

THE RELATIONSHIP BETWEEN NEGATIVE ADDICTION TO RUNNING AND RUNNING ENJOYMENT AMONGST BLACK ZULU-SPEAKING SOUTH AFRICAN RUNNERS: AN EXPLORATORY STUDY

Bronwyn J. MYERS* & Clive J. BASSON**

**Alcohol and Drug Abuse Research Group, Medical Research Council, Cape Town, Republic of South Africa*

***School of Psychology, University of Natal, Pietermaritzburg, Republic of South Africa*

ABSTRACT

A survey research design was employed to explore the relationship between negative addiction to running and running enjoyment, amongst black, Zulu-speaking South African runners. Translated versions of the Biographical Information Questionnaire (Leask, 1997), Negative Addiction Scale (Hailey & Bailey, 1982), and Running Enjoyment Questionnaire (Basson & Macpherson, 1998) were administered to an opportunity sample of 79 black, Zulu-speaking South African runners, drawn from athletic clubs in the Durban and Pietermaritzburg regions of KwaZulu-Natal. On the basis of their negative addiction scale scores, runners were assigned to either a high (n=23), moderate (n=35), or low addiction group (n=21). Significant relationships were found between running dependence and all four sources of running enjoyment. In addition, length of running history and the importance placed by the participant on the running activity were shown to play a role in both running dependence and enjoyment processes. For black South African runners, both intrinsic and achievement running enjoyment sources were more motivating than extrinsic or non-achievement factors. Extrinsic and achievement factors were more motivating for black South African runners compared to Macpherson's (1998) sample of white runners. These results were discussed with reference to the literature on running dependence, running commitment, and cultural influences on motivation.

Key words: Running addiction; Running commitment; Black, Zulu-speaking South African runners.

INTRODUCTION

Despite the culturally diverse nature of sport and exercise, few attempts have been made to explore the meanings and motivations that sport holds among different cultural groups (Duda & Allison, 1990). Similarly, most studies on exercise dependence have focused on white, middle-class participants and have neglected to examine the phenomenon amongst exercisers from other cultures.

The present study forms an extension of a study by Macpherson (1998) that, in part, examined the relationship between running dependence and running enjoyment in white, middle-class runners. Macpherson (1998) found that subjects who displayed high levels of negative addiction to running were more motivated by intrinsic sources of enjoyment than less addicted runners. In the light of possible cultural differences in running enjoyment, it was considered necessary to examine whether black, Zulu-speaking runners are motivated by similar sources

of enjoyment.

Recent research in the field of exercise dependence has indicated a need to differentiate between the benefits of regular activity and the detrimental psychological and physiological effects resulting from dependence on running (Anderson *et al.*, 1997). Consequently, a theoretical distinction has been made between positive addiction and negative addiction to running (Sachs, 1991; Weinberg & Gould, 1995). It seems that as dependence on running starts to consume other aspects of the runner's life, the positive benefits of running diminish and a negative dependence on running develops (Chan & Grossman, 1988). Furthermore, running dependence is currently conceptualised as a continuum ranging from positive to negative dependence (Sachs, 1981; Cripps, 1995; Sachs & Pargman, 1997).

Running commitment is a broad construct consisting of numerous components (Scanlan & Simons, 1992). Sports enjoyment represents the affective component of the broader sports commitment construct, and has been shown to be a strong predictor of sports commitment across differing levels of participation (Scanlan *et al.*, 1993). Sports enjoyment is operationally defined as the "positive affective response to the sports experience that reflects generalised feelings such as pleasure, liking, and fun" (Scanlan & Lewthwaite, 1986: 32). Scanlan and Lewthwaite (1986) present a two dimensional framework for identifying sources of sports enjoyment in which they incorporate both intrinsic and extrinsic sources of enjoyment which can be either achievement or non-achievement oriented (Scanlan & Simons, 1992). Achievement-intrinsic factors are related to perceptions of competence and skill that are self-reinforced, such as feelings of mastery. Achievement-extrinsic sources are related to feelings of competence and control that depend on feedback from others, such as positive social recognition. Non-achievement-intrinsic factors are linked to the experience of the activity, such as movement sensation or the thrill of competing. Finally, non-achievement-extrinsic sources are related to the nonperformance aspects of a particular sport, like social-interaction with friends (Scanlan & Lewthwaite, 1986; Scanlan & Simons, 1992).

Macpherson's (1998) study found that runners characterised by high scores on a scale of negative addiction were more motivated by both achievement-intrinsic and non-achievement-intrinsic factors than runners with lower scores. This finding suggested that intrinsic sources of motivation were more strongly associated with high levels of reported running addiction than extrinsic sources. It is possible, however, that addicted runners from other population groups cite alternative sources of motivation for continued participation.

Contemporary research on the self views the self as a social construct produced in part by the socio-cultural context (Campbell *et al.*, 1996). Markus and Kitayama (1991) proposed that people from more individualistic cultures (such as North America or Western Europe) generally hold independent views of the self. In other words, the self is perceived as a bounded, distinct entity which is clearly separable from others (Markus & Kitayama, 1991; Matsumoto *et al.*, 1994). In contrast, collectivist cultures (such as African and Asian societies) are proposed to be associated with an interdependent view of the self. In such cultures, the self is proposed to be unbounded, flexible, and contingent on social context. The interdependent self places less emphasis on pursuing personal goals, instead the self has a more extrinsic, social focus and strives to maintain connectedness with relevant others and harmony with the in-group (Mwamwenda, 1994).

With regard to motivation, people with independent self-construals are hypothesised as being more motivated by intrinsic sources of motivation (such as the desire for personal achievement and the need to enhance personal status to affirm one's uniqueness and autonomy) than extrinsic sources of motivation (Markus & Kitayama, 1991; Matsumoto *et al.*, 1994). In contrast, people with interdependent self-construals are conceptualised as being more guided by extrinsic, social, and other-oriented sources of motivation. In particular, achievement motivation seems to be more socially oriented, where the objectives are to attain recognition for the in-group, meet the expectations of relevant others, and maintain relatedness, rather than to achieve personal success and autonomy (Markus & Kitayama, 1991; Matsumoto, 1996). Given this finding, an important research question would be whether, black Zulu-speaking South African runners (who originate from a largely collectivist cultural context), are more motivated by extrinsic rather than intrinsic factors.

In general, research on cultural variations in sport motivation has been sparse (Duda & Allison, 1990). Hayashi and Weiss (1994) compared achievement motivation between Anglo-American and Japanese marathoners and found no significant differences in self-construals. Hayashi and Weiss (1994) proposed that this lack of cultural variation in the self could be explained as a result of either generational differences (where younger people are socialised in less traditional and more individualistic modes of thinking, feeling, and acting), or the nature of the physical domain (as running potentially promotes similar self-perspectives, irrespective of cultural views). Similarly, Hayashi (1996) found no significant variations in self-construals between Anglo and Hawaiian weightlifters, despite the fact that Hawaiian cultural identity is generally accepted as interdependent and Anglo-American self-construals as independent. Both Anglo and Hawaiian weightlifters demonstrated interdependent self-construals that Hayashi (1996) proposed could be explained in terms of the interdependent nature of weightlifting, which promotes cooperation, sharing, and connectedness with training partners. This observation supports Triandis' *et al.* (1988) contention that individuals within independent cultures can belong to many groups with contradictory norms, and in the event of role conflict, individuals often conform to the norms of one group over the other. The lack of variation in self-construals could hence reflect conformity to the interdependent nature of the physical activity (Hayashi, 1996). In other words, the specific nature of the sports domain may influence which components of the self-concept are more salient. Finally, since running is thought to promote individuality (Sachs, 1981), it is quite possible that within the context of running, black Zulu-speaking South African runners will draw upon more independent self-construals, even though Zulu culture is traditionally perceived as interdependent (Mwamwenda, 1994). Specifically, black Zulu-speaking South African runners may, despite their cultural background, cite intrinsic sources of enjoyment as more motivating than extrinsic sources.

METHODOLOGY

For the purposes of this study, a number of broad research aims were devised: Firstly, the relationship between negative addiction to running and running enjoyment amongst black Zulu-speaking South African runners, would be explored; and secondly, through the construct of running enjoyment, the concept of running commitment would be indirectly explored. More specifically, the sources of running enjoyment, which were the most motivating for black Zulu-speaking runners, would be identified.

Sample characteristics

A non-probability, opportunity sample of 79, black Zulu-speaking South African runners, over the age of 18 years, was drawn from running clubs in the Pietermaritzburg and Durban regions of KwaZulu-Natal. Chairpersons of running clubs were contacted and permission requested to contact members of the club at time-trials and club meetings. Since persons attending time trials change from week to week, and Zulu-speaking members of athletic clubs were often difficult to contact due to inaccessibility by telephone and inaccessibility of their homes, it was difficult to establish a random sampling frame. In addition, respondents were required to be literate to answer the self-report questionnaires, thus excluding a number of willing volunteers. Consequently, a nonrandom opportunity method of sampling was used. Although there are various methodological difficulties associated with using such samples (e.g. the possibility that relationships between variables are a result of uncontrolled extraneous variables and weak generalizability of results to the broader population) (Bryman & Cramer, 1997), these weaknesses were to some extent minimised by controlling for the influence of extraneous variables through the collection of biographical data and through statistically controlling for the influence of extraneous variables in data analysis. Nevertheless the potentially limited generalizability of these results to the broader population of black, Zulu-speaking South African runners is acknowledged.

The current sample consisted predominantly of male runners (92.4%). This seems to reflect a general trend in running clubs, where the majority of participants are male. The age of respondents ranged between 18 and 54 years of age, with the mean age for the sample being 29.38 years. In terms of running experience, 38% of respondents reported running consecutively for less than a year, 20.3% reported a continuous running history spanning 1 to 2 years, 13.9% reported a running history of 2 to 5 years duration, and 22.8% of the sample reported that they had run for more than 5 years. In terms of running frequency, 3.8% of the sample reported running less than twice a week, 50.6% of the sample reported running 2 to 4 times per week, and 45.6% of the sample reported running 5 times a week or more.

Psychometric instruments

Three psychometric instruments were administered to, and completed by all respondents. These instruments were: A Biographical Information Questionnaire (adapted from Leask, 1997); the Negative Addiction Scale (Hailey & Bailey, 1982); and the Running Enjoyment Questionnaire (Basson & Macpherson, 1998). Each of these instruments was translated from their original English form into a Zulu-language version by the translation-back translation method.

Biographical Information Questionnaire

The current study adapted Leask's (1997) original Biographical Information Questionnaire (BIQ). This adjusted questionnaire elicited relevant biographical information from respondents, as well as information pertaining to respondents' running history, exercise behaviour, and current fitness levels. The BIQ was chosen as it was readily available and had been used with some success by previous South African studies exploring running dependence and exercise behaviour (e.g. Leask, 1997; Macpherson, 1998).

Negative Addiction Scale

Hailey and Bailey's (1982) Negative Addiction Scale (NAS) was used to measure the extent of respondents' negative addiction to running. The NAS measures the psychological aspects of negative addiction. It evaluates mental states during running days and non-running days, and assesses runners' perceptions about running, running strategies, motives for running, and the importance of running to the person (Thornton & Scott, 1995). The NAS yields a possible negative addiction score ranging from 0 (*low*) to 14 (*high*). More specifically, the NAS consists of 13 items: the first 12 items assess the psychological characteristics of running and the last question consists of an 11-point checklist which evaluates specific aspects of the respondent's running behaviour (Hailey & Bailey, 1982; Leask, 1997).

As the NAS does not provide verbal anchors to indicate relative amounts of addiction, it is unclear at what score a person is considered to be negatively addicted (Furst & Germone, 1993). Anderson *et al.* (1997) and Leask (1997) used a cut-off point of 3 based on the use of the midpoint of the scores, categorising runners who scored above 3 as "negatively addicted". Using a frequency analysis with quartiles for guidelines, Macpherson (1998) divided her sample into three groups: "low negative addiction" (scores ranging from 0 to 1), "moderate negative addiction" (scores ranging from 2 to 4), and "high negative addiction" (scores of 5 or greater). The "high addiction" group obtained a mean score of 6.06 ($SD=1.35$), the "moderate addiction" group a mean score of 3.03 ($SD=0.70$), and the "low addiction" group a mean score of 0.45 ($SD=0.51$). This study used a similar method to divide respondents into three levels of addiction.

Previous studies have generally failed to provide reliability and validity information for the NAS (Thornton & Scott, 1995). A Spearman correlation between the NAS and the Running Addiction Scale (Rudy & Estok, 1989) revealed a strong positive relationship ($r=0.81$; $p<0.001$) suggesting that the two scales measure similar subjective and objective dimensions of running activity. This implies that the NAS has good convergent validity (Macpherson, 1998). The NAS-Zulu version has, however, not been validated. Leask (1997) reported a Cronbach Alpha coefficient of 0.65 for her sample. The current study obtained a Cronbach's Alpha coefficient of 0.61 for the NAS-Zulu version which is lower than ideal. Although the psychometric information available for both the NAS and the NAS-Zulu version is less than adequate, bringing into question whether the NAS-Zulu version actually measures levels of running addiction, this scale was used due to its availability, accessibility, and the relative success with which previous studies have used it both locally (e.g. Anderson *et al.*, 1997; Leask, 1997; Macpherson, 1998) and internationally (see Szabo, 2000) for a review of studies using the NAS). In addition, although the reliability of the reported findings can be questioned, findings from the current study should be viewed in the light of both the exploratory nature of the current study and the ongoing nature of research in this field. Nevertheless, it is acknowledged that further research is required to provide statistical support for the NAS-Zulu version and to confirm the findings of the present study.

The Running Enjoyment Questionnaire

Basson & Macpherson's (1998) Running Enjoyment Questionnaire (REQ) was used to measure the extent of respondents' running enjoyment. This 28-item questionnaire is based on the conceptual dimensions of sport enjoyment, a component of the broader concept of sports commitment (Scanlan & Simons, 1992). The REQ uses the bipolar dimensions of intrinsic-

extrinsic and achievement-non-achievement enjoyment to produce four subscales: achievement-intrinsic (REQ-AI); achievement-extrinsic (REQ-AE); non-achievement-intrinsic (REQ-NAI) and non-achievement-extrinsic enjoyment (REQ-NAE), which together yield a composite measure of running enjoyment. Each subscale consists of seven items (e.g. What I enjoy about running is: the sense of personal achievement I get from it (REQ-AI); that important person/s in my life (spouse, partners, parents, children) respect me for my running (REQ-AE); the routine of training (REQ-NAI); being with lots of people (REQ-NAE)), with each item being rated on a five-point Likert scale that ranges from "very important" (1) to "very unimportant" (5) (Basson, 2001).

Prior research has demonstrated that the REQ has acceptable levels of internal reliability. Internal reliability was initially assessed by means of a pilot study conducted on 48 runners, and was later assessed on a sample of 80 runners (Macpherson, 1998). Despite the demonstrable reliability of the REQ for samples of white (predominantly male) runners, the reliability of the REQ has not been assessed for samples of black runners, nor has the reliability of the REQ-Zulu version been previously assessed. Consequently, the internal reliability of the REQ composite scale, and the four subscales, was assessed by means of the Cronbach's Alpha reliability test. The reliability statistics of the REQ for the current research sample, together with the results from Macpherson's (1998) pilot and main study are reflected in Table 1.

TABLE 1. A SUMMARY OF THE INTERNAL RELIABILITY STATISTICS FOR THE REQ

Running Enjoyment Scale	Cronbach's Alpha Coefficient		
	Current Study	Macpherson (1998)	Macpherson Pilot (1998)
Achievement-Intrinsic	0.66	0.71	0.78
Achievement-Extrinsic	0.72	0.80	0.80
Non-achievement-Intrinsic	0.64	0.61	0.82
Non-achievement-Extrinsic	0.78	0.72	0.79
Composite Scale	0.90	0.88	0.91

From the above results, it seems that the REQ-Zulu version is an adequate measure of running enjoyment, with acceptable levels of internal reliability being obtained on the REQ composite scale and all four sub-scales. In terms of validity, the REQ appears to have good face validity, with each item contributing equally to a total score. Nevertheless, the content, factorial, and predictive validity of both the original and Zulu-version of the REQ has yet to be established. It is thus unclear whether the REQ accurately assesses running enjoyment or the broader concept of running commitment. Notwithstanding these concerns, the REQ was chosen as a psychometric instrument given the paucity of (validated) instruments available to measure running enjoyment. Although findings based on the REQ need to be understood within the context of the ongoing nature of running enjoyment research and the exploratory design of the current study, further studies that validate the REQ for both English and Zulu-speaking runners are required.

RESULTS

Negative Addiction Scale (NAS)

A wide range of NAS scores were reported. Following the findings of Anderson *et al.* (1997), Hailey and Bailey (1982), Leask (1997), and Macpherson (1998), a decision was made to divide the runners, using the mean, mode, and quartile scores of the NAS as guidelines, into three groups of low, moderate, and high negative addiction to running. The mean and standard deviation scores for the three NAS groups, as well as the total sample, are displayed below, in Table 2.

TABLE 2. DESCRIPTIVE STATISTICS FOR THE NAS

Group	N	Min	Max	Mean	SD	%
Total Sample	79	0	10	4.67	2.77	100
High NAS	23	7	10	8.23	0.90	29.1
Moderate NAS	35	3	6	4.31	1.21	44.3
Low NAS	21	0	2	1.38	0.74	26.6

A series of *z*-tests for independent samples were performed to examine whether the present sample's mean NAS score differed significantly from the mean NAS scores of previous studies (see Table 3). The current sample's mean NAS score was significantly higher than the mean NAS score of Furst & Germone's (1993) sample of runners who had exercised for up to six years ($\xi=4.20$, $\alpha<.001$), Leask (1997) ($\xi=4.50$, $\alpha<.001$), and Macpherson (1998) ($\xi=4.18$, $\alpha<.001$). However, the mean NAS score did not differ significantly from Anderson *et al.*'s (1997) mean NAS score ($\xi=1.81$, $\alpha=.07$), from Furst and Germone's (1993) sample of runners who had exercised for more than six years ($z=0.77$, $\alpha=.44$), or Hailey and Bailey's (1982) mean NAS score ($z=-0.72$, $\alpha=.47$).

TABLE 3. Z-TEST COMPARISONS OF MEAN NAS SCORES

Studies	N	Mean	SD	z value
Present Study	79	4.67	2.77	
Macpherson (1998)	80	3.00	2.15	4.18 ***
Leask (1997)	112	3.05	1.99	4.50 ***
Anderson et al. (1997)	49	3.82	2.45	1.81
Furst & Germone (1993)	188	3.20	2.20	4.20 ***
Hailey & Bailey (1982)	60	5.39	Not listed#	-0.72

* $\alpha<.05$ ** $\alpha<.01$ *** $\alpha<.001$

Hailey and Bailey (1982) do not provide a standard deviation. This study used the same SD as Leask (1997).

Running Enjoyment Questionnaire (REQ)

Table 4 reflects descriptive statistics for the REQ composite scale and the four REQ subscales as well as results of *z*-test comparisons performed to compare the mean REQ scores of the current sample with those of Macpherson's (1998) sample.

TABLE 4. DESCRIPTIVE STATISTICS AND Z-TEST COMPARISONS OF THE REQ SCALE MEANS FOR THE PRESENT STUDY AND MACPHERSON'S (1998) STUDY

Scales#	Present study N = 79		Macpherson (1998) N = 80		z-Test Comparisons z Values
	Mean	SD	Mean	SD	
REQ-AI	29.76	3.27	27.58	3.32	4.19***
REQ-AE	29.06	4.13	21.62	4.72	10.48***
REQ-NAI	29.45	3.26	27.83	9.80	1.41
REQ-NAE	27.84	4.60	25.67	3.70	3.29**
REQ total	116.08	13.10	107.70	12.03	4.21***

** $\alpha < .01$

*** $\alpha < .001$

Key: AI = achievement-intrinsic, AE = achievement-extrinsic, NAI = non-achievement-intrinsic, NAE = non-achievement-extrinsic

A number of significant differences emerged between the REQ scores of the current and Macpherson's (1998) study. Specifically, the present sample's mean score on the achievement-intrinsic scale ($\zeta=4.19$, $\alpha < .001$); the achievement-extrinsic scale ($\zeta=10.48$, $\alpha < .001$); and the non-achievement-extrinsic scale ($\zeta=3.29$, $\alpha < .01$) were significantly higher than that of Macpherson's (1998) study. No significant difference was found between the mean scores on the non-achievement-intrinsic scale ($\zeta=1.41$, $\alpha = .16$). In addition, the present sample's mean score on the REQ composite scale ($\zeta=4.21$, $\alpha < .001$) was significantly higher than the mean score obtained by Macpherson (1998). These results seem to suggest that extrinsic (and achievement) sources of enjoyment are more motivating for the current sample of black, Zulu-speaking runners than for previous samples of white runners. It should, however, be noted that these results could reflect measurement error between the English and Zulu versions of the scale, rather than actual differences in sources of motivation between the samples.

In order to identify whether intrinsic or extrinsic sources of enjoyment were more motivating for black, Zulu-speaking runners, composite intrinsic (REQ-AI and REQ-NAI) and extrinsic (REQ-AE and REQ-NAE) REQ scales were calculated and a paired sample *t*-test conducted to test whether the mean score of these composite scales differed significantly from one another. A significant difference was found between the mean of the composite intrinsic REQ scale ($M=59.18$) and that of the composite extrinsic REQ scale ($M=56.90$), with subjects obtaining higher mean scores on the intrinsic scales ($t=3.52$, $\alpha < .001$). Similarly, composite achievement (REQ-AI and REQ-AE) and non-achievement (REQ-NAI and REQ-NAE) scales were calculated and a paired sample *t*-test performed to determine whether the means of these composite scales differed significantly from each other. A significant difference was found between the mean score of the composite achievement scale ($M=58.82$) and the composite non-achievement scale ($M=57.25$), with respondents' having higher mean scores on the composite

achievement scale ($t=3.18, \alpha<.01$).

In addition, an exploratory factor analysis was conducted on the individual REQ items. As research with the REQ progresses, the authors hoped that an exploratory factor analysis would shed further light on the dimensions underpinning the REQ, for a sample of black, Zulu-speaking runners. Specifically, a principal components analysis was used followed by varimax rotation. The variables that contributed to the factor analysis were selected using the standard cut-off point of $>.4$, for the significance of factor loadings (Kerlinger, 1986).² In addition, items with excessive cross-loading across factors were excluded from the analysis. The final factor analysis thus excluded REQ items 8, 13, 18, and 22. The results of this factor analysis are displayed below in Table 5.

TABLE 5. FACTOR ANALYSIS OF REQ SCALE ITEMS, AFTER VARIMAX ROTATION

Factor	Variable Class	REQ Item	Factor Loading
1	Social recognition factor	Others think of me as a special sort of person because I run Marathons	.72
		Important persons in my life respect me for my running	.70
		The quiet satisfaction of others knowing that I am a runner	.66
		That it is such a popular sport	.65
		The contact that it gives me with people I like	.60
2	Social/running identity factor	Wearing club colours	.83
		That it enables me to feel part of a group	.71
		Buying and wearing kit such as running shoes	.70
		The opportunity it provides me for socialising after a run	.62
		The satisfaction of seeing my name on a results list	.52
3	Control and achievement factor	The feeling of personal control I get out of running	.62
		The sense of personal achievement I get from it	.61
		The challenge of completing a marathon	.57
		Achieving personal best times	.55
		To have control over my health and fitness	.53
4	Physical challenge factor	The good sweat I work up during a run	.79
		The challenge of breaking through pain barriers	.72
		The personal rewards I get for my own achievements	.66
		The routine of training	.54

2. Although some researchers have set the significance for factor loadings at $>.3$ (Kerlinger, 1986), it was decided, in this study, to set a more stringent significance level.

The four extracted factors accounted for 50.42% of the total variance. Factor 1 consisted of items referring to achievement-extrinsic influences on enjoyment, such as social recognition. This factor accounted for 14.39% of the variance. Factor 2 consisted of items referring to extrinsic, non-achievement sources of enjoyment, in the form of what could be termed a running identity factor. Factor 2 contributed 12.73% of the variance. Factor 3 consisted of items pertaining to intrinsic sources of enjoyment, related to personal control and achievement. This factor contributed 11.85% of the variance. Factor 4 consisted of personal achievement items in the form of the physical challenge of running, and comprised 11.45% of the variance. However, given the small sample size of the current study, these results from the factor analysis have questionable reliability and should be interpreted with caution.

In order to examine the relationship between the NAS and running commitment, the factor scores were used as predictor variables of negative addiction in a stepwise multiple regression analysis. A stepwise multiple regression procedure was chosen as it is a good model-building procedure for an exploratory research design and due to its ability to identify the best predictors of a dependent variable (Tabachnick & Fidell, 1983). Factor 1 (Social Recognition) was entered as the initial variable, contributing 13.8% to the variance of the NAS scores ($F[1, 13.51, p<.001]$). Factor 3 (Control and Achievement) added a further 14.2% for a shared 28.0% of the variance in the second step ($F [1, 16.15, p<.001]$). Factors 2 and 4 were not entered as significant variables beyond the designated significance level of .05. High scores on factor 1 was consequently the best single predictor of high scores on the NAS. In addition, high scores on factor 1 and factor 3 of the REQ were strongly predictive of high scores on the NAS.

To obtain a different perspective on the relationship between running addiction and running enjoyment, the sample was divided into three levels of addiction using a quartile method employed by both Anderson *et al.* (1997) and Macpherson (1998). The three levels of addiction were: a low addiction group (NAS scores ranging from 0 to 2; $M=1.38, SD=0.74$); a moderate addiction group (scores ranging from 3 to 6; $M=4.31, SD=1.21$); and a high negative addiction group (scores of 7 or greater; $M=8.23, SD=0.90$). A MANOVA was conducted using both the composite and the four sub-scale scores of the REQ as dependent variables in order to establish whether the three NAS groups differed significantly from each other in terms of selected variables. The results of this procedure is reflected in Table 6.

TABLE 6. MANOVA RESULTS FOR ADDICTION GROUP AND REQ SUB-SCALES

REQ Sub-Scales	Low addiction n=21		Moderate addiction n=35		High addiction n=23		df	F	p
	M	SD	M	SD	M	SD			
Achievement-Intrinsic	28.14	3.32	29.71	2.94	31.30	3.08	2	5.78	.005
Achievement-Extrinsic	27.52	3.84	28.89	3.23	30.74	5.07	2	3.61	.032
Non-Achievement-Intrinsic	28.00	2.74	28.97	3.23	31.39	2.93	2	7.60	.001
Non-Achievement-Extrinsic	26.57	4.46	27.43	4.41	29.61	4.67	2	2.76	.070

The non-achievement-extrinsic REQ scale was the only subscale not to significantly differentiate between the three NAS groups. Moreover, a Bonferroni post hoc analysis revealed that the achievement-intrinsic and achievement-extrinsic subscales of the REQ only significantly differentiated between the high and the low addiction groups (that is, the extremities of the NAS). The non-achievement-intrinsic subscale of the REQ significantly differentiated between both the low and high and moderate and high NAS groups.

DISCUSSION

The current research sample of black, Zulu-speaking South African runners obtained a wide dispersion of negative addiction to running scores. This is in keeping with the results of previous studies such as Anderson *et al.* (1997), Leask (1997), and Macpherson (1998). In addition, black, Zulu-speaking runners achieved significantly higher mean NAS scores than the runners in either Leask's (1997) or Macpherson's (1998) samples. A possible reason for the difference in mean NAS scores between the current research sample and prior South African studies conducted amongst white runners could be the role of cultural factors on the answering of self-report questionnaires (Leung & Van der Vijver, 1996). Leung and Van der Vijver (1996) argue that members of traditionally collectivist cultures tend to respond to self-report measures in a socially desirable manner. Black South African runners, therefore, may have over-reported addictive behaviours in order to present themselves as highly committed to running and thus attempt to influence the researcher's perception of them. Furthermore, it is possible that black South African runners may have interpreted the NAS items as indicators of intense commitment (rather than addiction) to the running activity. This explanation seems to be further supported by the finding that there were no significant differences between the NAS scores for the current sample and the mean NAS scores of either Hailey and Bailey's (1982) sample or Furst and Germone's (1993) sample of runners who had run for more than six years. The current research sample therefore seems comparable to American samples with lengthy histories of running participation and concomitant high levels of running commitment. Consequently, further qualitative research is necessary to explore the complex meanings that participants attach to behaviours that are indicative of negative addiction to running. Such research, moreover, could be linked to both quantitative studies comparing the mean NAS scores of the current sample with the NAS scores of a wider range of South African runners and studies establishing the content, factorial and predictive validity of both the original NAS and the NAS-Zulu version.

The exploration of the concept of running commitment, through the construct of running enjoyment, amongst black South African runners yielded some noteworthy research findings. In particular, the results of the current study reflected that running enjoyment was an important motivational construct for this sample of black, Zulu-speaking runners, with relatively high means being obtained on all four REQ subscales. For black, Zulu-speaking South African runners, it thus seems that intrinsic, extrinsic, achievement, and non-achievement sources of enjoyment are perceived to be important motives for continued participation in running. These results are in keeping with Macpherson's (1998) findings amongst white runners. This suggests that both white and black South African runners not only perceive the sources of running enjoyment to be diverse, but view them as important motivational factors for maintaining running participation. On the whole, these findings support Scanlan & Simons' (1992) claim that running is an activity potentially rich in rewarding experiences.

Furthermore, this study found that the current sample of black, Zulu-speaking South African runners appeared to be significantly more motivated by both achievement-extrinsic and non-achievement-extrinsic factors than Macpherson's (1998) sample of white runners. More specifically, achievement-extrinsic sources of enjoyment are those factors, which are related to feelings of competence and control that are dependant on feedback from others, such as positive social recognition (Scanlan & Lewthwaite, 1986; Scanlan & Simons, 1992). In addition, this scale includes items which refer to extrinsic rewards for achievements, such as "receiving rewards such as medals", and the recognition of the person's "runner identity" by others, such as the "quiet satisfaction of people knowing that I'm a runner". This study found that black, Zulu-speaking South African runners were significantly more motivated by externally reinforced feelings of competence and control than prior samples of white runners.

This difference in the achievement-extrinsic scores of white and black South African runners can possibly be explained in terms of cultural differences in self-construals that impact on motivational processes (Markus & Kitayama, 1991). Individuals with an interdependent view of the self will generally be more motivated by extrinsic, other-referenced, and socially oriented achievement factors (with the aim of maintaining group relatedness and enhancing the standing of the in-group) than individuals who have more independent views of the self. Although the current study did not include cultural self-construals as a research construct, it is commonly accepted that Zulu culture is collectivist in orientation, and hence interdependent self-structures are more likely to be salient amongst black South African individuals (Mwamwenda, 1994). It is therefore possible that, due to culturally divergent ways of structuring the self, black South African and white runners award achievement-extrinsic factors with differing degrees of importance.

The relationship between negative addiction to running and running enjoyment sheds further light on this aspect of black South African runners' motivation. The finding that a social recognition factor was the best predictor of high ratings on the Negative Addiction Scale is further support for the importance of extrinsic social factors for this sample of black, South African runners. This social, extrinsic emphasis is further illustrated through the theme that underpins many of the items, which comprise this factor, namely being perceived as important by others due to running involvement. This is reflected, for example, in the following items: "What I enjoy about running is that important people respect me for my running" and "What I enjoy about running is that others think of me as a special sort of person because I run marathons". However, this finding needs to be understood in the light of the very significant contribution that achievement-intrinsic variables make, in conjunction with the social recognition factor, to predict further variance in the negative addiction scores. The sense of personal control and the physical challenges inherent in the act of running are the same variables that drive other ethnic groups to become dependent on running (Macpherson, 1998).

Despite a large body of research which suggests that persons with interdependent selves are more motivated by extrinsic rather than intrinsic factors (Markus & Kitayama, 1991; Matsumoto, 1996), intrinsic enjoyment sources were perceived to be significantly more reinforcing than extrinsic sources for this sample of black South African runners. This finding seems to confirm earlier research on cross-cultural differences in sport motivation. In particular, Hayashi (1996) noted that any cultural member has both independent and interdependent self-structures. He argued that the nature of the sports domain influences which components of the self-concept become more salient. Therefore, the salience of

intrinsic motivational factors in the present sample can possibly be accounted for by an examination of the specific characteristics of running. Running is commonly thought to promote individuality, independence, and autonomy (Sachs, 1981; Basson, 2001). Within this sports context, black South African runners potentially draw upon more independent aspects of the self, and consequently experience intrinsic sources of enjoyment as generally more motivating than extrinsic factors. Nonetheless, this hypothesis needs to be further explored in a study that conceptualises cultural identity as an integral aspect of the research design.

The importance of achievement-intrinsic factors as a source of motivation for continued participation in running is further supported by the finding that the current sample of black South African runners scored significantly higher mean achievement-intrinsic scores than Macpherson's (1998) sample of white runners. It remains unclear why this difference between white and black South African runners emerged. However, a potential explanation may lie in the social history of black South African runners. For historically disadvantaged runners, running may provide a unique opportunity for achievement and mastery that they may not have experienced in other areas of their lives. This social aspect of running motivation is a common phenomenon in sport achievement amongst African-American sports-persons (Cashmore, 2000). The above explanation seems to be further supported by the finding that the present sample was significantly more motivated by achievement factors (both intrinsic and extrinsic) than non-achievement factors. It thus seems that the present sample of black South African runners places great value on both the opportunity for personal achievement (and the concomitant feelings of mastery, competence, and control) and the opportunities for social recognition of these achievements that running affords the participant.

In summation, given the methodological limitations of this study (which include an inability to identify causal relationships between variables due to the use of a cross-sectional research design, questionable external validity due to a reliance on an opportunity method of sampling, and a small sample size), the conclusions drawn from this study remain tentative. Nevertheless, the present study provides an important foundation for understanding the relationship between running dependence and running commitment. More specifically, in attempting to redress the cultural void in sport psychology research, the study has suggested that there may be important differences between white and black South African runners in both running dependence and running commitment processes. However, additional research is required to clarify the identified relationship between running addiction, running commitment, and cultural context. Such research should employ a bio-psychosocial model of running dependence which takes cognisance of the interaction between psychological variables (such as personality factors), physiological factors (for instance, the endorphin hypothesis), and socio-cultural variables (such as cultural self-concepts) and includes each of these variables (together with their interactions) as integral parts of the research design.

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