



García-Merino, S.; Rodríguez-Jiménez, R. M.; Bustamante-Sánchez, A.; Carmona, M. Promoting values, emotional intelligence and physical condition in socio-economically disadvantaged adolescents through basketball. *Journal of Sport and Health Research*. 15(2):283-300. <https://doi.org/10.58727/jshr.90590>

Original

PROMOCIÓN DE LOS VALORES, LA INTELIGENCIA EMOCIONAL Y LA CONDICIÓN FÍSICA EN ADOLESCENTES EN RIESGO DE EXCLUSIÓN SOCIAL A TRAVÉS DEL BALONCESTO

PROMOTING VALUES, EMOTIONAL INTELLIGENCE AND PHYSICAL CONDITION IN SOCIO-ECONOMICALLY DISADVANTAGED ADOLESCENTS THROUGH BASKETBALL

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*Edited by: D.A.A. Scientific Section
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Received: 27/07/2021
Accepted: 03/05/2022



RESUMEN

La introducción del deporte en los programas de educación no formal para jóvenes no implica necesariamente la formación en valores y competencias emocionales que se le atribuye, siendo varios los aspectos que la condicionan. Este trabajo pretende encontrar áreas de mejora en la implementación de los programas de formación. Siguiendo un enfoque metodológico mixto, se realizaron dos estudios consecutivos durante dos temporadas con una muestra de 56 y 35 adolescentes en situación de desventaja socioeconómica, respectivamente. Se recogieron variables de condición física, composición corporal, niveles de actividad física y dieta, así como la percepción de los valores e inteligencia emocional adquiridas durante la intervención. En la segunda temporada, se implementaron áreas de mejora basadas en los resultados obtenidos en la primera edición. Los resultados muestran la necesidad de incrementar las exigencias físicas durante el entrenamiento, añadiendo actividades específicas sobre valores y aspectos emocionales y donde la formación de los entrenadores representó un elemento clave. Sin embargo, no se encontraron cambios significativos en la mayoría de las variables antropométricas, en los niveles de actividad física y en las puntuaciones de la dieta mediterránea. El salto vertical (estudio 1) y horizontal (estudio 2) sí aumentó significativamente en todos los grupos. Los participantes consideraron haber mejorado su capacidad para expresar sentimientos y relacionarse con los demás, así como su actitud y motivación para la mejora.

Palabra clave: Jóvenes, inteligencia emocional, entrenadores, entrenamiento, baloncesto, exclusión social.

ABSTRACT

The introduction of sport in non-formal education programs for young people does not necessarily imply the training in values and emotional competencies that is attributed to it, being several aspects that condition it. This work aims to find areas for improvement in the implementation of training programs. Following a mixed methodological approach, two consecutive studies were carried out during two seasons with a sample of 56 and 35 socioeconomically disadvantaged adolescents, respectively. Variables of physical condition, body composition, physical activity levels and diet, as well as the perception of values and emotional intelligence acquired during the intervention were collected. In the second season, areas for improvement were implemented based on the results obtained in the first edition. The results showed the need to increase the physical demands during training, adding specific activities on values and emotional aspects and where the training of coaches represented a key element. However, no significant changes were found in most of the anthropometric variables, in the levels of physical activity and Mediterranean diet scores. Vertical (1 study) and horizontal (2 study) jumping improved significantly in all groups. Participants felt that they had improved their ability to express feelings and relate to others, as well as in their attitude and motivation for improvement.

Keywords: Youth, Emotional intelligence, coaches, training, basketball, social exclusion.



INTRODUCTION

Education in values is part of the process of integration of the individual into society. Humans develop cognitive-affective mechanisms that help them coexist with other individuals with whom they share these values and who form part of the same context (Bujardón, 2008). Those individuals who have experienced social learning difficulties have insufficient acquisition of skills and social awareness, lack of values and norms of conduct, and incapacity for balanced emotional regulation, all of which are essential for a satisfying life (Super et al., 2018). The childhood and adolescents' stages are more susceptible to these aspects, due to the great influence that the social environment has in this period of life. Several studies have shown that children living with socio-economic disadvantages are more vulnerable to the appearance of both physical and psychological problems, including obesity, asthma, depression and anxiety, when compared with their peers in a favourable social situation (Rodríguez-Martín, Novalbos Ruiz, Martínez Nieto, & Escobar Jiménez, 2009). Some studies have even shown that neighborhoods with high purchasing power were associated with higher levels of physical activity in their neighbors, regardless of their family socio-economic status (De Meester et al., 2012; Pabayo et al., 2011). This fact opens a window of opportunity to create an environment that promotes healthy habits regardless of family socioeconomic status.

Regarding fitness levels, in the study by Charlton et al. (2014), we can see those disadvantaged children, with obese parents and lower educational attainment were more likely to be physically unfit. Disadvantaged status was a predictor of physical fitness. Interventions should focus on community change, including improving access to activity in disadvantaged areas, supporting parents to be active, and building competence and confidence in being active. Social support is critical for equity among children from different socioeconomic backgrounds.

Regarding lifestyle, those who are living in poor neighborhoods are more likely to have worst health habits (Greves et al., 2010), partly because lower socioeconomic groups tend to adopt unhealthy diets (Kastorini Lykou et al., 2016). Studies show that eating behaviors and television time are higher when socioeconomic status is lower (Cameron et al., 2012).

Education in values through physical activity and sport

An effective way to improve children's inclusion and introduce health behaviours is through sport because this environment offers an easy approach to this population due to the attractiveness and enjoyment of its practice, the experiential character, and the numerous interpersonal relationships that can be developed through its engagement (Shields & Bredemeier, 1995)

In this regard, according to the Petitpas et al. (2005) study, youth development through sports will occur when there is: a context that integrates an inherently motivating voluntary activity, external resources such as coaches with whom youth can develop a trusting relationship, developing life skills and a sense of identity and a control over the program to ensure the child's development.

Nevertheless, the practice of sports does not necessarily imply that appropriate values are being communicated to children. Some authors defend sport for its contribution to pro-social character development by itself (Sherry, 2010), while others postulate that the impact of sports practice will be positive or negative depending on the context and the various conditioning factors (Dowling, 2019). Furthermore, the combination of sports with other activities such as moral reasoning (Fung & Lee, 2018) or problem-based learning (Bethell & Morgan, 2011) makes it possible to achieve the proposed objectives that are not attained by practicing sports alone.

Transmission of values to daily life of children living with socio-economic disadvantages

Even though some quality studies evidence that through sport, youth have opportunities to promote life skills (Holt et al., 2008; Jones & Lavalley, 2009), there are also limitations regarding the use of sports to transmit values to the daily life of children. One of these doubts would be whether coaches have adequate training. In cases where the curriculum of this subject (or after-school programs) offers certain clues about what students should learn, it very rarely clarifies how the coaches should integrate these issues in their teaching (Camiré & Trudel, 2014). Furthermore, considering academic education Santos et al. (2010) found that coaches with higher education



degrees perceive themselves as more competent than coaches with no high education. Academic environment promotes the development of basic professional competences as leadership, communication, evaluation or finding solutions to problems, which support coaches' behaviour.

On the other hand, assuming a positive relationship between sports practice and acquisition of social values, benefits should be transferable to the daily life. Some authors have defended the divergence of both contexts, sport and daily life (Shields & Bredemeier, 1995), illustrating examples where the transfer does not take place as expected (Martinek et al., 2001). That being said, most authors generally accept that young people who learn intrapersonal and interpersonal life skills through sports are able to transfer and apply those skills to other life domains (Holt et al., 2017).

The debate has now focused on how this process occurs, how it can be improved, and how to identify and implement pedagogical strategies that effectively promote this transfer (Holt et al., 2017).

Sport programs design: physical, emotional and social well-being context

The design of any sports intervention program should promote less isolation and social exclusion (Haudenhuyse et al., 2013). To achieve this, special attention should be paid to three areas in the context of social exclusion: physical, emotional and social well-being. Physical well-being may be more fragile in children and adolescents living with socio-economic disadvantages. Three or more sessions per week of vigorous exercise reduces health issues such as hypertension, osteoporosis and the incidence of chronic diseases in later life, including coronary heart disease and type 2 diabetes (Duncan et al., 2005). Any program of intervention in values through sport should reach a minimum level of physical activity, and offer young people, whenever possible, the tools to be able to realize by themselves the positive health effect of the program (McDonough, Ullrich-French, & McDavid, 2018). Team sports, like basketball, can enhance the commitment the adolescents have with the physical activity. Basketball is known to demand short periods of high intensity activity, followed by uncomplete resting breaks, which is an interesting approach to enhance physical fitness through sport (Read et al., 2014). Strength, power, agility and

speed are usually the most improved physical characteristics through basketball practice (Bustamante-Sánchez et al., 2018). These features are usually based on the lower limbs adaptations to the constant accelerations and decelerations that this game requires, which trains the muscles of the legs to develop more force in less time (Delextrat & Cohen, 2008; McInnes et al., 1995), and whose main disadvantage are the prevalence of injuries in ankles and knees (Bustamante-Sánchez & Del Coso, 2020a). Sports provide many advantages regarding emotional and psychological well-being (Lavega et al., 2011). Programs should train emotional skills according the framework proposed by Salovey and Mayer (1990) to improve self-perceived personal satisfaction (Lopes et al., 2003), and should try and exploit the pleasurable sensations extracted from sports to enhance the emotional, personal and social well-being of individuals. It is also useful for capitalizing on conflict situations that arise during the practice of physical activities to develop problem-solving skills and important moral reflections (Camiré, Forneris, Trudel, & Bernard, 2011; Karademir & Tasci, 2015). Emotional intelligence can be trained together with sports practice, since it constantly provides situations of cooperation, opposition, success and frustration in a context of physiological stress. With the adequate approach, these situations are valuable to train skills that can be used in everyday life (Vandermeersch et al., 2015).

Due to the social class and socioeconomic resources could influence level of participation in organized sport (Strandbu et al., 2019) and being sport a form of inclusion, it seems necessary to create sports programs that facilitate the inclusion of children with socio-economic disadvantages (Bustamante-Sánchez & Del Coso, 2020b).

Considering everything mentioned previously, the main objective of the present study was to explore the impact of a sports intervention program through basketball on the physical condition and health status as well as on the development of values and emotional competencies in a group of adolescents living with socio-economic disadvantages. In order to do this, we carry out two studies in consecutive years. In the first study, the objective was to carry out an assessment of the impact that a basketball structured program implemented by an NGO had on the above-mentioned aspects. With this information, a proposal for improvement was drawn up focused on



physical condition, values and emotional intelligence was drawn up and evaluated.

METHODS

Sample and setting

Participants were recruited through the NGO Fundación Balia, which works with children and adolescents with socio-economic disadvantages. Inclusion criteria for participating in the sports program were decided by the NGO based on the following family indicators: low monthly per capita income, a situation of neglect or abandonment, suspicion or evidence of family violence, family typology, and psychological and academic difficulties. Figure 1 shows the participant sample flowchart and the drop-outs for the whole study. All participants participated at the same time in an educational programme to minimize school dropout. Before participants recruitment, the whole study (1 and 2) was approved by the Ethics Committee of the Universidad Europea de Madrid and the Ethics Committee of NGO Fundación Balia.

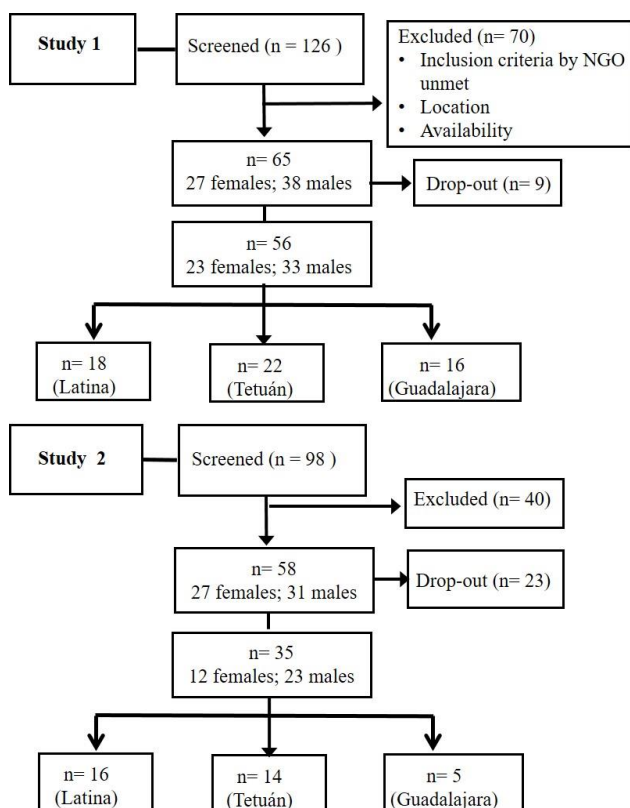


Figure 1. Participant sample flowchart

The procedures followed all regulatory requirements applicable to the activities concerned. Once the participants were selected, they (or their legal representative when minors) signed an informed consent. A code was assigned to each participant to maintain the confidentiality before participating. In the first study, 126 participants were selected and 70 were excluded due to NGO criteria (71%), location (14%) or availability (15%); the final sample was 56, as 9 dropped out of the program. In the second study, 98 participants were selected and 40 were excluded due to NGO criteria (68%), location (15%) or availability (17%); the final sample was 35 as 23 dropped out of the program. The causes of dropout were in most cases the lack of organization of the rest of the daily tasks and time availability. In both studies there were three groups of both sexes of participants from two neighborhoods in Madrid (Latina and Tetuán) and from Guadalajara (a small city about 60 km from Madrid).

Procedure

In Study 1, the intervention consisted of two training sessions per week (60 minutes in length) and a match each weekend from the first week of October until the end of May. Coaches were hired by the ONG Balia Foundation. They all were graduates in education with no previous background in transmission of values through physical activity and sport.

After analyzing the data extracted from Study 1, an intervention plan was designed introducing some specific changes:

- increased training sessions time to 90 minutes
- introduction of specific exercises to improve physical fitness, specifically in endurance, strength and flexibility
- design and implementation of a coaches' guide.

The typical training session consisted of three different parts with the same duration (20 minutes or 30 minutes for Study 1 or Study 2, respectively):

1. First third: Specific exercises to improve tactical skills with no opposition (1on0). Physical fitness exercises were included here in the Study 2.



2. Second third: Reduced situations of cooperation-opposition tasks (1on1, 2on2, 3on3, 4on4), including some superiority or inferiority drills (2on1, 3on2, 4on3).
3. Third third: Global situations and game-related tasks (5on5).

The changes were implemented with the aim of improving the physical condition of the participants and specifically incorporating during the sessions training in values and emotional regulation skills. Experts in Physical Activity and Sports created the guide for coaches. It was designed by trimesters and coaches received specific training on methods to introduce values and emotions in the weekly basketball sessions. The first trimester was focused on teaching styles suitable for working on

responsibility and teamwork, as well as the incorporation of emotional intelligence into training (always within the activity, incorporating it in the warm-up or in the cool-down periods). The second trimester focused on respect and communication and progressed to more complex vocabulary (for instance, regarding emotional understanding), and the activities of reflection and introspection were more demanding. In the last trimester, emotional regulation activities were performed to control impulsiveness, adjust unpleasant emotions, tolerate frustration, and to wait for gratification.

Method design, data collection and analysis

This is an action-research project with a mixed experimental methodology. The integration of

Table 1. Physical and Health measured variables.

Components	Variables	Instruments Study 1	Instruments Study 2
Body Composition	Weight (kg)	Scale (ASIMED Trademark)	Scale (ASIMED Trademark)
	Height (cm)	Height Measuring Equipment	Height Measuring Equipment
	Body Mass Index (kg/m ²)	BMI-z score ¹	BMI-z score
	Estimation of Body Fat	% Body Fat (ISAK Standards) ²	
	Waist girth (cm)		ISAK Standards (Tape)
	Waist-to-Height-Ratio		Relation (ratio)
Physical Condition	Vertical Jump	CMJ-Optojump Test ³ (Glatthorn et al., 2011)	
	Agility	AGIT-Test ⁴ (Jukic et al., 1999)	
	Endurance	Course Navette Test (Leger et al., 1988)	
	Flexibility	Sit and Reach test (Wells & Dillon, 1952)	
	Speed	Sprint 20m test (Hoffman et al., 1996)	Eurofit Battery (Adam et al., 1988)
	Strength	Horizontal Jump Test	
Activity level	Level of activity regular week		PAQ-C and PAQ-A ⁵ (Kowalski et al., 2004)
Nutrition	Diet Quality Index		Kidmed ⁶ (Serra-Majem et al., 2004)

¹BMI z-score (Body Mass Index; standard punctuation); ²ISAK (International Society for the Advancement of Kineanthropometry); ³CMJ (Counter Movement Jump); ⁴AGIT; (Agility Test); ⁵Physical Activity Questionnaire-Children (PAQ-C) and Physical Activity Questionnaire-Adolescents (PAQ-A); ⁶Kidmed (diet quality questionnaire).



quantitative and qualitative research provides a better understanding of the research problem than either of each alone. Mixed methods are also extremely useful when there are contradictions between quantitative and qualitative findings or some limitations on the sample. At the same time, they allow to give a voice to study participants, integrating the participant's experiences and perceptions.

A pre-post-test experimental design was followed for both studies (1 & 2). A variety of parameters and variables were evaluated to measure the physical condition and health status. They are summarized in Table 1. All tests were carried out in the School of Sports Science at the Universidad Europea de Madrid. There were some changes regarding the variables measured in the Study 2 respect the Study 1. Since this is an action-research project, we planned to carry out a first study where we evaluated its effectiveness on the method already proposed by the NGO and, at the end of the study, a proposal for improvement was made and incorporated into the second study.

Between study 1 and study 2, some changes were made when measuring body composition and physical condition using more standardized and general methods, so that they could have comparative data with their peers in no specific area of sports.

Although it was a very specific exercise program such as basketball, being municipal leagues and with lower intensity and volume of training (so less relevance was given to performance), the most used tests in this sport were not suitable for these children so it was decided to use global methods for the measurement of physical condition.

Following the confirmation of the parametric

distribution of the quantitative variables, paired-samples t-tests were conducted to compare differences pre to post intervention in each study. Statistical Package for the Social Sciences (SPSS), version 20.0 for Windows was used for statistical analysis.

Qualitative approach was concurrently carried out for the same samples according the typology of mixed methods from Onwuegbuzie & Collins (2007). A hybrid process of inductive and deductive thematic analysis was applied to answer to the objectives of the study (Fereday & Muir-Cochrane, 2006). During Study 1, participants wrote reflective diaries, which were collected each month, using a pseudonym to guarantee confidentiality and freedom in the comments. Because the more open approach followed in Study 1, they were asked to express themselves freely about their feelings, thoughts and sensations during training and matches. It was also suggested that they wrote ideas about the team, the relationship between players and coaches and the influence of these trainings on their lives. Two focus group sessions were carried out at the middle and the end of the season for each group of participants. The six focus group were organized after the training sessions because of organizational reasons. So, all the participants of each group were involved. Discussions and reflexive diaries were recorded and fully transcribed. During Study 1, an inductive thematic analysis was used (Elo et al., 2014). Data extracted from the focus group and reflexive diaries was organized and codified. Successive readings of the material were made looking for meaning units that were merged into categories or themes. The process was repeated until saturation was reached.

Table 2. Values baseline description, training and impact analysis.

Components	Instruments	Values	Emotional intelligence dimensions	Schedule
Values baseline	Questionnaire <i>ad hoc</i>			End of season Study 1
Values training	Guide of activities Coaches training	Responsibility Team work	Perception Appraisal and expression of emotion Emotional facilitation of thinking	1 st trimester Study 2
		Respect Communication	Analyzing emotions Understanding emotions	2 nd trimester Study 2
		Self-improvement Communication	Reflective regulation of emotions	3 rd trimester Study 2
Values analysis	Reflexive diaries			Study 1 Study 2 Monthly Monthly
	Focus-group			Twice a year Quaterly



Investigator triangulation was applied by including a second researcher who independently and blind to the program carried out the content analysis. Nvivo 12 software was chosen for the analysis. Both the focus groups and the reflective diaries were produced in Spanish. To write the article, the quotes were translated into English and were reviewed by an independent translator and a scientific reviewer.

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Open questionnaire "Growing as a team"

Pseudonym : Date:

Please try to answer these questions as honestly as possible. Take some time to reflect before writing your answer. Try to make your handwriting legible.

1. What are you enjoying most about the training sessions?
2. What do you like the least?
3. How have you felt during the past month? Try to identify 2 or 3 emotions (e.g., sad, happy, angry, surprised, dislike or disgust of something, fear) and explain what happened and what it was like when you felt a particular way.
4. What is your opinion of your teammates, why?
5. Can you remember a conflict or issue in which you were involved? What happened? What did you do to resolve it?
6. How do you feel about your coaches? Why?
7. How do you think your participation in the activities is going?
8. Is there anything you would like to see changed, something you would like to do differently?
9. Is there anything you work on in the sessions that you think you can apply outside of training? Give details
10. Other thoughts or suggestions on the program?

Figure 2. Open questionnaire regarding values

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Study 2, reflexive diaries were also monthly collected. For this purpose, a simple guide was prepared to guide the participants on which elements to reflect on: their level of physical and sports performance as well as the development of values and emotional skills during training. A focus group was organized for each trimester and participant's group. Frequency and characteristics of the focus group were the same as in Study 1. A summary of qualitative instruments for collecting data, training scheme and schedule are listed in Table 2. A translation of the open questionnaire created ad hoc for extract information about values baseline is presented in Figure 2. Qualitative data collected in Study 2 were analysed according to a deductive content analysis. This involves the previous development of a categorization matrix whereby all the data are reviewed for content and coded for correspondence to or exemplification of the identified categories. Software and language issues were the same as in Study 1.



A coding system was devised to organize the source of evidence (Table 3).

to the percentage of intra-abdominal visceral fat, values below 0.47 represent a normal distribution.

Table 3. Coding system use for identifying the evidences in the content analysis.

Participant (P) ¹	Sex	Center of training	Data source	Study
Moderator (M)	Male (M)	Latina (L)	Reflective diary (RD)	Study 1 (S1)
Coach (T)	Female (F)	Tetuan (T)	Focus group (FG)	Study 2 (S2)
Children (Ch)		Guadalajara (G)		
Cadete (C)				

¹The acronym used is shown in parenthesis.

RESULTS

Quantitative results

Variables related to body composition, physical condition, nutrition and general level of physical activity (PAQ-C/PAQ-A) are shown in Table 4. When all participants were considered as a single group, without distinction by sex, their weight, flexibility and jump capability had all significantly increased ($p < .05$) at the end of the season in Study 1. The results were slightly different when analysed separately by sex. For female teams, body fat and jump capability significantly increased, whereas agility significantly decreased, since the time to complete the test was higher than at the start of the season. There were no differences in anthropometric variables (weight, height, BMI) and other physical condition variables (endurance and flexibility). Significant differences were found in male teams for height, jump, flexibility and endurance (all were increased at the end of the season). No differences were found in anthropometric variables (weight, body fat, BMI) and in agility.

In the Study 2, 58 participants realized the pre-test but only 35 realized the pre-test and post-test (Table 4). Regarding body composition, with the single exception of male height, no significant differences were found for any of the anthropometric variables after the intervention when the participants were analysed as a whole or separately as male and female teams. Considering the new variables analysed in Study 2 such as BMI z-score (standard deviation over normal BMI at a given age/sex), subjects were categorized as having Normal or Healthy weight. Regarding the waist-to-height ratio, which is related

The subjects of the study showed healthy levels of visceral fat. Concerning physical condition variables significant differences were found for speed and jump (increased) and strength (decreased) in the female team, whereas in the male team significant differences were found for jump and flexibility (increased) and strength (decreased). There were no significant differences in speed for males and flexibility for females.

The variables measured for diet (Kidmed index) and physical activity per week (PAQ-C/A) were not significant different after the intervention in any of the groups. In both cases, values were in the normal range for the groups: >7 for Kidmed index, representing a medium quality diet; and values between 2.33 and 3.66 for PAQ-C/A, which represents a moderate level of activity.

Qualitative results

For the analysis of reflective diaries and focus groups, we followed the procedure proposed by (Bengtsson, 2016), and the results are shown in the Table 5. This analysis produced a number of categories that were unified under four large meta-categories: communication, teamwork, emotional intelligence and satisfaction with the program. They are showed in Figure 3. No differences were analysed regarding the type of participant, sex or centre of training. Anyway, each evidence is codified according Table 3.

Communication

Different *styles of communication* could be observed between participants, in general they were not comfortable with emotions communication “*I don't*



talk about my emotions with other people" (Ch-M-T, 2/12/17, RD, S1). The style of communication is not always assertive; here we offer an example of aggressive style, one participant addressing another directly: "I remember that time we lost a match because of you" (Ch-M-L, 23/2/16, FG, S1).

The participants also recognize and respect the existence of *rules* in order to be able to communicate, but also the importance of the coach as a positive influence: "I understand that you scold me when I do that" (Ch-F-L, 10/5/16, FG, S1).

This type of evidence suggested to researchers to make more emphasis on communication styles in the further training plan and some improvement was observed: "I think I can say what I want to say without the need to insult" (C-M-L, 28/02/18, RD, S2). Other participant talks about communication and respect: "I have realized how important it is to talk about things respectfully" (C-F-L, 21/11/17, FG, S2).

Teamwork

We observed that participants classified others, as well as themselves in specific categories, for instance, "There is no single team, there are those who come and those who don't" (C-F-T, 11/5/16, FG, S1). Participants are conscious about the difficulties of an effective training, especially when they feel they don't improve as they would like: "It is very difficult trying to achieve a level of concentration in training so that it is effective" (M-Ch-F-L, 10/5/16, FG, S1). Reproaches between themselves for not meeting the expectations in the matches, as well as in the subjects of punctuality and attendance, alluding to responsibility and teamwork, appeared both studies 1 and 2. For instance: "I realize that I should not miss training, put more interest and devote more hours" (C-M-L, 28/02/18, RD, S2). Others share how the lack of responsibility affects the whole team, so: "People who don't have motivation don't come to

Table 4. Quantitative results: physical parameters, activity levels and diet quality.

Study 1													
All participants (n=56)													
Variable	Units	All participants (n=56)				Female teams participants (n=23)				Male teams participants (n=33)			
		Pre	Post	p-value	ES ⁷	Pre	Post	p-value	ES	Pre	Post	p-value	ES
Weight	kg	57,6±13,4	60,6±13,9	,025*	0,22	57,1±13,0	58,2±13,0	,051	0,08	58,0±14,0	62,6±14,7	,243	0,33
Height	cm	163,1±8,9	164,8±9,7	,180	0,19	160,7±8,2	161,7±8,3	,743	0,12	164,8±9,1	167,3±10,2	,000*	0,27
BMI ¹	kg/m ²	21,6±4,5	22,3±4,8	,203	0,16	22,0±4,6	22,3±4,8	,080	0,07	21,3±4,5	21,3±4,5	,704	0,00
Body fat	kg	21,5±9,5	23,8±11,9	,048*	0,24	25,3±7,9	26,0±9,0	,020*	0,09	19,1±9,8	22,0±13,7	,420	0,30
Flexibility	cm	18,6±8,0	20,1±8,2	,001*	0,19	22,3±7,6	23,1±8,7	,208	0,11	15,6±7,4	18,8±7,4	,001*	0,43
Jump	cm	25,8±8,3	27,0±7,5	,000*	0,14	22,3±5,1	25,8±5,5	,002*	0,69	28,1±8,8	28,4±9,4	,042*	0,03
Agility	s	12,4±1,5	12,7±1,6	,001	0,20	12,9±1,1	13,3±1,0	,006*	0,36	12,0±1,7	12,3±1,9	,077	0,18
Endurance	Periods	4,7±2,3	5,4±2,5	,284	0,30	4,8±2,1	4,4±1,8	,604	-0,19	4,7±2,6	6,3±2,8	,014*	0,62
Study 2													
All participants (n=35)													
Variable	Units	All participants (n=35)				Female teams participants (n=12)				Male teams participants (n=23)			
		Pre	Post	p-value	ES	Pre	Post	p-value	ES	Pre	Post	p-value	ES
Height	cm	166,1±10,2	168,2±11,0	,027*	0,21	159,8±9,7	159,9±7,2	,930	0,01	169,3±9,1	172,7±9,9	,012*	0,18
Weight	kg	60,2±12,6	61,4±11,7	,503	0,10	59,9±14,9	57,0±7,8	,470	-0,19	60,4±11,6	63,7±12,9	,067	0,28
BMI	kg/m ²	21,6±3,8	21,6±3,6	,957	0,00	23,1±3,7	22,3±3,0	,432	-0,22	20,7±3,6	21,2±3,9	,280	0,14
BMI	z-score	,257±,982	,196±,980	,522	-0,06	,630±,815	,570±,754	,762	-0,07	,257±,982	,196±,980	,551	-0,06
Waist	cm	71,9±7,4	72,5±7,5	,497	0,08	72,2±7,4	70,9±4,9	,495	-0,18	71,8±7,5	73,4±8,5	,071	0,21
WtH ⁵	-	,434±,049	,433±,044	,954	-0,02	,453±,043	,443±,041	,256	-0,23	,424±,049	,429±,046	,436	0,10
Speed	S	21,3±6,1	16,2±1,6	,000*	-0,84	17,3±1,2	15,9±1,3	,010*	-1,17	16,4±1,3	16,1±1,8	,395	-0,23
Jump	cm	179,5±33,9	195,1±30,6	,000*	0,46	159,5±28,0	170,7±24,6	,014*	0,40	189,5±32,6	207,3±26,0	,001*	0,55
Strength	kg	38,1±7,8	32,7±9,0	,000*	-0,69	36,1±6,6	26,7±5,8	,002*	-1,42	39,1±8,3	35,9±8,8	,002*	-0,39
Flexibility	cm	19,9±8,8	21,9±9,7	,043*	0,23	25,6±7,7	25,2±9,4	,746	-0,05	16,7±7,9	20,1±9,6	,011*	0,43
Kidmed ²	R ⁶ . 0-12	7,4±2,9	7,7±2,3	,551	0,10	7,6±2,9	8,2±2,7	,506	0,21	7,4±2,9	7,5±2,0	,798	0,03
PAQ-C ³	R. 1-5	2,7±,6,0	2,7±,6,0	,569	0,00	2,6±,7,0	2,7±,6,0	,406	0,14	2,8±,6,0	2,7±,5,0	,053	-0,17
PAQ-A ⁴	R. 1-5	2,9±,7,0	2,8±,7,0	,863	-0,14	2,7±,3,0	3,4±,4,0	,066	2,33	3,0±,8,0	2,8±,7,0	,269	-0,25

¹BMI: Body Mass Index; ²Kidmed (diet quality questionnaire); ³PAQ-C: Physical Activity Questionnaire for Children.; ⁴PAQ-A: Physical Activity Questionnaire for Adolescents; ⁵WtH: Waist to Height; ⁶R.: Range; ⁷ES: Effect Size.



train saying it doesn't matter to go to training, but that affects the whole team because if a lot of people are missing, we can't do much (C-F-L, 14/11/17, FG, S2). Others speak about expectations regarding the team: "I would like more commitment, more sincerity and more spirit and desire to play basketball" (P-C-f-T, 29/2/16, DR, S1). They also talk about difficulties in the relationships: "We get along well with some and badly with others" (C-F-G, 29/3/16, DR, S1); "I get angry very quickly" (C-M-G, 12/5/16, FG, S1). There is another category connected with learning, which is *continuous improving*: "I can always improve" (C-F-G, 12/5/16, FG, S1); "I have to improve, practice more" (C-M-G, 12/5/16, FG, S1); "I want to improve because basketball for me is like an escape route, because I always have it when I'm sad or I do not know what to do" (C-F-T, 30/3/16, DR, S1).

During the second study, although there are still conflicts between the players, there is a higher level of respect between them: "I understand that sometimes you have a very important exam so you don't come to train. However, if the training lasts one hour and a half, you can come an hour and tell the coach that you need to leave earlier because of the exam. You will be perfectly understood. In this way, you can help the team and do the two things you have to do: study and training. That is my opinion" (C-F-L, 21/11/17, FG, S2).

The hardening of the training during Study 2 produced a positive response in the participants: "We have asked to change exercises, and now we do more dynamic exercises that we can use in the matches" (C-M-T, 24/2/16, FG, S2); "What I like is that now we've improved a lot, we worked hard and we win" (C-F-L, 29-03-18, FG, S2).

Table 5. Phases for data analysis according to Bengtsson (2016) and qualitative general results

Phases	Tasks	Results
Decontextualization	Identify meaning units Introducing an inductive coding system	48 meaning units A coding system was created
Recontextualization	Include or exclude more units	3 units were excluded 45 units remained
		<u>4 meta-categories</u> <u>16 categories</u>
		Communication Characteristics / Styles of communication / Value of communication / Rules
		Teamwork Group differentiation / Sports practice / Difficulties / Learning / Values
	Identifying homogeneous groups Establishing categories and meta-categories Triangulating by other investigators	Emotional Intelligence Perception, appraisal of emotions / Emotional facilitation / Understanding emotions / Emotional regulation
		Satisfaction with training Organization / Interpersonal relationships / Application to other contexts
Compilation	Extracting realistic conclusions	

Finally, evidence regarding *values* appeared under the meta-category of teamwork: fellowship, respect or perseverance are cited by participants: "The fact of working together for the same objective is also useful for many things" (C-M-G, 25/2/16, FG, S1); or "If we want our rivals to respect us, we also have to respect each other a little" (M-C-M-G, 25/2/16, FG, S1).

Emotional Intelligence

This meta-category includes evidence that fits into the four branches of the traditional definition of emotional intelligence of Salovey and Mayer (1990). Regarding *emotional perception*, it can be both explicit and implicit, although a limited range in the vocabulary regarding the expression of a variety of



emotions was detected: "Well, when we win because I feel good, I don't know" (C-F-T, 29/2/16, DR, S1). The second dimension, *emotional facilitation*, considers the ability to reason using emotions: "They are very good, and very good people. And very optimistic because I see them more optimistic on the fact we can win" (C-F-T, 27/4/16, DR, S1). *Emotional comprehension* is the third dimension and third category, for instance: "I felt surprised because we have overcome a team, but we thought we were going to lose" (C-M-T, 28/1/16, DR, S1). They feel proud of the acquisition of certain level of *emotional regulation* as this evidence shows: "In a match in which we lost they insulted us, and in the match in which we won they insulted us too. We said nothing, and they continued insulting us" (C-F-T, 11/5/16, FG, S1).

All this evidence highlighted the need to include activities dedicated exclusively to the management of emotions. This was carried out in Study 2, following an order of increasing complexity. Several activities were designed to follow a clear itinerary that allows them to perceive, understand and manage their own emotions. Although there remained many difficulties with regard to talking about feelings, "I don't usually talk about my emotions with a lot of people" (Ch-M-T, 2/12/17, RD, S2), there was an improvement compared to the last season. There was more evidence related to emotions in Study 2, and some participants were more comfortable talking about this.

The first trimester was centered on facilitation and emotional perception. They can recognize some emotions: "If I'm angry it does influence how I perform, because I don't pay attention" (C-M-G, 24-03-18, RD, S2). Emotional comprehension was developed during the second trimester: "Sometimes being in a bad mood doesn't help, I think I need to improve" (F-C-T, 14-04-18, RD, S2). While the emotional regulation that negatively affects performance during training and matches: "Sport helps to break my insecurities, and finally I play better" (C-M-T, 12-05-18, FG, S2), was worked on in the third trimester. Sport is also often seen among boys as a tool to escape from negative emotions and problems of everyday life: "I can be angry or happy, but when I do sport it's my head resets, and I am not thinking about it anymore. At that moment, not that the feelings are not there, but I am distracted by something else" (C-M-G, 18-02-18, FG, S2). Many

participants become very nervous during competitions, to such an extent that they had a hard time and some somatized their distress. The pressure of the matches was still one of the main points that needed improvement.

Satisfaction with the program

Participants talked about the *organization of the program*: time, variety and number of activities, and material and installations: "We didn't win any game because it's very little training time" (C-M-G, 23/2/16, DR, S1); "The roof of the pavilion is bad, the floor of the pavilion is hollow, and some balls are very old" (Ch-M-L, 29/3/16, DR, S1). Quality of *relationships* is also related with the adherence and commitment to the program: "There is everything. I think that some of them are very negative and create a bad atmosphere, others encourage a lot and are very nice and there are some who were given a second chance and don't even bother to come" (C-F-T, 29/2/16, DR, S1). There was little evidence of the transfer of the knowledge acquired to other contexts, but some participant mentioned it: "I teach my friends" (C-F-G, 25/2/16, FG, S1). Participants appreciate the increased training time during Study 2: "I get more tired with long training, but it gives me time to do more things" (C-M-G, 18-02-18, FG, S2). Finally, they appreciate the new dynamics in the training sessions: "I have had fun with the games and now I relate better with my colleagues" (F-C-T, 14-04-18, RD, S2), recognizing that you can learn through playing.

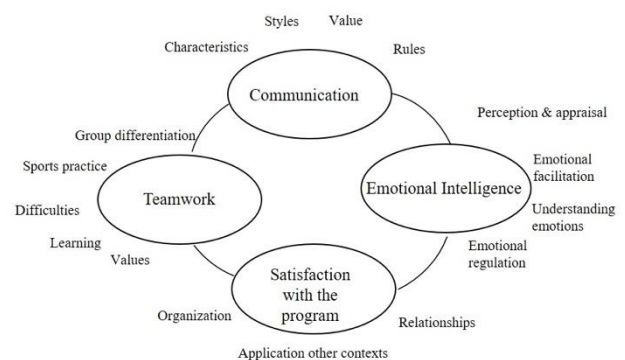


Figure 3. Metacategories and categories extracted from qualitative analysis

DISCUSSION

The evolution of weight, height and BMI were normal for all participants, since they are in a period where they tend to grow. The significant increase in



height for boys could be due to their maturity state, more prone to changes than girls, whose height tends to reach a maximum quicker at earlier stages of adolescence (Wells, 2007). Again, the increase of body fat percentage found in girls at the end of the program is congruent with their state of development, since there is an exponential increase in fat percentages at 10–12 years of age (Wells, 2007).

The differences found in physical condition after the intervention, particularly in the ability to jump, is likely directly related to the program as it was based on "basketball", which specifically works this ability. Three results came to our attention during Study 1: the lower agility performance for girls and similar for boys, since an activity such as basketball should reflect an improvement in this ability; a worsening in females' resistance; and that strength values decreased in both groups. These results could mean a lack of adequate stimuli throughout the training, indicating the need to increase the intensity of the exercises to fatigue. For this reason, during Study 2 the physical intensity of the training was increased, resulting in greater satisfaction of the participants when they reached a higher competitive level. The boys also improved significantly in flexibility (Table 4), likely because their baseline (15.6 ± 7.4 cm, p -value = .001) was much lower than that for girls (22.3 ± 7.6 cm, p -value = .208), who were unable to improve upon this result. There is no evidence that basketball improves the flexibility of its players, although performing stretches as part of the training sessions can favour this ability (Woolstenhulme et al., 2006).

The variables measured for diet was not significant different after the intervention in any of the groups. Scientific studies usually relate low socio-economic levels with a poor diet as well as with reduced levels of physical activity (Park, 2018). However, as observed in our study sample, a specific intervention through sports abolishes this relationship.

The increase in the duration of the workouts (from 60 to 90 minutes) allowed an expansion of the content of work in each session. Also, the training given by the research team to coaches helped to generate more effective training spaces (in terms of basketball practice itself), but also to improve those aspects detected in Study 1 on the acquisition of values and emotional development. In fact, one of the most valuable findings from Study 1, was that researchers

verified the low qualification of sports coaches during the values session's analysis. Most of them had been participants of the Fundación Balía programs in previous years, but they were not qualified professionals. After Study 1, the principal recommendation from the research team was to contract professional sport coaches, as recommended by Camiré, Rocchi, and Kendellen (2017), as they are able to support a better working environment, gain confidence more easily and obtain better results. Sports coaches must be trained in social values and emotional competencies but also in didactics, so they can design and introduce specific activities designed for this purpose (Bean et al., 2018). According to the findings in the Study 1, the research team organized a specific training program (described in procedure of Study 2) to help coaches introduce concepts of values and emotional intelligence during the basketball practice. There is some agreement among authors that the most important facilitator of social inclusion in these environments is the coach, because he/she decides what to do and how, and assigns responsibilities (Amorose et al., 2016).

The organization of objectives and tasks by terms (trimesters) seemed to be a methodological aspect that also had an impact on the results obtained. In addition, a psychologist led the focus group and introduced new aspects and ideas for reflection, regarding the relationship and transference between sport activity and values. In Study 1, the quantity of comments during the focus groups was usually conditioned by the coach. During the Study 2, the presence of researchers to guide the focus groups was more accepted by coaches and, in comparison with Study 1, they felt freer to talk about the process. Participants talked and shared more during the focus groups in comparison with reflective diaries; indeed, written expression continued to be a barrier when they needed to express emotions or integration of values. A greater level of maturity in responses and increased awareness of values and emotions is undoubtedly related to the incorporation of specific training for coaches in Study 2. As Camiré and Trudel (2010) underlined, from the moment the coaches become aware of the challenge they faced, they appreciated that it was beneficial to have researchers working with them during the season. When coaches are able to offer young people meaningful experiences through sport, conditions are



created for everything that must come after (Super et al., 2018). As Whitley, Massey, and Wilkison (2018) highlighted, reconnecting with their physical and emotional selves allowed them to commit to sports practice and integrate social values. A large majority of participants claimed to have experienced improvements in coexistence, rapport with the group, in addition to technical and athletic improvements, and above all improved their attitude.

At the end of the sessions, competitiveness was very present in most of the teams of the program. Although some studies focus on the impact that an excess of competitive behavior can have on the health of children (e.g., Crawley et al., 2017), the evidence from our study showed that competitiveness generated the desire of self-improvement. Very little evidence proved the transfer of values and life skills to other domains, suggesting this cannot be generalized or standardized. It is something individualized, with different timings of transfer, and it is determined by the capacity of each individual to connect what was lived during the program with other activities of daily life, and the opportunities to practice that are presented (Pierce et al., 2016).

These results should nevertheless be considered with caution due to the stage of vital development of these young people, in which physical and psychological changes take place at great speed independently of the sport practice that they carry out. In addition, some important limitations should be noted. The sample size was small and drop-outs affected the initial number of participants so conclusions cannot be generalized. Difficulties derived from the social reality of the chosen sample in attending all the training sessions as well as data collection were evident. Likewise, although the changes in the choice of instruments and variables used are justified, it would have been desirable to maintain the same measures throughout.

CONCLUSIONS

We carried out two studies to analyze the impact of the introduction of a sports-based program on the acquisition of values, emotional intelligence and physical condition in children with low socio-economic status. The results demonstrated that the practice of sport “per se” is not a guarantee of

acquisition of values and emotional skills in adolescents. The methodology used should incorporate specific activities on values and emotional intelligence during training. To this end, coaches must have a sufficient level of sport qualification together with a background in values and emotional intelligence. The results of Study 2 revealed changes when these aspects were considered. Working with specific objectives “by trimesters” was more effective than a global approach, and at the same time was better adapted to the academic structure of Spanish schools. The increase in time for training with a more structured, intense and goal-oriented workout, and the introduction of a better design of the sessions improved both physical performance and values and emotional skills acquisition.

Qualitative data showed a generalized fear of failing, making mistakes and not fulfilling group expectations, which often gave rise to conflicts between participants. They considered the relationship with peers and the creation of bonds of trust to be the most important aspects, which is likely why the competitive aspect for this group seems positive through its relationship with the desire for self-improvement.

Designing a sport-based intervention that takes a holistic approach is a challenging endeavor. More research is needed to develop tools and strategies to measure the impact of these programs.

ACKNOWLEDGEMENTS

We thank the Balia Foundation and the Casvi School for their collaboration and commitment to this research.

Funding

This work was supported by Fundación Mahou, under Grant number 01708//XOTRI01739

Institutional Review Board Statement

The study was conducted according to the guidelines of the Declaration of Helsinki, and approved by the Clinical Research Ethics Committee of the Niño Jesús University Hospital (R0031/14).

Informed Consent Statement

Informed consent was obtained from all subjects involved in the study.

Declaration of interest statement

The authors declare no conflict of interest. The funders had no role in the design of the study; in the



collection, analyses, or interpretation of data; in the writing of the manuscript, or in the decision to publish the results.

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