

# The Relationship Between Cognitive Flexibility and The Meaning of Life: A Research on The Students of The Faculty of Sport Sciences

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## Abstract

**Aim:** The aim of this study is to investigate the relationship between cognitive flexibility and meaning of life levels of students studying in the faculty of sports sciences. **Method:** The research was conducted on 2018-2019 SUBU Faculty of Sport Sciences students using relational screening model. A total of 152 students, 44 females and 108 males, selected by simple sampling, participated in the research. As a data collection tool, "Cognitive Flexibility Scale" developed by Bilgin (2009a), "Meaning of Life Scale" developed by Steger, Frazier, Oishi and Kaler (2006) and translated by Demirdag and Kalafat (2015) and "Personal Information Form" were used. Parametric tests were applied to the data showing normal distribution. Data were analyzed using descriptive statistics, independent groups t-test and Pearson correlation analysis. **Findings:** The students' cognitive flexibility and meaning of life subscale scores did not differ significantly according to gender and sporting status ( $p > .05$ ). There was no significant relationship between cognitive flexibility scores and age of students ( $p > .05$ ). There was a positive correlation between age and existing meaning ( $p < .05$ ), but there was no significant relationship between age and meaning ( $p > .05$ ). **Conclusion:** While there was a positive correlation between cognitive flexibility scores and existing meaning ( $p < .05$ ), there was no significant relationship between cognitive flexibility scores and wanted meaning ( $p > .05$ ).

**Keywords:** Cognitive flexibility, meaning of life, student

## INTRODUCTION

Cognitive approaches have shown that cognitions affect emotions. In this context, it is possible to say that the way of thinking away from cognitive flexibility causes negative emotions and causes these emotions to be experienced more intensely (15). Hence, when we consider this explanation, an individual who has a low level of

cognitive flexibility may experience negative emotions intensely and this can cause negative thoughts about the meaning of life. Deffenbacher (11) states that when cognitive structures are based on flexible and personal preferences, threat, frustration and even less anger are felt even in the case of a challenge. On the other hand, when the cognitive structures are strict and far from flexible,

anger is felt more intensely, and behaviors are more likely to be more aggressive. This explains the relationship between cognitive flexibility and the meaning of life.

Beck (3), one of the founders of cognitive theory, stated that cognitive theory's approach to psychological disorders developed because of depression. According to him, individuals who are depressed deal with themselves, their environment and the future from a strict and negative point of view. According to the cognitive model, dysfunctional thoughts are at the root of psychological disorders and affect these behaviors (cited: 9). In this context, if the individual's thought structure is far from flexible, then dysfunctional cognitive structures such as intermediate beliefs, basic beliefs, automatic thoughts and schemas occur (4). In this case, the cognitive structures that occur can determine the meaning that an individual puts on life.

Frankl evaluates the concept of meaning of life in a subjective dimension and according to him, the meaning of life is different for each individual (17). As a matter of fact, life means the responsibility to find the right solutions to the problems and to carry out the duties that exist continuously for each individual. The meaning of life varies from person to person for these tasks and reasons. In this context, it is impossible to define the meaning of life in general terms (17). There are many different views on the meaning of life in the literature. Klinger (21) listed the characteristics of personal development, interpersonal relationships, success and leaving traces in life as the basis of the meaning of life (cited: 24). According to another view, the meaning of life serves some functions in human life. The meanings, first of these functions, provide a reason for human to live and thus actions are guided by meaning. This provides the control function for events in life. Finally, the meanings help the self-value to form. Thus, when people find meaning in their lives, emotional problems are solved and life gets more meaningful (10).

Considering the healing and positive effects of sport in psychology and mental states, it can be said that there is a relationship between sport and cognitive flexibility and meaning of life. Technological developments have enabled people to acquire new fields of activity that will make their lives meaningful. In this context, Adler (1) stated that an individual who wants to carry out an activity

in accordance with the meaning of life and spends all his perseverance and effort for this cause will be in good physical and mental condition for his activity. As can be understood, the meaning of life is related to the goals set and whether these goals are realized or not. In this case, it is possible to talk about sports. Because there are goals that require continuity in sports. In other words, in order to be successful in competitions in a sports branch, continuous training is required. The athlete makes the same preparation for each contest. In this case, there is a new goal expected for each competition. Achieving this goal can enable the individual to have a positive view of the meaning of life. Likewise, when cognitive flexibility and sport relationship is examined, cognitive flexibility requires making new strategic decisions for each situation encountered. In this case, the athlete responding to each position in a competition by developing new strategies explains the relationship between sports and cognitive flexibility.

It is thought that there is a relationship between cognitive flexibility and meaning of life in terms of the meaning an individual derives from his/her life and the way s/he evaluates events. Because the way and individual evaluates the situation in the face of a problem may make that individual look at life more positively and moderately. From this point of view, cognitive flexibility means that the individual is aware of the options and appropriate alternatives for solution in the face of the problem or event and feels competent in being flexible against these problems (22). In other words, the decision made by the individual in the face of a problem by minimizing the negative aspect of the event may affect the process of making sense of an individual's life. Because the meaning of life is a motivational goal-oriented broad concept that includes cognitive components and emotional components (14, 25).

The aim of this study, based on the explanations made in the light of literature, is to investigate the relationship between cognitive flexibility and the meaning of life of students studying in the Faculty of Sports Sciences.

## METHOD

### Research Model

This research was carried out using "the relational screening model". The relational screening model is "a research model aiming to determine the

existence and/or degree of joint change between two and more variables" (20).

### **Population and Sample of the Research**

The population of the research consists of students of Sakarya University of Applied Sciences, Faculty of Sport Sciences. The sample of the study consisted of 152 sport sciences students (44 female and 108 male) who were selected from the population with convenience sampling method. Convenience sampling is "the fastest and cheapest way to obtain data" (19).

### **Data Collection**

The data of this research was obtained from the personal information form and measurement tools applied to the students studying in the Faculty of Sports Sciences of Sakarya University of Applied Sciences in March and April of the spring semester of 2018-2019 academic year. While collecting the data, the curriculum was followed in order not to hinder the students' lessons and the data was collected in a way that did not prevent the course flow by informing the responsible instructor of each course in advance. While collecting the data, the principle of voluntary participation of students was taken into consideration.

### **Data Collection Tools**

In the research, "Personal Information Form", "Cognitive Flexibility Scale" and "Meaning of Life scale" were used as measurement instruments.

#### **Personal information form**

"Personal Information Form" was prepared in order to determine the demographic information of sports science students. In the personal information form, it is aimed to reach information such as age, gender, sports status of the students.

#### **Cognitive Flexibility Scale**

"Cognitive Flexibility" scale, which was used in the research, was developed by Bilgin (6). The scale consists of 19 items. The scale items consist of adjective pairs (for example, "I can, I cannot", "I am successful, I am unsuccessful"). The scores obtained from the scale vary between 19-95. The increase in the scores obtained from the scale shows that the individual approaches the cognitive flexibility more. In the reliability studies conducted on the scale, the Cronbach's alpha coefficient for the whole scale was found to be .92 (6). As a result of the current

research, the Cronbach's alpha coefficient of the measurement tool was found to be .92.

### **Meaning of Life Scale**

The "Meaning of Life" scale used in the study was developed by Steger Frazier, Oishi and Kaler (28) and the Turkish adaptation was made by Demirdag and Kalafat (13). 9 items consisted of positive items (items 1, 2, 3, 4, 5, 6, 7, 8 and 10), and 1 item consisted of negative item (item 9). The scale consists of two sub-dimensions: the existing meaning in life (1, 4, 5, 6 and 9) and the search for meaning in life (2, 3, 7, 8 and 10). The score that can be obtained varies between 7 and 70. The highest score obtained from the scale indicates that the individual has a high level of meaning of life. After adapting the scale to Turkish, Cronbach's alpha coefficient was found to be .81 for the existing meaning in life sub-dimension and .85 for the search for meaning in life sub-dimension. As a result of the current research, the Cronbach's alpha coefficient was found to be .69 for the existing meaning in life sub-dimension of the measurement tool and the Cronbach's alpha coefficient was .83 for the search for meaning in life sub-dimension.

### **Data Analysis**

Within the scope of the research, the raw data collected from the students were checked one by one in order to prevent possible errors and to be made ready for analysis, and the questionnaires that gave incomplete, incorrect and inconsistent answers were excluded from the analysis. It was subjected to normality test before deciding the analysis to be applied to the data. In the normality test, skewness and kurtosis values of the data were examined. As a result of the statistical process, it was found that the data were in the range of  $-2 \dots + 2$ . It can be stated that these values are suitable for normal distribution (18). Parametric tests were preferred because the data showed normal distribution. Descriptive statistics, independent groups t-test, one-way analysis of variance and Pearson correlation analysis were used to evaluate the data in general. Significance level was taken as .05. The data were analyzed by SPSS package program.

## FINDINGS

**Table 1.** Percentage and frequency distributions related to demographic characteristics of the students

| Gender           | n   | %    |
|------------------|-----|------|
| Female           | 44  | 28,9 |
| Male             | 108 | 71,1 |
| Sporting status  | n   | %    |
| Doing sports     | 117 | 77,0 |
| Not doing sports | 35  | 23,0 |

Table 1 shows the distribution of demographic characteristics of students participating in the research. 44 (28.9%) of the students were female; 108 (71.1%) were male. When the sports status of the students was examined, 117 (77.0%) of them were doing sports; 35 (23.0%) of the students were not doing sports.

**Table 2.** The comparison results of the cognitive flexibility scores of the students who participated in the research according to gender

|                       | Gender | n   | $\bar{X}$ | ss    | sd  | t    | p   |
|-----------------------|--------|-----|-----------|-------|-----|------|-----|
| Cognitive Flexibility | Female | 44  | 76,90     | 15,59 | 150 | -,53 | ,59 |
|                       | Male   | 108 | 78,18     | 12,24 |     |      |     |

Table 2 shows the results of the independent groups t-test used to compare the cognitive flexibility scores of the students according to gender. The results of the analysis show that the cognitive flexibility scores of the students do not differ according to gender ( $p > .05$ ).

**Table 3.** The comparison results of the cognitive flexibility scores of students participating in the research according to their sporting status

|                       | Sporting status | n   | $\bar{X}$ | ss    | sd  | t    | p   |
|-----------------------|-----------------|-----|-----------|-------|-----|------|-----|
| Cognitive Flexibility | Yes             | 117 | 78,80     | 12,90 | 150 | 1,68 | ,09 |
|                       | No              | 35  | 74,51     | 14,09 |     |      |     |

Table 3 shows the results of independent groups t-test used to compare the cognitive flexibility scores of the students according to their sporting status. The results of the analysis show that the cognitive flexibility scores of the students did not differ according to their sporting status ( $p > .05$ ).

**Table 4.** The comparison results of the meaning of life sub-dimension scores of the students participating in the research according to gender

|                                | Gender | n   | $\bar{X}$ | ss   | sd  | t   | p   |
|--------------------------------|--------|-----|-----------|------|-----|-----|-----|
| The existing meaning in life   | Female | 44  | 27,41     | 4,36 | 150 | ,70 | ,48 |
|                                | Male   | 108 | 26,78     | 5,30 |     |     |     |
| The search for meaning in life | Female | 44  | 26,57     | 6,04 | 150 | ,15 | ,87 |
|                                | Male   | 108 | 26,40     | 5,95 |     |     |     |

Table 4 shows the results of independent groups t-test used to compare the meaning of life sub-dimension scores of students according to gender. The results of the analysis show that students' meaning of life sub-dimension scores did not differ according to gender ( $p > .05$ ).

**Table 5.** The comparison results of the meaning of life sub-dimension scores of the students participating in the research according to their sporting status

|                                | Sporting status | n   | $\bar{X}$ | ss   | sd  | t   | p   |
|--------------------------------|-----------------|-----|-----------|------|-----|-----|-----|
| The existing meaning in life   | Yes             | 117 | 27,03     | 5,13 | 150 | ,32 | ,74 |
|                                | No              | 35  | 26,71     | 4,77 |     |     |     |
| The search for meaning in life | Yes             | 117 | 26,66     | 5,78 | 150 | ,79 | ,42 |
|                                | No              | 35  | 25,74     | 6,55 |     |     |     |

Table 5 shows the independent groups t-test results used to compare the meaning of life sub-dimension scores of students according to their sporting status. The results of the analysis show that students' meaning of life sub-dimension scores did not differ according to their sporting status ( $p > .05$ ).

**Table 6.** The results of the relationship between age and cognitive flexibility and meaning of life sub-dimension scores of students

|     |   | Cognitive flexibility | The existing meaning in life | The search for meaning in life |
|-----|---|-----------------------|------------------------------|--------------------------------|
| Age | r | -,029                 | ,195                         | -,088                          |
|     | p | ,722                  | ,016*                        | ,279                           |

Table 6 shows the Pearson correlation analysis showing the relationship results between students' age and cognitive flexibility and meaning of life sub-dimension scores. The results of the analysis show that there is a statistically significant relationship between students' ages and the existing meaning in life ( $r = .195$ ;  $p < .05$ ). On the other hand, no statistically significant relationship was found between age and cognitive flexibility ( $r = -.029$ ;  $p > .05$ ) and the search for meaning in life ( $r = -.088$ ;  $p > .05$ ).

**Table 7.** The results of the relationship between cognitive flexibility scores and meaning of life sub-dimension scores of the students participating in the research

|                       |   | The existing meaning in life | The search for meaning in life |
|-----------------------|---|------------------------------|--------------------------------|
| Cognitive flexibility | r | ,295                         | ,127                           |
|                       | p | ,000**                       | ,120                           |

Table 7 gives the Pearson correlation analysis showing the relationship between the students' cognitive flexibility scores and meaning of life sub-dimension scores. The results of the analysis showed that there was a statistically significant relationship between the cognitive flexibility scores of students and the existing meaning in life ( $r = .295$ ;  $p < .01$ ). On the other hand, there was no statistically significant relationship between cognitive flexibility and the search for meaning in life ( $r = .127$ ;  $p > .05$ ).

## DISCUSSION AND CONCLUSION

The aim of this study was to investigate the relationship between cognitive flexibility and the meaning of life of students studying in faculty sports sciences.

With the result of the analysis of gender variable in the study, it was found that cognitive flexibility scores did not show significant differences according to gender ( $p > .05$ ). Related to the result, looking at Bilgin's (7) definition of cognitive flexibility, it was stated that cognitive flexibility was a feature acquired through interpersonal relationships and this feature was mostly influenced by age, experience and parental attitudes. From this point of view, in terms of the results achieved, cognitive flexibility, regardless of gender, is a feature that we gain through our experiences and the ideas, cognitive schemes, beliefs and thoughts we gain as a result of these

experiences. Therefore, when the basis of these features is considered as the experiences and the emergence of new ideas against these experiences, it can be said that this situation is not related to the gender factor. Parallel to the results obtained from the researches in the literature, Diril (15) concluded that there was no significant relationship between gender and cognitive flexibility in his study with high school students. In another study conducted on university students, it was concluded that cognitive flexibility did not differ according to gender variable (35). In another finding, differently, Öz (23) concluded that there was no significant difference in cognitive flexibility according to gender.

With the result of the analysis of sporting status variable, it was found that there was no significant difference in cognitive flexibility scores according to sporting status ( $p > .05$ ). As a reason

for this situation, Canas et al. (8) states that cognitive flexibility is the ability to regulate information processing strategies to meet new and unexpected situations around them. In other words, cognitive flexibility is related to learning processes and gained through experience. In this context, considering that cognitive flexibility develops over time, doing sports takes a short period of time in daily life and the situations encountered while doing sports may be limited. This may not be enough to gain cognitive flexibility. Scanning the literature, there are a limited number of studies examining the relationship between cognitive flexibility and sports. In contrast to the results, Yavuz (33) examined the resilience and cognitive flexibility levels of physically disabled athletes and found that cognitive flexibility levels of disabled individuals who are national athletes were higher than other athletes. The effect of sport on cognitive development was emphasized.

With the result of the analysis examining the meaning of life sub-dimensions according to gender variable, it was concluded that the meaning of life sub-dimension scores of students did not differ according to gender ( $p > .05$ ). As a reason for this situation, Frankl (17) touched on situations such as protected images, religion, sense of humor, future expectation, goal, expectation from life, leaving a mark on life and living the nature and culture in order to give meaning to life. From this point of view, the idea that the individual has formed about the meaning of life can occur as a result of the above-mentioned situations regardless of gender. In their study, related to the results, Demir and Murat (12) concluded that there was no significant difference between the gender variable and the meaning of life. In another study, Steger and Kashdan (29) concluded that there was no significant difference between the gender variable and the meaning of life. Unlike the results, Taş (30) found that there was no significant difference in terms of the existing meaning in life according to the gender variable, whereas men sought more meaning in terms of the search for meaning in life than women. In another study, Bektaş (5) found that the mean score of women was significantly

higher in the existing meaning in life sub-dimension, a sub-dimension of meaning of life, compared to men.

With the result of the analysis where the meaning of life sub-dimensions were examined according to the sports status, it was concluded that the meaning of life sub-dimension scores of students did not differ according to the sports status ( $p > .05$ ). Klinger (21), at the source of the meaning of life, mentioned concepts such as success, personal development, altruism, hedonism, creativity, religiousness, social relations. In this context, it can be considered that doing sports is not enough to add meaning to life. On the other hand, the achievements of professional athletes bring to their personal development, country and society can still make the individual's life meaningful. After scanning the literature, no studies related to the meaning of life and sports were found. Looking at similar studies, Doğan and Moralı (16) found that there was no significant difference between the sports status variable and the life and job satisfaction levels of the instructors. In another study, Toros et al. (31) concluded that there was no significant difference between task and ego-oriented goals and life satisfaction of mountaineers.

As a result of the analysis conducted to determine the relationship between cognitive flexibility and meaning of life according to the age variable, it was found that there was a statistically significant relationship between students' ages and the existing meaning in life ( $p < .05$ ). On the other hand, no statistically significant relationship was found between age and cognitive flexibility and the search for meaning in life ( $p > .05$ ). The reason why there is a meaningful relationship between age and the existing meaning in life is supported by Erikson's explanation. Because Erikson stated that the meanings acquired during an individual's life did not remain constant and that these acquired meanings changed in parallel with age. In other words, an individual has an existing meaning in life at the end of every age. This may lead to changes in life values with the advancement of age, changes in purpose and meaning (32). On the other hand, when we look at

the reason why there is no significant relationship between age and cognitive flexibility and the search for meaning in life, it is seen that cognitive flexibility is a concept that directs the individual to produce solutions in the face of negative events or situations. In other words, it can be thought that the events encountered in life are at the basis of gaining cognitive flexibility. ASICI and Ikiz (2) found that the level of cognitive flexibility did not differ according to age, and related to the result, an individual's satisfaction with the life was primarily linked with meeting their biological and psychological needs. As the reason why there is no relationship between age and the search for meaning in life, individuals get an existing meaning in life at the end of an age, but rather it can be thought that there are factors such as proving oneself to the society, realizing themselves and being loved by the society. Related to the results, Söylemez (27) found that there was no significant difference in meaning of life according to age variable.

With the result of the analysis conducted to determine the relationship between cognitive flexibility and meaning of life, it was concluded that there was a significant relationship between cognitive flexibility and the existing meaning in life, whereas there was no significant difference between cognitive flexibility and the search for meaning in life. Related to the results, the reason why there is a significant relationship between cognitive flexibility and the existing meaning in life can be explained with meaning of life having a positive relationship with positive emotions and a negative relationship with negative emotions (26). When the studies in the literature were scanned, no study on the relationship between cognitive flexibility and meaning of life was found. When similar studies are examined, Yelpaze and Yakar (34) concluded that cognitive flexibility is a significant predictor of life satisfaction. The reason why there is no significant relationship between cognitive flexibility and the search for meaning in life can be explained by the fact that the way of evaluating the events has no effect on the meaning that the individuals try to find in their life.

Ultimately, it was concluded that cognitive flexibility and meaning of life scores students studying in the faculty of sport sciences did not differ according to age, gender and sporting status. A significant positive relation was found between the student's cognitive flexibility scores and the existing meaning in life. On the other hand, there was no significant relationship between cognitive flexibility scores and the search for meaning in life. Planning of studies involving larger sample groups and professional athletes may be extremely important for the reliability of the results obtained. In addition, the findings can be supported by experimental studies.

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