

# Research Paper: Comparing Emotion Regulation Strategies and Adjustment Between Students With Physical Disability and Healthy Students



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**Citation:** Mohammad-Aminzadeh, D., Abasi, A., Asmari-Bardezard, Y., Kazemian, S., & Younesi, S.J. (2019). Comparing Emotion Regulation Strategies and Adjustment Between Students With Physical Disability and Healthy Students. *Journal of Practice in Clinical Psychology*, 7(4), 245-253. <http://dx.doi.org/10.32598/jpcp.7.4.245>

**doi** <http://dx.doi.org/10.32598/jpcp.7.4.245>



## Article info:

**Received:** 10 Jan 2019  
**Accepted:** 07 Jul 2019  
**Available Online:** 01 Oct 2019

## Keywords:

Emotion regulation strategies, Adjustment, Students with a physical disability, Normal students

## ABSTRACT

**Objective:** Disability deprives individuals from participation in the overall process of personal and social life and its independent activities. Moreover, it causes imbalance due to damage and disrupts the healthy development and coordination of the body. Therefore, this study compared emotion regulation strategies and adjustment in students with physical disabilities and healthy students.

**Methods:** This was a causal-comparative study. The study population included all students with physical-motor disabilities and healthy students. The study sample included 200 students (100 with physical disabilities and 100 healthy subjects). They were selected by cluster sampling method. To collect the required data, the Emotion Regulation Questionnaire (ERQ) and the Adjustment Inventory for School Students (AISS) were applied.

**Results:** The obtained results revealed that students with physical disability significantly differed in measures of emotion regulation (repression and re-evaluation), compared to the healthy ones ( $P < 0.05$ ). In addition, students with a physical disability in two subscales, including social and emotional adjustment, indicated significant differences compared to the healthy samples. However, there was no significant difference between the two study groups in terms of educational adjustment ( $P < 0.05$ ).

**Conclusion:** There were significant differences between students with a physical disability and healthy student in emotion regulation strategies and social adjustment.

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## Highlights

- Students with physical disability were significantly different in using emotion regulation strategies of repression and re-evaluation.
- Students with physical disability had significantly different social and emotional adjustments compared to the healthy samples.
- There was no significant difference between students with and without physical disability in terms of educational adjustment.

## Plain Language Summary

Disability deprives individuals from participation in personal and social activities. Moreover, it causes impaired balance due to damaging and disruption of development and coordination processes in the human body. This study compared emotion regulation strategies and adjustment between students with and without physical disabilities. The obtained results revealed that students with physical disability were significantly different in using emotion regulation strategies of repression and re-evaluation compared to the healthy ones. In addition, students with a physical disability indicated significant differences in social and emotional adjustments compared to the healthy samples. However, there was no significant difference between the two study groups in terms of educational adjustment.

### 1. Introduction

**D**isability, as an impairment, limits an individual's one or more major life activities (Brown & Turner, 2012). Moreover, it is often accompanied by reduced self-esteem (Nosek, Hughes, Swedlund, Taylor, & Swank, 2003; Salehi, Tavakol, Shabani, & Ziaei, 2015), psychological distress (Trani & Bakhshi, 2008). Disability has been used by the World Health Organization (WHO) in the International Classification of Functioning, Disability and Health (ICF) as an umbrella term for impairments, functional limitations, and participation limitations (Lucas-Carrasco et al., 2011). It is resulted in physical impairments (Aurora, 2014) and deprived independent participation in personal and social activities (Salehi et al., 2015). Physical disability, as part of a broad range of disabilities, involves failure to use one limb or part of it for at least 6 months (Bahrapour, Ghamari, & Amiri Majd, 2014). According to the WHO, nearly 1 billion people throughout the world have some disability (World Health Organization 2011). Additionally, more than one-third of them live in developing countries (Bahrapour et al., 2014).

Disability in every life aspect leads to the impaired natural and harmonious development of the person (Aurora, 2014), psychological and behavioral problems (Trani & Bakhshi, 2008; Varsamis & Agaliotis, 2015), and reduced self-esteem and interpersonal relationships (Salehi et al., 2015). Due to their impairments, students with physical/

mobility disabilities are less capable to empathy with others (Ahmad, Ishfaq, & Naeem, 2013), are less likely to be accepted by their peers (Estévez, Emler, Cava, & Inglés, 2014), and have less access to social support, compared to their healthy peers (Mithen, Aitken, Ziersch, & Kavanagh, 2015). Besides, during adolescence, feeling different from others, due to having a chronic illness or disability, may negatively affect social performance and adjustment (Hsiao, Tseng, Huang, & Gau, 2013).

Adjustment is defined as the ability to adapt, compromise, collaborate, and cope with oneself, the environment, and others. In other words, adjustment refers to a set of cognitive and behavioral strategies used to cope with stressful situations. Social adjustment, as a criterion of mental health (Rahmati, Adibrad, Tahmasian & Tahmasian, 2010), refers to the adjustment of individuals to their social environment (Nader-Grosbois, Houssa, & Mazzone, 2013). Furthermore, it enables them to perceive and predict other's behaviors, control their behaviors, and adjust their social interactions (Baurain, Nader-Grosbois, & Dionne, 2013). Overall, social adjustment is based on the necessity that an individual's needs and desires have to be adjusted to those of the group they live in (Rahmati et al., 2010). Social adjustment is especially necessary during adolescence, i.e. due to increased interaction with peers and reduced dependence on parents (Fiasse & Nader-Grosbois, 2012). Besides, proper social adjustment during adolescence is the basis of excellent social performance, facilitates social roles, and improves life satisfaction (Baurain et al., 2013). Social maladjustment not

only leads to problems in the domains mentioned above, but also may result in impaired social interactions, a tendency toward socially and morally deviant behaviors, and the deterioration of cultural values of individuals (Rahmati et al., 2010). Emotional adjustment is defined as good mental health, personal life satisfaction, and the coordination of emotions, activities, and thoughts. In other words, emotional adjustment reflects the mechanisms by which one becomes emotionally stable. Social and emotional competencies are the determinants of affecting academic adjustment.

Various definitions have been suggested for emotion regulation; however, different theories agree that emotion regulation includes skills related to emotional awareness, evaluating emotions, modulating emotions, and the adaptive use of emotions (Berking et al., 2008). Emotion regulation could also refer to emotion management through which people can influence their emotions, and determine what, when, and how they are experienced and expressed by them (Gross & Jazaieri, 2014). Emotion management is aimed at adjusting emotional responses using some techniques and strategies (Halperin, 2013). Emotion regulation strategies are defined as actions representing manners of coping with stressful situations or unpleasant events (Garnefski & Kraaij, 2006). Research on emotion regulation d that those who are unable to properly manage their emotions demonstrate more internalizing disorders (Mennin, Holaway, Fresco, Moore, & Heimberg, 2007). In addition, there is a positive and significant relationship between reappraisal, as an emotion regulation strategy, and successful performance in social interactions (Tull, Stipelman, Salters-Pedneault, & Gratz, 2009).

Emotions are essential in mental health and thriving social life performance (Gross & Jazaieri, 2014). Furthermore, it is associated with most mental and emotional disorders, including depression, anxiety, and interpersonal sensitivity (Kingston, Chadwick, Meron, & Skinner, 2007). Moreover, social adjustment significantly affects students' mental health (Rahmati et al., 2010). Thus, the present study examined social adjustment and the use of emotion regulation strategies among students with a physical disability and healthy students.

## 2. Methods

This was a causal-comparative study. The statistical population included all students with a physical disability and healthy middle- and high-school students of Tehran City, Iran (2016 academic year). The study sample consisted of 200 students (100 students with physical disabilities and 100 healthy students). The sample size was selected based on the limited number of students

with physical disabilities in Tehran. Accordingly, 2, 4, and 16 regions (where special schools for students with physical disabilities are located) were purposefully selected. Then, by referring to the mentioned schools, the research questionnaires were presented; the research purpose and data confidentiality were explained to the students. In total, 100 students with physical disabilities completed the questionnaires; therefore, 100 healthy students were randomly selected. The study students were matched on educational level (middle- and high-school). Besides, prior similar studies that have been conducted on people with disabilities in Iran have selected a sample size of between 50 and 100 subjects.

To conduct this research, after receiving the necessary permissions from the research unit of Allameh Tabatabai University, we referred to the Ministry of Education in Tehran. Out of the 22 regions in Tehran, with a purposive sampling method, regions two, 4, and 16 that have schools for students with physical disabilities were selected as research regions. In the areas mentioned above, schools for students with physical disabilities were selected as samples. In addition, in the same areas, a sample of healthy students from regular schools was also selected for data comparison.

The inclusion criteria included students with a physical disability; having average IQ (IQ range: 90-110, based on the school counseling records); no history of psychiatric hospitalization (based on the subjects' reports); willingness to participate in the study (via an interview in which they were marked); and no concomitant treatment. The exclusion criterion was the reluctance to continue participating in the research.

To observe the ethical considerations, the following points were met: a written informed consent form was obtained from the study participants before the study onset; the study participants were initially informed about the subject and method of the study, and participation in the study imposed no financial burden on the study subjects. The below tools were used to collect the required data:

### Emotion Regulation Questionnaire (ERQ)

This 10-item questionnaire was developed by Gross and John (Gross & John, 2003). It has 2 subscales, including emotional suppression and emotional reappraisal. Among the 10 items of the ERQ, 4 items assess emotional suppression, and 6 items assess emotional reappraisal. The items are rated on a Likert-type scale, ranging from 1 (strongly disagree) to 7 (strongly agree). Total obtainable scores range from 10 to 70. Gross and John (2003), reported

test-retest reliability estimates of .84 and .67 for the re-appraisal and suppression subscales, respectively. In the present study, Cronbach's alphas coefficients of 0.73 and 0.61 were obtained for the re-appraisal and suppression subscales, respectively. In Iran, the Cronbach's alpha coefficients for re-evaluation and repression were calculated as 0.83 and 0.79, respectively (Babapour & Ahmadi, 2013).

### Adjustment Inventory for School Students (AISS)

This inventory was developed by Sinha and Singh (1993) to differentiate high school-students with proper adjustments from those with reduced adjustments on three adjustment domains (emotional, social, and academic). It has 60 items and 3 subscales (social adjustment, emotional adjustment, and academic adjustment). AISS items that indicate poor adjustment are scored zero, and otherwise 1. The AISS was conducted in a sample comprised of 1950 randomly-selected high-school students in grades 1, 2, and 3 (1200 boys and 750 girls); the achieved results indicated no significant difference with the normal distribution. Additionally, using split-half,

test-retest, and Kuder-Richardson methods, reliability estimates of .95, .93, and .94 were found for this inventory. In the present study, a Cronbach's alpha coefficient of 0.79 was calculated for the AISS (Sinha & Singh, 2005). furthermore, Zahed, Rajabi, & Omid (2012) reported the Cronbach's and Kuder-Richardson coefficients of 0.82 and 0.89 for this questionnaire, respectively.

### 3. Results

SPSS was used to analyze the collected data. Mean±SD values were calculated for each group (physically-disabled and healthy students) (Table 1). The correlation matrix between the research variables was calculated as well (Table 2). Then, using Multivariate Analysis of Variance (MANOVA), the two groups were compared (Tables 3 & 4).

Both groups were matched according to their educational level, similarly, and demographic characteristics. The number of middle-school students in both groups was 38. The mean age of the group with disabilities was 13.61 years, and in the healthy group, it was 13.20 years.

Table 1. Descriptive statistics

Variables	Group	Mean±SD
Re-evaluation	Students with disability	22.3±6.5
	Healthy student	31.5±7.8
Suppression	Students with disability	21.5±4.4
	Healthy student	14.1±5.2
Emotion regulation strategies	Students with disability	21.9±6.3
	Healthy student	45.6±6.5
Academic adjustment	Students with disability	27.3±4.4
	Healthy student	41.1±7.8
Social adjustment	Students with disability	29.4±4.8
	Healthy student	31.1±6.6
Emotional adjustment	Students with disability	30.5±6.5
	Healthy student	42.7±8.9
Total adjustment	Students with disability	29.06±7.7
	Healthy student	34.1±8.3

**Table 2.** Matrix of correlations between variables

Variables	1	2	3	4	5	6	7
Re-evaluation	1	-	-	-	-	-	-
Repression	-0.86*	1	-	-	-	-	-
Emotion regulation strategies	0.78*	-0.50*	1	-	-	-	-
Academic adjustment	0.06	-0.06	0.06	1	-	-	-
Social adjustment	0.72*	-0.65*	0.54*	0.22*	1	-	-
Emotional adjustment	0.76*	-0.77*	0.52*	0.11	0.90*	1	-
Total adjustment	0.75*	-0.75*	0.53*	0.34*	0.97*	0.93*	1

\* Sig. 0.05

**Table 3.** Multivariate analysis of variance results

Index	Value	F	df1	df2	Sig.	Eta
Pillai's Trace	0.93					
Wilks' Lambda	0.06	447.65	7	192	0.001	0.937
Hotelling's Trace	14.99					
Roy's Largest Root	14.99					

Furthermore, the number of high-school students in both was 62; the mean age of the group with disabilities was 16.49 years and it was 15.89 years in the healthy group.

To analyze the acquired data, Pearson's correlation analysis and MANCOVA were applied. Before using MANCOVA, to comply with its assumptions was used Levene's test and Box test; the condition of homogeneity of variance matrices of variance/covariance was respected. These test results were not significant for any of the variables. As a result of the use of parametric tests

was allowed. Significance levels of all tests allowed the use of MANCOVA.

The descriptive analysis results of the study groups (Mean±SD) are presented in Table 1.

As per Table 2, re-evaluation, as a subscale of emotion regulation strategies, had a positive and significant relationship with adaptation in three educational, social, and emotional areas. Moreover, repression, as another subscale of emotion regulation strategies, had a negative

**Table 4.** Group differences in emotion regulation strategies and adjustment

Variables	Mean Difference	Std. Error	F	Sig.
Re-evaluation	22.65	0.67	1141.9	0.001
Repression	16.27	0.48	1109.5	0.001
Emotion regulation strategies	7.42	0.58	158.6	0.001
Academic adjustment	10.4	0.42	604.1	0.001
Social adjustment	0.5	0.35	2.1	0.142
Emotional adjustment	11.1	0.45	614.9	0.001
Total adjustment	22.5	0.92	593.1	0.001



relationship with adjustment in different educational, social, and emotional aspects.

According to Table 3, the effect of the group on the linear combination of dependent variables was significant. Thus, it indicates that the two study groups were significantly different in a combination of dependent variables (repression, re-evaluation, and adjustment) in Pillai's trace, Wilks' Lambda, Hotelling's Trace, and Roy's Largest Root with the estimates of an effect size equal to 0.93.

According to Table 4, for each dependent variable, data analysis (using Bonferroni alpha of 0.017 and the degrees of freedom 1, 198) suggested that education, as a dimension of adjustment was not significantly different between the two groups.

#### 4. Discussion

The present study examined social adjustment and the use of emotion regulation strategies among students with physical/mobility disabilities and healthy students. According to the study findings, there was a positive and significant relationship between social adjustment and reappraisal ( $r=0.72$ ) and a significant negative relationship between suppression and social adjustment ( $r=-0.65$ ); these findings indicated that emotional reappraisal, as an emotion regulation strategy, improved social adjustment; however, emotional suppression decreased social adjustment. There was also a significant difference between the two groups regarding the use of emotion regulation strategies (suppression and reappraisal); these findings indicate that compared to healthy students, those with physical/mobility disabilities were less capable of managing or regulating their emotional responses and coping with stressful or unpleasant life events. There was no previous study precisely similar to the present one. However, Garnefski and Kraaij argued that emotion regulation strategies were associated with psychological distress and significantly predicted subsequent adjustment (Garnefski & Kraaij, 2006). Mennin et al. (2007) also reported that those who were not able to efficiently manage their emotions against daily life events indicated more diagnostic symptoms of internalizing disorders, like depression and anxiety.

This population has emotional problems, mental health issues, misinterpretations, focus on the negative aspects of life, and feel the lack of control over the internal and external world (which may be related to their developmental impairments). Thus, students with physical/mobility disabilities tend to use negative emotion regulation strategies in the face of stressful or unpleasant events; in contrast,

healthy students, in such events, tend to use adaptive emotion regulation strategies, such as making positive reappraisals, considering adverse events as unimportant or less unpleasant than other events, and having a feeling of control over the internal and external world. Therefore, the second group is less vulnerable to emotional problems. This suggests that students less capable of managing their emotions in the face of daily life events, experience more psychological distress. Such distress may lead to depression and anxiety; contrarily, effective emotion regulation is related to healthier relationships, better academic performance, and better physical health.

Another study indicated a significant difference between the scores of students with physical/mobility disabilities and healthy students in two subscales of social adjustment; the emotional and social adjustment subscales. However, no significant difference was found between the two groups in the academic adjustment subscale. This finding is in line with those of Sharma (Sharma, 2004), Wiener (Wiener, 2004), Sideritis (Sideridis, 2007; Auerbach, Gross-Tsur, Manor, & Shalev, 2008; Freilich & Shechtman, 2010), indicating that disabled children and adolescents have higher rates of social and emotional problems, compared to their healthy counterparts.

The study finding indicating decreased social adjustment in students with physical/mobility disabilities could be explained by the fact that, like physical development, social development is a continuous process; i.e. it is gradually achieved during different life stages through various experiences. Furthermore, it is among the most important signs of desirable mental health status in adolescents. In other words, an individual is considered to have reasonable adjustment only when being able to have a healthy relationship with their social environment; otherwise, a proper adjustment cannot be achieved by the person. However, research indicates that, due to facing numerous problems in life as well as poor interpersonal skills, adolescents with disabilities often have poor mental health (Sideridis, 2007), experience higher social rejection and loneliness (Estell et al., 2008), and are less popular than their healthy peers. Additionally, because of their developmental problems, students with physical/mobility disabilities tend to develop impairments in their performance and adjustment. This matter results from experiences, such as their peers' success, love failure, and losing motivation for life. When adolescents are unable to successfully overcome developmental challenges, they experience psychological distress and considerable impairments in the emotional and social aspects of their lives. In addition, students with physical/mobility disabilities perceive themselves

as different from others and tend to evaluate their appearance negatively. Therefore, they are more prone to experience social problems and ignorance by others; as a result, they may demonstrate a poor adjustment.

In the present study, no significant difference was observed in academic adjustment between the study groups. No previous finding consistent with this result was detected; however, in contrast to this finding, in a study by Zahed, Rajabi, & Omid (2012) on social, emotional, academic, and self-regulating learning, a significant difference was found between students with and without learning disabilities ("a comparison of social, emotional and educational adjustment and self-regulated learning in students with and without learning disabilities", 2012). This finding can also be explained using the inferiority complex (Adler's theory). Adler stated that actual mental or physical inferiority could be a source of inferiority feelings. He believed that physical impairment could affect personality and motivate individuals to overcome their impairment or disability. Compensation has a vital role in the feelings of inferiority; it is often used by those with a physical disability to cover disability and impairment, to create a new balance in the organism. Therefore, the lack of difference between physical disability and academic achievement could be attributed to the use of compensation by adolescents with disabilities to cope with their impairments and shortcomings.

The present study was only conducted on students with physical disabilities; thus, cautions should be considered in generalizing the obtained outcomes to other rehabilitation communities. Moreover, the study data were achieved based on self-report (questionnaire); therefore, the collected results may be biased. As a result, qualitative methods are suggested for better investigation of future research structures.

Future studies are suggested to examine the study variables among female students as well as students with other disabilities, such as visual and auditory impairments. Accordingly, their results can be used to improve the use of adaptive emotion regulation strategies in students with disabilities and help them achieve the optimum level of adjustment in different domains.

Compared to healthy students, their counterparts with physical/mobility disabilities are more likely to use negative emotion regulation strategies, especially suppression; however, healthy students tend to use more positive emotion regulation strategies, especially reappraisal. Therefore, students with physical disabilities benefit

from lower emotional and social adjustment, compared to their healthy peers.

## Ethical Considerations

### Compliance with ethical guidelines

A written informed consent was obtained from the participants prior to the study. They were informed of the study objectives and methods. Participation in the study did not impose any costs on the participants.

### Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

### Authors' contributions

Methodology: Dana Mohammad-aminzadeh, Yousef Asmari; Investigation: Seyed Jalal Younesi; Writing-original draft: Dana Mohammad-aminzadeh, Somaye Kazemian, Amir Abasi Writing-review & editing: Seyed Jalal Younesi, Somaye Kazemian; Resources: Dana Mohammad-aminzadeh, Amir Abasi Supervision: Seyed Jalal Younesi.

### Conflict of interest

The authors declared no conflicts of interest.

### Acknowledgments

We would like to express our sincere thanks to the study participants and the schools' personnel for their cooperation and support.

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