RESEARCH ARTICLE

• 2025 Article No: 49

Turkish Journal of Psychiatry (2025) **36**:460–467
https://doi.org/10.5080/u27562

Cognitive and Metacognitive Determinants of Psychopathology in Individuals with Physical Disabilities: A Comparative Study with a Healthy Control Group

Sare AYDIN[1], İlker GÜNEYSU[2], Burcu ESER[2]

ABSTRACT

Objective: Disability extends beyond physical limitations, impacting individuals' mental health and psychosocial adjustment. This study aimed to investigate the underlying cognitive and metacognitive processes contributing to psychopathological symptoms in individuals with physical disabilities.

Method: We included 164 individuals with physical disabilities and 149 healthy controls. Psychopathology was measured using the 21 item Depression, Anxiety, and Stress Scale (DASS21). Cognitive and metacognitive processes were assessed using the Negative Core Beliefs Inventory (NCBI), Cognitive and Behavioural Processes Questionnaire (CBP-Q), and Cognitive Attentional Syndrome 1 Scale (CAS-1).

Results: Comparative analyses showed no significant difference in DASS21 total scores ($p>0.05$). The CAS-1 total score was significantly lower in individuals with physical disabilities ($p<0.05$). Moderate, positive, and significant correlations were found between DASS21 and NCBI, CBP-Q, and CAS-1 ($p<0.05$). Multiple linear regression analysis revealed that NCBI and CAS-1 significantly influenced depression levels ($p<0.05$), while CBP-Q had no effect ($p>0.05$).

Conclusion: Psychopathology in individuals with physical disabilities is associated with cognitive and metacognitive processes. Our results could inform the development of psychosocial interventions and improve health policies for this population.

Keywords: Anxiety, cognition, depression, metacognition, mental health, physical disability

INTRODUCTION

According to the World Health Organization (WHO), disability is defined as "a condition in which a person is unable to meet the requirements of normal life due to the absence or malfunction of an organ, resulting in a permanent and partial loss of function and appearance caused by physical, mental, or psychological characteristics" (Organization, 2011). Physical disability is not limited to physical limitations alone; it also encompasses many factors that can affect individuals' life experiences, emotional well-being, and psychosocial adjustment.

Individuals with disabilities sometimes face difficulties in interacting with society. Disability leads to limitations in carrying out one or more activities necessary for daily life,

How to cite: Aydın S, Güneysu İ, Eser B (2025) Cognitive and Metacognitive Determinants of Psychopathology in Individuals with Physical Disabilities: A Comparative Study with a Healthy Control Group. *Turk Psikiyatri Derg* **36**:460–467. https://doi.org/10.5080/u27562

Received: 26.07.2024, **Accepted:** 04.04.2025, **Available Online Date:** 22.08.2025

[1]Psychiatrist, Psychiatry Clinic, Tokat State Hospital, Tokat; [2,3]Asst Prof., Tokat Gaziosmanpaşa University Faculty of Medicine, Department of Psychiatry Tokat, Türkiye

Sare Aydın, e-mail: sare.aydiin@gmail.com

and this implies a certain degree of loss of independence for the individual (Reynell, 1970). Disability creates frustration by restricting the individual's opportunities, and it also leads to the development of prejudices against disabled individuals among those without any disabilities (Mushtaq & Akhouri, 2016). Society tends to evaluate individuals who do not conform to its defined norms of "normality" from an exclusionary perspective. Cusforth (1951) argues that such attitudes are entirely responsible for the emotional problems experienced by individuals with disabilities (Cusforth, 1951).

Physical disability can be either congenital or acquired later in life and may create a sense of inadequacy in individuals (Chang & Johnson, 2013). Marschark (1993) proposed that there is a strong relationship between physical and mental functioning, as any type of physical or sensory impairment may hinder the normal flow of processes, thus disrupting the individual's overall psychological functioning. This condition affects how an individual experiences the world, leading to a different contextual experience (Marschark, 1993). Numerous studies have reported that psychiatric disorders such as depression and anxiety are more frequently observed in physically disabled individuals (Boswell & Wingrove, 1974; Breslau, 1985; Mushtaq & Akhouri, 2016; Turner et al., 2006).

According to Beck, maladaptive schemas and core beliefs are of critical importance in the development and persistence of psychopathologies. Schemas are cognitive organizational components that are fundamental in interpreting and organizing individuals' experiences, and they include core beliefs (A.T. Beck & Alford, 2009). Core beliefs are the individual's basic, inflexible, absolute, and generalized beliefs about themselves, others, and the world. These beliefs begin to develop at an early age and are based on infants' interactions with their caregivers (J.S. Beck, 2020). A person with such schemas, when encountering a situation that in any way resembles the original conditions in which the learned schema was formed, will have their negative schemas activated (A.T. Beck, 1979).

According to the metacognitive approach, the presence of dysfunctional thinking and coping styles in individuals affects the evaluation processes of these thoughts (dysfunctional cognitions) and leads to the development of positive or negative beliefs (metacognitions) (Cartwright-Hatton & Wells, 1997; Gwilliam et al., 2004). The metacognitive system plays a significant role in the functional and adaptive operation of human cognitive processes. Therefore, any deviation in this system is considered to be a major factor in the development and maintenance of various psychopathologies (Wells & Cartwright-Hatton, 2004). A study conducted in Turkey has shown that this model is also applicable to our culture and supports the idea that metacognitive processes play a significant role in the onset and maintenance of depression (Yılmaz, 2016).

Although there are studies demonstrating the prevalence of mental health problems among physically disabled groups (Boswell & Wingrove, 1974; Breslau, 1985; Leeper et al., 1985; Turner et al., 2006; Mushtaq & Akhouri, 2016), the literature regarding cognitive and metacognitive processes in this population is noticeably lacking (Sweetland, 1990; Dixon & Johnston, 2008; Capobianco et al. 2020). Research into the perceived mental abilities, mental health treatment experiences, metacognitive beliefs, and cognitive processes of physically disabled individuals is believed to help us better understand their experiences and needs. Therefore, identifying the gaps in current findings and information and encouraging more in-depth research in this field is of great importance. Studies in this area are expected to support the development of more effective strategies to enhance the social participation and well-being of physically disabled individuals.

This study aims to examine the cognitive and metacognitive determinants of psychopathology in physically disabled individuals and to compare them with a healthy control group. Previous research offers limited insight into how cognitive and metacognitive processes are affected in physically disabled individuals. This study seeks to fill this gap in the literature and to develop more effective interventions that will support the psychological well-being of physically disabled individuals. Such progress could also lead to the development of healthcare policies that better serve this population. The findings obtained may represent a significant step toward improving the quality of life and social integration of physically disabled individuals.

METHOD

Participants

In order to create a pool of potential participants, disability associations, rehabilitation centers, and healthcare institutions were contacted. An explanatory letter and informative materials detailing the purpose of the study, the process, and the rights of participants were provided. A total of 164 physically disabled individuals who were literate, not mentally retarded, did not have neurological conditions severe enough to affect cognitive functioning, and had a physical disability rated above 40% agreed to participate in the study. Additionally, 149 healthy individuals with similar sociodemographic characteristics were included as the control group. All participants were 18 years of age or older.

Assessment Tools

Sociodemographic and Clinical Data Form

This form was developed by the researchers. It includes questions about participants' age, gender, marital status,

education level, and employment status, as well as items investigating the nature and degree of the participants' disabilities.

Depression, Anxiety, and Stress Scale - Short Form (DASS-21)

Originally developed by Lovibond and Lovibond (1995) as a 42-item scale, the short form consists of 21 items (P. F. Lovibond & Lovibond, 1995; S. H. Lovibond & Lovibond, 1995). The scale was designed to assess symptoms of depression, anxiety, and stress in both clinical and non-clinical populations. Each subscale includes 7 items. The DASS-21 uses a 5-point Likert scale format, where each subscale yields a score between 7 and 35. Higher scores indicate more severe symptoms. The Turkish adaptation of the scale was carried out by Sarıçam (2018), who confirmed that the scale is a valid and reliable tool for use with Turkish samples (Sarıçam, 2018).

Cognitive Attentional Syndrome Scale-1 (CAS-1)

The CAS-1 was developed by Wells to assess the activation of the cognitive attentional syndrome (CAS) (Wells, 2011a). The scale consists of 16 items and evaluates the proportion of time spent on worry/rumination, threat monitoring, and coping behaviors, as well as the level of both positive and negative metacognitive beliefs. In this study, an alternative scoring method based on a Likert scale ranging from 0 to 8 was used (Nordahl & Wells, 2019). A higher total score indicates increased activation of the CAS. The Turkish validity and reliability study of the scale was conducted by Gündüz et al. (Gündüz et al., 2019).

Cognitive and Behavioral Processes Questionnaire (CBP-Q)

The CBP-Q was developed by Patel et al. (Patel et al., 2015a). It consists of two parts: Part A and Part B. Part A addresses internal experiences, referring to the things that pop into a person's mind or the sensations they feel in their body, and what the person does mentally in response to these experiences. Internal experiences are described as thoughts, feelings, physical or bodily sensations, voices, urges/cravings, memories, and images. The differences among these experiences are illustrated with examples to create a clear understanding in the participant's mind.Part A includes eight items, while Part B consists of seven items. In both sections, participants are asked to rate their responses on a scale from 0 to 8, where the two ends of each item represent opposite reactions or tendencies. A score of 4 represents an equal tendency toward both extremes. The total score ranges from 0 to 120, with higher scores indicating more frequent use of dysfunctional mental and behavioral responses. The CBP-Q is completed with reference to the past week. The Turkish adaptation and validation study of the scale was conducted by Oğuz and Batmaz (Oğuz & Batmaz, 2020a).

Negative Core Beliefs Inventory (NCBI)

The NCBI was developed by Osmo and colleagues (Osmo et al., 2018). The original scale consists of 50 items—29 items assess negative beliefs about the self, and 21 items assess negative beliefs about others. Each item is rated on a 4-point Likert scale ranging from 1 ("Does not describe me well") to 4 ("Describes me very well"). Higher scores on the subscales indicate stronger negative core beliefs in the respective domain. The Turkish adaptation and validation of the scale was conducted by Batmaz and colleagues (Batmaz et al., 2022).

Statistical Analysis

Descriptive statistics (frequency, percentage, mean, standard deviation) and chi-square tests will be used to compare demographic and clinical data. Independent samples t-tests will be used to compare scale scores between the study group and the control group. A p-value of < 0.05 will be considered statistically significant. Pearson correlation analyses will be conducted to examine the relationships between assessment tools and demographic/clinical data. Multiple regression analysis was used to investigate the predictive effects of clinical and demographic variables on psychopathology among individuals with disabilities. All analyses were performed using SPSS v.20.

Ethical Approval

Ethical approval for this study was obtained from the Ethics Committee of Tokat Gaziosmanpaşa University (Decision No: 83116987-262, Date: 18.04.2024, Ref No: 24-KAEK-132).

RESULTS

The study included 164 individuals with physical disabilities (110 women, 54 men) and a control group of 149 individuals without any disabilities (110 women, 39 men) ($x^2_{(1)}$= 1.704; p=0.192). The mean age of all participants was calculated as 33.18 (SD = 9.08). The mean age of participants with physical disabilities was 32.46 (SD = 9.64). The mean ages were similar between the groups ($t_{(1.804)=}$ -1.470; p=0.142).

Among the participants with physical disabilities, 64 individuals (20.4%) had a disability level between 40–60%, 38 individuals (12.1%) between 60–80%, and 62 individuals (19.8%) had a disability level of 80% or above. In terms of type of disability, 142 individuals (86.6%) had a walking/

balance impairment, and 22 individuals (7%) had an arm/hand impairment.

The results of the independent samples t-test conducted to determine whether psychometric test scores differed significantly between individuals with physical disabilities and the healthy control group are presented in Table 1.

As shown in Table 1, DASS-21 scores did not differ significantly between the groups ($t_{(312)}$= -0.705; p > 0.05). However, total CAS-1 scores showed a significant difference between the groups ($t_{(312)}$= -2.004; p < 0.05). The healthy control group had a higher mean total CAS-1 score (M = 65.05) compared to the group with physical disabilities (M = 60.35). However, the CAS-1 subscale scores for cognitive attention ($t_{(312)}$= -1.856; p > 0.05) and metacognitive beliefs ($t_{(312)}$= -1.706; p > 0.05) did not significantly differ between the groups. Similarly, CBP-Q total scores ($t_{(311)}$= -0.708; p > 0.05), and CBP-Q/A ($t_{(311)}$= -0.356; p > 0.05) and CBP-Q/B ($t_{(312)}$= -0.991; p > 0.05) subscale scores also did not show statistically significant differences between the groups. In addition, the total score of the NCBI ($t_{(311)}$= -0.123; p > 0.05), the subscale for negative beliefs about the self ($t_{(311)}$= -0.552; p > 0.05), and the subscale for negative beliefs about others ($t_{(311)}$= 0.754; p > 0.05) did not show statistically significant differences between the groups.

Pearson Correlation analysis was used to determine the relationship between levels of depression, anxiety, and stress and cognitive and metacognitive scores. The findings are presented in Table 2. A moderate positive (r = 0.565) and significant (p < 0.05) correlation was found between DASS-21 and CAS-1. In other words, participants' DASS-21 scores and CAS-1 total scores increase together with a moderate and significant relationship. The variance explained between the variables is 31.9%, meaning that 31.9% of DASS-21 may be explained by CAS-1.

A moderate positive (r = 0.576) and significant (p < 0.05) correlation was found between DASS-21 and CBP-Q. In other words, participants' DASS-21 scores and CBP-Q total scores increase together with a moderate and significant relationship. The variance explained between the variables is 33.1%, meaning that 33.1% of DASS-21 may be explained by CBP-Q.

A multiple linear regression analysis was conducted to determine the cognitive and metacognitive predictors of

Table 1. Comparison of Psychometric Scores Between Individuals with Physical Disabilities and the Healthy Control Group

Variable	Group	n	M	SD	t	df	p
DASS-21 Total	PD	165	23.64	14.58	-0.705	312	0.481
	HC	149	24.77	13.68			
CAS-1 Total	PD	165	60.35	22.15	-2.004	312	0.040*
	HC	149	65.05	19.03			
CAS-1 Cognitive Attention	PD	165	26.75	12.06	-1.856	312	0.064
	HC	149	29.18	11.03			
CAS-1 Metacognitive Beliefs	PD	165	33.60	12.71	-1.706	312	0.088
	HC	149	35.87	10.58			
CBP-Q Total	PD	164	57.34	21.99	-0.708	311	0.479
	HC	149	59.07	21.01			
CBP-Q A	PD	164	33.79	13.54	-0.356	311	0.721
	HC	149	34.32	12.58			
CBP-Q B	PD	165	23.53	10.89	-0.991	312	0.322
	HC	149	24.75	10.85			
NCBI Total	PD	164	66.18	24.77	-0.123	311	0.901
	HC	149	66.51	22.83			
Negative Beliefs About Self	PD	164	42.06	17.54	-0.552	311	0.581
	HC	149	43.13	16.53			
Negative Beliefs About Others	PD	164	24.12	9.00	0.754	311	0.451
	HC	149	23.38	8.12			

DASS-21: Depression, Anxiety, and Stress Scale; CAS-1: Cognitive Attentional Syndrome 1 Scale; CBP-Q: Cognitive and Behavioural Processes Questionnaire; NCBI: Negative Core Beliefs Inventory
Note: PD = Physically Disabled; HC = Healthy Control; M = Mean; SD = Standard Deviation. *p < 0.05 indicates statistical significance.

Table 2. The Relationship Between DASS-21 Scores and Cognitive and Metacognitive Scales in Individuals with Physical Disabilities

		DASS-21	CAS-1	CBP-Q	NCBI
DASS-21	Pearson Correlation	1	0.565**	0.576**	
	Sig. (2-tailed)	—	0.000	0.000	
CAS-1	Pearson Correlation		1	0.748**	
	Sig. (2-tailed)		—	0.000	
CBP-Q	Pearson Correlation			1	
	Sig. (2-tailed)			—	
NCBI	Pearson Correlation				
	Sig. (2-tailed)				

DASS-21: Depression, Anxiety, and Stress Scale; CAS-1: Cognitive Attentional Syndrome 1 Scale; CBP-Q: Cognitive and Behavioural Processes Questionnaire; NCBI: Negative Core Beliefs Inventory
Note: Correlation is significant at the 0.01 level (2-tailed).

Table 3. Multiple Regression Findings on the Effects of NCBI, CAS-1, and CBP-Q on DASS-21

Variable	Unstandardized Coefficients (B)	Std. Error	95% CI Lower	95% CI Upper	β	t	p	Tolerance	VIF
Constant	-8.977	2.545	-14.004	-3.950	—	-3.527	0.001	—	—
NCBI Total	0.299	0.039	0.222	0.377	0.519	7.621	0.000	0.627	1.596
CAS-1 Total	0.177	0.052	0.073	0.280	0.273	3.363	0.001	0.441	2.270
CBP-Q Total	0.036	0.059	-0.080	0.152	0.055	0.611	0.542	0.357	2.798

NCBI: Negative Core Beliefs Inventory; CAS-1: Cognitive Attentional Syndrome 1 Scale; CBP-Q: Cognitive and Behavioural Processes Questionnaire; DASS-21: Depression, Anxiety, and Stress Scale

depression and anxiety levels. The findings are presented in Table 3. In Table 3, the assumptions of multiple linear regression were first examined, particularly whether there was a multicollinearity problem among the independent variables, using tolerance, VIF (Variance Inflation Factor), and CI (Confidence Interval) values. In order to avoid multicollinearity issues, it is recommended that tolerance values be greater than 0.20, VIF values be less than 10, and CI values be less than 30 (Field, 2013). Accordingly, all values indicated that there was no multicollinearity problem. Additionally, whether the error terms of the independent variables were independent from one another (autocorrelation problem) was examined through the Durbin-Watson value. The ideal value is considered to be 2.00, and a range between 1.00 and 3.00 indicates no autocorrelation problem (Field, 2013). The obtained value of 2.071 indicates that there is no autocorrelation problem. Another prerequisite, the presence of outliers, was evaluated using Cook's distance. Since the highest value did not exceed 1 (max = 0.060), it was concluded that there were no outliers.

When the regression findings in Table 3 were examined, the model was found to be significant ($F(3, 159) = 61.879$, $p = 0.00$), and the independent variables explained 53% of the variance in the dependent variable (Adj. $R^2 = 0.530$). Accordingly, NCBI, CAS-1, and CBP-Q formed a model that significantly affected changes in DASS-21 scores ($p = 0.00$).

When the effects of the variables were examined in detail, NCBI and CAS-1 were found to significantly affect DASS-21 ($p < 0.05$), whereas CBP-Q did not have a significant effect ($p > 0.05$). NCBI positively affects DASS-21, and an increase of 1 unit in NCBI causes an increase of 0.299 units in DASS-21 (with a 95% confidence interval between 0.222 and 0.377 units). CAS-1 also positively affects DASS-21, and a 1-unit increase in CAS-1 causes a 0.177-unit increase in DASS-21 (with a 95% confidence interval between 0.073 and 0.280 units).

Finally, the regression equation predicting DASS-21 is as follows: *DASS-21 = -8.977 + 0.299NCBI+ 0.177CAS-1 + 0.036*CBP-Q*

DISCUSSION

This study aimed to provide an in-depth analysis by comparing the mental processes and beliefs of individuals with physical disabilities to a healthy control group. The findings revealed that there were similar levels of depression, anxiety, and stress between the physically disabled group and the healthy control group. Similarly, a study conducted in our country comparing congenitally visually impaired adolescents with those without visual impairment found that while levels of depression and self-concept characteristics were similar, anxiety levels were higher among the visually impaired group (Bolat et al., 2011). However, these results are not consistent

with other studies that included individuals with physical disabilities. For instance, a study by Mushtaq and Akhouri (2016) found that individuals with physical disabilities had lower self-esteem and higher levels of depression, stress, and anxiety. Similarly, in another study by Noh et al. (2016), individuals over the age of 45 with disabilities were observed to have higher levels of depressive symptoms compared to the healthy control group, and women with disabilities were found to exhibit more depressive symptoms than men. Moreover, a study by Jones et al. (2014) found a positive relationship between physical disability and anxiety and depression in individuals with multiple sclerosis, and these effects were found to vary depending on gender, age, disease progression, and duration. Dorstyn and colleagues (2011) reported that 30% of individuals with spinal cord injuries experienced clinical levels of depression, anxiety, and post-traumatic stress, particularly during the acute post-injury period. The findings of these studies may be limited in terms of generalizability or comparability. This is because many of the studies were conducted with older participants, which may make the effects of age-related variables more pronounced. However, the validity of these findings may be limited for younger or middle-aged individuals. Likewise, studies focusing on specific illnesses may provide a more detailed examination of that illness's characteristics, but their generalizability to individuals without that specific condition or those with different health conditions may be restricted. Being aware of these differences is important when evaluating and comprehensively interpreting research findings. Future studies are expected to enhance the generalizability of findings by focusing on more diverse sample groups that include participants of different age ranges and with various health conditions. Such approaches can help tailor healthcare services more effectively to different subgroups.

Glueckauf and Quittner (1992) suggested that individuals with physical disabilities frequently encounter difficulties in social interactions, including facing devaluing attitudes, coping with embarrassing situations, and receiving inconsistent reactions from others (Glueckauf & Quittner, 1992). In the results of the present study, no statistically significant differences were found between the groups in the total and subscale scores of the NCBI and CBP-Q, which were administered to assess cognitive processes. This finding may be the result of the cognitive schemas of individuals with physical disabilities being shaped by the adaptation and coping mechanisms they develop in response to the challenges they face. Indeed, a study on individuals with spinal cord injuries found that the prevalence of major depressive disorder was 11.9% in the first year after injury, while it decreased to 9.7% by the fifth year. The likelihood of major depressive disorder was shown to significantly decline between the first and fifth years after the injury (Arango-Lasprilla et al., 2011). Furthermore, considering that most of the participants in this study were members of associations or registered at rehabilitation centers, it can be assumed that they receive more social support compared to individuals with physical disabilities in the general population. This may limit the generalizability of the findings and suggests the need for a broader and more diverse participant group in future research.

According to Wells' Self-Regulatory Executive Function model, the basis of psychopathology lies in a*) a perseverative and negatively biased thinking style*, b) *attention strategies focused on threat and danger with a negative bias*, and c) *components of dysfunctional coping strategies*, all of which constitute the cognitive attentional syndrome (Wells, 2002, 2011b, 2019). Contrary to expectations, the total CAS-1 score, which measures the cognitive attentional syndrome, was found to be higher in the healthy control group. The lower CAS-1 total score observed in individuals with physical disabilities indicates a lower activation of the cognitive attentional syndrome.

A growing body of empirical evidence has shown that individuals who experience traumatic and stressful life events may undergo positive psychological changes as a result of their struggle with adversity, stress, and trauma (Calhoun et al., 2000; Tedeschi & Calhoun, 2004; Linley et al., 2008). Byra, found that coping strategies and the acceptance of disability were key to explaining the intensity of these changes in women with spinal cord injuries and lower limb amputations (Byra, 2017). Kim (2016) identified that recognition of new possibilities, spiritual growth, and appreciation of life were predictors of life satisfaction and happiness among physically disabled individuals in Korea (Kim et al., 2016). In light of this information, the lower CAS-1 scores found in physically disabled individuals may suggest a result of posttraumatic growth.

It is known that negative core beliefs create a predisposition to depression (Abela et al., 2009; Otani et al., 2017). In addition to cognitive processes, it is considered that the identification, conceptualization, and determination of behavioral processes that play a key role in mental pathologies as treatment targets may also become possible through the CBP-Q. The CBP-Q has been shown to be positively associated with scales used to assess the severity of both depressive and anxiety disorders and has been found suitable for transdiagnostic evaluation (Patel et al., 2015b; Oğuz & Batmaz, 2020b). As a result of this study, significant relationships were found between negative core beliefs, cognitive-behavioral processes, and the levels of depression, anxiety, and stress in individuals with physical disabilities.

The results of the multiple linear regression analysis of the study indicate that negative core beliefs and the cognitive attentional syndrome predict levels of depression and anxiety, and that these processes are important in affecting the mental health of individuals with physical disabilities. A study conducted in our country with patients diagnosed with major depressive disorder showed that metacognitive beliefs play a critical role in explaining depressive symptoms and emphasized that both positive and negative metacognitions related to rumination should be taken into account in clinical assessment and interventions (Yılmaz et al., 2022). However, the predictive effect of the CBP-Q was not determined. This may be due to the dominant relationship between NCBI and CAS-1, which may have caused the predictive effect of the CBP-Q to become insignificant.

Limitations

One of the limitations of this study is that the participants were largely selected through rehabilitation centers and associations. This may limit the generalizability of the findings, as this population is likely composed of individuals with relatively strong social support compared to the general population. Another limitation of the study is that it is based on data obtained through a cross-sectional design.

CONCLUSION

The results of the study indicate that, contrary to expectations, psychopathology in individuals with physical disabilities is not higher than in the healthy control group. This finding is consistent with previous studies that focused on specific groups and supports the idea that disability may lead to posttraumatic growth. Different life experiences and traumatic events can lead to positive psychological changes in individuals going through the process of disability. Therefore, rather than a one-dimensional approach, it is important to consider individual experiences and positive adaptations in understanding the psychological effects associated with physical disability. These results highlight the complexity of the relationship between psychopathology and posttraumatic growth and underline the need for further research.

At the same time, the findings of the study indicate that psychopathological symptoms in individuals with physical disabilities are particularly associated with cognitive and metacognitive processes. These results may serve as a significant guide for the development of psychosocial interventions for individuals with physical disabilities and for the improvement of health policies. However, these findings need to be validated with larger samples and long-term studies.

Conflict of Interest: The authors declare that they have no conflict of interest.

Financial Support: None.

REFERENCES

Abela JRZ, Auerbach RP, Sarin S, & Lakdawalla Z (2009) Core beliefs and history of major depressive episodes in currently non-depressed university students. Cognit Ther Res, 33: 50–58.

Arango-Lasprilla, JC, Ketchum JM, Starkweather A, et al. (2011) Factors predicting depression among persons with spinal cord injury 1 to 5 years post injury. NeuroRehabil, 29: 9–21.

Batmaz S, Mısır E, & Oran Demir M (2022) Olumsuz Çekirdek İnanışlar Ölçeği: Türkçe Sürümün Geçerliliği ve Güvenilirliği.

Beck AT. (1979). Cognitive therapy of depression. Guilford press.

Beck AT, & Alford BA (2009) Depression: Causes and treatment. University of Pennsylvania Press.

Beck JS (2020) Cognitive behavior therapy: Basics and beyond. Guilford Publications.

Bolat N, Doğangün B, Yavuz M, et al. (2011) Doğuştan tam görme engeli olan ergenlerin depresyon, kaygı düzeyleri ve benlik kavramı özellikleri. Turk Psikiyatr Derg, 22: 77–82.

Boswell DM, & Wingrove JM (1974) The handicapped person in the community. A reader and sourcebook. Tavistock Publications Ltd., 11 New Fetter Lane, London EC4.

Breslau N (1985) Psychiatric disorder in children with physical disabilities. J Am Acad Child Psychiatry, 24:87–94.

Byra S (2017) Pozytywne zmiany w percepcji kobiet z nabytą niepełnosprawnością ruchową. Roczniki Pedagogiczne, 9: 19–41.

Calhoun LG, Cann A, Tedeschi RG, et al. (2000) A correlational test of the relationship between posttraumatic growth, religion, and cognitive processing. Journal of Traumatic Stress: Official Publication of The International Society for Traumatic Stress Studies, 13: 521–527.

Capobianco L, Faija C, Husain Z, et al. (2020) Metacognitive beliefs and their relationship with anxiety and depression in physical illnesses: A systematic review. PloS One, 15: e0238457.

Cartwright-Hatton S, Wells A (1997) Beliefs about worry and intrusions: The Meta-Cognitions Questionnaire and its correlates. J Anxiety Disord, 11: 279–296.

Chang E, Johnson A (2013) Chronic illness and disability: Principles for nursing practice. Elsevier Health Sciences.

Cusforth Z (1951) Academic value of research participation by undergraduates. Am Psychol, 41: 317.

Dixon D, Johnston M (2008) Cognitive representations of disability behaviours in people with mobility limitations: Consistency with theoretical constructs. Disabil and Rehabil, 30: 126–133.

Dorstyn D, Mathias J, Denson L (2011) Efficacy of cognitive behavior therapy for the management of psychological outcomes following spinal cord injury a meta-analysis. J Health Psychol, 16: 374–391.

Field A (2013) Discovering statistics using IBM SPSS statistics. sage.

Glueckauf RL, Quittner AL (1992) Assertiveness training for disabled adults in wheelchairs: Self-report, role-play, and activity pattern outcomes. J Consult Clin Psychol, 60: 419.

Gündüz A, Gündoğmus İ, Sertçelik S, et al. (2019) Validity and reliability of cognitive attentional syndrome-1 questionnaire. Psychiatry Investig, 16:355.

Gwilliam P, Wells A, Cartwright-Hatton S (2004) Dose meta-cognition or responsibility predict obsessive–compulsive symptoms: a test of the metacognitive model. Clinical Psychology & Psychotherapy: An International Journal of Theory & Practice, 11: 137–144.

Jones KH, Jones PA, Middleton R, et al. (2014) Physical disability, anxiety and depression in people with MS: an internet-based survey via the UK MS Register. PLoS One, 9: e104604.

Kim J, Kim M, Park SH (2016) Exploring the relationship among posttraumatic growth, life satisfaction, and happiness among Korean individuals with physical disabilities. Psychol Rep, 119: 312–327.

Leeper JD, Badger LW, Milo T (1985) Mental disorders among physical disability determination patients. Am J Public Health, 75:78–79.

Linley PA, Joseph S, Goodfellow B (2008) Positive changes in outlook following trauma and their relationship to subsequent posttraumatic stress, depression, and anxiety. J Soc Clin Psychol, 27:877–891.

Lovibond PF, Lovibond SH (1995) The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. Behaviour Research and Therapy, 33: 335–343.

Lovibond SH, Lovibond PF (1995) Depression anxiety stress scales. Psychological Assessment.

Marschark M (1993) Psychological development of deaf children. Oxford University Press, USA.

Mushtaq S, Akhouri D (2016) Self esteem, anxiety, depression and stress among physically disabled people. Int J Indian Psychol, 3: 64.

Noh JW, Kwon YD, Park J, et al. (2016) Relationship between physical disability and depression by gender: a panel regression model. PloS One, 11: e0166238.

Nordahl H, Wells A. (2019) Measuring the cognitive attentional syndrome associated with emotional distress: Psychometric properties of the CAS-1. Int J Cogn Ther, 12:292–306.

Oğuz G, Batmaz S (2020a) Transdiyagnostik Bilişsel Davranışçı Yaklaşıma Göre Psikopatolojik Süreçlerin Değerlendirilmesi: Bilişsel ve Davranışçı Süreçler Ölçeği'nin Türkçe Sürümünün Geçerliliği ve Güvenilirliği.

Oğuz G, Batmaz S (2020b) Transdiyagnostik bilişsel davranışçı yaklaşıma göre psikopatolojik süreçlerin değerlendirilmesi: Bilişsel ve Davranışçı Süreçler Ölçeği'nin Türkçe sürümünün geçerliliği ve güvenilirliği. Journal of Cognitive-Behavioral Psychotherapy and Research, 9: 173–186.

Organization WH (2011) World report on disability 2011. World Health Organization.

Osmo F, Duran V, Wenzel A, et al. (2018) The negative core beliefs inventory: Development and psychometric properties. J Cogn Psychother, 32: 67–84.

Otani K, Suzuki A, Matsumoto Y, et al. (2017) Relationship of negative and positive core beliefs about the self with dysfunctional attitudes in three aspects of life. Neuropsychiatr Dis Treat, 2585–2588.

Patel T, Mansell W, Veale D (2015a) The cognitive behavioural processes questionnaire: a preliminary analysis within student, mixed clinical and community samples and the identification of a core transdiagnostic process. Cognit Ther Res, 39: 193–203.

Patel T, Mansell W, Veale D (2015b) The cognitive behavioural processes questionnaire: a preliminary analysis within student, mixed clinical and community samples and the identification of a core transdiagnostic process. Cognit Ther Res, 39: 193–203.

Reynell R (1970) A pine of disability. Scotland: Foreman & Co.

Sariçam H (2018) The psychometric properties of Turkish version of Depression Anxiety Stress Scale-21 (DASS-21) in health control and clinical samples. Journal of Cognitive Behavioral Psychotherapies and Research, 7 : 19.

Sweetland JD (1990) Cognitive-behavior therapy and physical disability. Journal of Rational-Emotive and Cognitive-Behavior Therapy, 8: 71–78.

Tedeschi RG, Calhoun LG (2004) "Posttraumatic growth: conceptual foundations and empirical evidence." Psychological Inquiry, 15:1–18.

Turner RJ, Lloyd DA, Taylor J (2006) Physical disability and mental health: An epidemiology of psychiatric and substance disorders. Rehabil Psychol, 51: 214.

Wells A (2002) Emotional disorders and metacognition: Innovative cognitive therapy. John Wiley & Sons.

Wells A (2011a) Metacognitive therapy for anxiety and depression. Guilford press.

Wells A (2011b) Metacognitive therapy for anxiety and depression. Guilford press.

Wells, A (2019) Breaking the cybernetic code: Understanding and treating the human metacognitive control system to enhance mental health. Frontiers in Psychology, 10:480104.

Wells A, Cartwright-Hatton S (2004) A short form of the metacognitions questionnaire: properties of the MCQ-30. Behav Res Ther, 42:385–396.

Yılmaz AE (2016) Depresyonun üstbilişsel modelinin Türkiye'deki bir üniversite öğrencisi örnekleminde incelenmesi. Turk Psikiyatr Derg, 27: 100–109.

Yılmaz AE, Şenormancı G, Şenormancı Ö (2022) Depresyonun üstbilişsel modelinin Türkiye'deki bir majör depresif bozukluk örneklemi üzerinde incelenmesi. Turk Psikiyatr Derg, 33:82-89.