

Perfectionism and stress control in adolescents: Differences and relations according to the intensity of sports practice

JUAN GONZÁLEZ-HERNÁNDEZ¹ , MANUEL GÓMEZ-LÓPEZ², ANDRÉS ALARCÓN-GARCÍA³, ANTONIO J. MUÑOZ-VILLENA⁴

¹*Department of Personality, Evaluation and Psychological Treatment, University of Granada, Spain*

²*Department of Physical Activity and Sports, University of Murcia, Spain*

³*IES Tiranc Lo Blanc, Elche, Spain*

⁴*Autonomous University of Madrid, Spain*

ABSTRACT

The systematic practice physical activity in children and adolescents, improves both psychological welfare as cognitive processes and personality, both mental structures constructed during that period. Regarded as a personality trait it is identified perfectionism currently understood as a functional feature linked to positive (positive affect, self-esteem, task cohesion,...) like dysfunctional aspects have been associated with anxiety and stress. Since adolescence is a period of change and the presence of difficult situations, perceive and interpret stress in a useful way, it is an important issue for personal growth and experience psychological well-being. Therefore, the aim of this study was to identify which indicators of perfectionism provide conditions / skills for stress management in an adaptive way. Participated 127 adolescents (45 females and 82 males) aged between 13 and 17 years ($M = 14.56$, $SD = 1.57$) who completed self-reports like the Multidimensional Scale Perfectionism (FMPS), Perceived Stress Scale (PSS) and a questionnaire sociodemographic. The results indicate that the higher the frequency of AF, there are significant differences in indicators of adaptive perfectionism (personal demands and organization) and indicators of maladaptive perfectionism (parental expectations and fear of making mistakes) regarding facilitate or limit the perception of stress control. In short, research on such variables allows training and design programs for teens to know how to cope situations interpreted as stressful in an effective way. The results indicate that the higher the frequency of

 **Corresponding author.** *Department of Personality, Evaluation and Psychological Treatment, University of Granada, Spain.*

<http://orcid.org/0000-0002-6640-0352>

E-mail: jgonzalez@ugr.es

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AF, there are significant differences in indicators of adaptive perfectionism (personal demands and organization) and indicators of maladaptive perfectionism (parental expectations and fear of making mistakes) regarding facilitate or limit the perception of stress control. In short, research on such variables allows training and design programs for teens to know how to cope situations interpreted as stressful in an effective way. **Keywords:** Athlete, Sport psychology, Adolescence, Functional personality.

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INTRODUCTION

Regular practice of physical activity is the ideal and healthier way to achieve profits in the adolescent developing process as well as physical and psychological as social level (biopsychosocial). Moreover, teenage years has been identified as key in perfectionism development (Stoeber, & Childs, 2010), also it has been recognized as relevant to get habits and behaviors related with health (Castillo, 1999; González, Garcés, & García del Castillo, 2011) like it is the systemic physic activity, transferred to futher vital situations and evolutionary periods in life.

Allowing the existence of several definitions about the physical activity term, the World Health Organization (WHO) conceptualized it as “*any bodily movement produced by skeletal muscles that requires energy expenditure over the Basal Metabolic Rate*” (Vidarte, Vélez, Sandoval, & Alfonso, 2011, p. 205). According to IPAQ (International Physical Activity Questionnaire) methodology (used for WHO), physical activity is categorized in low, moderated and high or vigorous (Table 1). Among the benefits that the frequency of practicing physical activity regularly have been related, checking several investigations, we can emphasize a physical and cognitive or mental level (Aparicio, Carbonell, & Delgado, 2010).

Table 1. Physical Activity typology, by the World Health Organization (WHO, 2017)

Physical Activity Type	Description	Examples
Vigorous	Requires a large amount of effort and causes rapid breathing and substantial increase in heart rate. 7 activity days (>6 METs*)	Running, walking/ climbing briskly up a hill, fast cycling; Aerobics, fast swimming, competitive sports and games (e.g. Traditional Games, Football, Volleyball, Hockey, Basketball); Heavy shoveling or digging ditches, carrying/ moving heavy loads (> 20 kg).
Moderate	Requires a moderate amount of effort and noticeably accelerates the heart rate. 3 to 6 activity days (3-6 MET*)	Brisk walking, dancing gardening, housework and domestic chores, traditional hunting and gathering, active involvement in games and sports with children/ walking domestic animals, general building tasks (e.g. roofing, thatching, painting); Carrying/ moving moderate loads (< 20 kg).
Low	Don't be in any of what we said before	

**Metabolic Equivalent of Task. Is the ratio of a person's working metabolic rate relative to their resting metabolic rate. One MET is defined as the energy cost of sitting quietly and is equivalent to a caloric consumption of 1kcal/kg/hour.*

From the revision made by García-Molina et al. (2010) exists evidence that the practice of physical activity has organic benefits and is a protective factor against diseases like diabetes, cardiovascular conditions, obesity; giving more psicomotor development in the adolescence (Pastor, Balaguer, Pons, & García-Merita, 2003). Also, it has been linked with the balance between negatives moods, (Poudeuigne, & O'Connor, 2006), lower anxiety levels (Olmedilla, Ortega, & Candel, 2010), and better cognitives process and the personality (González, & Portolés, 2014; Ramírez, Vinaccia, & Suárez, 2004). González et al. (2011) point out like indicators of normalized development of adolescent personality and psychosocial development, the psychological well-being perceptions and the attitude about physical activity.

Firstly considered an one-dimensional personality trait, the perfectionism has been studied in the last decades, from a multidimensional perspective (Stumpf, & Parker, 2000). Frost, Marten, Lahart and Rosenblate (1990) propose a perfectionism composed for six indicators (*personal requests, mistakes worrying, doubt about the actions, parental expectations, parental critics and organization*). On the other hand, Hewit and Flett (1991), introduce a three factor model: *self-oriented perfectionism, other-oriented perfectionism and socially prescribed perfectionism*. Despite of the existence of these two theoretic models and the differences on the indicators each one point out, they agree about the main perfectionism characteristics, using other concepts as: *positives and negatives components* (Carrasco, Belloch, & Perpiñá, 2010; Cox, Enns, & Clara, 2002; Méndez-Giménez, Cecchini-Estrada, & Fernández-Río, 2014), *pure or mix* (Gaudreau, & Thompson, 2010), or *dysfunctional or functional* (Khawaja, & Armstrong, 2005).

In a physical-sportive practice context, the studies have tried to find the association between the different perfectionism dimensions and the cognitive and behavioral aspects that motivate the physical activity practice (Hill, Hall, Appleton, & Kozub, 2008; Longbottom, Grove & Dimmock, 2010). What these studies found it was that the adaptive perfectionism is associated, in a positive way, with several aspects as self-efficacy, planning and persistence in physical activity. On the other hand, the maladaptive perfectionism is related with uncertainty about the conduct of exercise, fear of failure and avoidance of physical activity (Flett, & Hewitt, 2005). Although not in a massive way, the relation between the efforts to achieve the sportive goals (Biddle, Wang, Kavussanu, & Spray, 2003; Roberts, Treasure, & Conroy, 2007) and the way they plan to achieve them (Hill, & Curran, 2016; Stoeber, Otto, Pescheck, Becker, & Stoll, 2007; Stoeber, Stoll, Pescheck, & Otto, 2008; Vallerand, et al., 2006), has been one of the subjects more used in the scientific literature.

The stress response is considered adaptive except when it repeats in several occasions and it shows in a chronic way by both frequency and duration, becoming this an unnecessary waste of energy. It recognizes an adaptive process because it makes the activation to adjust to new conditions and this will define the individual's psychological wellbeing as well as his physic and mental health. This mechanism has change like an evolutionary process, like a protective alarm in different situations where your own life is in danger (Dunkley, Berg, & Zuroff, 2012; Taylor, Papay, Webb, & Reeve, 2016). However, from the way to understand and face these changes and events appear the stress perception concept, where we understand that the response is not base in the stimulus's characteristics but in the personal and contextual factors.

In a more specific way, Lazarus and Folkman (1986) define stress as "*a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her wellbeing*". This perception comes through a double evaluation process: in first place, the individual notice and interpret the environment that stress him; in second place, he puts in practice the coping strategies that he has.

Positives coping styles, where we identify correctly our own emotions (*eustress*) and that offer a better psychologic wellbeing and positive mood (Carrobes, Remor, & Rodríguez- Alzamora, 2003), in favor of mental health and life quality (Contreras, Esguerra, Espinosa, & Gómez, 2007). Nonetheless, the passive coping styles exists too. These are characterized for negatives emotions and depressive mood favored for the lose control in certain situations (Brown, Nicassio, & Woolston, 1989) what lead us to a psychological distress (*distress*) and a lost in life quality (Arraras, Wrigth, Jusue, Tejedor, & Calvo, 2002; Griswold, Evans, Spieldman, & Fishman, 2005).

Adolescent perceives the academic field as threatening and/or over his resources. This could be either because of the workload (tests, social relationships) or personal and family expectations (Amézquita,

González, & Zuluaga, 2000; Barraza, 2007; Berrio, & Mazo, 2011; González, & Landero, 2007; May, & Casazza, 2011; Pollard, Steptoe, Canaan, Jill, & Wardle, 1995; Suldo et al., 2009), affecting and putting in danger his wellbeing. Therefore, the stress control is understood as a process learnt through the interaction and the psychological responses that the individual has with the environment and the resources he should have to give a functional response (González-Hernández, & Garcés de los Fayos, 2014; Hernández, Ehrenzweig, & Navarro, 2009).

At these point, adolescent is making a cognitive evaluation where it is generated a perception and valuation of both stressors and his own conduct resources. In this exact moment, the demands can be perceived as positives or negatives. In other words, like challenges (where the perception means stressful factors with positive connotations), motivating to get over the problems or threats (where the negative self-assessment could lead to some undervaluation of the stress resources) respectively (Huiaquín, & Loaiza, 2004; Kleinke, 2007; Myers, 2005; Taylor, 2007). That is why the diverse personality aspects like self-esteem, optimism, Locus of Control expectancies and self - efficacy are critical to benefit the fragility or help to resist to the different stressors. In this way, they will have insecurity or resilience factors in certain stressful situations.

Therefore, it is interesting to know how these personality variables interact with the stress management, because this is what allow the individual to control and reduce the stress that is hold in time, emerged from the lack of resources or skills that the situation require.

MATERIAL AND METHODS

Participants

This study follows a quantitative and cross-sectional research. Participants were 127 teenagers from a private center of the province of Alicante, with a range of ages between 13 and 17 years old ($M= 14.56$; $DT=1.57$). They were distributed according to the age in, 13 (36.2%), 14 (21.3%), 15 (13.4%), 16 (13.4%) y 17 (15.7%), for the school year of 2014-2015. 82 of the subjects were males (64.6%) and 45 females (35.4%), with a medium-high socioeconomic family level.

Measures (Instruments)

Socio - Demographic and physical activity questionnaire prepared ad hoc. This is a self - administered format questionnaire, comprised by four items and developed by researchers based in the WHO IPAQ methods. The questionnaire compiles information related to the subject (age, gender, academic level) and the physical activity (sport practice and number of days). The answer format involves open questions (sport practice) or closed ones (age, gender, academic level and number of days of sport practice) concerning the information that is subject of study.

Multidimensional Perfectionism Scale (MPS; Frost et al., 1990): We used the adaptation for Spanish population by Carrasco, Belloch and Perpiñá (2010), to evaluate the perfectionism variable. We can estimate a "global perfectionism rate" by the addition of the items absolute values; *adaptive perfectionism* (personal standards and organization) and *maladaptive perfectionism* (concern over mistakes and parental control). The scale contains 35 items grouped into 4 subscales (Carrasco et al., 2010): Concern over mistakes (11 items), parental control (9 items), personal standards (9 items) and organization (6 items). It is a 5 - point Likert scale (1=*totally disagree* to 5=*totally agree*). The level of internal consistency for this sample is $\alpha=.89$.

Perceived Stress Scale (PSS; Cohen et al., 1983): to measure the perception of stress, it has been used the adaptation for Spanish population (Remor, & Carrobes, 2001) that consist of fourteen items (seven positively

stated ones and seven negative). PSS scores are obtained by summing all the answers (after reversing the scores of the pertinent items) with scores between 0 to 56, being the higher scores the ones that shows a higher level of perceived stress. The participants rated each item by a Likert scale of five choices (from 0 = *never* to 4 = *a lot*). This time, the Cronbach's alpha for the scale is $\alpha=.81$.

Procedures

For this research, we reached to the managing team of a private high school from the province of Alicante, asking for permission and making an agreement. We had an informal interview with teachers from the different levels where we explained the goal of the study and we suggest the data collection method. When the schedule were provided, and working with some teachers, we set a date to distribute the questionnaires. The participants, under age, had their parents informed consent, which they signed before knowing the purpose of the data collection. We informed the adolescents of the volunteer participation, confidentiality and anonymity of the data, so we could ensure more honesty. All the questionnaires were distributed in group and in their regular class, spending approximately half hour between the exposition of the instructions by the researchers and the time used for the participants to answer the scales.

Analysis

The data process and codification were accomplished by the statistical package SPSS 22.0 for Windows. To the analysis of the internal reliability of the instruments used, what we did it was figured the *Cronbach's alpha*. The descriptive statistic analysis was made using the mean, standard deviation, an ANOVA contrast and the post-hoc test to confirm where the mean difference occurred between groups. The *Kolmogorov-Smirnov* test was used to see if the variables follow a normal distribution and, in that case, the *Pearson bivariate correlation* was made to analyze the correlation between the subject of study's variables.

RESULTS

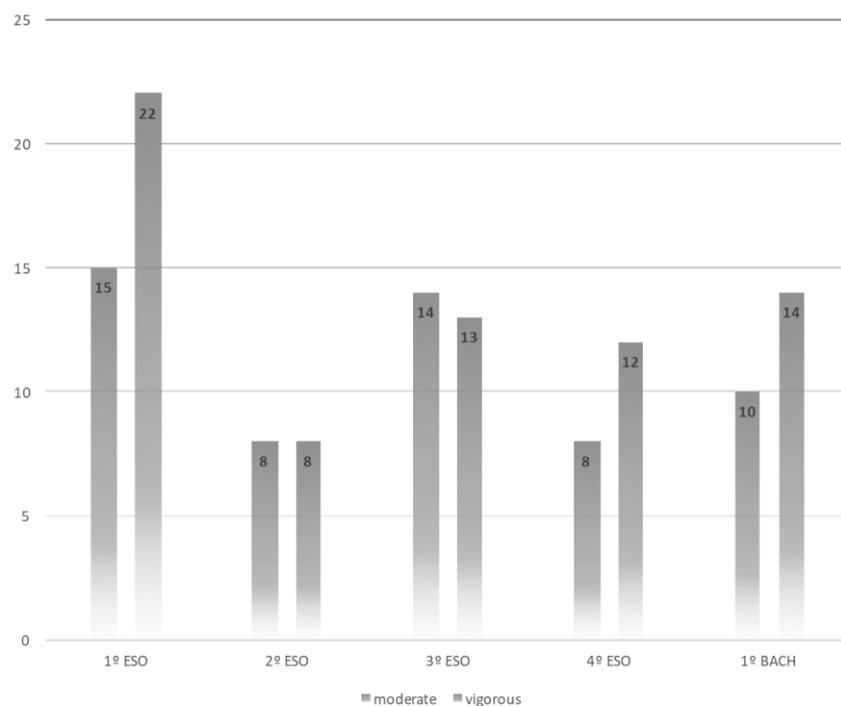


Figure 1. Frequency of PA according to academic level

The frequency of physical activity according to the academic level (Figure 1), it shows that in all levels the frequency of vigorous physical activity is higher or same to the moderate one, except to 3° ESO. There is no significant difference between the diverse academic levels, not even in the same level according to the frequency of physical activity.

When we check the frequency of physical activity according to gender (Figure 2), on one hand we can see that the girls practice more moderate physical activity than the boys, while they practice more vigorous physical activity than them. On the other hand, there is evidence that the girls practice more moderate physical activity than vigorous, while the boys do more vigorous than moderate physical activity.

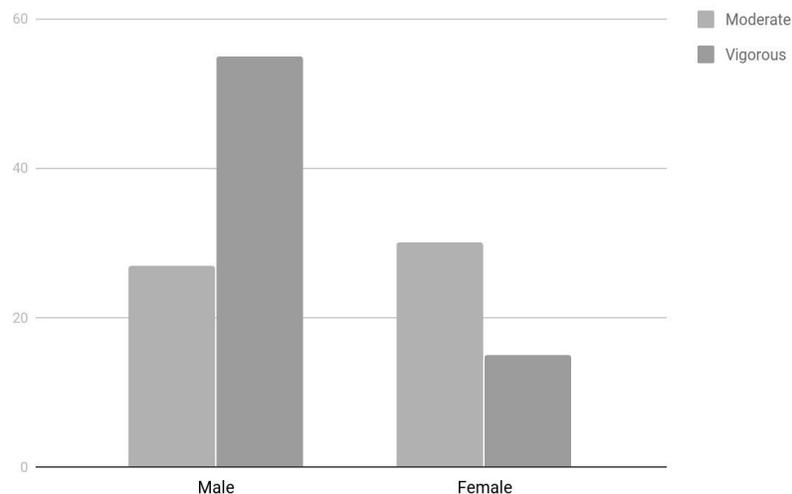


Figure 2. Frequency of PA according to gender

If we look to the mean for the perfectionism and perceived stress indicators according to the physical activity frequency (moderate or vigorous) (Table 2), it shows that a higher physical activity frequency, has higher mean scores in all the perfectionism indicators, being specially significatives Organization ($t_{125}=-2.72$; $p=.00$) and Personal Standards ($t_{125}=-3.73$; $p=.00$). However, we can notice too that more frequency of physical activity give us lower mean scores in perceived stress, without significatives differences.

Table 2. Perfectionism and Perceived Stress indicators according to PA frequency

N=127	PA Moderate (n=57)		PA Vigorous (n=70)		<i>p</i>
	<i>M</i>	<i>DT</i>	<i>M</i>	<i>DT</i>	
Organization	20.24	5.25	22.81	5.33	.00**
Personal Standards	22.23	6.73	26.71	6.73	.00**
Concern over Mistakes	24.84	7.59	24.94	7.65	.94
Parental Control	19.75	7.01	21.14	6.25	.24
Perceived Stress	25.12	8.92	23.36	7.20	.22

**significant $p < .05$

We can observe the descriptive statistics (mean and standard deviation), normality test and correlation coefficients between the variables of interest (Table 3). The Kolmogorov-Smirnov test resolved that the

Perceived Stress ($p=.20$) and the Perfectionism indicators: Organization ($p=.20$), Personal Standards ($p=.20$), Parental Control ($p=.20$) and Concern over mistakes ($p=.07$) adjust to the Assumption of Normality. While with the correlations, it obtained statistics significant associations between PA practice and the perfectionism adaptatives indicators: Organization [$r(127)=.23, p=.00$] and Personal Standards [$r(127)=.31, p=.00$]. The perceived stress relates in a positive way with the age [$r(127)=.21, p=.01$], and the maladaptatives indicators: Concern over mistakes [$r(127)=.40, p=.00$] and Parental Control [$r(127)=.28, p=.00$].

Table 3. Perfectionism and Perceived stress indicators according to PA frequency

N=127	K-S	1	2	3	4	5	6	7
1. Organization	.20	(.81)	.19*	.01	-.03	-.12	.23**	-.12
2. Personal Standards	.20		(.78)	.46**	.50**	.11	.31**	.03
3. Concern over mistakes	.07			(.87)	.59**	.40**	.00	.014
4. Parental Control	.20				(.84)	.28**	.10	-.04
5. Perceived Stress	.20					(.92)	-.11	.21*
6. Physical Activity							(.90)	.05
7. Age								(.96)

**significant if $p<.05$

Besides, there is relations between the perfectionism indicators in the same category, and between adaptives and maladaptives indicators. So firstly, the relations observed between the same category indicators, Organization and Personal Standards [$r(127)=.19, p=.03$] and between Concern over mistakes and Parental Control [$r(127)=.59, p=.00$]. Secondly, between adaptives and maladaptives indicators we've found, Personal Standards and Concern over mistakes [$r(127)=.46, p=.00$], and Personal Standards and Parental Control [$r(127)=.50, p=.00$].

DISCUSSION

A regular PA practice while the adolescence time is relevant for a future found of healthy habits and behaviors, to be transfers to later vital situations and stages in life (González et al., 2011), this will give physical benefits as well as psychological and social ones. Despite of the PA recommendations, the population don't keep up with them, finding differences in factors as age, gender (Martín, Barripedro, Martínez del Castillo, Jiménez-Beatty, & Rivero-Herráiz, 2014), and academic or socio-economic level. As well, this study results have shown variations at the PA practice depending on the school year, decreasing their activity as they get older and noticing that the cycle changes (1° ESO, 3° ESO and 1° BACH) mean an increase of the PA. Previous studies (Dugas et al., 2008; González, & Portolés, 2014) show the same results, finding significant differences and that the frequency is lower as they get older.

Another fact found is the difference in PA practice according to the gender, being the masculine the most involved in vigorous PA and similar to other previous studies (Cantera, & Devís, 2005; González, & Portolés, 2014). In addition, after Martín and col., (2014) checked several researches with a gender analysis applied to sport, they have revealed differences in the kind of PA or sport, the frequency and intensity. However, the hypothesis doesn't fulfill all the way, showing that the women do more moderate PA than the men. This puts us in the same direction that Martín et al. (2014) suggest when they say that even though the women practice less PA, they use the moderate PA (walk) as an alternative to exercise frequently than the men.

From the mean comparison between the variable object of study, according to the kind of PA, we can find significative differences in the adaptives perfectionism indicators: Organization and Personal standards. In this same line, the results found from the correlation analysis show that the relation between the PA practice and the adaptives perfectionism indicators is positive. On the other hand, the stress perception, although is not significative, it's lower with a higher PA frequency, allowing to be protective against emotional exhaustion and an effective confrontation strategy, as it's proved in others researches (Cairney, Kwan, Veldhuizen, & Faulkner, 2013; Remor, & Pérez-Llantada, 2007). Regarding the maladaptive perfectionism indicators (parental control and concern over mistakes), we can see an increase in the mean when the PA frequency is higher. This results are understood, in general, as favourable, the PA give chances to improve the health, psychological wellbeing and the develop of healthy habits, nevertheless, according to what Devís (2000) states, there is some risks derivative from an excessive frequency and intensity of exercise (vigorous PA) that can be both physical (injuries) and psychological or in the social life surrounding this activity.

Finally, the results found from the correlation analysis show that those subjects with maladaptive perfectionism inclinations, meaning, with high indicators of concern over mistakes and parental control, it shows higher stress perception as we can see in other study (Dunkley, Zuroff, & Blankstein, 2003). This way, we can see that when the parental figures hope for a higher results, the fear of failure in the task and disappoint the expectations, produce more stress perception in the teenagers. Consequently, is more likely that they don't involve in new situations if they don't have insured success, being this a problem to learn confrontation stress strategies.

CONCLUSIONS

For further investigations and proved the importance of physical activity practice in the perfectionism and stress perception indicators, is relevant the subjects selection from different institutions (private, public, concerted), both regulated and not, using the combination of other methods, like for example, collect information in a qualitative way. The methodology combination, could generate other directions related to the creation process of perfectionism, the many ways the parents could act and their expectations.

Because of this, as we were able to see in the present study, if the physical activity practice and the development of perfectionism adaptive skills (personal standards and organization) is positively related with an increase of the physical activity practice, focusing the efforts on the teaching of physical activity as an habit, not just as a healthy one, but as a tool for the cognitive orientation that allow a functional adaptation to the learning of it, developing the dedication and maintenance of the self-oriented effort.

Despite of the limits, the research give us an important contribution to the Psychology applied investigation, being the topic a big relevant one in the last decades in sports, educatives and clinical contexts. The evaluation of this kind of variables allow to design programs of health prevention and/or stimulation of adaptive confrontation strategies, learning self-regulation and time management skills, that help to effectively face stressful situations.

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