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Prosocial Behaviours, Physical Activity and Personal and Social Responsibility Profiles in Children and Adolescents

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Abstract

The present study aimed to identify possible responsibility profiles in adolescent students and their relationship with prosocial variables, empathy, violence and the perception of physical activity undertaken. A sample of 296 students aged 10-17 (M = 12.60; SD = 1.65) from different schools (138 boys and 158 girls) was assessed for personal and social responsibility using the Personal and Social Responsibility Questionnaire, for social skills using the Social Skills Inventory for Adolescents, for empathy using the Spanish version of the Interpersonal Reactivity Index, for perception of school violence using the Everyday School Violence Questionnaire, and for perceived level of physical activity and physical exercise (Comparative PA Scale and Physician-based Assessment and Counselling for Exercise). The profile analysis identified one profile with "high responsibility" and one profile with "low responsibility". MANOVA provided significantly higher values for prosocial behaviours, empathy and perception of physical activity undertaken in the "high responsibility" profile. Promoting these values could be key to improving the climate of coexistence in schools and promoting a healthy lifestyle.

Keywords: empathy, healthy habits, prosocial behaviour, responsibility, violence.

Introduction

Prosocial behaviour can be defined as any behaviour that is voluntarily performed for the benefit of others regardless of whether it is for one's own good (Pacheco et al., 2013). Antisocial behaviour, on the other hand, is behaviour that breaks established rules or laws. Individuals who are able to regulate their vicarious emotional response (experiencing emotions and sensations through the stories of others) are more likely to feel sympathy for the needs of others, which facilitates prosocial behaviour (Pacheco et al., 2013).

Prosocial behaviour acts as a barrier to behavioural problems and depression during adolescence, predisposing individuals to personal and social adjustment (Tur, 2003). Authors such as Martínez González et al. (2010) conclude that aggressive behaviour and prosocial behaviour play a key role in the physical and psychological well-being of adolescents. These behaviours are positively related to social skills, peer acceptance and popularity, assertiveness and academic performance. However, such behaviours are negatively associated with social inadequacy, loneliness, social anxiety, aggression and antisocial behaviour. Chalco and Medina (2016) have reported positive relationships between prosocial behaviour and personal and social responsibility, improving interpersonal relationships, academic results and increasing efficacy and adaptability in new situations. In addition, it has been demonstrated that a high score regarding relationship skills and social skills correlates with the importance of social aspects in childhood and pre-adolescence (Martínez de Ojeda et al., 2021). Similarly, the relationship identified between prosocial behaviour and empathy is also noteworthy (Sánchez-Queija et al., 2006).

In contrast, antisocial behaviour is positively related to aggression, social inadequacy, loneliness and social anxiety and negatively related to submissiveness and assertiveness (Inglés et al., 2009). However, there is discordance in the results according to age, and more research is needed to shed light on this important stage of life.

As for the psychological construct of "responsibility" in relation to individuals, it is considered to be an acquired personal value that becomes a personality trait, manifested through behaviour (Filiz & Demishan, 2019). In terms of social responsibility, this is regarded as a set of personal values or commitments to improve the community or society in which one is immersed (Wray-Lake et al., 2016). Thus, responsibility is developed in individuals through experience, along with attitudes and skills. To this end, opportunities must be available to exercise responsibility in the various contexts of human development, such as personal (the relationship with oneself, one's emotions and cognitions), educational, social and cultural contexts (Ginott, 2009).

Research provides evidence on the psychological and behavioural consequences of prosocial and antisocial behaviours. Thus, a lack of personal and social responsibility behaviours could be a predictor of antisocial behaviour (Hipwell et al., 2016). Specifically, social responsibility is a positive developmental indicator for young people (Lerner et al., 2003) that is linked to positive outcomes, such as increased motivation to be physically active and sportsmanship behaviours (Merino-Barrero et al., 2019). Likewise, self-determined motivation, autonomy-supportive climates, task orientation or coaching style are also conducive to prosocial behaviour (Kavussanu & Al-Yaaribi, 2021).

According to what has been established regarding the socioemotional constructs reviewed above, their importance in regulating a healthier coexistence in schools is evident. Therefore, the main objective of the present study was to identify possible profiles of personal and social responsibility in a large group of children and adolescents and to reveal possible connections between this variable and other psychosocial variables, such as social skills, violence, empathy and the practice of physical activity.

Method

Research design

The present study is a quantitative study (Hernández-Sampieri et al., 2014), with a descriptive subtype or approach (collection, analysis and presentation of data through quantitative measures) and a correlational approach (non-experimental relationship between closely related variables) (Montero & León, 2007). Approval was obtained from the Ethics Committee of the University of Murcia and informed consent was obtained from the centre and the parents.

Participants

The study population consisted of primary and secondary schoolchildren in the Region of Murcia. A total of 296 students (138 boys and 158 girls) from year 5 of Primary Education to year 4 of Compulsory Secondary Education (CSO) (Table 1), aged 10-17 (M = 12.60; SD = 1.65) from 4 public and 2 state schools in south-eastern Spain participated.

Table 1
Sociodemographic characteristics of participants.

Sociodemographic variables	Characteristics
Sex	Boys and girls
Location	Schoolchildren from the region of Murcia from the provinces of Torre Pacheco, San Javier, Murcia.
Course enrolled in and current status	Primary and secondary school pupils, academic year 2019/20020.
Socioeconomic background	Mean.
Parents' or guardians' level of education	School graduates and vocational training, mainly

Table 2
Inclusion and exclusion criteria.

Inclusion criteria	Exclusion criteria
Primary and secondary school pupils.	Schoolchildren under 10 years of age, in order to ensure understanding of the items in the questionnaires.
Schoolchildren who understand written Spanish.	Participants over the age of 18.
Schoolchildren without a diagnosed mental or cognitive pathology.	Schoolchildren with a diagnosed mental or cognitive pathology.
Correct completion of all questionnaires.	Participants who do not fill in the questionnaires correctly.

Non-probabilistic convenience sampling (Cohen et al., 2011) was used, according to the groups comprising the classes predetermined by the schools. The teachers who participated in the study taught Physical Education, with 4 participants in total (2 in the control group and 2 in the experimental group). Their ages ranged from 31 to 59 years, they were permanent staff at the school and had more than 5 years of teaching experience, and they agreed to participate in the study. None of the teachers had previous experience of using the Personal and Social Responsibility Model. Teachers were randomly assigned to the experimental and control groups by the school's own administration.

In order to select the sample, inclusion and exclusion criteria were established (Table 2) and the schools were contacted by telephone call (with the head of studies) to inform them of the aim of the research as part of the development of a doctoral thesis. Once the approval of the school heads had been obtained, a meeting was organised with the teachers who expressed their interest in participating in the data collection, within the teaching timetable of their subjects. In addition, the participants' relatives were informed of the purpose of the study and the type of tests to be implemented for data collection.

Resources

Personal and social responsibility. We used the Spanish version (Escartí et al., 2011) of Li et al. (2008) Personal and Social Responsibility Questionnaire (PSRQ). The questionnaire consists of 14 items, divided into two factors comprising seven items each: social responsibility (i.e., "I respect others") and personal responsibility (i.e., "I try to make an effort, even if I don't like the task"). Participants are required to respond on a 6-point Likert scale, ranging from 1 (Strongly Disagree) to 6 (Strongly Agree). Instructions for completing the questionnaire are provided at the beginning of the questionnaire: "It is normal to behave well sometimes and badly at other times. We are interested in how you normally behave during classes". The internal consistency of the subscales, measured by Cronbach's α coefficient, was .76 for social responsibility and .75 for personal responsibility.

Prosocial and antisocial behaviour. The Spanish version (Inglés et al., 2003) of the Teenage Inventory of Social Skills (TISS) (Inderbitzen & Foster, 1992) was used. It consists of 40 items grouped into two factors: prosocial behaviour (i.e., "I stand up for other students when someone says mean things behind their back") and antisocial behaviour (i.e., "I laugh at other students when they make mistakes"). Answers are

provided on a Likert-type scale from 1 to 6 points, from 1 (Does not describe me at all) to 6 (Describes me completely). The questionnaire is headed: "Teenagers do a lot of things with other peers every day. You probably do some things more often than others...". Cronbach's α values were .85 for prosocial behaviour and .76 for antisocial behaviour.

Empathy. The Spanish version (Mestre et al., 2004) of the Interpersonal Reactivity Index (IRI) (Davis, 1983) was used. Scale consisting of 28 items divided into 4 factors consisting of 7 items each and measuring the integral concept of empathy: perspective taking (PT) (i.e., "I try to take into account each of the parties -opinions- in a conflict before making a decision"), fantasy (FS) (i.e., "I dream and fantasise, quite often, about things that could happen to me"), empathic concern (EC) (i.e., "I often have sensitive feelings and concern towards things that could happen to me"), and personal distress (PD) (i.e., "In emergency situations I feel apprehensive and uncomfortable"). The preceding sentence at the top of the questionnaire is: "The following sentences refer to your thoughts and feelings in a variety of situations...". Answers are provided on a Likert-type scale from 1 to 5 points, 1 (Does not describe me well) to 5 (Describes me very well). Due to the low values obtained for Cronbach's α on the overall scale despite following the trends obtained by Pérez-Albéniz et al. (2003) and Mestre et al. (2004) in their studies, those items (-3, -4, -7, -12, -13, -14, -15, -18, -19) that improved the coefficient after deletion were removed. Ultimately it was decided that only positively stated items should be included and Cronbach's α values improved: .71 for PT; .74 for FS; .65 for EC and .66 for PD.

Violence. The Everyday School Violence Questionnaire (CUVECO) validated in Spanish (Fernández-Baena et al., 2011) from the California School Climate and Safety Survey (CSCSS) developed by Rosenblatt and Furlong (1997) was used. It assesses the perception of having experienced or observed peer violence. This scale is composed of a total of 14 items divided into two factors: experienced violence (i.e., "I was pushed") and observed violence (i.e., "Students smash things"). The items are presented in a Likert-type response format from 1 to 5 points, 1 (Never) to 5 (Always). The preceding sentence at the top of the questionnaire is "Please indicate whether the following has happened to you in your classroom during this school yar". Cronbach's α values were .77 for experienced violence and .82 for observed violence.

Comparative perception of the level of physical activity. The Spanish validated version of the Comparative Physical Activity Scale (Sallis et al., 1988) for adolescents (Martínez-Gómez et al., 2009) was used. It assesses the perception of the amount of physical activity undertaken in relation to the level of physical activity in the environment. This scale consists of a single question: "Compared to others of the same age and sex, how much physical activity do you do?". It is a Likert-type response scale ranging from 1 to 5 points, 1 (much less) to 5 (much more).

Perception of the level of physical activity. The Spanish version of Prochaska et al.'s (2001) Physician-based Assessment and Counselling for Exercise (PACE) developed by Martínez-Gómez et al. (2009) was used . Although initially designed for adults, it was later approved for young people between the ages of 13 and 17, obtaining an acceptable correlation with the measurement of the amount of physical activity undertaken using accelerometers (Prochaska et al., 2001). This scale is composed of 2 items assessing the amount of physical activity undertaken for at least 60 minutes in the last week (PACE1) and in a normal week (PACE2). Participants are asked to answer on an 8-point Likert-type scale, 0 (0 days) to 7 (7 days). It consists of the following introductory information: "Physical activity is any activity that increases your heart rate and causes your breathing to quicken. Physical activity can be undertaken by playing sports, playing with friends or walking to school or high school. Examples of physical activity include running, brisk walking, rollerblading, skateboarding, dancing, swimming, football, basketball, volleyball, handball. Do not include time spent in school PE classes". Cronbach's α value was .88.

Procedure

Firstly, a satisfactory report was obtained from the Bioethics Committee of the researchers' university in order to carry out the research. Secondly, contact was made with the schools to inform them of the objectives pursued, describing the assessment tool and also requesting their voluntary collaboration in participating. Thirdly, families were contacted and informed consent was obtained for student participation. Finally, each teacher was provided with a booklet containing all the questionnaires grouped together, clarifying the rules to be followed. The importance of completing the booklets in full, voluntarily and independently in the classroom was emphasised. Throughout the survey administration, the teacher was always present to resolve any issues that might arise and to verify that the subjects had completed the survey, ensuring the anonymity of their

responses. The project complied with the ethical standards required for research on human subjects: informed consent, right to information, personal data protection, confidentiality, non-discrimination, gratuity and the option to withdraw from the study at any time (McMillan & Schumacher, 2001).

Statistical Analysis

First, the database was cleaned and the Mahalanobis distance was calculated to check for outliers. Descriptive statistics, means, standard deviations, skewness and kurtosis values of the latent variables were calculated. The internal consistency of each of these was calculated using Cronbach's alpha coefficient. Subsequently, a bivariate correlation analysis was carried out to determine the association or linear relationship between the variables analysed. Next, a cluster analysis or K-means cluster analysis was performed, grouping the responsibility variable (personal and social) in an attempt to achieve maximum homogeneity in each group (internal) and maximum heterogeneity between groups (external). For the normality test, the Kolmogorov-Smirnov statistic was used in order to detect normality in samples of a variable nature and larger than 50 participants (Steinskog et al., 2007). Due to the normal distribution of the sample, the multivariate analysis of variance test (MANOVA) was applied in order to explore the significant differences of the variables under study in the cluster profiles obtained. Next, the assumption of homogeneity of variances was calculated to assume equal or unequal variances, which determined the use of Fisher's *F* statistic. Analyses were performed with IBM SPSS 25.0 statistical packages.

Results

Descriptive and bivariate correlation analysis

Table 3 shows the means, standard deviations, skewness and kurtosis of the different variables. The variables related to personal and social responsibility values obtained a higher average score for both component factors, compared to the rest of the variables with similar ranges. On the other hand, the scores obtained for the prosocial behaviours dimension were significantly higher than those for antisocial behaviours on the social competence scale. In terms of empathy, lower values were obtained in the personal distress dimension compared to the fantasy, perspective-taking and empathic concern dimensions. The perception of violence variable had lower values for observed violence compared to experienced violence. And for the variables related to physical activity, the comparative perception of the level of physical activity, which ranged from 1 to 5, showed increasing values. On the other hand, the perception of the level of physical activity practice obtained intermediate-low scores compared to the comparative perception of physical activity. The variables' skewness and kurtosis indices obtained adequate values of less than 2, except for personal and social responsibility in the kurtosis data, which indicated univariate normality of the results, except for those mentioned above (Bollen & Long, 1993). Finally, the correlation analysis showed that the variables under study related to responsibility (personal and social) and social competence (prosocial and antisocial behaviours) had the highest level of correlations with all the variables studied. In addition, factors related to empathy correlated with each other. Likewise, the factors corresponding to violence and perception of the level of physical-sports activity undertaken revealed correlations with some factors.

Cluster Analysis

To carry out this type of analysis, the steps recommended by Hair et al. (1998) were followed. Firstly, the existence of missing cases that might be present in some of the variables studied was checked in order to exclude them from the study sample, but in this case none were obtained. All variables were then standardised using Z-scores (this process transforms each original data score into a standardised value with a mean of 0 and a standard deviation of 1); 8 scores above 3 were found, so these subjects were eliminated as outliers in the whole sample (n = 296). The univariate distribution of all pooled variables was then tested for normality.

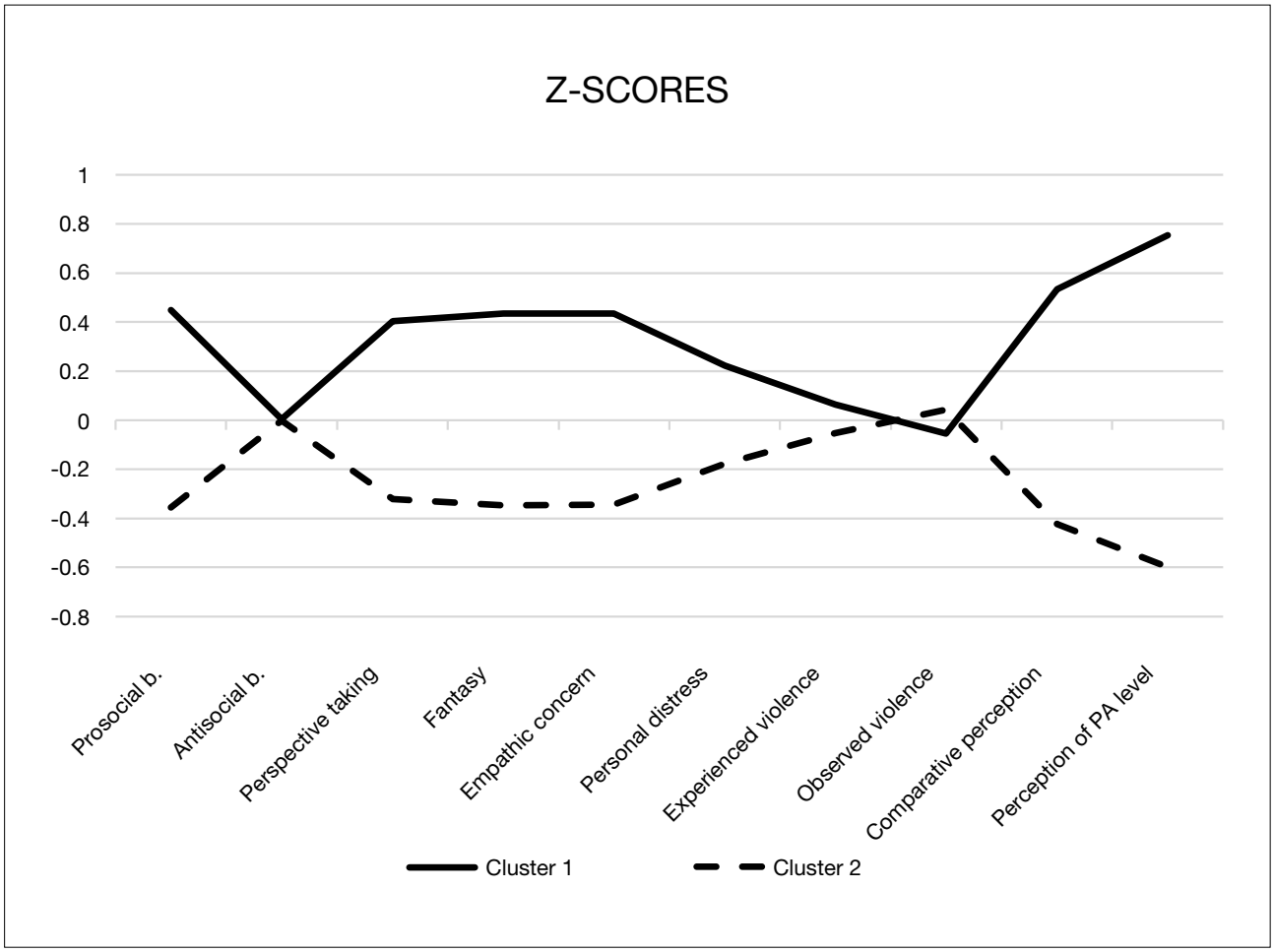
From this stage, the hierarchical cluster analysis was initiated. It is suitable for determining the optimal number of clusters in the data and the content of the data. In this case, the existing personal and social responsibility groups in the sample were defined using the Ward Method. A dendogram was obtained suggesting the existence of two groups. It relies on the increase of agglomeration coefficients from one cluster to two clusters in order to determine the suitability of the generated clusters. Small coefficients indicate high homogeneity among cluster participants, while large coefficients indicate large differences among cluster participants (Norusis, 1992). Therefore, it was concluded that there were two different types of student profiles with respect to the responsibility variable (Figure 1): a "high responsibility" profile (Cluster 1), with higher scores on the different dependent variables of the study, and the other "low responsibility" profile, with the opposite scores (Cluster 2), except for the observed violence variable, which has higher values for Cluster 2, and antisocial behaviour, which has the same scores for both clusters.

Table 3
Descriptive statistics, reliability and bivariate correlations of the variables.

Variables	M	SD	Range	A	C	α	1	2	3	4	5	6	7	8	9	10	11	12
1. Social responsibility	5.25	.58	1-6	-1.41	3.09	.76	-	.50**	.27**	-.24*	.26**	.17**	.25**	.02	-.23**	-.15*	.08	.07
2. Personal responsibility	5.22	.69	1-6	-1.36	2.27	.75		-	.30**	-.14*	.25**	.17**	.27**	.07	-.10	-.14*	.21**	.26**
3. Prosocial behaviour	4.25	.84	1-6	-.47	.02	.85			-	.01	.56**	.48**	.58**	.21**	.03	.03	.07	.18**
4. Antisocial behaviour	2.24	.64	1-6	.71	.21	.76				-	-.09	.14*	-.09	.22**	.31**	.26**	.01	.08
5. Perspective-taking	3.44	.89	1-5	-.35	-.22	.71					-	.53**	.59**	.19**	-.03	-.12*	.07	.10
6. Fantasy	3.06	1.10	1-5	.13	-.67	.74						-	.52**	.38**	.10	.13*	-.04	.13*
7. Empathic concern	3.43	.92	1-5	-.23	-.77	.65							-	.33**	.04	-.08	-.01	.07
8. Personal distress	2.75	.86	1-5	.30	-.16	.66								-	.12*	.00	.10	.13*
9. Experienced violence	1.67	.58	1-5	1.03	.45	.77									-	.38**	.03	.14*
10. Observed violence	2.28	.82	1-5	.64	-.10	.82										-	-.07	-.01
11. Comparative perception of PA	3.32	1.15	1-5	-.15	-.82	-											-	.58**
12. Perception of PA level	3.63	1.09	0-8	-.20	-.91	.88												-

Note: * $p < .05$; ** $p < .01$; *M* = Mean; SD = Standard Deviation; S = Skewness; K = Kurtosis; α= Cronbach's alpha coefficient; PA = Physical Activity.

Figure 1
Scores of the variables studied in a sample of Physical Education students according to the level of personal and social responsibility.



After obtaining the optimal number of clusters, the K-means method was used to process the data on the basis of the personal and social responsibility variable, which corroborated the existence of the two responsibility profiles. The first cluster was labelled "high responsibility" (Cluster 1) (n = 131; 44%) consisting of 52 boys and 79 girls, 64 from primary and 67 from secondary school (M = 12.53; SD = 1.58), who scored higher on the variables of perceived prosocial behaviour, perspective-taking, fantasy, empathic concern, personal distress, experienced violence, comparative perception of physical activity and level of physical activity; and lower on antisocial behaviour and observed violence. Scores contrary to those in the second cluster, which was labelled "low responsibility" (Cluster 2) (n = 165; 56%), composed of 86 boys and 79 girls, 75 from primary and 90 from secondary school (M = 12.65; SD = 1.70).

Multivariate analysis according to personal and social responsibility profile

To examine the characteristics of each profile according to the psychosocial variables mentioned and to assert the predictive validity of the clusters obtained, a differential analysis (MANOVA) was carried out, with the clusters as independent variables and the dimensions of the questionnaires as dependent variables (Table 4). The results obtained revealed differences (Wilk's $\Lambda = .37$, $F(29, 803) = 16$, $p < .01$) between both clusters and the variables: prosocial behaviour ($F(1, 33.43) = 56.21$, $p < .01$), antisocial behaviour ($F(1, 0.0) = 0.0$, $p > .05$, perspective taking ($F(1, 30.11) = 43.71$, $p < .01$), fantasy ($F(1, 46.37) = 52.33$, $p < .01$), empathic concern ($F(1, 37.33) = 52.06$, $p < .01$), personal distress ($F(1, 8.55) = 12.02$, $p < .01$), experienced violence ($F(1, 0.33) = .99$, $p > .05$), observed violence ($F(1, 0.47) = .69$, $p > .05$), comparative perception of PA ($F(1, 88.52) = 86.28$, $p < .01$) and perception of PA level ($F(1, 416.17) = 243.10$, $p < .01$), in favour of the profile with high scores in general responsibility.

Table 4
Multivariate analysis of the variables under study within each cluster of personal and social responsibility.

	Cluster 1		Cluster 2		
	n = 131; 52 boys, 79 girls; 64 primary, 67 secondary		*n* = 165; 86 boys, 79 girls; 75 primary, 90 secondary		
	M	SD	M	SD	F
Prosocial behaviour	4.63	0.71	3.96	0.82	56.21**
Antisocial behaviour	2.24	0.60	2.23	0.67	0.00
Perspective-taking	3.80	0.81	3.16	0.84	43.71**
Fantasy	3.51	0.97	2.71	0.92	52.33*
Empathic concern	3.83	0.85	3.12	0.84	52.06**
Personal distress	2.94	0.89	2.60	0.80	12.02**
Experienced violence	1.74	0.59	1.64	0.57	0.99
Observed violence	2.24	0.78	2.32	0.86	0.69
Comparative perception of PA	3.93	0.99	2.83	1.03	86.28**
Perception of PA level	4.82	1.40	2.43	1.23	243.10**
Wilksα					.369
Multivariate f					.16**

Note: *$p < .05$; **$p < .01$; M = Mean; SD = Standard Deviation; PA = Physical Activity; F = Fisher (ratio of two variances); Wilksα= Wilk's lambda (variance ratio to test the hypothesis).

Discussion

The main objective of the study was to identify possible profiles of personal and social responsibility in a large group of children and adolescents. A second objective was to reveal possible connections between this variable and other psychosocial variables such as social skills, violence, empathy and physical activity. The results revealed two clear profiles: "high responsibility" and "low responsibility". The former had significantly higher values for prosocial behaviours, empathy and perception of physical activity undertaken.

In relation to the first objective, the cluster analysis revealed the existence of two clear profiles associated with personal and social responsibility in the primary and secondary school students who participated in the study: a) a "high responsibility" profile, with significantly higher scores on the prosocial behaviours, empathy and perceived level of physical activity undertaken variables; and b) a "low responsibility" profile, with these same variables scoring in the opposite way. Although to date it has not been possible to find research that studies personal and social responsibility profiles, let alone relate them to psychosocial variables in the field of education, in this study the results obtained can be interpreted in accordance with the contributions made by Chalco and Medina (2016) or Hipwell et al., who discuss the positive relationship between personal and social responsibility and prosocial behaviour, even considering the former as a predictor of the latter. This positive link has also been observed in other research in different contexts (Brunelle et al., 2007; Chalco & Medina, 2016; Gutiérrez et al., 2011), indicating that these behaviours have considerable implications for people's health and social adjustment (Taylor et al., 2013). The results of the present research therefore reinforce this. In this same line, different research has highlighted the direct relationship between personal and social responsibility and empathy (Brunelle et al., 2007; Gutiérrez et al., 2011; Sánchez-Queija et al., 2006); as well as its inhibitory function regarding aggressive and antisocial behaviour (Gutiérrez et al., 2011; Mestre et al., 2004; Nolasco, 2012). Going a step further, Gutiérrez et al. (2011) consider empathy and prosocial behaviours as good predictors of personal and social

responsibility in schoolchildren. Finally, the level of physical activity undertaken was also directly and positively linked to responsibility in the "high responsibility" group. In this regard, in a study on the application of MRPS in physical education (Prat et al., 2019), it was demonstrated that teacher intervention that promotes a positive classroom climate based on students' personal autonomy and the importance of attitudes of personal and social responsibility, stimulates a positive perception of a more active lifestyle in adolescent students. In the same line of study, the application of MRPS in PE increases motivation to engage in physical-sports practice and the perception of sportsmanship (Merino-Barrero et al., 2019).

The "high responsibility" group included a smaller number of participants, with a majority being girls and a balanced number of primary and secondary school students. The "low responsibility" group included a larger number of participants, with more boys, the same number of girls and more secondary school students. In this sense, in studies such as that of Valero-Valenzuela et al. (2020), in which MRPS was combined with gamification strategies, girls' motivation and perception of personal and social responsibility improved after the intervention. Boys, on the other hand, experienced no change in motivation and personal and social responsibility.

Among the limitations of the study is the sample selection, which was made according to accessibility and not in a randomised fashion, thus compromising the external validity of the study. The data analysis focused on finding differences in terms of levels of personal and social responsibility, but it would be interesting in future studies to address differences in terms of the age of the participants, distinguishing between children and adolescents and according to gender. Another aspect to consider is the cross-sectional descriptive research design. Studies of a quasi-experimental nature are necessary to verify the causal relationships between the variables analysed. With regard to the administration and completion of the questionnaires, cognitive fatigue could be experienced due to the large number of questions, so it is recommended that the number of scales included in a single session be reduced. Future lines of research should be quasi-experimental in nature and longitudinal in approach, pre-test and post-test.

Conclusions

Two clearly differentiated profiles were found in the group of participating primary and secondary school students: a "high responsibility" profile with higher levels of empathy and prosocial behaviours, as well as a higher perception of physical activity undertaken, and a "low responsibility" profile with significantly contrasting levels. Therefore, the promotion of values, in this case personal and social responsibility, is postulated as a key element in teaching with the clear objective of improving the climate of coexistence in schools, the socio-emotional development of pupils and achieving a healthy lifestyle.

Practical applications

It has been demonstrated that higher levels of personal and social responsibility in school children and adolescents are related to prosocial behaviours and less to antisocial behaviours such as observed violence and personal distress. Therefore, didactic interventions based on the application of Hellison's Personal and Social Responsibility Model are necessary in any educational context, providing teachers with tools that allow them to master the conceptual principles of this model in order to be able to apply it effectively in their classrooms. The following are examples of strategies based on the application of MRPS to promote personal and social responsibility, prosocial

a) Awareness-raising: the teacher explains the behaviours to be learned that day, motivating the students and explaining the educational objective of the day together with the activity to be carried out.
b) Strategies for dealing with group conflicts: "time-out", the teacher stops the class when he/she observes a tense or uncomfortable situation among the participants, in order to discuss what is happening and propose a solution(s).
c) Autonomy, empathy and help: the teacher encourages one or more pupils to explain to the rest of the class how they have done an exercise or how to perform a certain activity. In addition, this helps them to collaborate, in an empathetic and positive way, with their peers who have more difficulties in completing tasks.

d) Education of values through physical education curricular activities: promoting the teaching of individual and group sports, the improvement of physical fitness or the discovery of body expression techniques in which decision making, sharing among equals, cooperation for the resolution of tasks, debate, etc. are worked on, thus promoting prosocial behaviour, at the same time as increasing the level of daily physical activity of schoolchildren. Therefore, this proposal aims to simultaneously contribute to mitigating violent behaviour and sedentary lifestyles among young people. The main behavioural consequences of such practical applications are expected to be: (i) improvement of students' executive functions, academic performance and psychosocial aspects such as motivation, responsibility, basic psychological needs and classroom social climate; (ii) promotion of improvement of health-related quality of life (motivation to be physically active, level of physical activity, body composition and healthy habits); (iii) modification of teachers' behavioural patterns towards the assignment of personal and social responsibility and autonomy in practice to increase students' active participation, autonomy and cognitive involvement.

References

Bollen, K.A. and Long, J.S. (1993) Testing Structural Equation Models. Newbury Park, CA: Sage.

Brunelle, J., Danish, S. J. & Forneris, T. (2007). The impact of a sport-based life skill program on adolescent prosocial values. *Applied Developmental Science*, 11(1), 43-55. https://doi.org/10.1080/10888690709336722

Chalco, M. I. & Medina, E. M. (2016). Niveles de responsabilidad y conducta prosocial en niñas y niños de 9 a 11 años de edad. Doctoral Thesis. Cuenca University.

Cohen, L., Manion, L. & Morrison, K. (2011). *Research methods in education*. London: Routledge.

Davis, M. H. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology, 44*(1), 113- 126. https://doi.org/10.1037/0022-3514.44.1.113

Escartí, A., Gutiérrez, M. & Pascual, C. (2011). Psychometric properties of the emotional awareness questionnaire in a Spanish child population. *Revista de Psicología del Deporte, 20*(1), 119-130. https://doi.org/10.1016/j.rlp.2015.09.012

Fernández-Baena, F. J., Trianes, M. V., De la Morena, M. L., Escobar, M., Infante, L. & Blanca, M. J. (2011). Propiedades psicométricas de un cuestionario para la evaluación de la violencia cotidiana entre iguales en el contexto escolar. *Anales de Psicología*, *27*(1), 102-108. Retrieved from https://revistas.um.es/analesps/article/view/113521

Filiz, B. & Demishan, G. (2019). Use of personal and social responsibility model in bringing responsibilities behaviours: Sample of TVF sports high school. *Education and Science, 44*(199), 391-414. https://doi.org/10.15390/eb.2019.7238

Ginott, H. G. (2009). Between parent and child: *The bestselling classic that revolutionized parent-child communication*. New York: Harmony.

Gutiérrez, M., Escartí, A. & Pascual, C. (2011). Relaciones entre empatía, conducta prosocial, agresividad, autoeficacia y responsabilidad personal y social de los escolares. *Psicothema*, 23(1), 13-19. Retrieved from https://dialnet.unirioja.es/servlet/articulo?codigo=3430199

Hair, J. F., Anderson, R. E., Tatham, R. L. & Black., C. (1998). *Multivariate data analysis*. Upper Saddle River, NJ: Prentice Hall.

Hernández-Sampieri, R., Fernández-Collado, C. & Baptista-Lucio, M. D. P. (2014). *Metodología de la Investigación* (6th ed.). Mexico, D.F.: McGraw-Hill/interamericana Editores, S.A. de C.V.

Hipwell, A. E., Beeney, J., Ye, F., Gebreselassie, S. H., Stalter, M. R., Ganesh, D., Keenen, K. & Stepp, S. D. (2016). Police contacts, arrests and decreasing self-control and personal responsibility among female adolescents. *The Journal of Child Psychology and Psychiatry, 59*(12), 1252-1260. https://doi.org/10.1111/jcpp.12914

Inderbitzen, H. M. & Foster, S. L. (1992). The Teenage Inventory of Social Skills: Development, reliability, and validity. *Psychological Assessment, 4*

Inglés, C. J., Benavides, G., Redondo, J., García, J. M., Ruiz, C., Estévez, C. & Huéscar, E. (2009). Conducta prosocial y rendimiento académico en estudiantes españoles de Educación Secundaria Obligatoria. *Anales de Psicología, 25*(1), 93-101. https://doi.org/10.6018/analesps.30.2.148331

Inglés, C. J., Hidalgo, M. D., Méndez, F. X. & Inderbitzen, H. M. (2003). The Teenage Inventory of Social Skills: Reliability and validity of the Spanish translation. *Journal of Adolescence, 26*, 505-510. https://doi.org/10.1016/s0140-1971(03)00032-0

Kavussanu, M. & Al-Yaaribi, A. (2021). Prosocial and antisocial behaviour in sport. *International Journal of Sport and Exercise Psychology*, 19(2), 179-202. https://doi.org/10.1080/1612197X.2019.1674681

Lerner, R. M., Dowling, E. M. & Anderson, P. M. (2003). Positive Youth Development: Thriving as the Basis of Personhood and Civil Society. *Applied Developmental Science, 7*, 172-180. https://doi.org/10.1207/s1532480xads0703_8

Li, W., Wright, P. M., Rukavina, P. B. & Pickering, M. (2008). Measuring students' perceptions of personal and social responsibility and the relationship to intrinsic motivation in urban physical education. *Journal of teaching in Physical Education, 27*(2), 167-178. https://doi.org/10.1123/jtpe.27.2.167

Martínez de Ojeda, D., Puente-Maxera, F. & Méndez-Giménez, A. (2021). Motivational and Social Effects of a Multiannual Sport Education Program. *Revista Internacional de Medicina y Ciencias de la Actividad Física y el Deporte, 21*(81) pp. 29-46. http://cdeporte.rediris.es/revista/revista81/artefectos1193.htm

Martínez-Gómez, D., Martínez de Haro, V., Pozo, T., Welk, G. J., Villagra, A., Calle, M. E., ... & Veiga, O. L. (2009). Reliability and validity of the PAQ-A questionnaire to assess physical activity in spanish adolescents. *Revista española de salud pública, 83*(3), 427-439. Disponible en: http://scielo.isciii.es/scielo.php?script=sci_arttext&pid=S1135-57272009000300008&lng=es&nrm=iso. ISSN 2173-9110.

Martínez González, A. E., Inglés Saura, C., Piqueras Rodríguez, J. A. & Oblitas Guadalupe, L. A. (2010). Papel de la conducta prosocial y de las relaciones sociales en el bienestar psíquico y físico del adolescente. *Avances en Psicología Latinoamericana, 28*(1), 74-84. Retrieved from https://revistas.urosario.edu.co/index.php/apl/article/view/1338

McMillan, J. H. & S. Schumacher. 2001. *Research in Education. A Conceptual Introduction*. New York: Longman.

Merino-Barrero, J. A., Valero-Valenzuela, A. & Belando-Pedreño, N. (2019). Determinated Psychosocial Consequences through the Promotion of Responsibility in Physical Education. *Revista Internacional de Medicina y Ciencias de la Actividad Física y el Deporte, 19*(75), 415-430. https://doi.org/10.15366/rimcafd2019.75.003

Mestre, M. V., Frías, M. D. & Samper, P. (2004). La medida de la empatía: análisis del Interpersonal Reactivity Index. *Psicothema*, *16*(2), 255-260.

Montero, I. & León, O. G. (2007). A guide for naming research studies in psychology. International *Journal of Clinical and Health Psychology, 7*(3), 847-862. https://www.redalyc.org/articulo.oa?id=33770318

Nolasco, A. (2012). La empatía y su relación con el acoso escolar. REXE. *Revista de estudios y Experiencias en Educación, 11*(22), 35-54. https://www.redalyc.org/articulo.oa?id=243125410002

Norusis, M. J. (1992). SPSS/PC+ Professional statistics, Version 5.0. Chicago, IL: SPSS.

Pacheco, J. R., Rueda, S. R. & Vega, C. A. (2013). Conducta prosocial: una alternativa a las conductas agresivas. *InvestigiumIre: Ciencias Sociales y Humanas, 4*(1), 234-247. Retrieved from https://investigiumire.unicesmag.edu.co/index.php/ire/article/view/56

Pérez-Albéniz, A., De Paúl, J., Etxeberría, J., Montes, M. P. & Torres, E. (2003). Adaptación de interpersonal reactivity index (IRI) al español. *Psicothema, 15*(2), 267-272.

Prat, Q., Camerino, O., Castañer, M., Andueza, J. & Puigarnau, S. (2019). The Personal and Social Responsibility Model to Enhance Innovation in Physical Education. *Apunts Educación física y deportes, 2*(136), pp. 83-99. https://doi.org/10.5672/apunts.2014-0983.es.(2019/2).136.06

Prochaska, J. J., Sallis, J. F. & Long, B. (2001). A physical activity screening measure for use with adolescents in primary care. *Archives of Pediatrics y Adolescent Medicine, 155*(5), 554-559. https://doi.org/10.1001/archpedi.155.5.554

Rosenblatt, J. A. & Furlong, M. J. (1997). Assessing the reliability and validity of student selfreports of campus violence. *Journal of Youth and Adolescence, 26*(2), 187-202. https://doi.org/10.1023/a:1024552531672

Sallis, J. F., Patterson, T. L., Buono, M. J. & Nader, P. R. (1988). Relation of cardiovascular fitness and physical activity to cardiovascular disease risk factors in children and adults. *American Journal of Epidemiology, 127*(5), 933-941. https://doi.org/10.1093/oxfordjournals.aje.a114896

Sánchez-Queija, I., Oliva, A. & Parra, A. (2006). Empathy and prosocial behaviour during adolescente. *Revista de psicología social, 21*(3), 259-271. https://doi.org/10.1174/021347406778538230

Steinskog, D. J., Tjøstheim, D. B. & Kvamstø, N. G. (2007). A cautionary note on the use of the Kolmogorov–Smirnov test for normality. *Mon. Weather Rev.,135*, 1151-1157. https://doi.org/10.1175/MWR3326.1

Taylor, Z.E., Eisenberg, N., Spinrad, T. L., Eggum, N. D. & Sulik, M. J. (2013). The relations of ego-resiliency and emotion socialization to the development of empathy and prosocial behavior across early childhood. *Emotion*, *13*(5), 822-831. https://doi.org/10.1037/a0032894

Tur, A. M. (2003). *Conducta agresiva y prosocial en relación con temperamento y hábitos de crianza en niños y adolescentes.* Doctoral thesis. Valencia University.

Valero-Valenzuela, A., Gregorio García, D., Camerino, O. & Manzano, D. (2020). Hybridisation of the Teaching Personal and Social Responsibility Model and Gamification in Physical Education. *Apunts Educación Física y Deportes*, *141*, 63-74. https://doi.org/10.5672/apunts.2014-0983.es.(2020/3).141.08

Wray-Lake, L., Syvertsen, A.K., & Flanagan, C.A. (2016). Developmental change in social responsibility during adolescence: An ecological perspective. *Develop-mental Psychology, 52*(1), 130-142. https://doi.org/10.1037/dev0000067

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