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Procedia - Social and Behavioral Sciences 132 (2014) 255 – 261

Procedia Social and Behavioral Sciences

6th International Conference on Intercultural Education "Education and Health: From a transcultural perspective"

Explanatory model of psychological well-being in the university athletic context

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Abstract

The aim of this study was to test a theoretical model that explains the psychological well-being of the participants of athletic physical activities. The model theorised the effect of mastery-approach goals, of perceived emotional intelligence, and of the satisfaction of the basic psychological needs on psychological well-being. The participants were 422 physically active university students (182 females and 240 males) with a mean age of 21.47 years (*SD* = 4.07). The structural equations model demonstrated that the satisfaction of the basic psychological needs mediated the mastery approach and self-esteem and partially mediated the perceived emotional intelligence and self-esteem. Emotional intelligence and self-esteem positively predicted satisfaction with life. The results are discussed in the framework of the theory of self-determination and goal achievement theory.

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Selection and peer-review under responsibility of HUM-665 Research Group "Research and Evaluation in Intercultural Education".

Keywords: self-determination; psychological needs; mastery-approach; perceived emotional intelligence; self-esteem; satisfaction with life; psychological well-being; physical activity

1. Introduction

In recent decades, positive associations have been found between well-being and motivation (Ryan and Deci, 2001) as well as between well-being and emotion (Romero, Zapata, García-Más, Brustad, Garrido, and Letelier, 2010). Along these lines, psychological well-being has been studied from two perspectives. On the one hand, there

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Selection and peer-review under responsibility of HUM-665 Research Group "Research and Evaluation in Intercultural Education".
doi:10.1016/j.sbspro.2014.04.307

is hedonic well-being, which refers to happiness, essential satisfaction, and affective balance. On the other hand, eudaimonic well-being refers to the assessment of the individual from their personal development (Keyes, 2006). For the study of psychological well-being in the athletic context, indicators such self-esteem and satisfaction with life have been employed (e.g. Balaguer, Castillo, and Duda, 2008).

To experience psychological well-being, an active process of seeking to attain personal goals is necessary (Chatzisarantis and Hagger, 2007). These personal goals can have two orientations, according to the theory of goal achievement (Nicholls, 1989): task (or mastery) and ego (or performance). Individuals who are task-oriented evaluate their competence through self-assessment; however, the individuals who are ego-oriented evaluate their competence through criteria of external comparison. The type of predominant goal orientation can involve positive and/or negative consequences for the well-being of athletes. In fact, recent studies (e.g. Adie, Duda, and Ntoumanis, 2010) have demonstrated the importance of 2x2 achievement goals in explaining well-being or ill-being experienced by athletes.

On the other hand, according to self-determination theory, the satisfaction of the basic psychological needs can improve physical and psychological well-being (Deci and Ryan, 2000). In this sense, the satisfaction of the basic psychological needs improves the indicators of well-being in athletes (e.g. López-Walle, Balaguer, Castillo, and Tristán, 2012).

Another construct that is related to well-being is emotional intelligence. Emotional intelligence is an individual´s ability to recognise emotions and to control them effectively in the search for personal and social well-being (Mayer, Roberts, and Barsade, 2008). There are various studies that have associated these two topics (e.g. Rey, Extremera, and Pena, 2011). However, the study of perceived emotional intelligence and its relationship with well-being is new in the context of sport and physical activity. Along these lines, perceived emotional intelligence (PEI) has been demonstrated to have an important role in the explanation of well-being in athletes (Núñez, León, González, and Martín-Albo, 2011).

In accordance with the scientific literature, the objective of the present study was to assess a theoretical model that explains the psychological well-being of the participants of physical activity and sport. For that, a structural equations model was designed that theorised that the master-approach goal would predict the satisfaction of the basic psychological needs of university students in exercise. The satisfaction of the three psychological needs would predict self-esteem and at the same time, self-esteem would predict the satisfaction with life. Further, emotional intelligence would be a predictor of the satisfaction of the basic psychological needs, of self-esteem, and of one´s satisfaction with life for university students.

2. Method

2.1. Participants

The sample was composed of 182 women and 240 men between the ages of 17 and 51 years (M = 21.47, SD = 4.07). The sample was collected from the various faculties of a public Spanish university. A selection from the various degrees and class groups that each of the faculties was composed of was done, utilising a random sampling in two stages and by conglomerates. Further, as inclusion criteria, only physically active students were utilised. To determine which students were physically active: 1) only those students that confirmed that they practice sport or physical activity at least two times per week were surveyed, and 2) from the calculation of physical activity through the Habitual Physical Activity Questionnaire (Baecke, Burema, and Frijters, 1982), half of the highest achievable score had to be reached.

2.2. *Instruments*

- Habitual Physical Activity. The Spanish version (Sarriá, Selles, Canedo-Arguelles, Fleta, Blasco, and Bueno, 1987) of the Habitual Physical Activity Questionnaire by Baecke et al., 1982 was utilised. The internal consistency was .70.

- Perceived Emotional Intelligence (TMMS-24). The Spanish version (Fernández-Berrocal, Extremera, and Ramos, 2004) of the TMMS by Salovey, Mayer, Goldman, Turvey and Palfai (1995) was utilised. The internal consistency was .83 for attention, .86 for clarity, and .82 for repair.
- 2x2 Achievement Goal Questionnaire (AGQ-S). The Spanish version (Moreno, González-Cutre, and Sicilia, 2008) of the 2 x 2 Achievement Goals Questionnaire for Sport (Conroy, Elliot, and Hofer, 2003) was utilised. Regarding internal validity, for the mastery-approach goal factor, it was .72, and for the performance-approach goal factor, it was .77.
- Basic Psychological Needs in Exercise Scale (BPNES). The Spanish version of the Basic Psychological Needs in Exercise Scale (Vlachopoulos and Michailidou, 2006) that was validated by Sánchez and Núñez (2007) was utilised. The internal validity of the three factors was: .75 for autonomy, .73 for competence, and .86 for relatedness with others.
- Self-esteem. The Spanish version (Balaguer et al., 2008) of the self-worth subscale of the Self-Description Questionnaire (SDQ-III; Marsh, Richards, Johnson, Roche, and Tremayne, 1994) was utilised. Cronbach´s alpha in this study was .80.
- Satisfaction with Life (SWLS). The Spanish version (Atienza, Pons, Balaguer, and García-Merita, 2000) of the Satisfaction with Life Scale by Diener, Emmons, Larsen, and Griffin (1985) was utilised.The internal consistency obtained through Cronbach´s alpha was .88.

2.3. Data analysis

The descriptive and bivariate correlational statistics of all the study´s variables were calculated. Later, a structural equations analysis was carried out to test the theorised relationships between these variables. For that, a two-step approach was utilised: 1) measurement model, and 2) structural equations model. The various analyses were carried out with the SPSS and AMOS statistical packets.

3. Results

3.1 Descriptive and correlational analyses

In Table 1, the descriptive statistics (means, standard deviation) and the bivariate correlations of the studied variables are presented. The results demonstrate positive correlations between all the variables, except for emotional attention and self-esteem ($r = -.13$; $p > .01$). The highest and most significant correlations ($p < .01$) were found between the two indicators, self-esteem and satisfaction with life ($r = .56$), and the dimensions of the basic psychological needs, autonomy and competence ($r = .72$). The lowest correlation is found between emotional attention and satisfaction with life ($r = .001$; $p > .05$).

Table 1. Descriptive variables and their correlations

Variables		M	SD	1	2	3	4	5	6	7	8	9	10
1	Mastery approach	5.88	.94	-	.29**	.04	.19**	.07	.43**	.35**	.28**	.22**	.15**
2	Performance approach	4.05	1.46		-	-.019	.08	.01	.17**	.14**	.07	.02	.04
3	Attention	3.66	.71			-	.23**	.01	.07	.03	.07	-.13**	.00
4	Clarity	3.85	.65				-	.26**	.24**	.25**	.25**	.28**	.31**
5	Repair	3.86	.67					-	.17**	.24**	.20**	.39**	.38**
6	Autonomy	4.15	.66						-	.72**	.56**	.37**	.33**
7	Competence	3.98	.68							-	.55**	.41**	.37**
8	Relation	4.13	.74								-	.32**	.26**
9	Self-esteem	4.75	.83									-	.56**
10	Life satisfaction	4.02	.65										-

Note. ** $p < .01$; * $p < .05$. Mean (M); Standard deviation (SD)

3.2 Analysis of structural equations

Various structural equation analyses were carried out to test the theorised relationships between the study´s variables. All the tested models were identified because each latent variable had at least two indicators. The latent variables that were utilised were: mastery approach and performance approach, and each of these had three indicators. The satisfaction of the basic psychological needs is a construct that included three indicators corresponding with each of the sub-scales of the BPNES (autonomy, competence, and relatedness with others). The latent variable of perceived emotional intelligence is composed of three indicators (attention, clarity, and repair). Self-esteem is composed of 12 observable measures (its 12 items). The latent variable of satisfaction with life is composed of five indicators.

First, a construct validity was provided with the proposed measurement model, through a confirmatory factor analysis based on 58 observed measurements and the nine latent constructs that were freely correlated. The maximum likelihood estimation method was used, as well as the bootstrapping procedure (Mardia´s multivariate coefficient = *151.235*). From the bootstrapping procedure, it was inferred that the results of the estimations were robust and not affected by the lack of normality. To test the validity of the measurement model, various goodness-of-fit indices were utilised. The indices that were obtained were: $\chi^2 = 290.643$, $p = .00$, $\chi^2/d.f. = 2.82$, CFI = .93, IFI = .94, GFI =.92, SRMR = .07, RMSEA = .07. However, it was demonstrated that the performance approach was not related to the majority of the other latent variables, so it was eliminated. Consequently, the model improved in its fit indices ($\chi^2 = 163.549$, $p = .00$, $\chi^2/d.f. = 2.44$, CFI = .96, IFI = .96, GFI =.95, SRMR = .07, RMSEA = .06).

Five structural equation analyses were carried out to test the hypothesised relationships between the variables. Each of these is described in the following section.

3.2.1 Role of the basic psychological needs as a mediator between task approach and self-esteem.The model studied the mediating effect of the basic psychological needs (mediator) between the task approach (predictor) and self-esteem (consequence). The fit indices for this model were: CFI = .98, IFI = .98, GFI =.97, SRMR = .04, RMSEA = .06. In the first step, the task approach (predictor) positively predicted the basic psychological needs (mediator) ($\beta = .51$; $p < .01$). The second step demonstrated that the task approach (predictor) positively predicted self-esteem (consequence) ($\beta = .28$; $p < .01$). In the third step, the basic psychological needs (mediator) also positively predicted self-esteem (consequence) ($\beta = .48$; $p < .01$). In the last step, it was seen that the relationship between the task approach and self-esteem was significantly reduced when the satisfaction of the basic psychological needs is included. The results demonstrated that the direct effect of the predictor on the consequence greatly decreased until it was no longer significant ($p = .380$). In general, we can say that for this study, the satisfaction of the basic psychological needs appears as a mediator between task approach and self-esteem.

3.2.2 Mediating role of the basic psychological needs between perceived emotional intelligence and self-esteem

For the proposed model, the mediating effect of the basic psychological needs (mediator) between the perceived emotional intelligence (predictor) and self-esteem (consequence) was studied. The fit indices for this model were: CFI = .93, IFI = .93, GFI =.94, SRMR = .09, RMSEA = .09. In the first step, the perceived emotional intelligence (predictor) positively predicted the basic psychological needs (mediator) ($\beta = .51$; $p < .01$). The second step demonstrated that perceived emotional intelligence (predictor) positively predicted self-esteem (consequence) ($\beta = .51$; $p < .01$). In the third step, the basic psychological needs (mediator) also positively predicted self-esteem (consequence) ($\beta = .48$; $p < .01$). In the last step, it was seen that the relationship between perceived emotional intelligence and self-esteem were significantly reduced when the basic psychological needs were included. The results demonstrated that the direct effect of the predictor on the consequence greatly decreased when the satisfaction of the basic psychological needs were involved ($\beta = .36$, $p < .01$). Therefore, in this study, the satisfaction of the basic psychological needs appears as a partial mediator between perceived emotional intelligence and self-esteem.

3.2.3 Mediating role of self-esteem between the satisfaction of the basic psychological needs and satisfaction with life. The proposed mediation model studied the effect of self-esteem (mediator) on the constructs of satisfaction of the basic psychological needs (predictor) and the satisfaction with life (consequence). This mediation model presented the following fit indices: CFI = .97, IFI = .97, GFI =.95, SRMR = .04, RMSEA = .06. In the first step, the satisfaction of the basic psychological needs (predictor) positively predicted self-esteem

(mediator) (β = .48; p < .01). In the second step, the satisfaction of the basic psychological needs (predictor) also predicted the satisfaction with life (consequence) (β = .44; p < .01). In the third step, self-esteem (mediator) positively predicted the satisfaction with life (consequence) (β = .65; p < .01). In the fourth step, it was observed that the relationship between the satisfaction of needs and satisfaction with life were greatly reduced with the addition of self-esteem. The data indicated that the direct effect of the predictor on the consequence greatly decreased when self-esteem was included (β = .17, p < .01). The results of the mediation model demonstrate that self-esteem partially mediates satisfaction of basic psychological needs and satisfaction with life.

3.2.4 Mediating role of self-esteem between perceived emotional intelligence and satisfaction with life. This model studied the mediating effect of self-esteem (mediator) on perceived emotional intelligence (predictor) and satisfaction with life (consequence). The mediation model presented the following fit indices: CFI = .94, IFI = .94, GFI =.94, SRMR = .09, RMSEA = .07. In the first step, perceived emotional intelligence (predictor) positively predicted self-esteem (mediator) (β = .50; p < .01). In the second step, perceived emotional intelligence (predictor) also predicted satisfaction with life (consequence) (β = .58; p < .01). In the third step, self-esteem (mediator) predicted satisfaction with life (consequence) (β = .65; p < .01). In the fourth and final step, the inclusion of the mediator (self-esteem) was detrimental to the predicting ability regarding the consequence (β= .39, p < .01). These results indicate that self-esteem was a partial mediator between perceived emotional intelligence and satisfaction with life.

3.2.5. Proposal of an explanatory structural model of psychological well-being.Keeping in mind the mediation analyses carried out, a model that attempts to explain the psychological well-being of university students who practice physical activity and sport is presented (see Figure 1). In the proposed model, the satisfaction of needs mediates the master approach goal and self-esteem. Therefore, the satisfaction of the psychological needs partially mediates the relationship between PEI and self-esteem. At the same time, self-esteem was a partial mediator between PEI and satisfaction with life. Along the same lines, self-esteem appears as a partial mediator between the satisfaction of basic psychological needs and satisfaction with life. Further, PEI directly affects satisfaction with life. In conclusion, the results of the structural equations model (see Figure 1) demonstrated that the master approach goal positively predicted the satisfaction of the basic psychological needs (β = .39). Further, PEI also predicted the satisfaction of the psychological needs (β = .42). Both constructs (task approach and PEI) explain 42% of the variance of the satisfaction of needs. At the same time, the satisfaction of needs was positively associated with self-esteem (β = .28). PEI positively predicted both measures of well-being: self-esteem (β = .37) and satisfaction with life (β = .46). Finally, self-esteem positively predicted satisfaction with life (β = .45). Explained variances of 33% for self-esteem and 63% for satisfaction with life were obtained. The fit indices for the presented model were: $\chi 2 = 199.551$, p = .00, $\chi 2$/d.f. = 2.77, CFI = .94, IFI = .94, GFI =.94, SRMR = .07, RMSEA = .06.

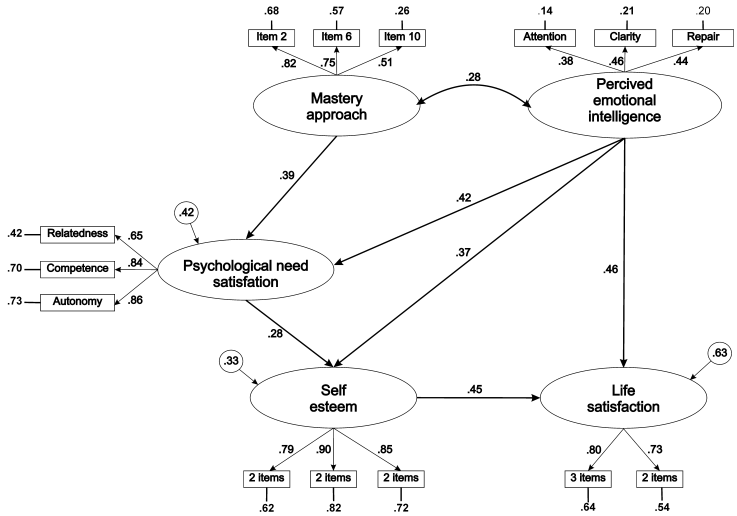

Figure 1. Prediction model of psychological well-being in a physically active university population

4. Discussion and conclusions

A theoretical model was sought that would explain the psychological well-being of physically active students. There are few studies that demonstrate the relationships between the variables that are measured in the present study. Therefore, this study looked closely at the processes that can affect the psychological well-being of university students who practice sports or other physical activity.

The results demonstrate that the individuals with a higher level of mastery approach are more likely to satisfy their basic psychological needs with exercise, increase their self-esteem, and increase their satisfaction with life. However, significant relationships were not found between the performance approach goal and the rest of the variables; thus, it was excluded from the model. In this sense, other studies have demonstrated the importance of 2x2 achievement goals on well-being in the athletic context (e.g., Adie et al., 2010). The goals can be better predictors in some contexts than in others. Along these lines, Conroy, Cassidy and Elliot (2008) proposed that mastery-approach and mastery-avoidance goals are more relevant for prediction in learning contexts. On the other hand, performance-approach and performance-avoidance may be more relevant for predicting the results in competitive contexts.

The satisfaction of needs appears as a mediator between perceived emotional intelligence and self-esteem. Other studies confirm that the changes in satisfaction of the basic psychological needs modify well-being, and specifically, self-esteem (Amorose, Anderson-Butcher, and Cooper, 2009). Along these lines, Meyer, Enström, Harstveita, Bowlesb, and Beeversc (2007) claimed that a worse perception of well-being was related to insufficient basic psychological needs.

Therefore, PEI may predict the constructs of the satisfaction of the basic psychological needs, self-esteem, and satisfaction with life. These results are similar to those by Rey et al. (2011), which found that PEI positively predicted self-esteem and life satisfaction. Further, Núñez et al. (2011) highlighted that PEI plays an important role in athletic motivation and in psychological well-being. The results of the present study improve the understanding of how the PEI predicts constructs such as the satisfaction of the basic psychological needs or psychological well-being (measured through self-esteem and satisfaction with life).

In conclusion, this study demonstrates how physically active students who score higher in mastery-approach goals and in PEI are more likely to satisfy their basic psychological needs in exercise. At the same time, the satisfaction of basic psychological needs predicts self-esteem. This improvement in the student´s self-esteem also positively influences his or her satisfaction with life. On the other hand, emotional intelligence positively predicts the two indicators of psychological well-being.

Acknowledgements

This study was possible thanks to the research project titled "Motivational factors related to physical activity practice and psychological well-being" (Ref. DEP2011-28288), financed by Spain´s Ministry of Education.

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