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Examination of the Validity of the Social Support Survey using Confirmatory Factor Analysis

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Abstract

The Social Support Survey (SSS), validated by Richman, Rosenfeld, and Hardy (1993), is a multidimensional self-report measure of social support, tested with student athletes. The SSS contains eight dimensions of support. For each dimension of support the same four questions are posed. The SSS could therefore essentially be scored in two ways: one, to derive a score for the dimensions of support; two, to derive a score for the questions posed across all eight dimensions of support. Confirmatory factor analyses of the SSS on 416 university athletes revealed poor fits to models for the eight dimensions of support, and for the four questions across all eight dimensions of support. This problem was clarified by employing a multitrait-multimethod (MTMM) model, which led to improved model fit, but which revealed that most of the SSS items were one-dimensional. Caution should, therefore, be exercised in the use of the SSS as a measure of multidimensional social support.

KEY WORDS: SOCIAL SUPPORT, CONFIRMATORY FACTOR ANALYSIS, MULTITRAIT -MULTIMETHOD

Examination of the Validity of the Social Support Survey using Confirmatory Factor Analysis

The potential benefits for athletes of having good social support has led to active encouragement for athletes to harness this resource (e.g., Gould, Jackson, & Finch, 1993; Hardy & Crace, 1991; Richman, Hardy, Rosenfeld, & Callanan, 1989). Increasing interest in the concept of social support in sport has led to links being made with group cohesion (Westre & Weiss, 1991), coping with competitive stress (Crocker, 1992), slumps in performance (Madden, Kirkby, & McDonald, 1989), burnout (Gould, Tuffey, Udry, & Loehr, 1996), the etiology of and recovery from injury (e.g., Hardy, Richman, & Rosenfeld, 1991; Udry, 1996), vulnerability to injury (Smith, Smoll, & Ptacek, 1990), leadership styles (for a review, see Chelladurai, 1993), and performance (Rees, Ingledew, & Hardy, 1999). In this research, the definition and measurement of social support has been very varied. This same comment could also be made of social support research in mainstream psychology, and many doubts have been raised regarding the plethora of measures with psychometric limitations (e.g., Vaux, 1992). Despite the encouraging link with tennis performance found by Rees and associates, the findings of their study were tempered by questions regarding the applied relevance to sport of the instrument used for the measurement of social support.

Rees et al. (1999) used the Interpersonal Support Evaluation List (ISEL) (Cohen, Mermelstein, Kamarck, & Hoberman, 1985). The ISEL is a generic measure of perceived functional social support, which has a confirmed factor structure (Brookings & Bolton, 1988), with support dimensions relating to appraisal, belonging, self-esteem and tangible

support. However, in spite of its appealing multidimensional nature and structural validity, the questions posed by the ISEL only concern general everyday support issues, and do not account for the specific support issues that might be relevant to tennis players. Whilst it is necessary for a measure of social support to have structural validity, taking a measure directly from mainstream psychology may not help us to understand the specific support experiences of sportspeople.

Another measure of multidimensional support that has been used in research in sport is The Social Support Survey (SSS). Richman, Rosenfeld, and Hardy (1993) developed this measure from a conceptualization of support in relation to burnout (Pines, Aronson, & Kafry, 1981), based upon a model of support derived from mainstream psychology. The SSS purports to measure eight separate dimensions or forms of support (hereafter named content factors): listening support; task appreciation; task challenge; emotional support; emotional challenge; reality confirmation; tangible assistance; and personal assistance. For each content factor the same four questions are posed: number of providers of that support; satisfaction with that support; difficulty of obtaining more of that support; and importance to oneÕs overall wellbeing of that support. (Hereafter, these will be named appraisal factors and labeled: number; satisfaction; difficulty; and importance). Earlier work with hospice personnel (Richman & Rosenfeld, 1987) and, later, with college athletes (Rosenfeld, Richman, & Hardy, 1989) provided some evidence for the concept of separating support in terms of the model of the SSS.

Richman et al. (1993) suggested that the SSS and the model it is based upon Òpossess high clinical utility for practitionersÓ (p. 304). Indeed, the SSS is a very flexible instrument, which can clearly be used in mainstream and sport psychology settings.

Based upon the following content and structural validity evidence Richman et al. offered some support for the eight content factors and four appraisal factors of the SSS. Content validity was provided by concluding that the SSS sufficiently covered the multiple conceptualizations of dimensional support constructs to be found in the literature. Structural validity was provided by analysis of twelve correlation matrices – eight matrices for the content factors and four matrices for the appraisal factors. Analysis of the eight content factor matrices showed moderately low correlations between the four items measuring the same content factor. From this, Richman et al. concluded that the four appraisal questions were measuring distinct aspects of each of the content factors. Whilst this may be true, this does not unsupport for the convergent validity of each content factor. Analysis of the four appraisal factor matrices showed moderately low correlations between similar appraisal items across all eight content factors (except for Ònumbers of providers of support,Ó which showed an average correlation of .52). From this, Richman et al. concluded that the SSS content factors were well distinguished. However, to genuinely show discriminant validity, they would need to have shown higher intercorrelations amongst content items within each factor than amongst content items across other factors. The pattern of intercorrelations did not demonstrate this. Richman et al.Õs validation analyses were therefore somewhat inadequate. Clearly, the analysis of any one of those twelve matrices may provide an indication if the four or eight items are indicators of the same construct. However, it says nothing about the factors being well distinguished. Richman et al. noted the ability of the SSS to be used to simultaneously measure different aspects of support and do not enforce any concrete scoring format for the SSS. Nonetheless, the SSS could arguably be scored in two ways, deriving scores for

the eight content factors and for the four appraisal factors, by adding up items. However, despite Richman et al.Õs validation work, the structure of the SSS does not appear to have been tested using confirmatory factor analysis procedures.

The main issue to consider in checking the factor structure of the SSS is whether support should be conceptualized as a multidimensional or a unidimensional construct. For example, Sarason, Shearin, Pierce, and Sarason (1987) suggested that the essence of support might be simply Òknowing that others love us and would willingly do for us what they canÓ (p. 830), and criticism has been leveled at multidimensional measures of support, both at the conceptual level, and also because many multidimensional measures contain overly high correlations between dimensions. It has been demonstrated in confirmatory factor analysis with the ISEL that such correlations can be accounted for by the introduction of a higher order factor (e.g., Brookings & Bolton, 1988). However, at a conceptual level, there is increasing evidence that support should be broken down into dimensional components. For example, Rees et al. (1999) demonstrated differential relationships between different support dimensions and specific performance components. It makes intuitive sense that specific stressors faced by athletes may require specific types of support to buffer them. This concept of matching stressors with support (Cutrona & Russell, 1990) potentially applies to all areas of life. For example, a person coping with the immediate effects of a recent bereavement may require emotional support to aid the coping process, rather than the tangible gift of money. However, such intuition needs to be supported by rigorous research employing sound measurement procedures.

The purpose of the present study was, therefore, to examine the structure of the SSS using confirmatory factor analysis. The structures to be examined were the eight

factor content structure, the four-factor appraisal structure, and a multitrait-multimethod (MTMM) structure, which combines both the two previous structures.

Method

Participants

Participants in this study were 416 college athletes (210 males, 206 females), mean age 21.54 years (SD = 3.40), enrolled in sports science courses at two constituent colleges of the University of Wales. These athletes ranged in ability from college level to international level athletes. Participants provided informed consent. Due to listwise deletion for missing values, the effective sample size was reduced to 316.

The Social Support Survey (SSS)

In the present study, the SSS was slightly modified, in order to stimulate participants into giving responses that concerned their sport as well as their everyday lives (please see Appendix). The only modification is in the introduction, which encourages respondents to consider support from all sources, including teammates, coaches, and sport psychologists. The original does not contain this wording. The questions and explanations of each support content factor are unchanged from the original.

Each content factor is identically assessed by providing a definition of the type of social support being assessed, followed by the same four questions relating to: number of providers of that support; satisfaction with current level of that support; difficulty of obtaining more of that support; and importance to one's well-being of that support. The first question asks respondents to list the initials of providers of that type of support. The last three questions are answered on a five-point scale.

Analyses

The factorial validity of the SSS was tested by analyses of covariance structures, using LISREL 8 (Jšreskog & Sšrbom, 1993). Maximum likelihood estimation was employed. The decision to use confirmatory factor analysis (CFA) procedures was one of applicability to the present models under examination and flexibility of use. To test models, such as those in the present study, in particular the MTMM model, CFA procedures are the most widely used (see, for example, Marsh & Grayson, 1995; Wothke, 1996) and recommended (see, for example, Kenny & Kashy, 1992). Whilst the present study is not strictly confirmatory in nature, use of exploratory factor analysis would be inappropriate (Schmitt & Stults, 1986). This is because, in testing models, such as those in the present study, one is concerned with the specific pattern of factor loadings and covariances of measurement errors across content factors of an existing, theoretically derived model. Analyses of such models should be conducted using CFA procedures (Jšreskog & Sšrbom, 1993; Schutz & Gessaroli, 1993). Jšreskog and Sšrbom also argued that most studies are to an extent both exploratory and confirmatory, and CFA procedures can be used in different ways, as opposed to being simply a strict confirmatory procedure (Jšreskog, 1993).

Initially, the appraisal question relating to number of providers of that support was skewed for each content factor (skewness ranged from 1.160 to 3.956). This skewness was due to the answering format enforcing a lower limit, but no upper limit on participantsÕ responses, such that scores on this item ranged from 0 to 27, with frequencies tailing off at about 8. (This item may also have contributed to the loss of much data in listwise deletion, with respondents often leaving this item blank, instead of

writing Ònone,Ó as requested to do). To correct for skewness this item was scaled to the 5-point format of the other items, such that responses of 0 or 1 were rated 1, responses of 2 or 3 were rated 2, responses of 4 or 5 were rated 3, responses of 6 or 7 were rated 4, and responses of 8 and above were rated 5. Thereafter, only two items had skewness greater than 1. These were satisfaction with emotional support (1.175) and importance to oneÕs overall wellbeing of emotional support (1.248).

The means, standard deviations, and intercorrelations for all items used in the CFA are available from the first author.

Assessing Fit

The overall goodness of fit of the models was tested using the chi-square likelihood ratio statistic (χ^2), Root Mean Square Error of Approximation (RMSEA: Steiger, 1990) and its associated p-value (for RMSEA < 0.05), Goodness of Fit Index (GFI: Jšreskog & Sšrbom, 1989), Standardized Root Mean Square Residual (SRMR), Comparative Fit Index (CFI: Bentler, 1990), Non-Normed Fit Index (NNFI: Tucker & Lewis, 1973), Parsimony Goodness of Fit Index (PGFI: Mulaik et al., 1989), and Expected Cross Validation Index (ECVI: Browne & Cudeck, 1989).

The χ^2 statistic is generally regarded as a measure of the badness of fit of models, such that a small χ^2 corresponds to a good fit, and a large χ^2 corresponds to a poor fit (Jšreskog & Sšrbom, 1993). The number of degrees of freedom can be used as a standard by which to judge the size of the χ^2 statistic. RMSEA assesses how well the model approximates the data by determining the lack of fit of the model to the population covariance matrix, expressed as the discrepancy per degree of freedom (Browne & Cudeck, 1993). According to Browne and Cudeck, RMSEA values of .05 or less

generally indicate a close fit, values up to .08 indicate a reasonable error of approximation, and one would not want to use models with values greater than .10. The associated significance test is of whether the RMSEA is not significantly greater than .05. The GFI and SRMR are indices of absolute fit. The GFI compares the fit of the specified model to a fully saturated model. One would expect values greater than .90 to represent a good fit in terms of GFI. The SRMR measures an average discrepancy between the observed and predicted covariances (Jaccard & Wan, 1996; Jšreskog & Sšrbom, 1993), with values less than 0.05 generally indicating that on average, deviations between observed and fitted covariances are small. The CFI and NNFI were included as comparative fit indices that test how much better a model fits compared with an independence model (Jšreskog & Sšrbom, 1993; Stevens, 1996). Marsh and Grayson (1995) suggested using the NNFI for comparison of MTMM models. For both CFI and NNFI one would expect values greater than .90 to represent good fit. The PGFI takes parsimony (degrees of freedom) into account, and is useful for comparing models with differing degrees of freedom, particularly because one can always improve the fit of models by estimating further parameters (Jšreskog & Sšrbom, 1993; Stevens, 1996). Decreased values for PGFI, whilst obtaining higher values for other fit statistics, might imply that improvement in fit is solely due to the addition of new parameters. The ECVI assesses the degree to which a set of parameters estimated in one sample would fit if used with a new, similar sample (Stevens, 1996). It is useful for analyses such as the present ones, as it does not require the models to be ordered in a nested sequence (Jšreskog & Sšrbom, 1993). In comparing models, one would simply take the smallest value for ECVI to represent the best model.

There does appear to be some lack of consensus as to exactly how many different classes of goodness of fit indices there are. For example, the approach outlined in Jaccard and Wan (1996) is to use measures of fit from three different classes. Jšreskog and Sšrbom (1993) detailed at least four different classes of fit, and Tanaka (1993), in noting that no exact consensus regarding good fit had been reached in the literature, outlined a model of six classes of fit indices. It is therefore probably safer to be more rather than less inclusive. Certainly, some indices of good fit are better than others for comparing different types of models.

The completely standardized factor loadings were also checked, to identify any low-loading items. To identify any ambiguous items, the modification indices for the factor loadings were examined. Large modification indices suggest that improvements in fit can be expected if items are allowed to cross-load on another factor. Assessing fit also included examination of the standardized residuals and the modification indices for the covariances of the measurement errors. For example, a large positive standardized residual between two items would suggest that these items share more in common than the model allows; a large negative standardized residual between two items would suggest that these items share less in common than the model suggests. Similar diagnostic information is provided by the modification indices for the covariances between measurement errors.

To investigate the discriminant validity of the factors, the 95% confidence interval (± 1.96 standard errors) around each correlation between factors was examined. A confidence interval including 1.0 would suggest that the factors are effectively perfectly correlated and therefore lack discriminant validity (Anderson & Gerbing, 1988).

Model Structures

Models were tested and assessed for the eight-factor structure, the four-factor structure, and the MTMM structure. Campbell and Fiske (1959) suggested testing the validity of models such as the one underlying the SSS using a MTMM approach. The MTMM design is almost certainly the best known procedure for detection of systematic measurement error in subjective measures in the social sciences. In MTMM design multiple substantive traits are measured by multiple methods. The MTMM design was used in the present study, following initial analyses of the eight- and four-factor models, to account for the proposed structure of the SSS, which has the same four appraisal questions across all eight content factors. In these analyses the content factors (listening support, task appreciation, task challenge, emotional support, emotional challenge, reality confirmation, tangible assistance, and personal assistance) were considered traits, and the appraisal factors (number, satisfaction, difficulty, and importance) were considered methods; that is to say, the same four measurement methods across the eight content factors. In the LISREL MTMM model, paths were specified which related eight sets of four appraisal questions to their underlying content factors (traits). Paths were also specified which related four sets of eight identical appraisal questions to their underlying appraisal factors (methods). MTMM models are notorious for difficult to run, often providing improper solutions (Marsh & Grayson, 1995). In this studyÕs analyses the MTMM model was run with correlated traits and correlated methods, and did provide a proper solution.

Results

Eight-Factor Model and Four-Factor Model

Results for the eight-factor content model (see Table 1) suggested a poor fit to the data. This is evidenced by a large chi-square value relative to the degrees of freedom, large RMSEA and SRMR, and by very low GFI, CFI, and NNFI. There was no suggestion of ambiguity of items, that is, of items demonstrating large modification indices for paths to other factors. The standardized residuals, and the modification indices for covariances between measurement errors, suggested that the appraisal items shared common variance, not accounted for by the model, and which occurred in a systematic fashion: number items with other number items; satisfaction items with other satisfaction items; difficulty items with other difficulty items; and importance of support items with each other.

Results for the four-factor appraisal model (see Table 1) suggested a better fit to the data than the eight-factor content model. However, the fit was still poor. The standardized residuals, and the modification indices for covariances between measurement errors, this time suggested that the content items shared common variance, not accounted for by the model, and which occurred in a systematic fashion.

MTMM Model

At this point, it appeared that both the eight-factor and four-factor models were unstable, each showing a tendency towards a design incorporating both sets of factors. This problem was clarified by employing the MTMM design for analysis of these models. Results for the MTMM model (see Table 1) suggested a much better fit to data. For example, the ratio of χ^2 to degrees of freedom was less than 2, the RMSEA was less than 0.05, the SRMR was 0.05, the CFI was .92, the NNFI was .90, and the ECVI value was the smallest of all three models. However, the GFI was still just less than 0.90.

It is possible that this low GFI value is due to the relatively small sample size, as GFI has been shown to be adversely affected by small sample sizes (Marsh, Balla, & McDonald, 1988). Marsh and Grayson (1995) suggested that subject numbers greater than 250 are sufficient for analyses of MTMM models, which means that our sample size was reasonable. However, in practice still much larger data sets may be preferable. Whilst further improvements could have been made to this model, only one modification would have made a significant change to the fit of the model in terms of a change in the χ^2 value. This modification index was for the path linking the measurement errors of the importance items for personal assistance and tangible assistance (modification index 47.30), suggesting that these two items are closely related.

The MTMM model is shown in Figure 1. Due to the complex nature of the model, and for the sake of clarity, symbols and parameter estimates are not shown in this figure; parameter estimates are detailed in Table 2. The MTMM model provided evidence of systematic measurement error, in terms of method effects. In structures such as the one underlying the SSS, wherein similar methods are used to measure multiple substantive traits, one would expect such a phenomenon. However, it would be desirable for the method effects to be sufficiently small to provide further support for the discriminant validity of the traits. The MTMM model in the present study showed that the factor loadings for the content factors and the appraisal factors were very similar (see Table 2), leading to a conclusion that all items were somewhat unidimensional. Each item was equally influenced by both a content factor and an appraisal factor.

Discussion

Tests of the models proposed by Richman et al. (1993) suggested poor fits to the data for the eight-factor content structure of support and the four-factor appraisal structure. The LISREL outputs indicated that both the eight-factor model and the four-factor model showed a tendency towards a model incorporating both sets of factors. This problem was clarified using an MTMM model, which fitted markedly better than the first two models. What the MTMM model demonstrated was that most of the SSS items were influenced more or less equally by both a content factor and an appraisal factor; thus, most items were two-dimensional. It may therefore be inappropriate to add up items to represent an absolute value for content factors because the items would be contaminated by appraisal factors. Similarly, it may be inappropriate to add up items to represent an absolute value for appraisal factors because the items would be contaminated by content factors. The poor fits for the eight-factor content model and the four-factor appraisal model imply that one cannot separate these two in analysis. The relative scores for all eight content factors could nonetheless still be used in subsequent empirical analyses. For example, one could use the eight content factors in a regression model, leading to, say, a conclusion that the content factors, listening support, task challenge, and personal assistance contribute the most to the relationship between social support and a measure of performance. Due to the fact that all content factors are equally biased by a combination of methods effects, differences between content factors could be said to be solely due to content. However, some researchers might still consider that the loadings of the appraisal factors (as methods in the MTMM analysis) are too high to feel safe about using the eight content factors as factors with genuine discriminant validity. Using just the eight-factor content model runs the risk of false positive results, due to the influence of the appraisal

factors. Using just the four-factor appraisal model runs the risk of false positive results, due to the influence of the content factors. Conversely, one could also argue that lack of significant differences in the predictive power of different content factors could be false negatives due to common appraisal variance. One final problem in using the SSS in empirical analyses concerns how one computes scale scores. If one adds up items, it is not clear whether some items should be reverse scored; for example, the item, ÒHow important for your overall wellbeing is it to have one or more persons provide you with this support?Ó

Richman et al. (1993) assumed that it is meaningful and appropriate to consider the SSS comprising eight separate content factors based upon content or face validity and an amalgamation of previous conceptualizations of the social support construct. However, as previous conceptualizations of support have regarded the construct as being unidimensional or comprising just three or four dimensions (for reviews, see Heitzmann & Kaplan, 1988; Vaux, 1992), such as the ISEL with four dimensions, further evidence is required to support the notion that the eight factors are necessary or sufficient to cover all aspects of support. It may be that, by encompassing so many of the support aspects previously noted in the literature, the SSS contains too many factors. Indeed, Richman et al. noted that the eight content factors could be considered subdimensions of three principal support factors: tangible; informational; and emotional support.

Given the results of the present study, can one argue that the SSS does possess high clinical utility for practitioners? On the one hand, the SSS appears to cover many interesting areas of support. However, the preceding arguments regarding issues of structural and content validity of the SSS suggest that inferences and implications for best

practice based upon the model of the SSS (e.g., Hardy & Crace, 1991; Richman et al. 1989; Rosenfeld & Richman, 1997) may be misplaced. For example, based upon the model of the SSS, Rosenfeld and Richman (1997) made suggestions for enhancing each of the eight content factors of support in sports teams to aid healing, and Hardy and Crace (1991) described the types of support sports people need. The present study suggests it may be difficult to pinpoint any factor absolutely. If one were to take each of the 32 original items in the SSS on its own merit, it is difficult to interpret whether the score on each item is specifically due to the content factor or the appraisal factor. Consequently, the claim by Richman et al. (1993), that the SSS allows people to Òview strengths and deficits in their network and begin to plan for adding, deleting, or accepting supportÓ (p. 293) may not be fully justified.

A final, but fundamental, problem with the current form of the SSS relates to content validity. In normal factor analysis the content of the items defines each factor. In the SSS this is not the case. In the SSS, each content factor is defined by a single sentence (see Appendix). The four appraisal questions (number of providers of that support, satisfaction with that support, difficulty of obtaining more of that support and importance to oneÕs overall well-being of that support) are then related to this one defining sentence. These four appraisal questions are not, however, indicators of any empirical support for the theoretical definition of the support content factor.

In summary, the present study used a MTMM approach to test the factor structure of the SSS. The results demonstrate the flexibility one has in testing the validity of a measurement instrument using confirmatory factor analysis. Tests of the models proposed

by Richman et al. (1993) suggested the structure of the SSS is not sound. Caution should, therefore, be taken in using the SSS in future research and applied practice.

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Table 1

Goodness of fit statistics for the eight-factor (content) model, four-factor (appraisal) model and MTMM model

Model	! ^{2}	d.f.	p(! ^{2})	RMSEA	p (RMSEA <0.05)	GFI	SRMR	CFI	NNFI	PGFI	ECVI
Eight-factor (content) model	1856.77	436	.00	0.13	.00	.65	0.10	.54	.48	.54	9.10
Four-factor (appraisal) model	1640.38	458	.00	0.10	.00	.73	0.08	.62	.59	.63	6.39
MTMM model	653.94	398	.00	0.04	.96	.89	0.05	.92	.90	.67	2.84

Note. N = 316. RMSEA = Root Mean Square Error of Approximation. GFI = Goodness of Fit Index. SRMR = Standardized Root Mean Square Residual. CFI = Comparative Fit Index. NNFI = Non-Normed Fit Index. PGFI = Parsimony Goodness of Fit Index. ECVI = Expected Cross Validation Index.

Table 2

Completely standardized solution for the MTMM model

		Factor											
		1	2	3	4	5	6	7	8	9	10	11	12
Items	Measurement error variances	Item-factor loadings											
1. Listening Support Number	.52	.43								.55			
2. Listening Support Satisfaction	.41	.64									.44		
3. Listening Support Difficulty	.50	.24										.67	
4. Listening Support Importance	.65	.36											.47
5. Task Appreciation Number	.50		.37							.60			
6. Task Appreciation Satisfaction	.19		.78								.45		
7. Task Appreciation Difficulty	.55		.44									.51	
8. Task Appreciation Importance	.64		.16										.58
9. Task Challenge Number	.47			.43						.59			
10.Task Challenge Satisfaction	.31			.75							.36		
11. Task Challenge Difficulty	.45			.64								.38	
12. Task Challenge Importance	.61			.30									.55
13. Emotional Support Number	.35				.46					.66			
14. Emotional Support Satisfaction	.44				.39						.64		
15. Emotional Support Difficulty	.54				.25							.63	
16. Emotional Support Importance	.39				.58								.52
17. Emotional Challenge Number	.41					.55				.54			
18. Emotional Challenge Satisfaction	.35					.62					.51		
19. Emotional Challenge Difficulty	.52					.36						.60	
20. Emotional Challenge Importance	.56					.43							.51

(table continues)

		Factor											
		1	2	3	4	5	6	7	8	9	10	11	12
Items	Measurement error variances	Item-factor loadings											
21. Reality Confirmation Number	.37						.49			.62			
22. Reality Confirmation Satisfaction	.35						.61				.53		
23. Reality Confirmation Difficulty	.52						.44					.54	
24. Reality Confirmation Importance	.52						.52						.46
25. Tangible Assistance Number	.55							.34		.57			
26. Tangible Assistance Satisfaction	.25							.83			.26		
27. Tangible Assistance Difficulty	.58							.50				.41	
28. Tangible Assistance Importance	.84							.09					.39
29. Personal Assistance Number	.50								.43	.56			
30. Personal Assistance Satisfaction	.30								.76		.35		
31. Personal Assistance Difficulty	.52								.43			.55	
32. Personal Assistance Importance	.69								.33				.46
Factor		Factor-factor correlations											
1. Listening Support		1.00											
2. Task Appreciation		.28	1.00										
3. Task Challenge		.16	.41	1.00									
4. Emotional Support		.29	.15	-.18	1.00								
5. Emotional Challenge		.14	.01	.23	.24	1.00							
6. Reality Confirmation		.17	.13	.17	.36	.28	1.00						
7. Tangible Assistance		.16	.24	.11	.35	.11	.13	1.00					
8. Personal Assistance		.10	.39	.05	.16	.05	.10	.51	1.00				
9. Number										1.00			
10. Satisfaction										.38	1.00		
11. Difficulty										.30	.46	1.00	
12. Importance										.38	.20	.31	1.00

Note. N = 316.

Appendix

Modified Social Support Survey

This survey is intended to examine social support among sportspeople. The following questions individuals in your environment who provide you with help and/or support. Read the definition of th of support being considered and respond to the questions that follow it. Please answer all the q best you can – there are no right or wrong answers. All your responses are strictly confidential.

LISTENING SUPPORT: People who listen to you without giving advice or being judgmental.

1. Write the initials of all the individuals who provide you with listening support. If no one provides yo with this support, please indicate ÒnoneÓ. After each person, indicate the relationship you have wit or him (for example, friend within your sport, friend not within your sport, coach, assistant coach trainer, team/squad manager, sport psychologist/counselor, spouse/partner, parent, grandparen brother/sister, other [please specify]).

2. In general, how satisfied are you with the overall quality of listening support you receive?

very dissatisfied 1 2 3 4 5 very satisfied

3. How difficult would it be for you to obtain more listening support?

very difficult 1 2 3 4 5 very easy

4. How important for your overall well-being is it to have one or more persons provide you with list support?

very unimportant 1 2 3 4 5 very important

[Questions 1 through 4, adapted for each of the following social support types, are repeated after the definitions]

TASK APPRECIATION: People who acknowledge your efforts and express appreciation for the work/sporting activity you do.

TASK CHALLENGE: People who challenge your way of thinking about your work/sporting activity in order to stretch you, motivate you, and lead you to greater creativity, excitement, and involveme work or sporting activity.

EMOTIONAL SUPPORT: People who comfort you and indicate to you that they are on your side for you.

EMOTIONAL CHALLENGE: People who challenge you to evaluate your attitudes, values and fe

REALITY CONFIRMATION: People who are similar to you, see things the way you do, who help yo confirm your perceptions and perspectives of the world and help you keep things in focus.

TANGIBLE ASSISTANCE: People who provide you with either financial assistance, products an

PERSONAL ASSISTANCE: People who provide you with services or help, such as running an er you or driving you somewhere.

Figure Caption

Figure 1 The multitrait–multimethod model, showing support content factors at the top (traits) and support appraisal factors below (methods).