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**INFORMAL LEADER'S PERSONALITY TRAITS AND ANXIETY**  
**LEVELS IN HANDBALL TEAMS**

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*Abstract*

In the context of sport performance, informal leaders are those players that team members choose to follow and from whom everyone awaits solutions in challenging times that occur during training or competitions. Theories about personality describe leaders as having the ability to drive people toward a cause based on the sheer force of their personality. Another important factor influencing sport performance is anxiety. The high level of difficulty, the hard training and competition can be considered causes of the systematic stress, which can influence the behaviour of athletes. Handball is a competitive sport, its spectacularity being given by the dynamic game, with frequent and unexpected changes of situations. The aim of our research was to identify personality traits and anxiety levels which are associated with the scores obtained by the athletes, after performing a sociometric assessment, in terms of reputation. The participants were 30 female handball players, from the School Sports Club no. 6 Bucharest, aged between 14 and 15 years old. The instruments used in our research were: the Five Factor Personality Questionnaire (CP5F) and the Endler Multidimensional Anxiety Scales (EMAS), belonging to the computerised platform of psychological assessment CAS++, designed by Cognitrom. Following the application of Pearson correlation, statistically significant relations were revealed between the results registered by the athletes, for: personality traits, anxiety levels evaluated in different contexts and PSI (preferential status index). The results emphasise specific personality features of the informal leader, which reflect significantly upon social integration of the athletes in the handball team.

**Keywords:** Informal leader, personality, trait anxiety, handball.

## 1. Introduction

By the very nature of leadership and its application across multiple disciplines different definitions exist across the literature. Within a sports team, there are two clear types of leadership role: formal and informal. Informal roles are those that emerge within the team as a result of various interactions between teammates and also, depending on the demands of the task (Cotterill, 2013). The informal leader is considered a leader because of the power he possesses, power generated by knowledge, capacities and motivation (Masteralexis, Barr, & Hums, 2015, p. 39). Mumford, Todd, Higgs and McIntosh (2017) also describe key leadership skills such as planning, scheduling, wisdom, creative thinking, solution visualisation or evaluation of ideas. In order to evaluate social relationships and popularity among members of a social group, sociometric technique is generally used. Moreno (1960) appreciates the sociometric test as an instrument that investigates social structures by measuring the attractions and rejections that exist between individuals within a group. In our approach it was investigated the reputational criterion, the study being oriented towards the “task-specialist” (in handball) features. The reputation criterion involves an objective assessment of the individual's competence, skills or performance (Rubin, Bukowski, & Laursen, 2011) and was successfully assessed in a previous research (Predoiu, Predoiu, Mitache, Grigore, & Păunescu, 2017).

Personality represents the set of unseen features and processes that underlie a relatively stable pattern of behaviour in response to ideas, objects or people in the environment (Daft, 2008). Most authors present personality in terms of traits. John, Robins and Pervin (2008) define personality traits as the relatively enduring patterns of thoughts, feelings and behaviours that distinguish individuals one from another. Although, researchers have investigated thousands of traits, over the years, their findings have been concentrated mainly on five general dimensions that describe personality – the Big-Five model, composed of: extraversion, emotional stability, conscientiousness, agreeableness and autonomy. Extraversion refers to the degree to which a person is outgoing, sociable, talkative and comfortable meeting and talking with new people. Emotional stability can be defined as the ability of a person to handle stress, experience fewer mood swings and be self-confident (Buss & Hawley, 2011). Conscientiousness is viewed (Rosenberg, 2013) as the ability to plan, organize, persist, be more hardworking, respect rules, set higher goals and follow tasks through to completion. Agreeableness generally refers to being supportive, forgiving, compassionate and adopting an affiliative, cooperative stance towards others (Matthews, Deary, & Whiteman, 2009). Autonomy, as a personality trait, refers to the person's complete control of their welfare, the assuming of responsibility for one's success and failure and also independence from others (Chen, Sipes, & Lee, 2017). A critical mass of longitudinal studies have shown that personality traits can be changed over the years and can also be successfully developed.

Another important factor influencing sport performance is anxiety (Kleine, 1990). The high level of difficulty, the hard training and competition can be considered causes of stress and anxiety, which can influence the behaviour of athletes. Handball is a competitive sport, its great sight being given by the dynamic game with frequent, unexpected changes of situations (Negulescu, 1998). Researchers (Bar-Eli, Plessner, & Raab, 2011, p. 94) mention that the handball players are sensitive to a “psychological performance crisis” when unexpected behaviours and unfair sanctioned behaviours appear. The

psychological performance crisis represents a state in which one's capacity to cope properly with competitive requirements decreases considerably (Bar-Eli, Tenenbaum, & Elbaz, 1990). Anxiety is a unique, coherent, cognitive-affective structure, expressed by unrest sensations and unreasoned fear and worry, felt in the absence of true causes able to provoke them (Barlow, 2002). Anxiety is characterised by a sense of uncontrollability focused on possible future threat, danger or other potentially negative events. However, the specific manifestations of anxiety may differ, depending on a series of intrapersonal variables like the perception of the practice situation, athletic experience, capacity of anticipation, personal expectations, whose result leads to the anxious behaviour, specific in the case of a sport competition (Fisher & Zwart, 1982). We mention that there is a lack of studies regarding the investigated topic, concerning important personality traits and levels of anxiety experienced by the handball players with different social status. Very recent literature (Laver, Landreau, Seil, & Popovic, 2018) states that personality traits can be used to select players for a team or playing position. In our study, personality and anxiety are tested, due to the fact that anxiety, just as any other personality trait, is a coherent pattern influencing behaviour and cognition over time (Wilt, Oehlberg, & Revelle, 2011).

## **2. Problem Statement**

The connection between personality and leadership can be summarised in 4 points (Goethales, Sorenson, & Burns, 2004). First, leadership can be defined only as regards a group of people and it is best defined in terms of leader's reputation. Reputation is attributed to an individual by others, based on the performance that they observe over a period of time (at practice or in competitions, in our case). Second, leadership theories indicate that a well-defined reputation is associated with effective leadership – people expect leaders to be trustworthy, competent, decisive and visionary (Dirks & Ferrin, 2002). Third, although most people want acceptance and a status, individual differences exist in one's ability to acquire them. Fourth, personality theories describe leaders as having the ability to rally people to a cause based on the sheer force of their personality.

The present research also investigates the anxiety manifestations in adolescent female handball players and their link with the PSI values. We mention the distinction made by researchers (Spielberger, 1972) between two anxiety constructs: trait anxiety (A-trait) and state anxiety (A-state). While state anxiety is temporarily experienced, trait anxiety is considered part of the personality, representing an acquired behavioural predisposition for the individual to perceive as threatening a wide range of circumstances that objectively may not be physically or psychologically dangerous.

## **3. Research Questions**

The hypotheses we want to test are: H1: There are statistically significant correlations between the personality traits and the preferential status index values, in the case of adolescent female handball players. H2: There are significant associations between the anxiety levels experienced in different situations and the PSI values registered by the junior handball players.

## 4. Purpose of the Study

The purpose of our study was to identify personality traits and anxiety levels which are associated with the scores obtained by the athletes, after performing a sociometric assessment.

## 5. Research Methods

### 5.1. Participants

The participants in our research were 30 female adolescent handball players, aged between 14-15 years old (mean age = 14.33 years, SD = .48 years) from two distinct handball teams (all legitimated at School Sports Club No. 6, Bucharest), having a training experience between 6 and 7 years and some of them being part of the Romanian Junior National Handball Team. Each team included 15 handball players and represented the reference group within which the sociometric assessment was performed.

### 5.2. Materials

The Five Factor Personality Questionnaire (CP5F) belonging to the computerised platform of psychological assessment CAS++, designed by the firm Cognitrom, is used for the evaluation of five personality factors (Extraversion, Emotional Stability, Conscientiousness, Agreeableness and Autonomy). In addition to the five scales, the test contains a lie scale (Social Desirability) designed to assess the degree of socially desirable responding. Each item in the CP5F includes a statement about the way a person typically acts, thinks or feels on a daily basis. The participant is asked to give an answer by selecting one of the following options: “1 = it fits me very little”, “2 = it fits me a little”, “3 = it half fits me”, “4 = it fits me much” and “5 = it fits me very much”.

We also used, as an instrument for assessing trait anxiety, the EMAS-T scale (comprising 60 statements) which measures the individuals predisposition to experience anxiety in four different types of situations: socially-evaluative, physically dangerous, new or ambiguous, and routine and a part of the SAS-T scale (including 45 statements) describing three different situations that a person experiences in everyday life: separation from family/friends, revealing important facts about you to a close friend or uncovering personal issues to a close family member.

### 5.3. Procedure

The assessment took place separately, with each team, at different dates and the consent to participate in the study was obtained (informed consent included the purpose of the research, the methods used and the possible outcomes of the research). The ethical principles were ensured (Fregni & Illigens, 2018): the participation of subjects in this research was voluntary, they having the right to withdraw from the study at any point and for any reason, without suffering any penalties. Also, the participants' anonymity and confidentiality of the data (Cucu-Ciuhan, 2003) were protected. In order to investigate the social status of the handball players (including the informal leader) the peer nomination procedure was used.

The assessment took place with each team (15 athletes) at a time. The questions of the sociometric test were: *Who would you like to have in your team?* and *Who wouldn't you like to have in your team?* (both concerning a handball competition). They were supposed to indicate, for each question, three teammates, according to a reputational criterion - performance, competence and abilities - in the context of handball

(Grigore, Predoiu, Predoiu, & Mitache, 2017). Based on the matrix of choices, we were able to determine the preferential status index (PSI), for each player, within each team and to identify the informal leaders - the athletes with the higher scores regarding the PSI (Predoiu, 2016).

## 6. Findings

In our research, we have investigated if there are any relations between the results for personality traits and levels of anxiety experienced in different situations and the PSI values. The Pearson correlation ( $r$ ) was used, which measures the trend of simultaneous variation between two variables (following the application of the Shapiro-Wilk test, the data were normally distributed for all variables).

### 6.1. Personality traits and PSI values obtained by the adolescent handball players

**Table 01.** Results for CP5F Questionnaire and PSI values recorded by the athletes

Variables	N	M	s	PSI
				Pearson Correlation
PSI	30	.37	.86	1.000
Extraversion	30	79.33	9.11	.53*
Emotional stability	30	79.73	9.48	.55*
Conscientiousness	30	100.77	12.57	.62*
Agreeableness	30	94.13	12.27	.25
Autonomy	30	75.27	5.75	.18

\*. Correlation is significant at the .05 level (2-tailed).

The statistical analysis of the results recorded in table number 01 highlights that:

- A significant positive correlation ( $r = .53$ ,  $p < .05$ ) between extraversion and PSI values was found. Thus, we can say that high scores regarding the manifestation of sociability, assertiveness and activation are associated with high values for the PSI (also, the low PSI values correspond to low scores for extraversion, expressing isolation from others and passivity). The determination coefficient ( $r^2$ ) has a value of .28, which means that the relationship between extraversion scores and PSI values for adolescent athletes is strong. The confidence interval for the correlation coefficient (95%) is between .20 (lower limit) and .74 (upper limit).

- There is a significant positive correlation ( $r = .55$ ,  $p < .05$ ) between emotional stability and PSI values. This means that athletes who recorded high scores for emotional stability (manifestation of optimism, self-confidence and control of emotions) have obtained high PSI values (and likewise, low PSI values correspond to low scores for emotional stability). The value of the determination coefficient is  $r^2 = .30$ , indicating that the relationship between emotional stability and PSI is strong. The confidence interval for the correlation coefficient (95%) is between .22 (lower limit) and .76 (upper limit).

- Concerning conscientiousness, a significant positive correlation ( $r = .62$ ,  $p < .05$ ) between this personality trait and the values of the preferential status index was revealed. We can say that adolescent handball players who have achieved high scores for conscientiousness (which implies compliance with norms and rules, the tendency to be more diligent in demanding situations and the planning of actions according to the deadlines) have obtained also, high values for PSI. The determination coefficient ( $r^2$ ) has

a value of .38 (learning capacity), which means that the relationship between results for conscientiousness and PSI values for adolescent athletes is strong. Concerning conscientiousness and PSI values, the confidence interval for the correlation coefficient (95%) is between .32 (lower limit) and .81 (upper limit).

- Regarding agreeableness (characterised by sympathy, trust, cooperation, altruism, respect for the opinion and for the rights of others), autonomy (total control of the person on his/ her welfare, assuming responsibility for his/her failure and independence) and the PSI values no significant statistical correlations were found.

## 6.2. Trait anxiety and PSI values recorded by adolescent handball players

**Table 02.** Results for the trait anxiety and PSI values

Variables	N	M	s	PSI
				Pearson Correlation
PSI	30	.37	.86	1.000
socially-evaluative	30	50.33	6.11	.76*
physically dangerous	30	47.93	5.48	.68*
new or ambiguous	30	50.45	3.57	.22
routine	30	63.80	4.27	.25
self-disclosure to friends	30	71.27	5.25	.16
self-disclosure to family	30	67.20	5.44	.31
separation situations	30	53.26	4.45	-.78*

\*. Correlation is significant at the .05 level (2-tailed).

The information from Table 02 emphasises that:

- There is a positively significant correlation ( $r = .76$ ,  $p < .05$ ) between trait anxiety in socially-evaluative conditions and the values of the preferential status index registered by the handball players. The determination coefficient ( $r^2$ ) has a value of .57 which means that the relation between trait anxiety in socially-evaluative situations and the PSI values is very strong.

- Also, a positively significant correlation ( $r = .68$ ,  $p < .05$ ) was found between trait anxiety in physically dangerous circumstances and the values of the preferential status index registered by the female athletes. The determination coefficient ( $r^2$ ) is .46, meaning that the relation between anxiety in physically dangerous situations and the PSI values is strong.

- There is also, a negatively significant correlation ( $r = -.78$ ,  $p < .05$ ) between anxiety in separation situations and the PSI values registered by the female handball players. The value of the determination coefficient ( $r^2$ ) is .60, which means that the relation between anxiety in separation situations and the PSI values is very strong.

## 7. Conclusion

Our research emphasises significant positive associations between important personality traits and anxiety levels experienced in different situations by the adolescent female handball players and the PSI values (as a result of social status assessment within the handball team). The results of our study provided useful insight with respect to the investigated personality traits of the established informal leaders. More

precisely, regarding extraversion and the PSI values registered by the handball players there is a significant positive association. This means that high scores for the manifestation of assertiveness, kindness, positive emotions and activity are associated with high values for the preferential status index (also, the low PSI values correspond to low scores for extraversion, expressing withdrawal from others, usually avoiding social interactions and passivity). This aspect can be explained by the fact that handball is a team sport which requires individuals that manage to succeed in solving tasks, in making things happen or mobilise their teammates to work harder. These team “engines” (Stone, 2003, p. 59), which ensure the achievement of objectives, are considered as leaders by teammates. Robins, Judge, Odendaal and Roodt (2009) have specified that extraversion is a relatively strong predictor of group leadership and people with a high degree of openness to experience are more likely to be effective leaders (being more creative). There is also, a significant positive correlation between emotional stability and the PSI values, showing that athletes who recorded high scores concerning the manifestation of optimism, self-confidence and control of emotions have obtained high PSI values (reversely, low PSI values correspond to low scores for emotional stability). Our finding is consistent with data found in other studies which state that among the attributes of a leader is the ability to communicate emotional experiences, self-monitoring affective behaviour and emotional stability (Marcus, 2000). Regarding conscientiousness, as a personality trait, we found a positive significant correlation with PSI values. This means that female adolescent handball players which exhibit a tendency to show self-discipline, act dutifully, aim for achievement and display planned rather than spontaneous behaviour have obtained also, high values for PSI (and on the contrary, low scores for conscientiousness are linked with low values for PSI). This aspect is also underlined by the specialised literature which states that an informal leader, in a sport context, leads by personal example, diligent work and dedication to solving tasks according to the deadlines (Weinberg & Gould, 2015). With respect to agreeableness and autonomy and the PSI values no significant correlations were found.

Concerning the results for the trait anxiety and PSI values registered by the adolescent handball players, statistically significant correlations were also identified. It was found an association between trait anxiety in socially-evaluative circumstances and the values of the PSI. Based on this result, we can say that an average level and a slightly above average level of anxiety experienced in socially-evaluative situations (such anxiety occurs when people want to make a favourable impression and they doubt if they will succeed) is associated with high values of the PSI in the case of the adolescent handball players. This can be explained by the fact that leaders are cautious when it comes to social evaluation situations, are characterised by a need of social recognition, power (Den Hartog & Koopman, 2001) and approval. Also, we found a positively correlation between trait anxiety in physically dangerous situations and PSI values. This result enables us to state that an average and slightly below average level of anxiety felt in potentially physically dangerous situations (stress activated by situations in which the person faces the probability of physical injury or situations with loss of control) is related to high values of the PSI in the case of the adolescent handball players. This finding could be explained by the fact that handball is a sport which involves a direct contact with the opponent. Feeling anxiety in potentially dangerous circumstances, the handball players need to develop both technically and physically skills, in order to avoid any injuries and to achieve high performance. In football, in a previous study (Mitrache, Predoiu, Coliță, & Coliță, 2014) was also found that a highly below the average level of trait anxiety in physically dangerous situations was

correlated to a weak performance of the athletes on the field (and in reverse, if trait anxiety in physically dangerous situations it's at a medium level and slightly below the average level, it can be related to a better performance). Regarding anxiety in separation situations and the PSI values was found a strong link. This means that a medium level and slightly below the average level of anxiety in separation situations (a consistent distress in situations in which separation from home or family is eminent or excessive worry that harm will happen to parent or loved one) is associated with high values of the PSI in the case of the female handball players. We argue that sport performance implies traveling to other cities or countries for competitions, also, many training camps that require being away from family and friends and it is important that those factors don't affect the social integration in the team and also, the performance. Instead, if athletes experience a slightly above average level or a high level of anxiety in separation situations, this aspect could lead to isolation from the team and also, rejection by teammates.

The limitations of our research mainly consisted in the sample investigated (size – the research was conducted only on a small number of participants considered to be representative for the specific field, gender, age and competitive experience); the social environment and the distinctive features of the sport under investigation. Additional studies are needed to investigate other personality traits of sport leaders, such as: openness to experience, sensation seeking, activity or aggression-hostility, along with other facets of the traits mentioned.

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### Authors' Contributions

All authors contributed equally to this article and should be considered as main authors.

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