

An Investigation of the Relationship between Personality Traits and Problem Solving Skills of Elite Turkish Women Football Players

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ABSTRACT The aim of this study was to examine the relationship between personality traits and problem solving skills of elite Turkish women football players. 210 women football players actively playing in first and second Turkish divisions in 2013 – 2014 season constituted the sample group. Women football players from different football clubs in Turkey participated in this study. Eysenck Personality Questionnaire was used to determine personality types of women football players. Problem Solving Inventory was used to measure approach type of problem solving. Collected data was analyzed in SPSS 22. In the study, three different models were hypothesized and the fit indices of each hypothesized models were analyzed in AMOS 18. Negative correlations were found between extroversion and reflective style, monitoring, planfulness. The hypothesized models were found to have good fit indices and the models were accepted.

INTRODUCTION

People are experiencing rapid change through complexity in today's society with the development of technology. People face different problems in the process of this rapid change. People having different personality traits may show different approaches to the problems they face.

Individual's personality may shape through interaction with the environment. Family, school life, sport and play environment, a circle of friends can have impact on personality development. Positive relations with the immediate environment can result in having well-adjusted personality, negative relations vice versa (Jaffee and D'Zurilla 2003; McColloch et al. 1990). Personality is the sum of innate traits and characteristics that a person gains in socialization process. Innate traits are characters of individual. Character (or personality) consisted of traits that are innate and unchangeable features in time (Eren 2004). Personality is an indicator of psychologi-

cally well-being (Yeung and Hemsley 1997). Burger (2006) viewed that personality is a person's self-caused consistent behavior patterns and intra personality processes. Eysenck (1967) conceptualized three different personality traits: extraversion, neuroticism, and psychoticism.

It is believed that extraversion is a product of functioning of reticular activation system; neuroticism is a product of the limbic system (Eysenck 1967). Studies conducted in different methodological approaches revealed that extraversion and neuroticism were reliable and basic aspects of human behavior, which brought an adequate description of normal personality (Meyer and Schack 1989). When compared to neuroticism, extraversion is seen, particularly in a consistent relation with central neural activity (Fischer et al. 1997).

It was emphasized that extraversion was related to positive simultaneous emotions; neuroticism was related to negative emotions (Costa and McCrae 1980). It was stated that extraversion and neuroticism defined major axis of individual differences (Larsen and Ketelaar 1989). Extravert person always wants to be with someone and does not want to be alone (Cüceloglu 2007). Extraversion represents being social and individuals having scores in this dimension are defined to be people, who are sociable, love

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communication, prefer to be with friends. It was hypothesized that neuroticism pointed more to emotional instability and extreme reactivity, and individuals having high scores in this dimension can be anxious, depressed, nervous, timid, overly emotional, and low self-confident. Psychoticism is related to extraordinary personality traits such as distant, cold, aggressive, insecure, insensitive, bizarre and inability to empathize, guilt and insensitivity towards other people (Karanci et al. 2007).

Problem solving referred to abilities to define problems logically and create solutions, to implement these solutions, to evaluate efficacies of these solutions (Reincek et al. 2001). Problem solving skill is an ability to help people adapt to social life and contribute social development (Erden 1986). Ülgen (2001) defined problem solving as the process to find solutions to cope with situations disabling individuals to reach their goals. Heppner (1987) viewed that problem solving is synonym of coping concept. Personal problem solving was examined as impelling cognitive and emotional procedures like engaging in behavioral responses to adapt internal and external demands and stimuli. While some people believed that they are able to cope with problems, some can believe that they do not have coping abilities. This situation directly effects person's problem solving performance.

Positive problem orientation includes tendencies such as evaluating problems as a "challenge" (that is benefit or the opportunity to gain), believing that problems are resolvable and believing abilities to solve problems successfully. Conversely, negative problem orientation includes tendencies such as seeing problem as a threat to well-being, doubting personal abilities to solve problems successfully and being disappointed when faced with problems. Impulsivity/carelessness style referred to active attempt, but these attempts are narrow, impulsive, careless, hurried, and incomplete. Finally, avoidance style is characterized by procrastination, passivity or inaction, and dependency (D'Zurilla et al. 2011).

Industrialization and modern life style may cause a passive life with the help of technological development. As an alternative to this passive life style, sports can be an important factor to make people move, adopt an active life style, counteract daily problems and cope with challenges.

The effects of sport on personality are directly related to how it is applied. Preference such

as individual sport, sport requiring power, team sport and sport requiring competing in challenging conditions can reveal various results. People doing sports for a long time take others' personality trait as it comes, have personality trait that is happy, democratic, less nervous, more active, tended less to inferiority feeling and to leadership in social situations (Cratty 1973).

In the lights of all this information, the aim of this study was to examine the relationship between personality traits and problem solving skills of elite Turkish football players.

MATERIAL AND METHODS

Participants

Women football players actively playing in first and second Turkish divisions in 2013 – 2014 season constituted the population. 210 women football players actively playing in first and second Turkish divisions in 2013 – 2014 season were chosen with availability sampling method. Women football players with the age average of 16.85 ± 3.89 and with the sporting age of 11.75 ± 2.65 from the football clubs of Denizli Hanbat (n=15), Atasehir (n=21), Karadeniz Eregli (n=13), Konak Belediye (n=21), Antalya Spor (n=10), Gazi Kent Spor (n=15), CFS Bagcilar (n=16), Adana Idman Yurdu (n=18), Fomget Spor (n=15), Atlantik Spor (n=17), Mus Kartal Spor (n=12), Diyarbakir Büyükşehir Belediye Spor (n=17), Amasya Eğitim Spor (n=10), Hakkâri Gücü (n=10) participated in this study. 31% of the participant was Turkish national athlete. 6.7% of participants graduated from secondary school (n=14), 67.6% of them graduated from high school (n=142), 24.8% of them graduated or attending university (n=142), and 1% of them were master students (n=2).

Instruments

Eysenck Personality Questionnaire Revised/Abbreviated Form (EPQR-A)

Francis et al. (1992) created the Eysenck Personality Questionnaire Revised/Abbreviated Form (EPQR-A) by revising Eysenck Personality Questionnaire (Eysenck and Eysenck 1975) and Abbreviated Form of the same questionnaire (Eysenck et al. 1985). Questionnaire consists of 24 items and evaluates personality in three dif-

ferent factors: extraversion, neuroticism and psychoticism. There is lie dimension to prevent biases and check the validity. Each dimension consisted of 6 items and participants before asked to answer in yes (1) or no (0) format. The possible point ranged from 0 to 6 points for each personality traits (Karanci et al. 2007). Karanci et al. (2007) made the validity and reliability study. Karanci et al. (2007) found Kuder-Richardson alpha value of extraversion, neuroticism, psychoticism and lie dimension as .78, .65, .42, and .64, respectively. In this study, Cronbach's alpha values of extraversion, neuroticism, psychoticism and lie dimension were found to be .46, .49, .59, .27, respectively.

Problem Solving Inventory

Problem Solving Inventory consisting of 35 items to measure perception, approach type of problem solving and appraisal of problem was used. This inventory was developed by Heppner and Petersen in 1982 and adapted to Turkish by Ahin et al. (1993). The inventory has 6 sub-dimensions. Explanations of sub-dimensions are as it follows.

Impulsive style included whether person does the first thing that comes to mind without thinking when faced with problems, takes different factors of problem into account, and also included not taking different ways into account to solve the problem. *Reflective style* included discussing, measuring and comparing possible consequences of options while trying to decide to solve the problem. *Avoidant style* measures whether person thinks to gather detailed information for the solution of problem, doubts to cope with the problem if the solution is failure when faced with problems, thinks what is useful for the solution of problem. *Monitoring* measures whether person compares the current consequences with planned consequences after trying any method for the solution of problem, tries to think the ways he/she applies when faced with problem, examines the emotions to understand what he/she feels. *Problem solving confidence* explains the self-confidence about problem solving. This dimension measures whether person is self-sufficient to endeavor for the solution of a problem. *Planfulness* whether person focuses only on the current problem and reaches the solution by evaluating available data. This dimension also mea-

sures whether person believes that he/she is skilled to solve problem (Erdogmus 2004).

Statistical Analysis

Collected data was analyzed in SPSS 22 and AMOS 18. Pearson Product Correlation test was used to examine the relationship between personality traits and problem solving skills. The fit indices of each hypothesized models were analyzed in AMOS. The analysis used in this study with AMOS is similar to classical regression analysis, but regression ignores the measurement errors and the model cannot be accepted. AMOS provides modification on these measurement errors.

RESULTS

No significant difference was found between national athletes and non-national athletes ($p>0.05$). No significant differences were found between the variables where they born and where they live in terms of personality traits and problem solving skills ($p>0.05$). In Table 1, correlations between problem solving skills and personality traits were shown.

Negative correlations were found between extraversion and reflective style ($r=-.304$), avoidant style ($r=-.152$), monitoring ($r=-.174$), planfulness ($r=-.242$) ($p<0.05$). Negative correlations were found between neuroticism and impulsive style ($r=-.182$), monitoring ($r=-.145$) ($p<0.05$). While positive correlations were found between psychoticism and reflective style ($r=.161$), planfulness ($r=.162$), negative correlations were found between psychoticism and avoidant style ($r=-.325$) ($p<0.05$).

Positive correlation was found between impulsive style and avoidant style ($r=-.193$, $p<0.05$). While negative correlation was found between reflective style and avoidant style ($r=-.279$), positive correlations were found between reflective style and monitoring ($r=.552$), problem solving confidence ($r=.434$) and planfulness ($r=.554$) ($p<0.05$). Negative correlations were found between avoidant style and monitoring ($r=-.226$), planfulness ($r=-.346$) ($p<0.05$). Positive correlations were found between monitoring and problem solving confidence ($r=.436$), planfulness ($r=.445$) ($p<0.05$). Positive correlation was found between problem solving confidence and planfulness ($r=0.447$).

Table 1: Correlations between personality style and problem solving skills

	<i>Extravert</i>	<i>Neuroticism</i>	<i>Psychoticism</i>	<i>Impulsive style</i>	<i>Reflective style</i>	<i>Avoidant style</i>	<i>Monitoring</i>	<i>Problem Solving Confidence</i>	<i>Planfulness</i>
1	0.68 (0.28)	0.49 (0.28)	0.25 (0.19)	3.48 (0.85)	2.87 (1.02)	3.87 (1.30)	2.79 (1.18)	3.09 (1.12)	2.76 (1.12)
2	-0.114	1							
3	-0.075	.022	1						
4	.120	-.182**	-.068	1					
5	-.304**	.101	.161*	.062	1				
6	.152*	-.013	-.325**	.193**	-.279**	1			
7	-.174*	-.145*	.128	.060	.552**	-.226**	1		
8	-.128	-.075	.116	.134	.434**	-.110	.436**	1	
9	-.242**	.004	.162*	.092	.554**	-.346**	.445**	.447**	1

**p<0.01, *p<0.05, n=210

In Figure 1, analysis of extraversion sub-dimension was shown as a predictor of problem solving skills. It was hypothesized in this model that extraversion predicted problem solving skills. In Table 2, fit indices were displayed. The fit in-

dices of model 1 were found to be $\chi^2=9.3$, $df=5$, $\chi^2/df=1.86$, $NFI=0.97$, $GFI=0.98$, $AGFI=0.93$, $TLI=0.93$, $CFI=0.98$, $RMSEA=0.06$, respectively and these results were significant. According to model fit indices after modification, the model 1 was accepted.

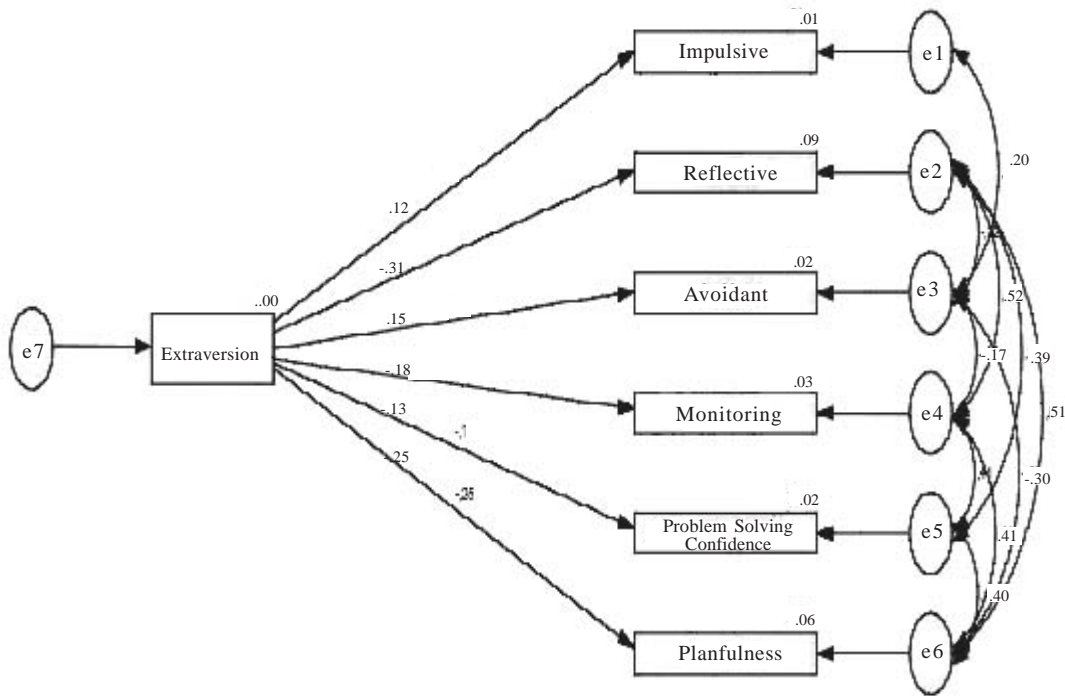


Fig. 1. Extraversion as a predictor of problem solving skills (Model 1)

Table 2: Fit indices of model 1

Model	χ^2	df	χ^2/df	NFI	GFI	AGFI	TLI	CFI	RMSEA
Before Modification	256.1	15	17.07	.165	.689	.420	-.182	.156	.277
After Modification	9.3	5	1.86	.970	.987	.930	.937	.985	0.06

Table 3: Fit indices of model 2

Model	χ^2	df	χ^2/df	NFI	GFI	AGFI	TLI	CFI	RMSEA
Before Modification	288	15	19.2	.049	.665	.375	-.356	.031	.295
After Modification	8.2	5	1.64	.973	.989	.938	.952	.989	0.05

In Figure 2, analysis of neuroticism sub-dimension was shown as a predictor of problem solving skills. It was hypothesized in this model that neuroticism predicted problem-solving skills. In Table 3, fit indices were displayed. The fit indices of model 2 were found to be $\chi^2=8.2$, $df=5$, $\chi^2/df=1.64$, $NFI=0.97$, $GFI=0.98$, $AGFI=0.93$, $TLI=0.95$, $CFI=0.98$, $RMSEA=0.05$, respectively and these results were significant. According to model fit indices after modification, the model 2 was accepted.

In Figure 3, analysis of psychoticism sub-dimension was shown as a predictor of problem solving skills. It was hypothesized in this model that psychoticism predicted problem-solving skills. In Table 4, fit indices were displayed. The fit indices of model 3 were found to be $\chi^2=7.3$, $df=5$, $\chi^2/df=1.46$, $NFI=0.97$, $GFI=0.99$, $AGFI=0.94$, $TLI=0.96$, $CFI=0.99$, $RMSEA=0.04$, respectively and these results were significant. According to model fit indices after modification, the model 3 was accepted.

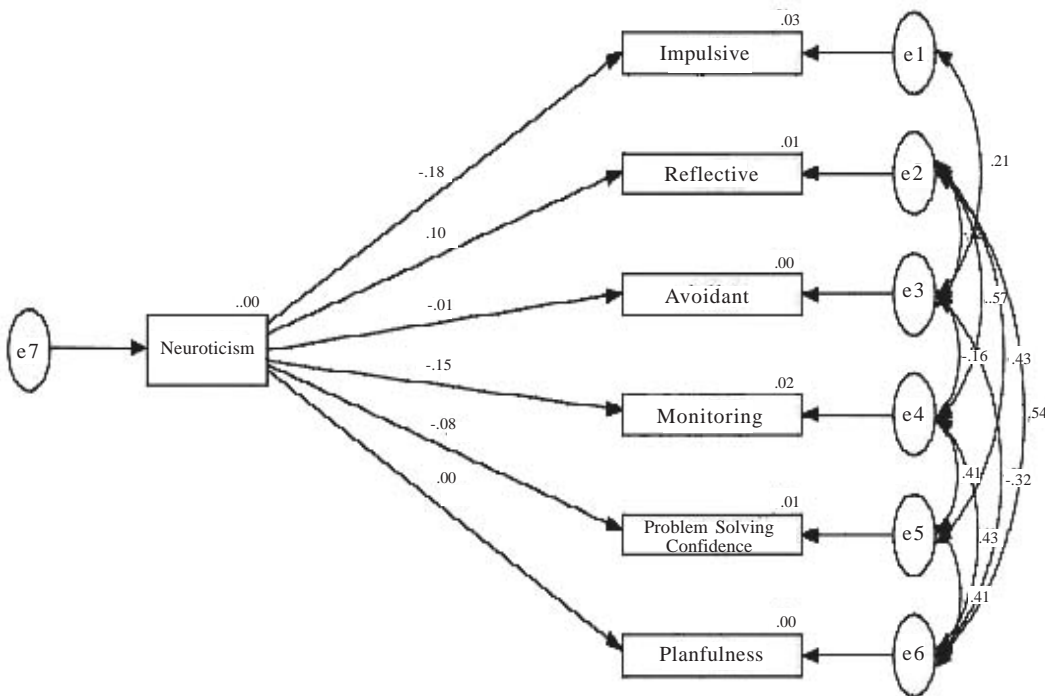


Fig. 2. Neuroticism as a predictor of problem solving skills (Model 2)

Table 4: Fit indices of model 2

Model	χ^2	df	χ^2/df	NFI	GFI	AGFI	TLI	CFI	RMSEA
Before Modification	263.4	15	17.56	.136	.685	.412	-.224	.125	.281
After Modification	7.3	5	1.46	.976	.990	.945	.967	.992	0.04

DISCUSSION

The aim of this study was to examine the relationship between personality traits and problem solving skills of elite Turkish football players. Female football players from different regions in Turkey participated in this study.

Negative correlations were found between extraversion and reflective style ($r=-.304$), avoidant style ($r=-.152$), monitoring ($r=-.174$), planfulness ($r=-.242$) ($p<0.05$). It can be said that women football players having extravert personality trait do not use reflective, avoidant, monitoring and planfulness styles. McMurrin et al. (2001) found that extraversion was negatively related to impulsivity/carelessness and avoidance style, but this result was not significant in their study. They found that E remains positively associated with optimism in relation to tackling problems, which one would expect since optimism is a defining feature of E. D’Zurilla

et al. (2011) found that extraversion was significantly and positively related to impulsivity/carelessness ($r=0.16$) and negatively related to avoidance style (-0.18). According to D’Zurilla et al. (2011), it appeared that individuals with a more extraverted personality style also tend to have a more impulsive/careless problem-solving style. McMurrin et al. (2010) found that extraversion was negatively correlated with impulsivity/carelessness ($r=-0.30$) and avoidance style ($r=-0.30$).

Negative correlations were found between neuroticism and impulsive style ($r=-.182$), monitoring ($r=-.145$) ($p<0.05$). D’Zurilla et al. (2011) found that neuroticism was significantly and positively related to impulsivity/carelessness ($r=0.18$) and avoidance style (0.36). McMurrin et al. (2001) suggested that one effect of neuroticism is to interfere with a person’s social problem-solving abilities, thus contributing to personal and interpersonal problems, including crime. High N may relate to poor social problem

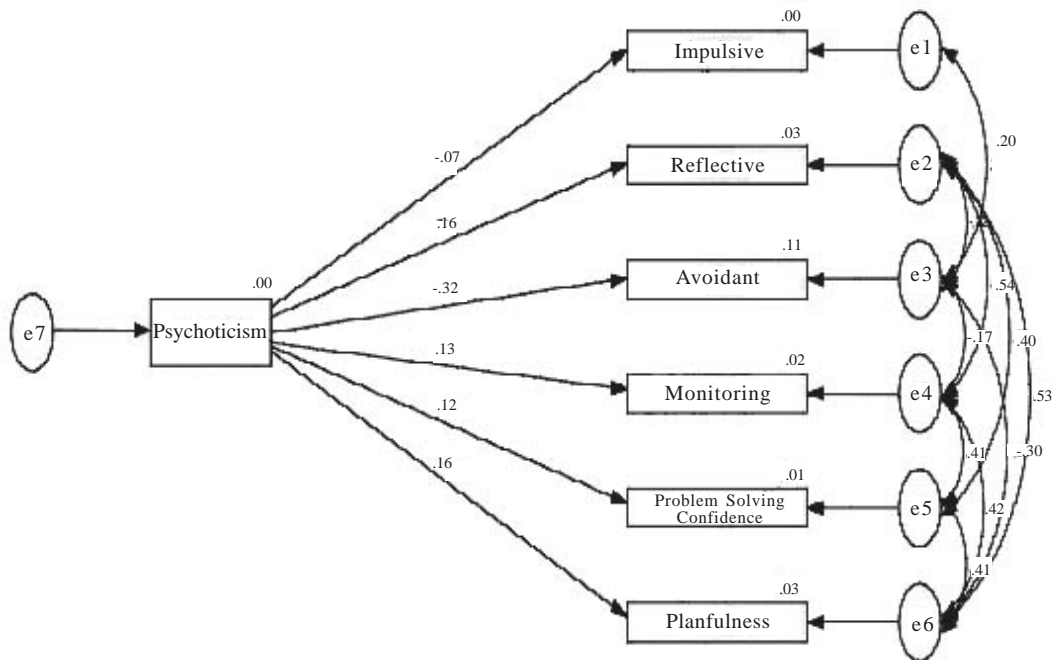


Fig. 3. Psychoticism as a predictor of problem solving skills (Model 3)

solving and crime by the mechanism of variable, rapid shifting, and primarily negative mood, in which excessive autonomic physical reactions occur to aversive stimuli, thus impeding efficient social problem solving.

While positive correlations were found between psychoticism and reflective style ($r=.161$), planfulness ($r=.162$), negative correlations were found between psychoticism and avoidant style ($r=-.325$) ($p<0.05$). D'Zurilla et al. (2011) found that psychoticism was significantly and positively related to impulsivity/carelessness ($r=0.20$) and avoidance style (0.08). McMurrin et al. (2001) found that E, O, A, and C are indicative of good overall problem-solving skills.

There are studies examined the relationship between personality traits and problem solving skills. Of these studies, McMurrin et al. (2001) examined the relationship between personality traits and social problem solving skills of offenders with mental disorders. Dündar (2009) examined the relationship between problem solving skills and personality traits in terms of gender and grade. McMurrin et al. (2010) examined whether social problem solving mediated the relationship personality traits and personality disorders. D'Zurilla et al. (2011) studied the relationship between social problem solving and personality traits by proposing that there could be relationship between problem solving and personality types. Colakoglu (2013) examined the personality types of students in physical education and sport.

In this study, three different models were hypothesized. In the first model (Fig. 1), extraversion dimension was hypothesized to be predictor of problem solving. After modification, model fit indices were examined and the first model accepted. According to the first model, extraversion is a good predictor of problem solving. In the second model (Fig. 2), neuroticism dimension was hypothesized to be predictor of problem solving. As it was in the first model, model fit indices showed that second model would be accepted. In the second model, neuroticism is a good predictor of problem solving. Finally, in the third model (Fig. 3), psychoticism was hypothesized to be predictor of problem solving. This model was also accepted. When these three models are compared, it is possible to interpret that psychoticism is better predictor than the other two dimensions of personality.

CONCLUSION

These three models were accepted in the sample of female football players from different regions in Turkey. It can be concluded that personality and problem solving are important factors for female football players, because football is a social concept. In this social concept, football players encountered a lot of difficulties, especially, in competition conditions. Players able to cope with these difficulties easily can be more successful. In this study, the hypothesized models revealed the effects of personality on problem solving in female football players.

RECOMMENDATIONS

In the study, only women football players were included. Future studies can include athletes of different branches and different sample sizes.

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