable questionnaire to measure resistive self-regulatory efficacy in a wide range of transgressive situations in sport would enrich the current literature on socio-cognitive self-regulatory mechanisms.

The purpose of the present research was to develop and validate the Resistive Self-Regulatory Efficacy in Sport Scale (RSRESS) in a large French sample involving 1870 participants. This work was carried out according to Vallerand's (1989) procedure, which consists of: (a) developing a preliminary version, evaluating the clarity of the items, and performing an exploratory factorial analysis (Study 1); (b) examining and confirming the factorial structure of the instrument and testing invariance across genders (Study 2); (c) evaluating the stability of the instrument over time and confirming the internal consistency (Study 3); and (d) checking the construct validity of the scale (Study 4). The invariance of the instrument was also tested across genders following Gregorich's (2006) recommendations.

Study 1

The purpose of the first study was to (a) develop a preliminary version of the RSRESS, (b) verify its content clarity in a sample of French adolescents, and (c) perform an exploratory factorial analysis.

Method

Participants and Procedure

A sample of 20 volunteer students ($M_{age} = 21.36$; $SD = 2.15$) participated in the first examination of the preliminary version of the RSRESS (i.e., clarity of the items assessment). Then 200 volunteer students with regular physical activity and participation in sport competition responded to the questionnaire for the exploratory study. This sample of participants consisted of 129 males and 71 females whose ages ranged from 18 to 24 years ($M_{age} = 21.20$; $SD = 2.32$); all were French with a Caucasian prevalence. They completed the questionnaire at the end of a course at a University School of Sports Sciences. They were informed beforehand that they were not obliged to respond, that their anonymity would be preserved, and that only their sex and birth date would be documented. They were also informed that this investigation was not a test (i.e., there were no right and wrong answers) and that all answers would remain strictly confidential and used for research purposes only. The completion of the questionnaire did not take more than ten minutes. Because human subjects were involved in our study, the ethics committee of the University Scientific Board was consulted and approved our methods.

Formulation of Items

Because the instrument to be developed was based on English-language work (Bandura et al., 1996), a committee of experts (i.e., researchers in the field of social psychology applied to sport) was formed, with three bilingual research professors from the University of Nice Sophia-Antipolis and the University of Virginia (USA). First, this committee translated Bandura et al.'s (1996) scale using Brislin's (1986) back-translation procedure. At this stage, the experts remained faithful to Bandura's initial context of transgressions in daily life. Then, based on this translated version, the committee formulated a series of items allowing the evaluation of resistive self-regulatory efficacy in sport. By doing so, the translated version of Bandura et al.'s (1996) scale was adapted to the specific framework of sport while preserving the highest semantic similarity to the original version. However, a number of terms were modified in the items. For example, the original phrase "to smoke cigarettes" was replaced with "transgressing the rules"; and the phrase "not to play hooky when you are bored" was replaced with "go to practice when you really don't want to go." Two items related to sexual activity were removed. Two additional items linked to the specific characteristics of transgressive behavior in a sport context (Corrion, Long, Smith &, d'Arripe-Longueville, 2009; Kavussanu & Boardley, 2009) were then created to increase the number of items of the original version and allow the selection of the most relevant formulations in the following stage.

The second phase of this first study consisted of assessing the clarity of the items (Vallerand, 1989). The questionnaire included ten items whose clarity was measured along a seven-point Likert-type scale ranging from 1 ("not clear at all") to 7 ("completely clear"). The participants were invited to respond as honestly as possible to the questions and anonymity was guaranteed. Questionnaire completion, which did not exceed 15 minutes, was carried out under standardized conditions (i.e., isolation, paper, pencil, help for reading if necessary, and prohibition to communicate). A cut-off value of 4 was retained for satisfactory levels of item clarity. In a first step, ten students ($M_{age} = 21.51$; $SD = 2.11$) completed the questionnaire. The results showed unsatisfactory scores of clarity with the following average scores ($M = 3.40$; $SD = 1.36$). The results indicated that three items were problematic (RSRES2 = 2.40, RSRES5 = 3.10, RSRES7 = 2.90). Then, individual interviews were held to identify the specific problems related to these items (e.g., comprehension, relevance) and this resulted in modifications (i.e., verb conjugations). Finally, a new analysis of item clarity with ten other students ($M_{age} = 21.60$; $SD = 2.02$) yielded satisfactory scores of clarity ($M = 4.32$; $SD = 1.24$).

RESULTS AND DISCUSSION

Exploratory factor analysis.

This analysis was performed using SPSS 18.0 software. The factorial structure was examined by principal-axis factor analysis (*Oblimin-type* rotation). In order to extract the most appropriate factors, parallel analysis (Horn, 1965) was used. In the random distribution, values lower than the factor weights were shown for the first factors only [i.e., Factor 1 (random value) = 1.36, (ACP value) = 3.58]. This extraction method revealed one factor without any constraint applied to the model. Next, the one-factor model was examined by factor analysis without additional constraint (i.e., 1). The observation of the coefficients of saturation allowed the selection of eight items out of ten, following the criteria recommended by Guttman (1954) (see Table I). Each of these retained items saturated with a weight greater than .55. The analysis was organized according to a single-factor model with 44.79% of the variance explained, which is satisfactory (Gorsuch, 1983). Cronbach's coefficient alpha (1951) was .81, which indicated good internal consistency (Nunnally, 1978).

Study 2

The purpose of this second study was to test the factorial structure of the RSRESS using a series of confirmatory factor analyses (CFA). The invariance of the instrument was also tested across genders following Gregorich's (2006) recommendations.

TABLE I
Resistive Self-Regulatory Efficacy in Sport Scale (RSRESS)

Items	Study 1 (n = 200)	Study 2 (n = 270)
RSRES 1. How well can you resist peer pressure to do things in your sport that can get you into trouble? <i>Te sens-tu capable de résister à la pression des autres pour faire des choses dans ton sport qui peuvent t'attirer des ennuis ?</i>	.612	.573
*RSRES 2. How well can you resist someone who is encouraging you not to go to practice when you really don't want to go? <i>Te sens-tu capable de résister à quelqu'un qui t'inciterait à ne pas aller à l'entraînement quand tu n'as pas très envie d'y aller?</i>	.559	.258
*RSRES 3. How well can you resist peer pressure to take things that you really want but that do not belong to you? <i>Te sens-tu capable de résister à la pression des autres pour prendre des choses qui t'attirent mais qui ne t'appartiennent pas ?</i>	.456	–
RSRES 4. How well can you resist peer pressure to cheat in your sport? <i>Te sens-tu capable de résister à la pression des autres qui t'incitent à tricher dans ton sport ?</i>	.766	.687
*RSRES 5. How well can you resist transgressing the rules of the game, even when you know you won't get caught? <i>Te sens-tu capable de ne pas transgresser les règles du jeu, même lorsque tu peux le faire sans te faire prendre ?</i>	.597	.491
RSRES 6. How well can you resist peer pressure to insult an adversary? <i>Te sens-tu capable de résister à la pression des autres qui t'incitent à insulter un adversaire ?</i>	.712	.690
RSRES 7. How well can you resist somebody who asks you to do something on the field/court that is not following the coach's instructions or that is irrational? <i>Te sens-tu capable de résister à quelqu'un qui te demande de faire autre chose que les consignes du coach ou quelque chose d'irraisonnable sur le terrain?</i>	.741	.566
RSRES 8. How well can you resist cheating or being aggressive with an adversary, even when you can do it without being caught? <i>Te sens-tu capable de ne pas tricher ou agresser un adversaire, même quand tu peux le faire sans être puni(e) ?</i>	.633	.839
*RSRES 9. How well can you resist peer pressure to make a foul in your sport? <i>Te sens-tu capable de résister à la pression des autres qui t'incitent à faire une faute dans ton sport ?</i>	.339	–
RSRES 10. How well can you resist peer pressure to be physically aggressive with an adversary? <i>Te sens-tu capable de résister à la pression des autres qui te poussent à agresser un adversaire physiquement ?</i>	.833	.714

Notes. * Items were dropped and do not belong to the final model. French translations are in italics. For each item the participant had to answer on a seven-point Likert-type scale from “not well at all” (1) to “very well” (7)

METHOD

Participants and Procedure

Two samples were established and recruited from two different universities, and the volunteer participants were all regularly following courses at a School of Sports Sciences. Sample 1 consisted of 270 students (177 males and 93 females; $M_{age} = 22.02$; $SD = 1.92$) and this sample was used to compute the first CFA. Sample 2 consisted of 524 students (323 males and 201 females; $M_{age} = 21.46$; $SD = 2.04$) and was used for the second CFA and the test of invariance. The sample profiles were similar to that of Study 1, as was the procedure for completing the questionnaire. The participants had to answer the items of the RSRESS on seven-point Likert-type scales, ranging from 1 ("not well at all") to 7 ("very well").

Data Analysis

Several CFAs were conducted using AMOS 7.0 software (Arbuckle, 2006). The initial CFAs were conducted to confirm the factorial structure of our scale with a new sample. The test of the factorial invariance of the RSRESS across genders was computed according to Gregorich's (2006) recommendations. For this technique, certain aspects of the factorial structure of the model that is tested on the data from different groups must be constrained (i.e., invariants maintained across the compared groups). By observing the adjustment indices when increasingly more parts of the model are constrained, it is possible to identify the significant differences that may exist between the constrained elements of the hypothesized structure and the factorial structure of the data. According to this author, a first level, *dimensional*, enables testing of the global model. The second level, *metric*, corresponds to a model that is constrained at the level of the regression coefficients. The third level, *strong or scalar*, refers to a model that is constrained at the level of the intercepts. And finally, for the fourth level, *strict*, the model is constrained at the level of measurement errors.

RESULTS AND DISCUSSION

Confirmatory Factorial Analysis

A first CFA was carried out on the eight-item model for sample 1 ($N = 270$), according to the bootstrap resampling method, which evaluates the multi-normality of the data. The Mardia coefficient values were 50.11 higher than the usually recommended maximum value of 3, thus indicating that the assumption of multi-normality distribution of the data was not respected (Tabachnick & Fidell, 2001). As a consequence, we used the bootstrap resampling method. The CFA showed critical fit [$\chi^2(20) = 64.40$, $p < .01$, TLI = .90, CFI = .93, RMSEA = .089; RMSEA LO/HI = .064/.114] according to Hu and Bentler (1999). Furthermore, according to Guttman (1954), each of the retained items should saturate with a

weight greater than .55. Therefore, two items out of the eight that were previously retained (i.e., item 2 = .258 and item 5 = .491; see Table I) were eliminated.

A second CFA was then carried out the six-item model for sample 2 ($N = 524$). This CFA was also carried out with bootstrap resampling (Mardia's normalized estimate = 30.36). In the analysis, the six-item model showed a poor fit ($\chi^2(9) = 52.93, p < .001$; TLI = .96; CFI = .98; RMSEA = .096; RMSEA LO/HI = .072/.122). The inspection of the modification indices put forward by Amos suggested that it induced a correlated error from item 4 to item 6 (Figure 1). Since both items were related semantically, this suggestion was deemed as theoretically relevant. This respecified six-item model provided a good fit ($\chi^2(8) = 26.76, p < .01$; TLI = .98; CFI = .99; RMSEA = .067; RMSEA LO/HI = .040/.096). The internal consistency of the scale measured through the alpha coefficient was satisfactory ($\alpha = .91$) for sample 2.

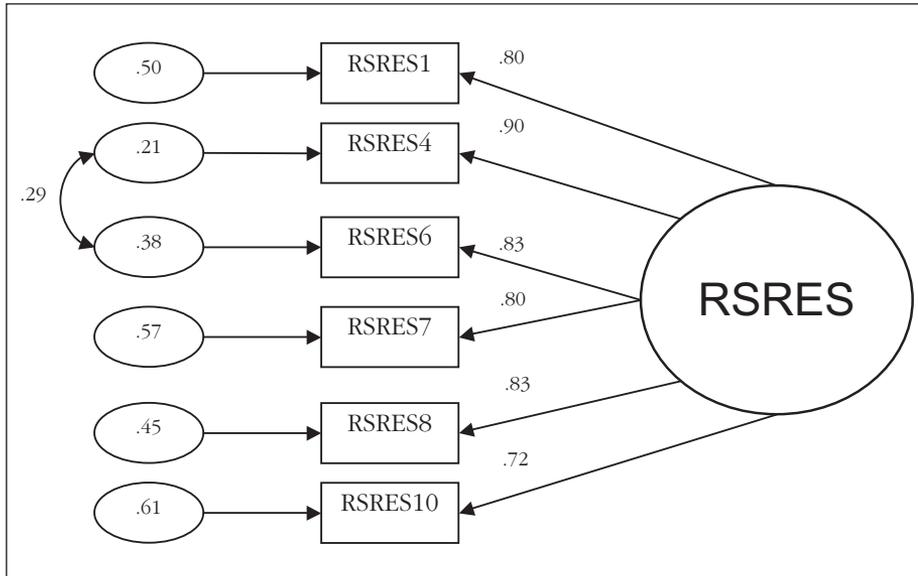


Figure 1. Coefficients of Estimation and Standard Errors of Measurement of the Testing Model.

Notes. $n = 524$; RSRES = Resistive Self-Regulatory Efficacy in Sport. The standardized estimate coefficients are all significant at $p < .001$

Invariance across Genders

The multi-group CFA with bootstrap resampling was conducted on the same sample of 524 sport sciences students, with males ($n = 323$; $M_{age} = 21.54$; $SD = 2.11$) and females ($n = 201$; $M_{age} = 21.33$; $SD = 1.93$) considered to belong to two distinct groups. As shown in Table II, for each model advocated by Gregorich (2006), CFAs yielded satisfactory indices that reached the criteria recommended by Byrne (2005) and differences with the unconstrained model.

The first three model invariances (i.e., *dimensional*, *metric*, *strong/scalar*) showed a significant χ^2 value, suggesting a lack of fit between the hypothesized model and the data. However, due to the sensitivity of χ^2 in large samples, other indices were assessed (Kline, 1998) ($\chi^2/df < 2$; CFI and TLI $> .90$; RMSEA $< .06$). For example, the *metric* model provided acceptable fit indices [i.e., $\Delta BS\chi^2 = 4.28$; $\Delta ML\chi^2 = 1.83$, $\Delta df = 4$, $p = .009$; $\Delta CFI < .01$; $\Delta RMSEA < .015$], as did the *strong* model [i.e., $\Delta ML\chi^2 = 5.12$, $\Delta df = 5$, $p = .015$; $\Delta CFI < .01$; $\Delta RMSEA < .01$]. The *strict* model showed satisfactory indices of CFI and TLI (i.e., $> .90$) and RMSEA (i.e., $< .05$). Based on the changes in ML chi square [i.e., $\Delta ML\chi^2 = 16.47$; $\Delta df = 6$, $\Delta p < .05$], this model was rejected. Strict factorial invariance was not seen in any case. The modification indices put forward by the AMOS program suggested that the gender equivalence, which was constrained to the error of measurement for item 6 and item 10, contributed to limiting the model invariance. The fifth model, unconstrained for the error of measurement for item 6 and item 10 in both groups, showed satisfactory partial *strict* invariance [i.e., $\Delta ML\chi^2 = 1.01$; $\Delta df = 4$; $p = .04$; $\Delta CFI < .015$; $\Delta RMSEA < .015$]. Partial invariance was defined as the equivalence of the data from the male and female samples, except for one or several errors of measurement. In sum, this series of sample analyses indicated partial invariance at the most complex level (i.e., *strict*) of the RSRESS factorial structure across gender. These results showed that this instrument is valid for both males and females. A multivariate analysis of variance examining gender differences confirmed no significant effect of gender [Wilks' $\lambda = .982$, $F(6,517) = 1.54$, $p = ns$; $\eta^2 = .02$].

Study 3

The purpose of this third study was to check the reliability (i.e., the temporal stability and internal consistency) of the scale.

TABLE II
Goodness-of-Fit Indices of Factorial Invariance Tests across Gender of the RSRESS

Model	χ^2 (BS)	χ^2 (ML)	ddl	p	CFI	TLI	RMSEA A	ECV I	AIC	Comparison model	$\Delta\chi^2$ (ML)	Δdf	Δp	$\Delta CFI $	$\Delta RMSEA $	
Males ^a	10.89	19.44	6	.003	.98	.97	.08	.19	61.44	-	-	-	-	-	-	-
Females ^b	8.99	10.97	6	.08	.98	.98	.06	.26	52.97	-	-	-	-	-	-	-
Dimensional (no invariance)	19.33	30.41	12	.002	.99	.98	.05	.17	90.41	-	-	-	-	-	-	-
Metric (λ equal)	24.22	32.24	16	.009	.99	.98	.04	.16	84.24	1	1.83	4	NS	0	0	.01
Strong (τ equal)	29.17	37.36	21	.015	.99	.99	.04	.19	103.36	2	5.12	5	NS	0	0	0
Strict (δ equal)	42.67	53.84	27	.002	.98	.98	.04	.20	107.84	3	16.47	6	S	.01	0	0
Partial strict (δ_{RSRES6} , $\delta_{RSRES10 \text{ free}}$)	37.61	38.37	25	.04	.99	.99	.03	.18	96.37	3	1.01	4	NS	.01	.01	.01

Notes: δ : Intercepts; τ : Mean; χ^2 (BS): Bollen-Stine chi-square; χ^2 (ML): Mean level chi-square; df: Degrees of freedom; CFI: Comparative Fit Index; TLI: Tucker-Lewis Index; RMSEA: Root Mean Square Error of Approximation; ECVI: Expected Cross-Validation Index; AIC: Akaike's Information Criterion; $\Delta\chi^2$: Difference in χ^2 ; $\Delta\chi^2$ (ML): Difference in χ^2 (ML); Δdf : Differences in degrees of freedom; ΔCFI : Difference in Comparative Fit Index; ARMSEA: Difference in Mean Square Error of Approximation; a n = 323; b n = 201

PARTICIPANTS AND PROCEDURE

This new sample included 71 athletes (30 males and 41 females; $M_{age} = 21.95$; $SD = 1.76$) with regular physical activity. The sample profile and the procedure for questionnaire administration were overall similar to those of the previous studies. The questionnaire was administered to the participants twice over a four-week period.

RESULTS AND DISCUSSION

The temporal stability of the questionnaire structure was assessed by the intraclass correlation coefficient (ICC), the 95% confidence interval of the ICC (ICC 95% CI), and a series of Student's *t* tests for matched samples. The results of the ICCs and the ICC 95% CIs are provided in Table 3. The ICCs were statistically significant in all cases. The ICCs for each time were $T1 = .74$ and $T2 = .65$, demonstrating the acceptable reliability of each subscale. Therefore, these reliability analyses confirmed the temporal stability of the instrument. The *t* test that compared the data collected at the two occasions of measurement showed results that were not significant, which reflected the lack of difference in the results yielded by the RSRESS over a four-week period. In addition, significant positive correlations (ranging from $r = .76, p < .001$ to $r = .89, p < .001$) were found between the first and second collections of data pertaining to each time taken as a whole. These findings show that the RSRESS had good temporal stability over four weeks.

Last, the internal consistency of the instrument was tested again at times T1 and T2, for which the coefficients alpha were good (.79 and .80, respectively).

TABLE III
Descriptive Statistics for the Questionnaire Structure (Study 3)

	T1	T2
<i>M</i>	4.41	4.40
<i>SD</i>	1.27	1.05
α	.70	.80
ICC	.74*	.65*
ICC 95% CI	.66 / .81	.56 / .74

Notes. *M*: Mean; *SD*: Standard deviations; α : Cronbach's alpha; ICC: Intraclass correlation coefficient; ICC 95% CI: Intraclass correlation coefficient 95% confidence interval. * $p < .05$.

Study 4

The aim of this fourth study was to test the concurrent validity of the RSRESS through its links with other instruments measuring theoretical constructs that are assumed to be related to resistive self-regulatory efficacy. Specifically, resistive self-regulatory efficacy has been found to be negatively related to moral disengagement (Bandura et al., 2001) and positively related to negative affective self-regulatory efficacy (Bandura et al., 2003; d'Arripe-Longueville et al., 2010). Hence, scores of resistive self-regulatory efficacy yielded by the RSRESS should display similar relationships with moral disengagement and affective self-regulatory efficacy.

METHOD

Participants and Procedure

The sample consisted of 221 volunteer students ($M_{age} = 21.00$; $SD = 2.05$) with regular physical activity. The sample profile was overall similar to that of the previous studies, as was the procedure for administering the questionnaire.

MEASURES

Resistive Self-Regulatory Efficacy in Sport

The six-item questionnaire that had been developed (RSRESS) was used. In the current study, the six-item model provided a good fit, $\chi^2(8) = 14.72$, $p < .01$; TLI = .99; CFI = .99; RMSEA = .062; RMSEA LO/HI = .041/.088. Again, the internal consistency of this scale was satisfactory ($\alpha = .92$).

MORAL DISENGAGEMENT

Moral disengagement was assessed with the French Short Moral Disengagement Scale (ECDMS; Corrion, Scoffier, Gernigon, Cury, & d'Arripe-Longueville, 2010). This questionnaire includes two dimensions: (a) the projection of fault onto others (including attribution of blame, displacement of responsibility and diffusion of responsibility), and (b) the minimization of transgressions and their consequences (including euphemistic labeling, and minimizing, distorting or ignoring consequences). Moral justification, advantageous comparison, and dehumanization did not emerge as significant perceived moral disengagement mechanisms in French athletes' verbalizations (Corrion et al., 2009) and thus they were not included in the French validation process of the scale (Corrion et al., 2010). In the present study, a global index of moral disengagement was obtained by averaging the responses to items from the two dimen-

sions. Examples of items measuring the projection of fault onto others are: "It is unfair to blame players who carry out only a small part of the unsportsman-like tactics used by their team"; "It's not my fault if I behave badly - cheating or aggression-, because it's my opponent who started it." An example of an item measuring the "minimization of transgressions and their consequences" group of mechanisms is: "Bending the rules is a way of evening things up." The six items of the scale were scored on a Likert scale from 1 ("not at all right for me") to 7 ("totally right for me"). This scale provided an acceptable internal consistency coefficient ($\alpha = .82$).

Negative Affective Self-Regulatory Efficacy

Affective efficacy was measured using four items of Fortin, Royer, Marcotte, Potvin, and Jolly's (2001) French version of Gresham and Elliot's (1990) Social Skills Rating System (SSRS). This scale consists of seven items scored on a Likert scale from 1 ("not well at all") to 7 ("very well"). For instance, one item is "Comment te sens-tu capable de contrôler tes humeurs avec tes pairs" (i.e., "How well can you manage your mood with your peers?"). The internal consistency of the scale was satisfactory ($\alpha = .79$).

RESULTS AND DISCUSSION

A correlational analysis was used to evaluate the relations between the responses obtained on resistive self-regulatory efficacy, moral disengagement, and negative affective self-regulatory efficacy, which thereby determined the concurrent validity. Pearson correlations indicated that resistive self-regulatory efficacy was negatively related to moral disengagement in sport ($r = -.23, p < .05$) and positively related to affective self-regulatory efficacy ($r = .33, p < .05$) (Table IV). These findings are consistent with the literature reporting that self-regulatory efficacy is a protective factor of moral disengagement and transgressive behavior (Bandura et al., 2001) and that affective and resistive self-regulatory efficacy are positively related. Since the RSRESS was significantly linked to known self-regulatory-related constructs, the scale was considered as theoretically valid.

TABLE IV
Matrix of Pearson's r Correlations (Study 4)

	RSRE	NSRE	MD
Resistive Self-Regulatory Efficacy	—		
Negative Self-Regulatory Efficacy	.33*	—	
Moral disengagement	-.23*	-.48*	—

Notes. NSRE: Negative self-regulatory efficacy; RSRE: Resistive self-regulatory efficacy; MD: Moral disengagement; * $p < .05$.

General Discussion

The aim of this research was to develop and validate the Resistive Self-Regulatory Efficacy in Sport Scale (RSRESS) in a French sample. The development and validation of this scale unfolded along four complementary studies that respected the principal stages of the procedure recommended by Vallerand (1989) and the recommendations of Gregorich (2006) concerning invariance. The validity of the structure of the tool was successively established by clarity assessment and exploratory factorial analysis (Study 1), as well as by the results of CFAs and partial invariance according to gender (Study 2). The internal consistency of the RSRESS was found to be satisfactory in the different studies, and the temporal fidelity of the instrument was confirmed in Study 3. The construct and concurrent validity of the RSRESS was supported by the relationships between the RSRESS and instruments that measure constructs assumed to be theoretically related to resistive self-regulatory efficacy (Study 4). As a result, this series of studies enabled us to create a six-item (e.g., “How well can you resist peer pressure to cheat in your sport?”; “How well can you resist peer pressure to insult an adversary?”) questionnaire that is structurally and theoretically valid, reliable, stable over time, and well suited to test assumptions regarding gender differences in resistive self-regulatory efficacy in sport, independently of or in relation to other measures.

From a conceptual point of view, the links between resistive self-regulatory efficacy and both moral disengagement and negative affective self-regulatory efficacy are in line with the existing social psychology literature showing that different facets of self-efficacy play a protective role in moral disengagement and transgressive behaviors (Bandura et al., 2001, 2003). As a sport-specific instrument, the RSRESS can facilitate the development of research intended to improve our understanding of the self-regulatory mechanisms of transgression in the sport context, thus extending the results of existing studies (d’Arripe et al., 2010; Lucidi et al., 2008) and helping to prevent antisocial conduct in youth sport.

Yet despite the psychometric properties of the RSRESS, several limitations must be acknowledged. First, a typical limitation of research approaches based on self-report measures and moral variables concerns the potential for social desirability bias. A second limitation pertains to the homogeneity of the samples used in the present studies (i.e., young adults), which does not allow direct generalizability of the scale to other samples. Because moral issues in sport are a matter of concern from childhood to adulthood, an extension of the validity of the RSRESS across a wide range of age groups would be useful. A third limitation concerns the presence of a

correlated error item suggesting that items 4 and 6 might need further consideration in future studies. Another limitation is that the aspects of construct validity were only examined through convergent validity, thus suggesting the need to test for discriminant validity in future studies.

Furthermore, because only correlations were computed in the present research, any causal relationship between these variables will be revealed only through future experimental work. Future research might also be conducted to extend the scope of RSRESS validity. The theoretical validity of the instrument would be strengthened by testing the association of resistive self-regulatory efficacy as measured by the RSRESS with other theoretically relevant constructs, such as prosocial and antisocial behaviors (Bandura et al., 2001; Boardley & Kavussanu, 2009). In addition, it would be of interest to assess the cross-cultural invariance of the factor structure of the French and an English version of the RSRESS. Last, there is a need to identify the antecedents of self-regulatory efficacy in relation to the major self-efficacy sources highlighted by Bandura (1997), as well as in relation to more dispositional factors such as moral reasoning, goal orientation and personality traits.

From a practical standpoint, the RSRESS could help identify the personal and contextual antecedents of individuals' self-control regarding their moral behavior. More generally, in the field of sport and physical activities, findings from studies using the RSRESS could provide guidelines for the education and training of teachers and coaches, so that greater insight into the processes that activate transgressive behaviors, cheating, and doping would better prepare these professionals to promote adaptive self-regulation mechanisms in youth. Undertaking this challenge would be of great social utility and certainly echoes the concerns of the World Health Organization in terms of programs for health education and the development of life skills in young people.

In conclusion, and despite the aforementioned limitations, this series of studies with French students involved in sports provides support for the factorial validity and reliability of the RSRESS. The French version of the RSRESS comprises six items and appears to be an appropriate instrument for use with young French adults practicing club sports. This scale will be useful for sport psychology researchers seeking to better understand the role of resistive self-regulatory efficacy in transgressive behavior in sport contexts. No less important are its potential practical applications in strategies aimed at encouraging healthier self-regulation mechanisms in youth.

REFERENCES

- Arbuckle, J. L. (2006). *AMOS 7.0 User's Guide*. Amos Development Corporation, Spring House, PA.

- Bandura, A. (1977). Self-Efficacy: Toward a unified theory of behavioral change. *Psychological Review*, 84, 191-215.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.
- Bandura, A. (1991). Social cognitive theory of self-regulation. *Organizational Behavior and Human Decision Processes*, 50, 248-287.
- Bandura, A. (1999). Moral disengagement in the perpetration of inhumanities. *Personality and Social Psychology Review*, 3, 193-209.
- Bandura, A., Barbaranelli, C., Caprara, G. V., & Pastorelli, C. (1996). Multifaceted impact of self-efficacy beliefs on academic functioning. *Child Development*, 67, 1206-1222.
- Bandura, A., Caprara, G. V., Barbaranelli, C., Gerbino, M., & Pastorelli, C. (2003). Role of affective self-regulatory efficacy in diverse spheres of psychosocial functioning. *Child Development*, 74, 769-782.
- Bandura, A., Caprara, G. V., Barbaranelli, C., Pastorelli, C., & Regalia, C. (2001). Sociocognitive self-regulatory mechanisms governing transgressive behaviors. *Journal of Personality and Social Psychology*, 80, 125-135.
- Bandura, A., Pastorelli, C., Barbaranelli, C., & Caprara, G. V. (1999). Self-efficacy pathways to childhood depression. *Journal of Personality and Social Psychology*, 76, 258-269.
- Boardley, I. D., & Kavussanu, M. (2007). Development and validation of the Moral Disengagement in Sport Scale. *Journal of Sport and Exercise Psychology*, 29, 608-628.
- Bredemeier, B., & Shields, D. (1985). Values and violence in sport. *Psychology Today*, 19, 22-32.
- Bredemeier, B., & Shields, D. (1986b). Game reasoning and interactional morality. *Journal of Genetic Psychology*, 147, 257-275.
- Brislin, R. W. (1986). The wording and translation of research instruments. In Lonner, W., & Berry, J. (Eds.), *Fields methods in cross-cultural research* (pp. 137-162). Beverly Hills, CA: Sage.
- Byrne, B. (2005). Factor analytic models: Viewing the structure of an assessment instrument from three perspectives. *Journal of Personality Assessment*, 85, 17-32.
- Caprara, G. V. (2001). *La Valutazione dell'autoefficacia* [Self-efficacy assessment]. Trento, Italy: Edizioni Erickson.
- Caprara, G. V., Regalia, C., & Bandura, A. (2002). Longitudinal impact of perceived self-regulatory efficacy on violent conduct. *European Psychologist*, 7, 63-69.
- Caprara, G. V., Scabini, E., Barbaranelli, C., Pastorelli, C., Regalia, C., & Bandura, A. (1998). Impact of adolescents' perceived self-regulatory efficacy on familial communication and antisocial conduct. *European Psychologist*, 3, 125-132.
- Corrion, K., Long, T., Smith A. L., & d'Arripe-Longueville, F. (2009). "It's not my fault; It's not serious": Athlete accounts of moral disengagement in competitive sport. *The Sport Psychologist*, 23, 388-404.
- Corrion, K., Scoffier, S., Gernigon, C., Cury, F., & d'Arripe-Longueville, F. (2010). L'Echelle Courte de Désengagement Moral en Sport (ECDMS) : Développement et validation en langue française [Development and factorial validity of the French Short Moral Disengagement in Sport Scale]. *L'Encéphale*, 36, 495-503
- Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16, 297-334.
- d'Arripe-Longueville, F., Corrion, K., Scoffier, S., Roussel, P., & Chalabaev, A. (2010). Socio-cognitive self-regulatory mechanisms governing judgments of the acceptability and likelihood of sport cheating. *Journal of Sport & Exercise Psychology*, 32, 595-618.
- Fortin, L., Royer, E., Marcotte, D., Potvin, P., & Joly, J. (2001). Epreuves de validité d'une mesure d'habiletés sociales auprès d'adolescents québécois à l'école secondaire [Valida-

- tion of a social skill measure in Quebec secondary school adolescents]. *Psychologie et Psychométrie*, 22, 23-43.
- Gorsuch, R. L., (1983). *Factor analysis*. Hillsdale, NJ: Erlbaum.
- Gregorich, S. E. (2006). Do self-report instruments allow meaningful comparisons across diverse population groups? Testing measurement invariance using the confirmatory factor analysis framework. *Medical Care*, 44, 78-94.
- Gresham, F. M., & Elliot, S. N. (1990). Social skills rating system. American Guidance Service. *Canadian Psychology*, Toronto: Canada.
- Guttman, L. (1954). Some necessary conditions for common factors analysis. *Psychometrika*, 19, 149-185.
- Horn, J. L. (1965). A rationale and test for the number of factors in factors analysis. *Psychometrika*, 30, 179-185.
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6, 1-55.
- Kavussanu, M., & Boardley, I. D. (2009). The Prosocial and Antisocial Behaviour in Sport Scale. *Journal of Sport and Exercise Psychology*, 31, 97-117.
- Kline, P. (1998). *The New Psychometrics: Science, psychology and measurement*. London: Routledge.
- Leffert, N., & Petersen, A. (1995). Patterns of development during adolescence. In M. Rutter, & D. Smith (Eds.), *Psychosocial disorders in young people* (pp. 67-103). Chichester, UK: Wiley.
- Long, T., Pantaléon, N., Bruant, G., & Arripe-Longueville, F. (d'). (2006). A qualitative study of moral reasoning of young elite athletes. *The Sport Psychologist*, 20, 330-347.
- Lucidi, F., Grano, C., Leone, L., Lombardo, C., & Pesce, C. (2004). Determinants of the intention to use doping substances: An empirical contribution in a sample of Italian adolescents. *International Journal of Sport Psychology*, 35, 133-148.
- Lucidi, F., Zelli, A., Mallia, L., Grano, C., Russo, P. M., & Violani, C. (2008). The social-cognitive mechanisms regulating adolescents' use of doping substances. *Journal of Sports Sciences*, 26, 447-456.
- Nunnally, J. C. (1978). *Psychometric theory* (2nd edition). Jossey-Bass, San Francisco.
- Pastorelli, C., Caprara, G. V., Barbaranelli, C., Rola, J., Rozsa, S., & Bandura, A. (2001). Structure of children's perceived self-efficacy: A cross-national study. *European Journal of Psychological Assessment*, 17, 87-97.
- Stuntz, C. P., & Weiss, M. R. (2003). Influence of social goal orientations and peers on unsportsmanlike play. *Research Quarterly for Exercise and Sport*, 74, 421-435.
- Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics* (4th ed.). Boston, MA: Allyn & Bacon.
- Vallerand, R. J. (1989). Vers une méthodologie de validation transculturelle de questionnaires psychologiques : Implications pour la recherche en langue française [Toward a methodology for transcultural validation of psychological questionnaires: Implications for research in the French language]. *Canadian Psychology*, 4, 662-680.
- Weiss, M. R., Smith, A. L., & Stuntz, C. P. (2008). Moral development in sport and physical activity. In T. S. Horn (Ed.), *Advances in sport psychology* (3rd ed., pp. 187-210). Champaign IL: Human Kinetics 2012.