Research Paper: Comparison of Male and Female Students in Personality Traits and Psychological Symptoms

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Abstract

Identifying some differences between men and women can be useful in guiding people in different areas of life. The present study was conducted with the aim of comparing male and female students in personality traits and psychological symptoms. This research is causal-comparative type. The research population was the students of Islamic Azadi University of Shiraz Branch, who were selected 250 girls and 250 boys by convenience sampling method and completed NEO Five-Factor Inventory-3 (NEO-FFI-3) and Symptom Checklist-90-R (SCL-90-R). The data of the two groups were analyzed using multivariate analysis of variance and SPSS-24 software. The findings showed that the score of male students is significantly higher than girls in the personality trait of openness to experience ($P<0.001$). In the personality traits of conscientiousness, extroversion and agreeableness, the score of female students was significantly higher than male students ($P<0.05$). Among the psychological symptoms, somatization, depression and anxiety among female students and hostility among male students were significantly higher ($P<0.001$). According to the results, it can be concluded that there are psychological and personality differences between men and women, which paying attention to them and guiding people based on them can help the future life of people in different fields.

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1. Introduction

Despite their similarities, men and women have many differences. For example, women are more emotional than men and men are more interested in challenging and physical work (Givon et al., 2023). The conducted research considers biological and environmental differences as the reason for this (Farhane-Medina et al., 2022).

The existing differences between men and women, instead of showing the superiority of one group over the other, can act as an important factor in guiding or selecting people for different jobs and sports (Artazcoz et al., 2004). In fact, identifying talents can be an important step to guide a person in his future life.

Two categories of factors that can be useful to identify the difference between men and women are differences in personality traits and differences in psychological symptoms. Personality means relatively stable mental, emotional and behavioral patterns that are formed gradually and throughout life and differentiate each person from another or the coherence of a person's behavior in different situations (Kernberg, 2016). So far, various models of personality traits have been proposed that one of the personality models that has gained a lot of popularity in psychology in the last few decades is the big 5 model of personality traits (Costa & McCrae, 1992). This model assumes that 5 characteristics of openness to experience, conscientiousness, extroversion, agreeableness, and neuroticism as comprehensive personality characteristics have great explanatory power regarding individual differences between different people. Today, this model is used in various fields such as education (Shaninah et al., 2023), job (Angelini, 2023), psychotherapy (Rodriguez & Anestis, 2023) and health (Furnham & Cheng, 2024). Below is a brief description of each personality trait. Openness to experience describes people who are open and receptive to new experiences. Conscientiousness implies a desire to do a task well, and to take obligations to others seriously. Extroversion describes the tendency to socialize with others and verbal and emotional expressions. Agreeableness refers to the spirit of adaptability of people to different situations and neuroticism also refers to the tendency of people to experience negative emotions and lack of emotional stability (Coleman et al., 2023).

Apart from the personality traits, examining the psychological symptoms of people is also important in different ways. Identifying people in these areas can be effective in career choices, education, marriage and family and social choices. Today, a large percentage of the world's people are struggling with various psychological symptoms (Steel et al., 2014) and this growing number has also been reported in Iran (Noorbala & Akhondzadeh, 2015). Suffering from mental disorders can cause many problems in people in different areas of their lives. Also, countries spend a lot of money on mental disorders (Touburg & Veenhoven, 2015).

Mental disorders show themselves in different emotional, mood, intellectual, physiological and behavioral dimensions and

different types of psychotherapy and drug therapy are used to deal with them. Also, the prevalence of mental disorders is different between men and women. For example, mood problems are more common in women and behavioral problems are more common in men (Klose & Jacobi, 2004).

So far, few researches have investigated the personality traits and psychological symptoms of women and men, especially in Iran, so this research was conducted with the aim of comparing male and female students in personality traits and psychological symptoms.

2. Methods

2.1. Statistical Population, Sample, and Sampling Method

This research is causal-comparative type. The research population was the students of Islamic Azadi University of Shiraz Branch, who were selected 250 girls and 250 boys by convenience sampling method and completed NEO Five-Factor Inventory-3 (NEO-FFI-3) and Symptom Checklist-90-R (SCL-90-R). All the participants expressed their consent to participate in the research, and incompletely filled questionnaires were excluded from the analysis process. The data of the two groups were analyzed using multivariate analysis of variance and SPSS-24 software

2.2. Instrument

NEO Five-Factor Inventory-3 (NEO-FFI-3): This questionnaire was created by Costa and McCree (1989). It has 60 items and measures five personality traits of openness to experience, conscientiousness, extroversion, agreeableness and neuroticism. 12 items are provided to measure each characteristic. It is scored from completely disagree (0) to completely successful (4) and a higher score indicates having more of each feature. McCrae & Costa (2007) confirmed the factor structure of the scale and reported internal consistency of its components above 0.80. Haqshenas (1999) confirmed the factor structure of this scale in Iran and reported its internal consistency from 0.77 to 0.86.

Symptom Checklist-90-R (SCL-90-R): This questionnaire was developed by Derogatis & Unger (2010). The SCL-90-R is a list of 90 different psychopathological symptoms and its scores vary between 0 and 4 according to symptom severity during the last week by the time of assessment. It consists of 9 different subscales, corresponding to 9 different categories of psychopathology. The principal symptom dimensions are labeled Somatization (SOM), Obsessive-Compulsive (OBS), Interpersonal Sensitivity (INT), Depression (DEP), Anxiety (ANX), Hostility (HOS), Phobic Anxiety (PHOB), Paranoid Ideation (PAR), and Psychoticism (PSY). The factor structure of this scale has been confirmed in the study of Derogatis & Unger (2010). The internal consistency of its subscales is reported to be above 0.80. Anisi et al. (2016) confirmed the factorial validity of the scale in Iran and showed that the internal consistency showed a high Cronbach's alpha coefficient both for the subscales of the test (0.75 to 0.92) and for the overall index of symptoms (0.98). The correlation coefficients of the subscales of the SCL-90-R test with the subscales of the MMPI questionnaire were statistically significant.

3. Results

The mean and standard deviation of the age of female students were 24.15 and 3.89 and male students were 23.75 and 4.11. 75% of female students were in bachelor's degree, 21% in master's degree and 4% in doctoral degree. Among male students, 78% were in bachelor's degree, 19% in master's degree and 3% in doctoral degree. The mean and standard deviation of the research variables are presented in Table 1.

Table 1

The mean and standard deviation of the research variables

Variables	M±SD Girl students	M±SD Male students
Openness to experience	26.18±3.95	41.11±3.09
Conscientiousness	31.27±2.39	27.92±3.46
Extroversion	46.37±3.94	32.44±3.10
Agreeableness	34.71±3.98	25.87±3.62
Neuroticism	18.63±3.20	19.52±3.71
Somatization	16.57±0.96	11.83±0.17
Obsessive-Compulsive	11.56±0.61	12.76±0.43
Interpersonal Sensitivity	16.14±0.78	15.44±0.93
Depression	17.22±0.64	13.37±0.76
Anxiety	18.85±0.67	15.17±0.73
Hostility	12.44±0.83	16.84±0.67
Phobic Anxiety	16.13±0.89	15.08±0.63
Paranoid Ideation	9.77±0.67	10.23±0.55
Psychoticism	6.37±0.88	7.31±0.74

As can be seen in Table 1, in the personality traits of conscientiousness, extroversion and agreeableness, the score of female students is higher than male students. But the score of male students is higher than girls in the personality trait of openness to experience and neuroticism. Among the psychological symptoms, somatization, interpersonal sensitivity, depression, anxiety and phobic anxiety among female students and obsessive-compulsive, hostility, paranoid ideation and psychoticism among male students is higher. The results of the Kolmogorov-Smirnov test to check the normality of the data distribution are presented in Table 2.

Table 2

Kolmogorov-Smirnov test to check the normality of the data distribution

Variables	F	P
Openness to experience	0.51	0.44
Conscientiousness	0.67	0.38
Extroversion	0.23	0.84
Agreeableness	0.52	0.44
Neuroticism	0.35	0.72
Somatization	0.17	0.87
Obsessive-Compulsive	0.56	0.43
Interpersonal Sensitivity	0.22	0.78
Depression	0.44	0.61
Anxiety	0.28	0.74
Hostility	0.40	0.63
Phobic Anxiety	0.28	0.74
Paranoid Ideation	0.23	0.77
Psychoticism	0.35	0.68

As seen in Table 2, the non-significance of the Kolmogorov-Smirnov statistic shows that the data distribution is normal. The results of Levene's test to check the homogeneity of variances are presented in Table 3.

Table 3

Checking the homogeneity of variances

Variables	F	df$_1$	df$_2$	P
Openness to experience	1.18	1	498	0.67
Conscientiousness	1.24	1	498	0.66
Extroversion	1.09	1	498	0.73
Agreeableness	1.36	1	498	0.62
Neuroticism	1.46	1	498	0.57
Somatization	1.34	1	498	0.59
Obsessive-Compulsive	1.75	1	498	0.42
Interpersonal Sensitivity	1.33	1	498	0.63
Depression	1.47	1	498	0.57
Anxiety	1.52	1	498	0.54
Hostility	1.75	1	498	0.42
Phobic Anxiety	1.23	1	498	0.66
Paranoid Ideation	1.15	1	498	0.69
Psychoticism	1.47	1	498	0.57

The non-significance of Levene's test shows that the assumption of homogeneity of variances is valid. The results of multivariate analysis of variance are presented in Table 4.

Table 4

The results of multivariate analysis of variance

Variables	Sum of squares	Df	Mean squares	F	P
Openness to experience	895.34	1	895.34	7.21	0.001
Conscientiousness	767.22	1	767.22	6.83	0.001
Extroversion	864.57	1	864.57	7.11	0.001
Agreeableness	871.17	1	871.17	7.01	0.001
Neuroticism	172.82	1	633.82	3.76	0.06
Somatization	1125.11	1	1125.11	4.32	0.001
Obsessive-Compulsive	873.41	1	1074.41	1.19	0.11
Interpersonal Sensitivity	938.55	1	1168.55	2.01	0.09
Depression	1243.74	1	937.74	5.67	0.001
Anxiety	1251.67	1	1245.67	4.88	0.001
Hostility	1162.09	1	1162.09	4.38	0.001
Phobic Anxiety	831.55	1	1086.48	1.12	0.13
Paranoid Ideation	413.27	1	1249.27	1.64	0.27
Psychoticism	219.73	1	1069.73	0.95	0.42

As can be seen in Table 4, the personality traits of openness to experience, agreeableness, conscientiousness and extroversion and the psychological symptoms of depression, anxiety, somatization and hostility have a significant difference between the two groups.

4. Discussion

The present study was conducted with the aim of comparing male and female students in personality traits and psychological symptoms. The findings showed that the score of male students is significantly higher than girls in the personality trait of openness to experience. In the personality traits of conscientiousness, extroversion and agreeableness, the score of female students was significantly higher than male students. Among the psychological symptoms, somatization, depression and anxiety among female students and hostility among male students were significantly higher.

This finding is consistent with previous researches (Lengua & Stormshak, 2000; Otten et al., 2021; Priadi et al., 2023; Rubinstein, 2005; Wichman et al., 2011). For example, in Lengua & Stormshak (2000), male gender predicted less depression but more antisocial problems and substance use,

while female gender predicted less antisocial problems and substance use. Also, Otten et al. (2021) in a systematic review reported higher prevalence rates of internalizing disorders for women and more externalizing disorders for men.

Regarding the higher score of openness to experience in male students and higher extroversion, conscientiousness and agreeableness in female students, the reason can be attributed to the biological and educational characteristics of girls and boys. First, one of the reasons can be the difference in gender hormones. Testosterone hormone in men is related to aggressive (Batrinos, 2012) and sensation-seeking (Campbell et al., 2010) behaviors. In contrast, progesterone and estrogen hormones in women are more related to behaviors related to caring for others (Toffoletto et al., 2014). Second, the environment and way of dealing with girls and boys are different. Boys are more inclined towards curious and exploratory behaviors. In contrast, girls are more driven to interpersonal and communication behaviors. Boys are expected to be bold and not timid, but girls are expected to be more supportive and caring of others (Doey et al., 2014). This causes women to ask for support and help from others more than men when they face challenges. Men try to solve their problems by themselves. This difference in the educational environments of girls and boys can be associated with brain changes and activation of different brain areas in them. For example, areas related to aggression and spatial reasoning in the right hemisphere are more active in men, but brain areas related to language and empathy are more active in women (Christov-Moore et al., 2014; Zaidi, 2010).

Regarding the differences observed in the field of psychological symptoms, it is always reported that the rate of diseases such as depression and anxiety in women is several times higher than in men, but behavioral problems are more common in boys than in girls (Otten et al., 2021). The same biological and educational differences stated for the previous finding can play a role in these differences. Hormonal changes in women due to menstruation and pregnancy have been clearly confirmed (Farage et al., 2009). The relationship between testosterone hormone secretion and aggression is also well confirmed (Batrinos, 2012). On the other hand, women's coping style is more emotion-oriented and men's coping style is more problem-oriented (Howerton & Van Gundy, 2009). This difference in coping styles can cause women to experience more mood changes in dealing with life problems, but men to change their behavior more.

This research also had limitations. Some of these limitations are the use of self-report tools, the convenience sampling method, and cross-sectional nature of the research. It is suggested that future researches can clarify the role of mediating variables in this relationship by using causal models. It is also suggested to relevant institutions and organizations to take advantage of these gender differences in planning and directing people to appropriate career, sports, academic, artistic and social fields.

5. Conclusion

The findings of this research showed that men and women have differences in terms of personality traits and psychological symptoms and it is important to pay attention to these differences in planning in different areas of life.

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Conflicts of Interest

The author of this article have no conflict of interest with each other.

References

Angelini, G. (2023). Big five model personality traits and job burnout: a systematic literature review. *BMC psychology*, *11*(1), 1-35. https://doi.org/10.1186/s40359-023-01056-y

Anisi, J., BABAII, S., Barani, M., Mohammadloo, H., & Ebrahimi, F. (2016). Determine the psychometric properties by symptom Checklist-90-revised (SCL-90-R) among military forces. *EBNESINA, 17* (4), 13-18. http://ebnesina.ajaums.ac.ir/article-1-316-fa.html

Artazcoz, L., Artieda, L., Borrell, C., Cortès, I., Benach, J., & García, V. (2004). Combining job and family demands and being healthy: what are the differences between men and women?. The European Journal of Public Health, 14(1), 43-48. https://doi.org/10.1093/eurpub/14.1.43

Batrinos, M. L. (2012). Testosterone and aggressive behavior in man. International journal of endocrinology and metabolism, 10(3), 563. https://doi.org/10.5812/ijem.3661

Campbell, B. C., Dreber, A., Apicella, C. L., Eisenberg, D. T., Gray, P. B., Little, A. C., ... & Lum, J. K. (2010). Testosterone exposure, dopaminergic reward, and sensation-seeking in young men. Physiology & behavior, 99(4), 451-456. https://doi.org/10.1016/j.physbeh.2009.12.011

Coleman, C. E., Lenz, J. G., & Osborn, D. S. (2023). The relationships among the big 5 personality factors and negative career thoughts. The Career Development Quarterly, 71(1), 30-40. https://doi.org/10.1002/cdq.12313

Costa Jr, P. T., & McCrae, R. R. (1992). The five-factor model of personality and its relevance to personality disorders. Journal of personality disorders, 6(4), 343-359. https://doi.org/10.1521/pedi.1992.6.4.343

Christov-Moore, L., Simpson, E. A., Coudé, G., Grigaityte, K., Iacoboni, M., & Ferrari, P. F. (2014). Empathy: Gender effects in brain and behavior. Neuroscience & biobehavioral reviews, 46, 604-627. https://doi.org/10.1016/j.neubiorev.2014.09.001

Derogatis, L. R., & Unger, R. (2010). Symptom checklist-90-revised. The Corsini encyclopedia of psychology, 1-2. https://doi.org/10.1002/9780470479216.corpsy0970

Doey, L., Coplan, R. J., & Kingsbury, M. (2014). Bashful boys and coy girls: A review of gender differences in childhood shyness. Sex roles, 70, 255-266. https://doi.org/10.1007/s11199-013-0317-9

Farage, M. A., Neill, S., & MacLean, A. B. (2009). Physiological changes associated with the menstrual cycle: a review. Obstetrical &

gynecological survey, 64(1), 58-72. https://doi.org/10.1097/OGX.0b013e3181932a37

Farhane-Medina, N. Z., Luque, B., Tabernero, C., & Castillo-Mayén, R. (2022). Factors associated with gender and sex differences in anxiety prevalence and comorbidity: A systematic review. Science Progress, 105(4), 00368504221135469.
https://doi.org/10.1177/00368504221135469

Furnham, A., & Cheng, H. (2024). The Big-Five personality factors, cognitive ability, health, and social-demographic indicators as independent predictors of self-efficacy: A longitudinal study. Scandinavian Journal of Psychology, 65(1), 53-60.
https://doi.org/10.1111/sjop.12953

Givon, E., Berkovich, R., Oz-Cohen, E., Rubinstein, K., Singer-Landau, E., Udelsman-Danieli, G., & Meiran, N. (2023). Are women truly "more emotional" than men? Sex differences in an indirect model-based measure of emotional feelings. Current Psychology, 1-14.
https://doi.org/10.1007/s12144-022-04227-z

Haqshenas, H. (1999). Normation of NEO personality test, revised form. Iranian Psychiatry and Clinical Psychology, 16(4), 38-47. https://ensani.ir/fa/article/19430

Howerton, A., & Van Gundy, K. (2009). Sex differences in coping styles and implications for depressed mood. International Journal of Stress Management, 16(4), 333.
https://doi.org/10.1037/a0016843

Kernberg, O. F. (2016). What is personality?. Journal of personality disorders, 30(2), 145-156.
https://doi.org/10.1521/pedi.2106.30.2.145

Klose, M., & Jacobi, F. (2004). Can gender differences in the prevalence of mental disorders be explained by sociodemographic factors?. Archives of women's mental health,

7, 133-148. https://doi.org/10.1007/s00737-004-0047-7

Lengua, L. J., & Stormshak, E. A. (2000). Gender, gender roles, and personality: Gender differences in the prediction of coping and psychological symptoms. Sex roles, 43, 787-820.
https://doi.org/10.1023/A:1011096604861

McCrae, R. R., & Costa, Jr, P. T. (2007). Brief versions of the NEO-PI-3. Journal of individual differences, 28(3), 116-128.
https://doi.org/10.1027/1614-0001.28.3.116

Noorbala, A. A., & Akhondzadeh, S. (2015). Mental health study process into prevalence of mental disorders in Iran. Arch Iran Med, 18(2), 74-5.
http://aimjournal.ir/PDF/58_Feb2015_fix_003.pdf

Otten, D., Tibubos, A. N., Schomerus, G., Brähler, E., Binder, H., Kruse, J., ... & Beutel, M. E. (2021). Similarities and differences of mental health in women and men: a systematic review of findings in three large German cohorts. Frontiers in Public Health, 9, 553071.
https://doi.org/10.3389/fpubh.2021.553071

Priadi, G., Umari, T., Donal, D., & Mansor, R. (2023). Gender Differences in Student Resistance towards Teachers: A Comparative Study Between Male and Female Students. Jurnal Psikologi Terapan (JPT), 6(1), 9-17.
https://doi.org/10.29103/jpt.v6i1.11327

Rodriguez, T. R., & Anestis, J. C. (2023). An initial examination of mental healthcare providers' Big 5 personality and their preferences for clients. Psychological Studies, 68(1), 33-44. https://doi.org/10.1007/s12646-022-00700-8

Rubinstein, G. (2005). The big five among male and female students of different faculties. Personality and Individual Differences, 38(7), 1495-1503.
https://doi.org/10.1016/j.paid.2004.09.012

Shaninah, F. S. E., & Mohd Noor, M. H. (2023). The impact of big five personality trait in predicting student academic performance. Journal of Applied Research in Higher Education. https://doi.org/10.1108/JARHE-08-2022-0274

Steel, Z., Marnane, C., Iranpour, C., Chey, T., Jackson, J. W., Patel, V., & Silove, D. (2014). The global prevalence of common mental disorders: a systematic review and meta-analysis 1980–2013. International journal of epidemiology, 43(2), 476-493. https://doi.org/10.1093/ije/dyu038

Toffoletto, S., Lanzenberger, R., Gingnell, M., Sundström-Poromaa, I., & Comasco, E. (2014). Emotional and cognitive functional imaging of estrogen and progesterone effects in the female human brain: a systematic review. Psychoneuroendocrinology, 50, 28-52.

https://doi.org/10.1016/j.psyneuen.2014.07.025

Touburg, G., & Veenhoven, R. (2015). Mental health care and average happiness: strong effect in developed nations. Administration and Policy in Mental Health and Mental Health Services Research, 42, 394-404. https://doi.org/10.1007/s10488-014-0579-8

Wichman, C. L., Ehlers, S. L., Wichman, S. E., Weaver, A. L., & Coddington, C. (2011). Comparison of multiple psychological distress measures between men and women preparing for in vitro fertilization. Fertility and sterility, 95(2), 717-721.

Zaidi, Z. F. (2010). Gender differences in human brain: a review. The open anatomy journal, 2(1). https://doi.org/10.2174/1877609401002010037