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ORIGINAL ARTICLE

Comparison of Students' Sensation Seeking and Emotion Regulation in Terms of Handedness

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Abstract

Aim: Apparent differences in daily functioning can sometimes be caused by internal differences in the human mind or body. The present study compared sensation seeking and emotion regulation in left- and right-handed students. The statistical population comprised 5200 students of Payame Noor University of Hamadan (Iran) in the academic year 2019-2020, from whom a sample of 300 was randomly selected. The instruments used were Chapman's Handedness Questionnaire (1987), Garnefski's Cognitive Emotion Regulation Questionnaire (2011), and Zuckerman's Sensation Seeking Scale (SSS). The data were analyzed using an independent t-test and multivariate analysis of variance in SPSS. The results showed no significant difference between the two groups in terms of emotion regulation and its components. However, there were significant differences in the variable of sensation seeking, where left-handers scored much higher than right-handers. These findings can be discussed in relation to cultural, educational, and training issues.
Keywords*: Handedness, Sensation Seeking, Emotion Regulation, Left-handed; Right-handed*

Introduction

The most unique aspect of human brain organization is cerebral asymmetry, according to which brain hemispheres have relatively distinct structures and functions. Differences in brain function can lead to lateralization, which can affect brain function in different conditions (Avezmurdovich 2021). One of the most salient dimensions of brain asymmetry is handedness (Logan., 2018). Handedness affects asymmetric emotion processing (Hosseinian et al., 2017). Handedness was initially viewed as innate, dominant, and unchangeable (Neqyee and Alipour, 2019). Many studies have linked left- and right-handedness to personality types (Shams et al., 2021), while some attribute them to differences in brain structure (Khangholi et al., 2021). In general, however, handedness could be the product of multiple factors, and due to its close association with genetics and biology, it can affect many individual human traits. The current study compared two variables of emotion regulation and sensation seeking in left- and right-handers to clarify whether the biological differences among these individuals also affect these personality variables.

Methodology

This study aimed to compare sensation seeking and emotion regulation in left- and right-handed students of Payame Noor University of Hamadan (Iran) in the academic year 2019-2020. From a population of 5200, a sample of 300 was selected via stratified random sampling. The frequency of left-handedness is mentioned to be 20%-25% in the literature; thus, to select an acceptable sample size, many people were tested; eventually, 100 left-handers and 200 right-handers were randomly selected for the next steps of the assessment. The data were analyzed in SPSS using independent t-test and multivariate analysis of variance (MANOVA). The data

collection instruments were Chapman's (1987) Handedness Questionnaire, Garnefski et al.'s (2003) Cognitive Emotion Regulation Questionnaire, and Zuckerman's Sensation Seeking Scale (SSS).

Results

The mean age of the participants was 23.7 with an SD of 0.718 years. All of them were undergraduate students, 200 (67%) were right-handers, and 100 (33%) were left-handers.

Table 1. Descriptive statistics and assumptions of cognitive emotion regulation dimensions in the two groups

Variables	Status	Mean	SD	Skewness	Kurtosis	Levene's F
Self-blame	Left-hander	10.98	3.20	-0.282	0.158	0.459
	Right-hander	12.50	3.19	-0.404	0.527	
Acceptance	Left-hander	12.31	2.55	-0.368	0.280	1.759
	Right-hander	13.10	3.15	-0.125	-0.420	
Rumination	Left-hander	12.25	2.58	-0.500	0.225	0.832
	Right-hander	14.47	3.02	-0.621	-0.577	
Positive refocusing	Left-hander	13.50	3.16	-0.433	0.408	0.837
	Right-hander	14.25	2.99	-0.435	-0.277	
Refocus on planning	Left-hander	13.60	3.43	-0.420	-0.527	3.960
	Right-hander	12.18	2.76	-0.118	-0.930	
Positive reappraisal	Left-hander	11.44	3.21	-0.148	-0.130	2.260
	Right-hander	10.70	2.25	0.590	0.334	
Putting into perspective	Left-hander	12.06	3.22	-0.409	-0.020	1.046
	Right-hander	11.75	2.19	-0.229	-0.282	
Catastrophizing	Left-hander	11.98	2.91	0.145	-0.670	3.020
	Right-hander	12.82	2.01	-0.738	-0.700	
Other-blame	Left-hander	13.10	2.84	0.171	0.709	1.112
	Right-hander	11.88	3.61	-0.177	-0.185	

Following Kline (2009), none of the components of emotion regulation in the two groups exceeded ±2% (Table 1), so the distribution of data is normal. The results of Levene's test also showed no significant error variance in different dimensions of emotion regulation.

Table 2. Results of Box's M test and MANOVA to compare the components of cognitive emotion regulation among left- and right-handed students

Test	Value	F	df	Hypothesis df	Error df	Eta squared
Box's M statistic	-	2.711	36	-	-	-
Bartlett's sphericity	-	121.316	44	-	-	-
Wilks' lambda	0.622	4.394	-	8	90	0.003

Table 3. One-way ANOVA to compare the components of emotion regulation in the two groups

Variables	Mean of Squares	Mean squared error	F	2Π	sig
Self-blame	14.21	10.560	2.111	0.003	0.39
Acceptance	16.80	8.530	1.771	0.011	0.24
Rumination	18.490	7.900	1.685	0.013	0.11
Positive refocusing	17.125	10.110	2.210	0.018	0.17
Refocus on planning	17.650	9.720	1.554	0.009	0.07
Positive reappraisal	19.190	7.650	2.814	0.011	0.23
Putting into perspective	19.111	7.523	2.421	0.028	0.16
Catastrophizing	16.250	6.248	1.840	0.021	0.09
Other-blame	18.185	10.590	1.590	0.009	0.14

Table 4. T-test results for sensation seeking of left- and right-handed students

Sensation seeking	Mean	SD	Skewness	Kurtosis	df	t	sig
Left-hander	33.14	13.46	-0.238	-0.782	298	6.910	0.001
Right-hander	21.64	13.33	-0.642	0.157			

Discussion and conclusion

The results of the present study revealed that the mean of left-and right-handed students in all components of emotion regulation do not significantly differ, and both groups show almost the same performance in these conditions. Emotion regulation can be regarded as the ability to transfer emotions or plan coping mechanisms for emotion, which can be the same in different people. This finding is consistent with the research by Supplee, Skuban, Shaw & Prout (2009). *Acceptance* causes a person to tend to experiences and desires that may be unpleasant to them (Taherifar et al., 2015). With *positive reappraisal*, in the face of adverse situations, the person analyzes and views as constructive the valuable experiences they have in dealing with the situation (Garnefski et al., 2009). However, *cognitive reappraisal* as an adaptive strategy has a direct impact on appraisals, and people can implement it to improve their emotional reactions to stressful events (Sharifi-Bastan, Yazdi, and Zahraei, 2016). The results also demonstrated that sensation seeking significantly differs among left- and right-handed students and is markedly higher among left-handers. This result is consistent with the results of many studies, including those by Chaboki et al. (2021), Vahidi and Ahmadi (2021), Khanjani and Akbari (2012), Mahboubi, Jalali, and Mohammadi (2012), Borjali et al. (2015), Rahmati and Saber (2017), Zhenming et al. (2021). Sensation seeking is a variable that affects one's behavior, traits, and priorities (Leder et al., 2019). According to arousal theory, sensation-seekers need new and, at times, risky experiences to achieve their optimal arousal levels (Man et al., 2021), which may explain the difference between left-handers and right-handers.

Based on these findings, families should be familiarized with the characteristics of adolescents and be trained on how to interact with them, especially with children and adolescents who may have physical and mental differences with their peers.

A limitation of this research is the inability to generalize the findings to other educational levels. Moreover, only self-report questionnaires which are not free from bias were used to collect the data. There was also a time limit for conducting the research and a limit on wider access to sample size. We would like to thank all those who assisted us in conducting this research.

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