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Relationship of Basic Psychological Needs, Mental Well-Being and Motivation in Pickleball Players with Severe Mental Disorders

Juan-Leandro CEREZUELA¹, María-Jesús LÍROLA^{*2,3} and Adolfo J. CANGAS¹

¹Almeria University, Faculty of Psychology, Department of Psychology, Almeria, Spain

²Almeria University, Faculty of Education, Department of Education, Almeria, Spain

³International University from La Rioja, Department of Psychology, La Rioja, Spain

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ABSTRACT

Physical activity has shown its fundamental role in improving quality of life and health. People with severe mental disorders (SMD) find in its practice the possibility of attenuating part of the numerous difficulties and barriers they encounter. Following Self-Determination Theory, presenting or experiencing self-determined forms of motivation for physical exercise is related to the development of greater mental well-being and the satisfaction of basic psychological needs. In this sense, pickleball due to its inclusive characteristics, is a suitable avenue. It is a racket sport with a very simple learning curve, which allows to start in a playful and fun way. The rules of this game are designed to facilitate the inclusion of any person without the need for adaptations. The aim of this study was to measure the correlation between basic psychological needs (BPN), mental wellbeing and motivation to practice physical activity in people with SMD who play pickleball on a regular basis. A total of 42 people with SMD participated, 19 of whom were men and 23 women, aged between 20 and 73 years ($M = 42.24$; $SD = 13.71$). Results showed that more self-determined forms of motivation are positively and significantly related to both satisfaction of the three BPN and mental well-being. On the other hand, non-self-determined forms of motivation reported a negative relationship with BPN satisfaction, and showed negative significance with mental well-being. All scales employed showed adequate reliability indices ($\alpha > .70$). In conclusion, this study shows that, people who practice pickleball from self-determined motivations for the activity itself have higher levels of satisfaction with their BPN and mental well-being.



1. INTRODUCTION

Physical activity has shown its fundamental role in improving people's quality of life and health [1-3]. Physical activity (PA) is a fundamental tool to prevent different types of diseases and produces a beneficial impact on well-being and mental health [4], even at low levels of PA practice [5]. Psychological disturbances such as stress or anxiety decrease with the practice of PA [6].

Populations with greater social barriers, are also favored by its practice [7]. Specifically, people with severe mental disorders (SMD) find in its practice the possibility of attenuating part of the numerous difficulties and barriers they encounter, which are related to the development of maladaptive psychological consequences for their

mental health [8]. The practice of PA improves the perception of these people in an inclusive way, providing the possibility of breaking down the different barriers, which results in a deterioration of mental health and a great impact on their social relationships [9].

According to the Self-Determination Theory (SDT) developed by Deci and Ryan [10], experiencing self-determined forms of motivation for physical exercise is related to the development of greater mental well-being and the satisfaction of basic psychological needs (BPN), consisting of three dimensions: competence, autonomy and social relations [11].

SDT differentiates between two types of motivation, those that come from external sources and, therefore, are not self-determined and

*Corresponding author

*e-mail: mariajesus.lirola@ual.es
ORCID ID: 0000-0002-5766-6458

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internal or intrinsic motivation. Self-determination develops according to the regulation of motivation at different levels of internalization that start from a regulation, evolving to introjected, identified, integrated and finally intrinsic regulation. This continuous evolution means in an increase of self-determination that starts from demotivation and the need for external stimuli to acquire a commitment towards PA practice, to a PA practice that comes from satisfaction and pleasure, obtaining the highest level of self-determination [12].

In this sense, pickleball is a sport that is currently expanding, which, due to its inclusive characteristics, is an ideal way to work with people with SMD [13]. It is a racket sport very similar to tennis and badminton, with a very simple learning curve, which allows people to start in a fun and playful way. The rules of this game are designed to facilitate the inclusion of any person without the need for adaptations. The equipment is simple to install and easy to use. It is played with rackets measuring 40 x 20 cm to hit a small plastic ball with holes in it that must pass over a net 86.36 cm high, making it ideal for anyone to play [14].

The aim of this study was to measure the correlation between basic psychological needs (BPN), mental well-being and motivation towards physical activity in a population with SMD who practice pickleball on a regular basis.

This study hypothesises high values of NPB satisfaction, motivation and mental well-being, with a significant and positive correlation between the variables in people with SMD who play pickleball.

2. MATERIALS AND METHODS

2.1. Participants

A total of 42 people with SMD participated in this study, of whom 19 were male and 23 were female, ranging in age from 20 to 73 years old ($M=42.24$, $SD=13.71$). These participants attended pickleball classes in an inclusive group with people not diagnosed with SMD.

2.2. Instruments

Sheldon and Hilpert's [15] Balanced measure of psychological needs scale was used to assess BPN. This scale consists of 18 items (e.g., "I was free to do things my own way"). This scale is a Likert-type scale, with responses ranging from 1 (Never) to 5 (Always). The different items of this scale measure the three dimensions of BPN: autonomy, relatedness and competence.

To measure motivation towards the practice of physical activity, the Behaviour Regulation in

Exercise Questionnaire (BREQ-3) [16] adapted to Spanish [17] was used. This questionnaire consists of 23 items (e.g., "Because I think exercise is fun"). This scale is a Likert-type scale where responses range from 0 (not true at all) to 4 (completely true). The scale measures the dimensions demotivation, external regulation and introjected regulation to measure non-self-determined motivation. And identified regulation, integrated regulation and intrinsic regulation to measure self-determined motivation.

Finally, to measure mental well-being, the Warwick-Edinburgh Mental Well-Being Scale (WEMWBS) was used, adapted to the Spanish context [18]. It is a unidimensional Likert-type scale on questions about thoughts, feelings and emotions that are answered from 1 to 5 where 1 is never and 5 is always (e.g., "I feel optimistic about the future").

2.3. Procedure

In order to carry out this study, mental health users from the province of Almería participated. These participants belong to an inclusive pickleball group in which they train every week. First of all, participants were contacted to explain the objectives and method of the study in which they were going to participate. Participation was on a voluntary basis, with their consent. Participants filled in an anonymous questionnaire, knowing that the data would be processed for scientific purposes and respecting all ethical procedures. The estimated time to complete the questionnaire was about 10 minutes. The study received approval from the Bioethics Committee of the University of Almería and adhered to the procedures established by the Declaration of Helsinki.

2.4. Data Analysis

In this work, the SPSS v.29 programme was used to analyse the descriptive statistics, where the mean and standard deviation were obtained, and to present them in an orderly manner that facilitates their understanding. A correlational analysis was carried out between the study variables in order to find out how they influence each other. The reliability of the scales was calculated by obtaining the Cronbach's Alpha.

3. RESULTS

Table 1 shows the minimum and maximum values corresponding to the possibility of answering the questionnaires, together with the mean and standard deviation of the answers given by the study participants. As these were Likert-

type scales, the minimum and maximum responses were always numerical. In the case of the BPN dimensions, autonomy, competence and relatedness, together with mental well-being, the minimum response was 1 and the maximum 5, with a mean response of 3.13, 3.17, 3.2 and 3.5 respectively. Regarding motivation, understood as Self-determined and not self-determined, the minimum response was 0 and the maximum was 4, obtaining mean scores of 3 and 1.24.

At the same time, the results corresponding to the correlational analysis between the variables of the study are shown in table 2, where it is

possible to analyse how much they correlate with each other and with what level of significance this correlation occurs.

The results show that more self-determined forms of motivation are positively and significantly related to both satisfaction of the three BPN and mental well-being, fostering the development of adaptive psychological consequences. On the other hand, non-self-determined forms of motivation reported a negative relationship with BPN satisfaction, and showed negative significance with mental well-being.

Table 1. Descriptive statistics

Subescalas	Mín	Máx	M	SD
I. Autonomía	1	5	3.13	.748
II. Competencia	1	5	3.17	.783
III. Relación	1	5	3.23	.744
IV. Autodeterminada	1	5	3.59	.946
V. No autodeterminada	0	4	3.00	.902
VI. Bienestar	0	4	1.24	1.034

Note: N = number; M = mean; SD = standard deviation; Min = minimum; Max = maximum

Table 2. Correlational analysis

Subescalas	I	II	III	IV	V	VI
I. Autonomy	-	.751**	.826***	.597**	.461**	-.193
II. Competence		-	.784**	.617***	.359*	-.220
III. Relation			-	.629***	.437**	-.279
IV. Self-determined				-	.606***	-.354*
V. Non self-determined					-	-.492**
VI. Well-being						-

Significance level of correlations: * $p < .05$; ** $p < .01$; *** $p < .001$

Cronbach's alpha analysis yielded values of .96 for the mental well-being scale; .68 for the autonomy subscale, .71 for competence, and .68 for relatedness, an alpha of .94 for both self-determined and non-self-determined motivation. All the scales used showed adequate reliability indices ($\alpha > .70$).

4. DISCUSSION

The aim of this study was to measure the correlation between basic psychological needs (BPN), mental wellbeing and motivation to practice physical activity in people with SMD who regularly practice pickleball. To this end, a questionnaire was used to measure the variables BPN, mental well-being and motivation to practice physical

activity, with the participation of 42 people aged between 20 and 73 years.

The data obtained show high values for BPN satisfaction, which in turn correlate significantly with mental well-being and motivation. Different studies highlight that the practice of PA is beneficial for people's mental health [19-21]. However, some populations face numerous barriers to engaging in physical activity and these barriers need to be addressed given the physical and mental health benefits [22].

In this sense, this work follows the line proposed by other study [23] where they show us how the practice of PA helps populations with SMD to reduce anxiety or depression and generally improve different aspects of their mental health. Pickleball appears to be effective in improving mental health effects. As some studies suggest [24,

25], pickleball practice is effective in improving quality of life, personal well-being and mental health improvement. Furthermore, pickleball players of different populations and ages increase their social relationships and feel more autonomous and competent, [26-28] which translates into progress on their BPN. Finally, as the data show, people with SMD who practice pickleball seem to indicate high values of self-determined motivation and low values of non-self-determined motivation, which reaffirms what Buzzelli and Draper [29] stated about the impact of pickleball on sport motivation and how its practice favors the acquisition of self-determined motivations with a greater inclination towards task-oriented learning and sport mastery (intrinsic motivation), avoiding ego and being driven by sport results (extrinsic motivation).

Despite the data, it is necessary to be cautious and be aware of the limitations of this study, as it is a correlational study, it cannot be affirmed that the practice of pickleball is what causes the improvement of BPN, well-being and motivation. It would be necessary to carry out a longitudinal study to check whether the improvement is due to the practice of this sport. It would also be necessary to carry out qualitative interviews with the participants in order to know their feelings and sensations about their daily practice of pickleball and to better understand the results.

5. Conclusion

In conclusion, this study refutes the previous relationships studied, where those who practice pickleball from self-determined motivations for the activity itself have higher levels of satisfaction with their BPN and mental wellbeing. This underlines the importance of opening new lines of research into the potential of this sport in the field of mental health, given the possible positive effects that may result from its practice, which will be of great relevance for people, especially for those with SMD.

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Conflict of Interest

No conflict of interest is declared by the authors. In addition, no financial support was received.

Ethics Committee

The study received approval from the Bioethics Committee of the University of Almería and adhered to the procedures established by the Declaration of Helsinki.

Author Contributions

Study Design, JLC, MJC and AJC; Data Collection, JLC; Statistical Analysis, MJL; Data Interpretation, MJL and AJC; Manuscript Preparation, JLC; Literature Search, JLC. All authors have read and agreed to the published version of the manuscript.

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