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# ORIGINAL

# THE EFFECT OF MOTIVATION ON THE RESILIENCE AND ANXIETY OF THE ATHLETE

# EL EFECTO DE LA MOTIVACIÓN SOBRE LA RESILIENCIA Y LA ANSIEDAD DEL DEPORTISTA

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## ABSTRACT

Throughout a sports career, a series of traumatic events or sporting failures often occur, which represent a turning point. Therefore, it is necessary to analyze the influence of motivation of the athlete on resilience, and the latter, on their levels of anxiety. This study included 276 volleyball players between the ages of 18 and 31. In this study, several descriptive statistical analyzes were carried out, a reliability analysis of the factors that make up the model and a route analysis that explains the causal relationships between the variables. The indexes of adjustment of the articles of analysis were satisfactory explaining the relationships established between the factors. In conclusion, the self-determined motivation is related to the positive form with the resilience while the less self-determined forms are related to the negative form with it. Likewise, resilience is negatively related to anxiety.

**KEYWORDS:** Motivation, psychology, anxiety, cognition, athlete.

## RESUMEN

A lo largo de una carrera deportiva suelen acontecer una serie de hechos traumáticos o fracasos deportivos que suponen un punto de inflexión, por ello,

resulta necesario analizar la influencia que tiene la motivación del deportista sobre la resiliencia, y esta última, sobre sus niveles de ansiedad. En este estudio participaron 276 voleibolistas con edades entre 18 y 31 años. En este estudio se han realizado varios análisis estadísticos descriptivos, un análisis de fiabilidad de los factores que integran el modelo y un *path analysis* que explica las relaciones causales entre las variables. Los índices de ajuste de los diversos análisis fueron satisfactorios explicando las relaciones que se establecen entre los factores. En conclusión, la motivación autodeterminada está relacionada de forma positiva con la resiliencia mientras que las formas menos autodeterminadas están relacionadas de forma negativa con ésta. Asimismo, la resiliencia se relaciona de forma negativa con la ansiedad.

**PALABRAS CLAVE:** Motivación, psicología, ansiedad, cognición, atleta.

## INTRODUCTION

In recent years evidence has been uncovered of the importance of motivation with the field of Sport Psychology, and its effects on sport performance (Stoeber, 2011; Zafra, Álvarez, Montero and Redondo, 2009). However, the influence of motivation on the ability to overcome the multiple difficulties faced by sportspeople throughout the length of their sporting lives has not been deeply investigated, neither at a psychological level, nor at a physical and social level (Broche, Diago and Herrera, 2012; McMorris, 2014). This capacity to overcome problems is called resilience and constitutes a mechanism that helps the sportsperson to positively respond to risk situations (e.g., sporting injuries, sporting failures and problems of adaptability to teams). These risk situations can generate important feelings of stress, depression and anxiety in the sportsperson. In this sense, Forés and Grané (2008) define resilience as a set of personal qualities that constitute human ability to overcome adverse and stressful situations. At the same time, it leads to positive growth of the individual as a result of facing their own personal and sporting challenges. This contributes to the development of an exhaustive process of adaption at a behavioral, affective and social level.

In recent decades, various investigators have supported the tenants of self-determination theory (~~STD~~SDT). This strove for a better understanding of the influence of the different motivational processes in the sporting and physical activity context, on the cognitive and affective state of sportspeople (Wouters, Van Nimwegen, Van Oostendorp, and Van Der Spek, 2013). This theory proposes the existence of different types and levels of motivation. These are located on a continuum of self-determination, and distinguish between the intrinsic and extrinsic motivation of an individual (Brown and Ryan, 2015; Trigueros, Sicilia, Alcaraz and Dumitru, 2017). It is within this context where demotivation, extrinsic motivation and intrinsic motivation can be positioned, with each describing a greater or lesser extent of self-determination.

Beginning with demotivation, this refers to the total absence or complete lack of intention at the time of completing a determined activity. An illustrative example

of this can be found in the case of those sportspeople who, after having suffered a serious sporting injury, lose the will to get back to engaging in their habitual sporting activity (Almeida, Luciano, Lameiras and Buceta, 2014; Berengüí-Gil, Garcés and Hidalgo-Montesinos, 2013). After demotivation, extrinsic motivation is found. This particularly highlights the commitment of a sportsperson towards their sporting activity, as something that is acquired as a means through which they may achieve a positive outcome or overcome a challenge, with success being judged in comparison with others. It is never seen as an achievement or overcoming of challenges of the individual, or of the sport itself (Ryan and Deci, 2014). At the same time, three different types of regulation exist within extrinsic motivation. The first of these is external regulation, this refers to the procurement of rewards or the recognition of others. Next, introjected regulation is found. This emphasizes the process of avoiding the feelings of guilt that can arise when an individual engages in sport (Ryan and Deci, 2014). Following this internal regulation is found. This is defined by the experience of benefits to wellbeing felt by the individual as a result of their engagement. Finally, integrated regulation can be reached. This is commonly defined by the fact that physical activity is embedded within the individual's lifestyle (Ryan and Deci, 2014). In conclusion, so-called intrinsic motivation entails a commitment to sport that is singularly based on the intention to obtain sensations of pleasure and enjoyment. In this way, physical activity and sport become the end in itself (Amorose, Anderson-Butcher, Newman, Fraina and Iachini, 2016; Thøgersen-Ntoumani, Shepherd, Ntoumanis, Wagenmakers and Shaw, 2016). Thus, the concept of intrinsic motivation shows a certain predisposition towards assimilation, in an attempt to achieve certain levels of mastery, inquiry and interest. All of these aspects are ultimately necessary for the adequate cognitive, social and personal development of individuals, as stated by Trigueros, et al., (2017).

Due to this and through the positive experiences generated by the activity itself, sportspeople can develop their resilience. Indeed, it is not an innate psychological quality as it must be developed taking a multi-disciplinary approach and through the attaining achievable goals, or through overcoming stressful events (Ortín-Montero, De la Vega and Gosálvez-Botella, 2013). It is for this reason that sportspeople will not respond in the same way when faced with risk situations. Depending on the level to which the resilient conduct they have acquired is developed, their sporting performance can be affected to a greater or lesser extent. Along these same lines, research conducted up until the present day adhere to certain elements that positively influence resilient conduct and, in this way, help sportspeople to achieve optimum sporting performance (Sánchez, de Pedro, and Izquierdo, 2016). Amongst these elements it is fitting to emphasize the existence of a positive personality, elevated levels of intrinsic motivation towards sporting activity, confidence in oneself, a strong capacity to confront stressful factors, and the support and recognition of the main structures, organizations and social groups (Sarkar and Fletcher, 2014).

Nevertheless, as was stated at the beginning, very few studies exist which have analyzed the effect of emotional processes on the resilience of sportspeople (García, Molinero, Ruiz, Salguero, De la Vega and Márquez, 2014; García-Mas,

Pujals, Fuster-Parra, Núñez and Rubio, 2014; Vitali, Bortoli, Bertinato, Robazza and Schena, 2015). In this sense, Adie, Duda and Ntoumanis (2008) conducted a study with a sample of 235 males and 189 females with an average age of 26.8 years. They examined how extrinsic motivation was related with resilience demonstrating a predictive negative association. On the contrary, intrinsic motivation was positively related with resilience. This is due to sportspeople seeking to improve their own abilities and skills, frequently tending to overcome the challenges of the sporting activity itself with high doses of effort, persistence and dedication.

A study conducted by Belem, Caruzzo, Nascimento Junior, Vieira and Vieira (2014) with Brazilian professional beach volleyball players, observed that intrinsic motivation towards personal improvement and trust in oneself acted as a predictor of resilience. With regards to resilience, this variable acted as a predictor of the fight against adversity, motivation towards achieving one's goals and performance.

Another study performed by Machida, Irwin and Feltz (2013) was conducted through phenomenological semi-structured interviews with 12 rugby players who suffered from a spinal medulla injury. Results showed that development of resilience is a multi-factorial process which involves pre-existing factors and prior experiences of adversity. Further, social support and prior research are key for one's motivation towards self-improvement.

In the same sense, a study conducted by Fletcher and Sarkar (2012) employed a qualitative methodology for the analysis of a set of 12 interviews conducted with Olympic sportspeople. They observed that optimal development of resilience level was dependent upon a set of psychological factors, amongst which self-efficacy, social support, positive character, high intrinsic motivation and an optimal level of anxiety were found.

It is due to this last study that we know that resilience can play an important role with regards to anxiety in sportspeople, given that it possess a related role relating to sporting performance. In this sense, Giacobbi and Weinberg (2000) define anxiety as an emotional state that is manifested as concern, nervousness and freezing, all of which influence the actions of the individual. Nevertheless, anxiety is not only seen from a negative point of view but can also be seen positively due to the level of excitation it can produce (Curran, Appleton, Hill and Hall, 2011). This anxiety excitation level is in no way stable, instead it varies depending on the time of day or the situation. In this way, if the anxiety level experienced by a person is very low it will likely result in a poor performance. However, should the excitation level of this same sportsperson increase, performance will also improve until the optimum level of execution is reached. Despite this, should excitation continue to increase, performance will ultimately deteriorate (Carson and Collins, 2016; Osborne, Greene and Immel, 2014).

Thus, the aim of the present study is to analyze the degree of influence of each of the motivational types that are reflected in the self-determination theory (SDT) with regards to resilience and anxiety levels found within volleyball

players. In this way, the central hypothesis of the present study proposes to examine the idea that motivational types that possess a lower level of self-determination will negatively influence resilience. On the other hand, motivational styles that present a greater level of self-determination will result in much more positive repercussions with regards to resilience. Further, it will also be possible to predict the anxiety level of sportspeople as a function of the degree or level of resilience they present at any given moment (a greater level of resilience equates to lower anxiety, lower resilience leads to higher anxiety).

## MATERIAL Y METHODS

## PARTICIPANTS

276 volleyball players took part in the present study (147 males and 129 females), with reported ages of between 18 and 31 years (*M* = 24.9; *SD* = 3.31). Players belonged to different sports clubs in the province of Almeria. Inclusion criteria to participate in the present study included voluntary and honest participation in the study, in addition to full completion of all questionnaires and signing the study informed consent form.

## INSTRUMENTS

Resilience scale in the sporting context (ERD). The scale of Trigueros, Álvarez, Aguilar-Parra, Alcaraz and Rosado (2017) that was adapted from the *Resilience Scale* developed by Wagnild and Young (1993) was utilized with the aim of measuring resilience in the sporting context. This questionnaire is headed by the sentence, “Considering the sporting experience, rate the extent to which you agree or disagree with the following statements” and is composed of 25 items divided between two factors. Sixteen of these items measure personal competence (e.g. “I am disciplined in the sport I engage in”) and eight measure acceptance of oneself and of life (e.g. “I feel that my sporting life makes sense”). Participating volleyball players were required to provide their response on a Likert scale that runs from 1 (disagree) to 7 (totally agree).

Self-determined motivation was evaluated using the *Behavioral Regulation in Sport Questionnaire* ([BRSQ] Lonsdale, Hodge and Rose, 2008) which has been validated and adapted into the Spanish context by Viladrich, Torregrosa and Cruz (2011). It was designed to evaluate motivation to engage in sport from the perspective of the SDT. This scale is composed of 24 items which are evenly distributed. Further, it is used to evaluate motives of sport participation through six sub-scales which relate to intrinsic motivation, integrated regulation, identified regulation, introjected regulation, external regulation and demotivation. All of the items share the common stem “I engage in this sport…” followed by varied content that is relevant to each subscale (e.g., "because I like it"; "because I feel pressured by others to continue doing it"; "despite the fact that I ask myself why I continue"). Items are rated from de 1 (Completely false) to 7 (Completely true)

Scores obtained for the different types of motivation were organized according to three indices that grouped the most self-determined forms (i.e., intrinsic motivation, integrated regulation and identified regulation), the least self-determined forms (i.e., introjected regulation and external regulation) and, finally, the absence of motivation (demotivation). All of these indices were calculated according to the mean score of each one (Vallerand, 2007).

Competitive anxiety in sport was measured using the Spanish version of the *Sport Anxiety Scale-2* (SAS-2; Smith, Smoll, Cumming and Grossbard, 2006; Ramis, Torregrosa, Viladrich and Cruz, 2010). It is designed with a set of 15 items distributed according to three factors, with 5 items in each one. The three factors describe somatic anxiety, concern and concentration disruption. Participants responded to items with the stem "Before of whilst I compete in sports..." (e.g., "my body feels tense"; "I worry that I will not play well"; "it is hard for me to focus on what I am supposed to do"). Each item is responded to on a 4-point scale that runs from "not at all" and "a lot".

## PROCEDURE

With the aim of being able to carry out the study the various individuals in charge of the participating sports clubs were contacted before initiating the research. They were explained the purpose of the research and were then requested to provide authorization permitting researchers to administer the different questionnaires to the sportspeople. Once this step was completed, the sportspeople were informed that they were participating in a research study about motivation in the sporting context. At the same time, their permission was requested to use the completed questionnaires, whilst ensuring that anonymity would be maintained at all times. In the moment after this information had been provided, all individuals who wished to participate were asked to sign an informed consent form. Questionnaires were anonymously completed before a regular training session with completion taking no more than 15 minutes. The present study respects the fundamental principles established in the Declaration of Helsinki, in addition to those established in the European Convention on Human Rights and Biomedicine, and those established in Spanish legislation in the field of bioethics.

## DATA ANALYSIS

Firstly, descriptive statistics were calculated and a correlation analysis relating the variables under study was conducted. This enabled a subsequent reliability analysis to be performed via examination of Cronbach alpha. Finally, a path analysis of the hypothesized predictive relationships in the model was carried out. In order to test the mediation effects within the model, the following requirements established by Baron and Kenny (1986) were considered: (1) A significant correlation between the independent and dependent variable; (2) A significant correlation between the independent variable and the mediators; (3) A significant correlation between the mediators and the dependent variable; (4) The previously established significant association between the independent and dependent variable, stops being significant when the associations between the

independent variable and the mediators are controlled. Further, both direct effects and indirect effects are provided.

Path analysis was conducted using the maximum likelihood estimation method with bootstrapping, via the statistical package AMOS 19. This procedure has been demonstrated to produce robust estimations (Byrne, 2001), despite the absence of normality in the hypothesized model (Mardia coefficient = 161.57). In order to analyses goodness of fit, the following indices were used: χ2 coefficient, the chi-square to degrees of freedom ratio (χ2/df), c*omparative Fit Index* (CFI), *incremental fit Index* (IFI), *root mean square error of approximation* (RMSEA) alongside its 90% confidence interval and *standardized root mean square residual* (SRMR). Generally speaking, values are considered acceptable for *χ2*/*df* if they are inferior to 5 (Bentler, 1989), values for CFI and IFI that are equal to or greater than .90, values for RMSEA that are 0.06 or lower and values of 0.08 or lower for SRMR (Hu and Bentler, 1999).

## RESULTS

## PRELIMINARY ANALYSIS

Results of the descriptive statistics and temporal stability analysis, and the correlations existing between the study variables can be observed in Table 1. The highest average score can be observed for intrinsic motivation (*M* = 5.46) and the lowest mean score relates to demotivation (*M* = 1.91).

The presence of a negative association can be seen in the correlation analysis, in self-determined motivation with respect to non-self-determined motivations and demotivation, with the correlation between the latter two being positive. With regards to the types of motivation in relation to resilience, it can be seen that non self-determined motivation and demotivation were moderately negatively related with resilience. In contrast, this association was positive between self-determined motivation and resilience. Finally, both resilience and self-determined motivation were equally related in a negative way to anxiety. At the same time, demotivation and non-self-determined motivation were positively associated with anxiety.

**Table 1.** Descriptive statistics, reliability analysis and bivariate correlations between variables.

| Variables | *M* | *SD* | α | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|---|---|
| 1. Mot. Self-determined | 5.46 | .86 | .81 | | -.20** | -.53** | .40** | -.48** |
| 2. Mot. Non-self-determined | 3.57 | .83 | .77 | | | .13* | -.37** | .42** |
| 3. Demotivation | 1.91 | .79 | .86 | | | | -.53** | .18* |
| 4. Resilience | 5.35 | 1.15 | .92 | | | | | -.49** |
| 5. Anxiety | 2.23 | .43 | .78 | | | | | |

*$p$ = .05; **$p$ = .01; Note: Mot= Motivation.

## PATH ANALYSIS

The model of hypothesized predictive associations was tested (Figure 1). Analysis of the hypothesized model obtained the following fit indices: $\chi 2$ (3, N = 276) = 10.35, p = 0.002; $\chi 2/df$ = 3.45; CFI = 0.97; IFI = 0.96; TLI = 0.97; RMSEA = 0.071 (95% CI =0.068-0.083); SRMR = 0.056. The relationships obtained addressing the various hypotheses proposed for the present study will now be described:

The associations between self-determined and non-self-determined motivation were negative ($\beta$ = -0.38, p = 0.006), and were equally negative in relation to demotivation ($\beta$ = -0.53, p = 0.001). The association between non-self-determination motivation and demotivation was positive ($\beta$ = 0.35, p = .009).

Hypothesis 1: Self-determined motivation positively predicted resilience ($\beta$ = 0.48, p = 0.012) and negatively predicted non-self-determined motivation ($\beta$ = -0.39, p = 0.021) and demotivation ($\beta$ = -0.12, p = 0.008).

Hypothesis 2: Resilience negatively predicted anxiety ($\beta$ = -0.33, p < 0.001).

Hypothesis 3: Resilience mediated the effects derived with regards to the influence of self-determined motivation (indirect effect: $\beta$ = 0.05, p = 0.009) and non-self-determined motivation (indirect effect: $\beta$ = -0.07, p = 0.008) on anxiety.

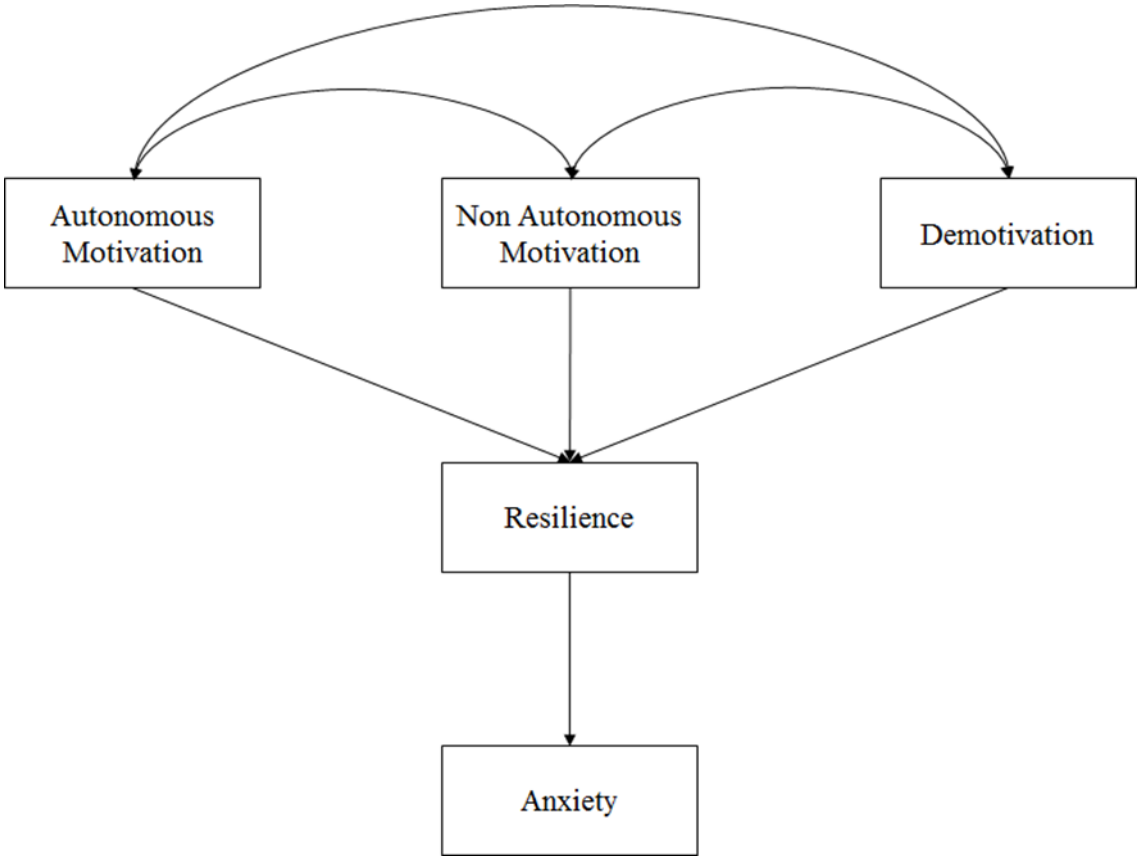


***Figure 1.*** Hypothesized model of anxiety in the sporting context.

## DISCUSSION

The present study contemplated resilience for the first time as a predictor of anxiety in a sporting context, not forgetting that it is also the first study to integrate it within the context of SDT. Previous studies have analyzed the extent to which self-determined motivation predicted the personal, psychological and emotional wellbeing of individuals, and the manner in which these aspects favored adherence to engaging in sport or leisure. In this way the present study seeks to deepen understanding of how resilience affects sportspeople and the anxiety they subsequently experience. In this sense the present results give weight to the SDT, taking the next small step towards clarifying how the motivational transfer process might influence the emotional wellbeing of sportspeople.

In line with the SDT, the results showed that self-determined motivation positively predicted resilience and this, at the same time, negatively predicted non-self-determined motivation and demotivation. Further, the mediating effect of resilience within the model was revealed (Hypothesis 3). These results can barely be compared with other studies, as research in the sporting ambit that have associated motivation with resilience hardly exist. In this sense, various studies previously conducted (e.g., Adie, et al., 2008; Belem, et al., 2014; García-Mas, et al., 2014; Machida, et al., 2013; Moran, 2016; Vitali, et al., 2015) have indicated that extrinsic motivation negatively predicts resilience, whilst intrinsic motivation positively predicts resilience. This can be explained by the fact that sportspeople who repeatedly try to improve their skills and abilities, manage to overcome the very challenges of their sporting activity as they show higher levels of effort, persistence, dedication and sacrifice. These aspects are linked to self-determined motivation and go against less self-determined forms of motivation in sportspeople.

Results of the present study also showed that resilience negatively predicted anxiety. This relationship is of special relevance given that resilience is a construct that has only recently been studied by the scientific community in the sporting context. Thus, we must turn to the field of clinical psychology where numerous studies exist dealing with these constructs (e.g., Hjemdal, Vogel, Solem, Hagen and Stiles, 2011; Min, Yu, Lee and Chae, 2013). This research has established negative predictions between resilience and anxiety. This outcome can be understood by the fact that the sportsperson perceives the challenge they face to be surmountable and the achievement of their goal, or goals, to be achievable. This diminishes their internal conflict and, ultimately, their anxiety. This highlights the importance of resilience to the emotional wellbeing of sportspeople, and foregrounds the relevance of working with them at a mental and psychological level, so that they can face competition head on.

## CONCLUSIONS

The present study was based on SDT and supports it tenants, relating them with new variables and demonstrating their applicability to Spanish culture. This

being said, with regards to the existing findings produced from the present model, it is necessary to stress that they were based on a correlational study. This does not permit cause-effect relationships to be extrapolated and means that the results could be interpreted in a number of different ways depending on the individual interpretation. Thus, the study deals with presenting possibilities and not causality, with the aim of being able to explain the existing relationships between the study variables. Future, future studies should apply this model to other sporting disciplines given that this study was developed only with sportspeople who play volleyball. Another limitation is that the sample was not very broad. Despite this the model seems to demonstrate good robustness and the ability to generalize towards different cultures or ages. The next step will be to establish an ethnographic study with the aim of deepening knowledge and better understanding the psychological aspects of sport.

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