



## IMPACT OF CHARACTER STRENGTHS ON PSYCHOLOGICAL WELLBEING IN ADOLESCENTS WITH PHYSICAL DISABILITIES: EXAMINING THE MEDIATING EFFECT OF PSYCHOLOGICAL DISTRESS

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### Abstract

Research suggests that character strengths can significantly impact the psychological wellbeing of adolescents with physical disabilities. Therefore, this study has led to an investigation into the influence of character strengths on psychological wellbeing, including psychological distress as mediator. A total of 84 adolescents with physical disabilities (51 boys, 60.7%; 33 girls, 39.3%) participated in a cross-sectional survey with the age range from 12 to 17 years ( $M = 15.73$ ,  $SD = 1.94$ ). The data was collected from special education schools by using measures i.e., Value in Action Inventory for Youth, Warwick-Edinburgh Mental Well-being Scale, Patient Health Questionnaire, and Generalised Anxiety Disorder. Findings revealed a significant predictive relationship between character strengths (bravery, perspective, and zest) and psychological wellbeing and mediated by psychological distress ( $\beta = .21$ ). This study is a significant addition in positive psychology interventions for adolescents with physical disabilities, improving their wellbeing involves addressing character strengths and psychological distress.

**Keywords:** Character Strengths, Psychological Wellbeing, Psychological Distress, Adolescents with Physical Disabilities

### Introduction

Adolescence is commonly described as a turbulent phase marked by a variety of life challenges. Adolescents who have physical disabilities face increased vulnerability, as their disability can cause additional social and personal obstacles into their lives. This period of transition to adulthood is characterized by numerous changes and challenges. It is worth noting that the experiences and perceptions of wellness, encompassing personal, social, and sexual aspects, during adolescence can significantly shape one's worldview and interactions with the world as an adult (Ryan, 2016). The World Health Organization (WHO, 2020) estimates that more than 1 billion people around the globe are living with disabilities and chronic health conditions worldwide, that represents almost 15% of the world's total population. A greater number of adolescents with disabilities is increasing due to

several factors such as increase in aging populations, chronic conditions, and mental health illnesses. Previous studies have shown that individuals with disabilities experience different psychosocial challenges, such as social stigma, behavioral issues, functional limitations, compromised community support, and limited vocational training (Bezyak et al., 2020; Lee et al., 2022; Tansey et al., 2018; Umucu, 2021). Consequently, it is crucial to examine the integration of contemporary approaches, for instance, in order to facilitate optimal psychosocial functioning for adolescents with disabilities and chronic conditions, however, positive psychology interventions and psychotherapies can help better. Instead of solely focusing on traditional deficiencies and the pathology paradigm, positive psychology seeks to understand the factors that make life worth living rather than repairing weaknesses only (Seligman, 2000). Positive psychology approaches aimed to help humans thrive and flourish. The definition of positive psychology given by Seligman defined as “it's a science and optimal practice of psychology in order to understand and promote a person's wellbeing with the help of assessment, evaluation, and interventions with an aim to enhance behavioral and mental wellness” (Seligman, 2000). Therefore, positive approaches are better at facilitating and promoting well-being. Moreover, understanding disability has become increasingly focused in order to identify human strengths and potentials in recent decades (Wehmeyer, 2021).

A pioneer in rehabilitation, Dr. Wright worked on disabilities and chronic conditions and promoted psychosocial wellbeing, which can be considered from a positive perspective (Martz & Livneh, 2016). In this framework, coping emphasized a person's positive capabilities and qualities, on the other hand, succumbing majorly focused on a person's deficits and impairments (Martz & Livneh; 2016). In line with the principles of positive psychology, the field of rehabilitation emphasized the abilities and strengths of individuals with disabilities (Martz & Livneh, 2016; Chou et al., 2013). In addition to this, boosting strengths can promote the psychological wellbeing of adolescents with physical disabilities. Numerous studies within the field of rehabilitation and disability have investigated how positive psychological traits, such as zest, courage, hope, and resilience, impact functioning such as quality of life from a positive strength-focused perspective (Tansey et al., 2018; Edwards et al., 2017; Madan & Pakenham, 2014).

Character strengths, which are integral elements of positive psychology, can be defined as positive personality traits. These traits not only represent an individual's core identity but also yield positive outcomes for both the individual and others, contributing to the greater good (Park et al., 2004; Niemiec, 2019). The VIA, a hub of character strengths, has given the Classification of Character Strengths, which was developed by Peterson and Seligman. These character strengths are categorized as 24 strengths majorly divided into six virtues (Peterson & Seligman, 2004). Strengths serve as the psychological mechanisms and processes that underpin virtues, which are universally regarded as core moral qualities (Peterson & Seligman, 2004). A study conducted by Umucu et al. (2022), explored the top five and bottom five character strengths of individuals with disabilities over a large sample and found that most individuals with disabilities, the highest character strengths included the kindness, honesty, love of learning, appreciation of beauty and excellence, and fairness, while the lowest strengths were zest, perseverance, spirituality, self-regulation, and prudence, therefore, understanding these variations offered valuable insights for tailored interventions and has implications within the positive psychology (Umucu et al., 2022).

Educators and caregivers want to cultivate moral values in their children. Parents and teachers mentioned that they want to boost strengths, such as love, teamwork, kind acts, honesty, and optimism in their children (Seligman et al., 2009). These strengths as moral qualities in their character bring valuable contributions to self as well as to the community. Past study has shown that character strengths are significantly associated with overall wellbeing such as subjective wellbeing (SWB) or psychological wellbeing (PWB) (Peterson, 2006). Previous research studies have shown that character strengths and wellbeing have strong connections in adults (Emmons & McCullough, 2003; Peterson & Seligman, 2004; Park et al., 2004), youths, and children (Park, & Peterson, 2008; Gillham et al., 2011). Most of the past research studies focused on SWB components in the association between character strengths and wellbeing (Emmons & McCullough, 2003; Gillham et al., 2011; Hausler et

al., 2017), however, a limited number of studies focused on PWB dimensions as indicators of wellbeing (Hausler et al., 2017).

Contrary to this, the relationship between psychopathology and wellbeing has received significant attention as both of these variables are pivotal indicators of mental health in general (Azañedo et al., 2020). Therefore, the fact is, that the use of strengths enhances wellbeing, and different levels of wellbeing act as protective factors against psychopathological problems, suggesting that wellbeing may serve as a mediating factor of mental health (Azañedo et al., 2020). A study conducted on adolescents found that character strengths exhibit an inverse relationship with psychological distress and behavioral problems, suggesting that higher levels of character strengths are interlinked with reduced psychological distress and fewer behavioral issues (Dahlsgaard et al., 2005). For instance, research conducted with adolescents showed higher scores on honesty, love, persistence, and prudence were shown lower on behavioral problems as compared to those adolescents who were lower on these strengths. Moreover, adolescents who reported higher levels of zest, hope, and leadership exhibited lower levels of depression and anxiety (Dahlsgaard et al., 2005; Park & Peterson, 2006). Similarly, another study of school-age adolescents reported that zest, hope, and self-regulation interlinked with low negative affectivity (Park & Peterson, 2006). These correlational studies confirm the association between character strengths and increased wellbeing; however, it is important to note that these studies are unable to establish whether character strengths predict future psychological wellbeing or are simply concurrent correlates or outcomes of wellbeing. For example, the optimism strength predicts increased health, life satisfaction, and decrease in depression and anxiety in adolescents and adults (An et al., 2020; Arslan & Yıldırım, 2021).

Strengths-based intervention research studies suggest that enhancing character strengths can improve overall wellbeing. In particular, interventions that promote wellbeing and self-regulation are effective in reducing aggression, and other psychological issues in adolescents (Gander et al., 2013; Chakhssi et al., 2018). Moreover, interventions that are intended to promote optimism are found helpful in reducing and preventing depressive symptoms (Chakhssi et al., 2018; Seligman et al., 2009). The use of interventions to help individuals recognize their signature strengths helped reduce symptoms of depression and increase life satisfaction and happiness (Seligman et al., 2006; Seligman et al., 2005). Positive psychology interventions have received empirical support for their efficacy in enhancing various dimensions of wellbeing, encompassing aspects such as life satisfaction, psychological distress, and overall psychological functioning. These interventions emphasize the cultivation of individual character strengths and virtues in diverse populations.

### **Theoretical framework**

Primarily, Seligman (2002) conceptualized the positive approaches through engagement, positive emotions, and meaning. These basic three components promote happiness and wellbeing. However, later Seligman (2011) replaced this three-component model with the renowned Flourishing theory, which argued that in order to attain optimal wellbeing people need to orient themselves toward five key elements. Therefore, in this already existing model based on three components P for Positive Emotions, E for Engagement, and M for Meaning, Seligman included two more components R for Positive Relationships and A for Accomplishment (Seligman, 2011). Based on these five components the model is named "PERMA" which represents the first letter of each component (Seligman, 2011). This new theory of psychological health gives a deep understanding of the positive approach to developing character as a strength. Positive psychology assumes that any deficit in the PERMA elements leads to psychological discomfort (Rashid & Seligman, 2013). Moreover, Positive Psychotherapy (PPT) was formulated to help people with depressive tendencies and develop the PERMA model to flourish lives. Therefore, PPT can be considered a psychological intervention that helps people with depression flourish. A study conducted by Rashid and Seligman (2013) reported that individuals who experience psychological distress such as depression often experience fewer PERMA elements (Rashid & Seligman, 2013). Commonly, such symptoms are primary correlates of psychological distress such as depression and anxiety. Moreover, they suggested that symptoms of

depression should be seen as contributing factors. In addition to this, Seligman et al. (2006) proclaimed that developing positive stimuli against these symptoms reduces depression and future relapses. These positive stimuli could be character strengths, positive meaning and relationship, positive emotions, and internal motivation. Azañedo et al. (2020) investigated the relationship between mental health and social intelligence (SI) by using mediation modeling to uncover the mechanisms at play and found that SI significantly influences psychological distress through positive and negative effects of improved life satisfaction and positive relations with others. The significance of enhancing SI to prevent disorders and promote mental wellbeing, particularly by improving subjective wellbeing components. They also inform the development of interventions for better mental health, emphasizing the cultivation of social intelligence.

### Current Study

The current study aimed to determine whether the character strengths of adolescents can predict their wellbeing during the adolescence period. More specifically, adolescents with a physical disability indicate character strengths and wellbeing or not. Moreover, the uniqueness of this study is that it also investigates psychological distress as a mediator. There was a scarcity of literature on psychological distress as the mediator with character strengths and psychological wellbeing among adolescents with physical disability. However, many studies have examined predictors and correlations of the wellbeing of adolescents (Huebner & Diener, 2008; Park & Peterson, 2005). Therefore, in this paper, it was assumed that psychological distress would mediate in the relationship between character strengths and psychological well-being. Hence, (i) it was hypothesized that character strengths would be associated with psychological wellbeing among adolescents with physical disabilities. Moreover, (ii) it was predicted that there would be a mediating role of psychological distress in the relationship between character strengths and the psychological wellbeing of adolescents with physical disability.

### Study Framework

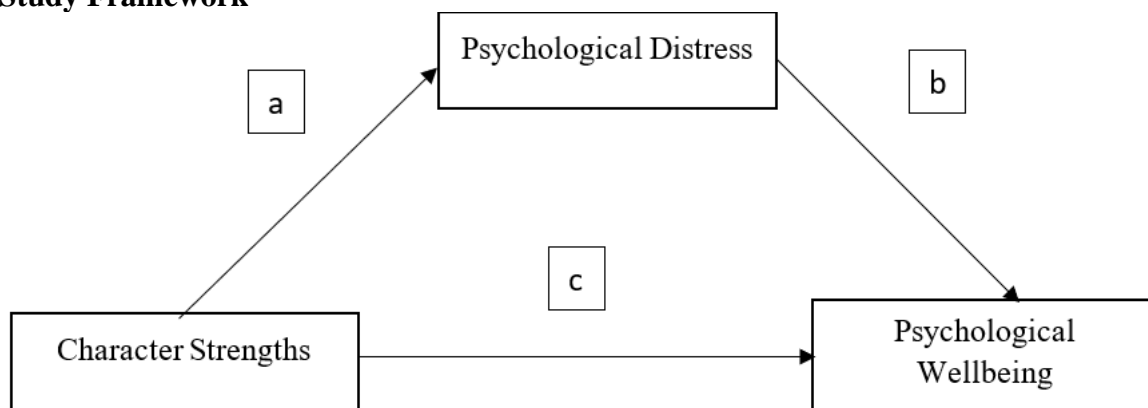


Figure 1. Shows the conceptual framework of the study

### Materials and Method

#### Participants

This study recruited 84 adolescents aged between 12 and 18 years, diagnosed with physical disabilities, from special education institutions located in Rawalpindi and Islamabad, Pakistan. Among the participants, the majority (82 individuals, accounting for 97.6%) had orthopedic disabilities, while only a small proportion (2 individuals, 2.4%) had sensory disabilities. Additionally, a larger number of adolescents with physical disabilities came from urban areas (80 individuals, 95.2%), compared to those from rural areas (4 individuals, 4.8%).

#### Study Instruments

1. *Demographic Information:* Demographic variables such as age, ethnicity, and education were assessed through self-prepared measures. Medical and any kind of treatment-related variables such

as type of disability, medication history, and history of physical and psychological illness were also assessed.

2. *Character Strengths: Values Inventory Assessment VIA-Youth-2 (VIA-Y-R2)*. The VIA-Y-R2 is a publicly accessible Likert-type survey designed for children aged 10 to 17. This survey assesses 24-character strengths grouped under the broad categories of six virtues. Each of the character strengths was measured by 4 items on the scale except teamwork which was assessed by 6 items. All the items were measured on the 5-point Likert scale ranging from 1 = Very much unlike me, to 5 = Very much like me. Therefore, the scores are ranging from 98-480. The reliability coefficient in the present study ranges from .67 to .88, which indicates a satisfactory to high-reliability coefficient.
3. *Psychological Wellbeing*: It was operationally defined as overall psychological functioning in terms of scores of WEMWBS. WEMWBS consist of 10 items which measure psychological wellbeing of a person based on self-reported questions. Items are rated on five-point Likert scale i.e., 1 indicate none of the time and 5 indicate all of the time. Total scores on scale are 14-70. The reliability coefficient in the present study ranges from .88, which indicates a high-reliability coefficient.
4. *Psychological Distress*: Psychological distress was operationally defined in terms of scores on anxiety and depression as measured through Patient Health Questionnaire (PHQ-9) and Generalized Anxiety Disorder (GAD-7) respectively. PHQ-9 consists of a nine-item that assesses depression severity. However, GAD-7 consists of seven items that measure the level of anxiety and worry. Both of these measures were used to assess psychological distress. Participants rate the frequency with which they have experienced each of the nine symptoms of depression and anxiety over the past two weeks on a 4-point Likert scale from 0= "not at all," to 3= "nearly every day." In the current study, the collective reliability of psychological distress was .88, which showed high internal consistency.

### **Ethical consideration and Procedure**

After receiving approval from the institutional ethics review committee of the university, the researchers secured formal authorization from concerned authorities for the data collection process. Subsequently, with the participants' consent, the researchers engaged with them, providing a comprehensive overview of the study. Additionally, the researchers assured the participants that their information would be treated with utmost confidentiality and exclusively utilized for research purposes. The questionnaires were administered on an individual basis within designated classroom settings, and the researchers took care to explain each question to ensure participants' accurate understanding of both the questions and their responses

### **Analysis**

After collecting data, it was analyzed by using the SPSS version 23.0. (IBM, USA). In order to test the demographic characteristics, frequency and percentage analysis were computed. Moreover, means, standard deviation, and alpha reliability were also computed to address the statistical computation of research data. In addition to this, normality analyses were also computed including skewness, kurtosis, and histogram graph which showed that the data of the present study was normally distributed in order to further apply the parametric tests. After enduring the normality of data, parametric analysis, correlation, and meditation were employed to test the study hypothesis in order to answer the objectives.

### **Results**

Initially, the normality of the data was assessed which showed that the values of skewness for all scales and subscales ranged from -.17 to .72 ( $< +2 / -2$ ) which indicated that the data is symmetrical and not skewed (Demir, 2022; Field, 2013). Similarly, the values of kurtosis for all scales and subscales ranged from -.04 to 1.74 ( $< +2 / -2$ ) which indicated that the data is not kurtic (Demir, 2022;

Field, 2013). Moreover, the test of Kolmogorov-Smirnov and Shapiro-Wilk were non-significant, which confirms normality of the data on study variables including character strengths, psychological wellbeing and distress. Thus, the normality analysis confirmed that data is normally distributed on all scales which is an essential requirement of the analysis administered for hypothesis testing in the present study.

**Table 1: Correlation Analysis of Character Strengths with Psychological Wellbeing and Psychological Distress**

Character Strengths	Psychological Wellbeing	Psychological Distress
Bravery	.52***	-.17
Perspective	.32**	-.15
Zest	.32**	-.16
ABE	-.12	-.24*
Forgiveness	.06	-.19
Humility	.06	-.18
Social-Intelligence	.06	-.05
Gratitude	.08	-.05
Prudence	.08	-.17
Hope	.09	-.23
Judgment	.09	-.09
Kindness	.11	-.19
Love	.11	-.10
Spirituality	.12	-.09
Curiosity	.13	-.02
Fairness	.14	-.23*
Humor	.14	-.04
Honesty	.15	-.04
Leadership	.15	-.09
Teamwork	.16	-.07
Self-regulation	.17	-.07
Perseverance	.19	-.08
Creativity	.20	-.05
Love of Learning	.21	-.09

Note. ABE = Appreciation of Beauty Excellence

Table 2 represents the 24-character strengths that showed positive correlation with psychological wellbeing, which means that building character strengths can enhance wellbeing of adolescents with physical disability. Findings show that bravery ( $r = .52, p < .000$ ), perspective ( $r = .32, p < .001$ ), zest ( $r = .32, p < .001$ ) were significantly positively correlated with psychological wellbeing. However, other strengths were positively non-significantly correlated with psychological wellbeing. Furthermore, 24-character strengths showed negative correlation with psychological distress, which means that building character strengths can decrease symptoms of psychological distress among adolescents with physical disability. Findings showed that appreciation of beauty and excellence ( $r = -.24, p < .05$ ) and fairness ( $r = .23, p < .05$ ) were significantly negatively correlated with psychological distress. However, other strengths were negatively non-significantly correlated with psychological distress.

**Table 2** Mediation Analysis of Psychological Distress between Character Strengths and Psychological Wellbeing

Variables	B	95%CI	SE B	$\beta$	$R^2$	$\Delta R^2$
Step 1						
Constant	30.44***	[18.18, 42.69]	6.16		.04	.05*
Character Strengths	.05	[.00, .10]	.03	.27*		
Step 2						
Constant	32.09***	[17.22, 46.96]	7.47		.05	.01
Character Strengths	.05	[-.00, .10]	.03	.21		
Psychological Distress	-.08	[-.49, .33]	.21	-.04		

Note. \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

Table 2 showed the mediation analysis with character strengths and psychological wellbeing. The value of  $R^2$  .04 showed that the character strengths significantly explained 4% variance in the psychological wellbeing with  $F = 3.95$ . Moreover, character strengths significantly positively predicted psychological wellbeing ( $\beta = .27$ ). In addition,  $R^2$  value .05 showed that the character strengths ( $\beta = .21$ ,  $p > .05$ ) and psychological distress non-significantly explained 5% variance in the psychological wellbeing ( $\beta = -.04$ ,  $p > .05$ ) with  $F = 2.03$ . The regression analysis for character strengths non-significantly reduced from one Model to second Model such as .27 to .21, which conforms to the perfect mediation. More specifically, character strengths have an indirect effect on psychological wellbeing.

**Table 3** Mediation Analysis of Psychological Distress between Character Strengths (i.e., bravery) and Psychological Wellbeing

Variables	B	95%CI	SE B	$\beta$	$R^2$	$\Delta R^2$
Step 1						
Constant	27.29	[19.23, 35.06]	3.91		.17	.17***
Bravery	1.08	[.55, 1.61]	.27	.41***		
Step 2						
Constant	27.881***	[17.57, 38.19]	5.183		.17	.00
Bravery	1.070***	[.53, 1.61]	.273	.40***		
Psychological distress	-.034	[-.41, .35]	.193	-.02		

Note. \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

Table 3 showed the mediation analysis with bravery, strength and psychological wellbeing. The  $R^2$  .17 showed that the bravery explained 17% variance in the psychological wellbeing with  $F = 16.28$ , with the significant level less than .001 and it revealed that bravery positively predicted psychological wellbeing ( $\beta = .41$ ,  $p < .001$ ). On the other hand,  $R^2$  value .17 showed that the bravery ( $\beta = .40$ ,  $p < .001$ ) and psychological distress explained 17% variance in the psychological wellbeing ( $\beta = -.02$ ,  $p > .05$ ) with  $F = 8.06$ ,  $p < .01$ . The regression analysis for bravery significantly decreased from Model-1 to Model-2 (.41 to .40), which conforms to the partial mediation. Therefore, bravery has an indirect and direct effect on psychological wellbeing.

**Table 4** Mediation Analysis of Psychological Distress between Character Strengths (i.e., zest) and Psychological Wellbeing

Variables	B	95%CI	SE B	$\beta$	$R^2$	$\Delta R^2$
Step 1						
Constant	34.21		2.75		.12	.11**
Zest	.83		.25	.34**		
Step 2						
Constant	35.18		4.25		.11	.01
Zest	.82		.26	.33**		
Psychological distress	-.06		.19	-.03		

Note. \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

Table 4 showed the mediation analysis with zest strengths and psychological wellbeing. The  $R^2$  value .12 showed that the zest explained 12% variance in the psychological wellbeing with  $F(1, 82) = 10.68, p < .01$ . The findings revealed that zest positively predicted psychological wellbeing ( $\beta = .34, p < .01$ ). The  $R^2$  value .11 showed that the zest ( $\beta = .33, p < .01$ ) and psychological distress explained 11% variance in the psychological wellbeing ( $\beta = -.03, p > .05$ ) with  $F = 5.33, p < .01$ . The regression analysis for zest significantly decreased from Model-1 to Model-2 (.34 to .33), which conforms to the partial mediation. Therefore, zest strength has an indirect and direct effect on psychological wellbeing.

**Table 5** Mediation Analysis of Psychological Distress between Character Strengths (i.e., perspective) and Psychological Wellbeing

Variables	B	95%CI	SE B	$\beta$	$R^2$	$\Delta R^2$
<b>Step 1</b>						
Constant	32.47***	[25.96, 38.99]	3.27		.11	.11**
Perspective	.89**	[.34, 1.43]	.27	.34**		
<b>Step 2</b>						
Constant	33.53***	[24.25, 42.82]	4.67		.11	.00
Perspective	.87**	[.32, 1.43]	.28	.33**		
Psychological Distress	-.06	[-.46, .33]	.20	-.03		

Note. \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

Table 5 showed the mediation analysis with perspective strengths and psychological wellbeing. The  $R^2$  value .11 showed that the perspective explained 11% variance in the psychological wellbeing with  $F = 10.47, p < .01$  and revealed that perspective positively predicted psychological wellbeing ( $\beta = .34, p < .01$ ). Moreover,  $R^2$  value .11 showed that the perspective ( $\beta = .33, p < .01$ ) and psychological distress explained 11% variance in the psychological wellbeing ( $\beta = -.03, p > .05$ ) with  $F = 5.23, p < .01$ . The regression analysis for bravery significantly decreased from Model-1 to Model-2 (.34 to .33), which conforms to the partial mediation. Therefore, perspective strength has an indirect and direct effect on psychological wellbeing.

## Discussion

Character strengths are the positive traits that build over a period of time. Character strengths are a baseline component to promote wellbeing in adolescents in order to foster their future life. Moreover, enhanced overall wellbeing has been reported as an indicator to decrease the overall level of psychological distress (Thomas et al., 2016; Van der Heijden et al., 2017). In this study, we find out that few of the character strengths are positively correlated with psychological wellbeing which means that having character strengths is evidence of increased psychological wellbeing.

The current research study was hypothesized as character strengths would be correlated and would predict psychological wellbeing among adolescents with physical disability. This hypothesis, in the present study, was supported by the statistical data. Previous studies show a strong association between character strengths and overall wellbeing (Littman-Ovadia & Lavy, 2011). According to the PWB, character strengths were most positively related to fulfilling life's purpose, environmental mastery, and acceptance of oneself (Littman-Ovadia & Lavy, 2011). Moreover, they also observed various strengths such as avidity for learning, perspective, curiosity, zest, and hope were the significant character strengths which were positively correlated with the perceptions of positive outcomes, however, curiosity and regulating oneself were significantly negatively associated with the perceptions of negative outcomes (Littman-Ovadia & Lavy, 2012). However, the results of the proposed study revealed character strengths as a predictor of wellbeing among adolescents with a physical disability. Therefore, this confirms that character strengths significantly contribute to enhancing the wellbeing of adolescents with disabilities. In this study, strengths that significantly positively correlated with psychological wellbeing were bravery, creativity, hope, perspective, and zest. Character strengths are an important predictor of wellbeing (Proctor et al., 2011). Many past



studies confirmed that the use-of-signature strengths helped in boosting wellbeing, both subjective and psychological wellbeing, happiness and decreased psychological distress such as depression (Gander et al., 2013; Proyer et al., 2015; Seligman et al., 2005). Positive psychology strength-based interventions are effective in order to boost positive emotion (Seligman et al., 2005; Yurayat & Seechaliao, 2021; Umucu et al., 2021) and psychological distress (Chakhssi et al., 2018), or improving levels of optimism and hopelessness (Huffman et al., 2014). More specifically these character strengths protect against the negative impacts of cognitive harms such as perfectionism, self-criticism, and approval addiction that can cause depression-like psychological distress (Huta & Hawley, 2010). In addition to this, according to Proyer et al. (2013) the greater level of reinforcement of character strengths is associated with health behaviors, also Peterson et al. (2006) stated that they in-force speedy healing from physical illness and other psychological disorders. Another study conducted by Xie et al. (2020) reported the direct impact of character strengths on both psychological wellbeing and distress. Conclusively, the attributes of character strengths such as zest, creativity, love and care, hope, inquisitiveness, and self-control can enhance the psychological wellbeing of adolescents with disabilities. Additionally, it's noteworthy that caring and inquisitiveness exhibit negative associations with psychological distress.

In the second hypothesis, it was anticipated that psychological distress would mediate with character strengths and psychological wellbeing. This was supported by the statistical data of the current research study. Additionally, to our knowledge, this is the first study that was conducted to investigate psychological distress as a mediator in association between character strengths and psychological wellbeing. In the past, character strengths as the mediator of internalizing symptoms and prosocial behavior (Padilla-Walker et al., 2020), gratitude mediated in relationship with life satisfaction (Lee, 2022; Lee et al., 2022), hope is also studied as a mediator (García-Castro et al., 2020). However, past literature showed that psychological distress worked as a mediator in several studies in combination with other variables including quality of life (Aruta et al. 2022), and help-seeking intent (Vogel & Wei, 2005). Therefore, this study investigated psychological distress as a mediator of character strengths and psychological wellbeing. Psychological distress has an indirect effect on character strengths among adolescents. The high levels of psychological distress can lower the character strengths. Therefore, the decrease in adolescents with physical disability and psychological distress such as depression and anxiety, is partly attributed to reduced stigma surrounding reporting and seeking help. However, psychological distress poses a significant threat to adolescents, impacting their psychological wellbeing, interpersonal interactions, and access to social support during a crucial developmental stage. Character strengths are strong predictors of protective factors of adolescents' mental health such as chronic illness and psychological distress. Therefore, there is a need to mitigate internalizing problems such as depression and anxiety in adolescents with disabilities in order to enhance their character strengths such as hope, gratitude, persistence, and self-esteem (Thapar et al., 2012). Summing up, character strengths like hope, perspective, and zest help decrease the distress symptoms. The theoretical framework of PERMA wellbeing explains positive emotions, engagement, relationships, meaning, and accomplishments are significant factors in maintaining mental and psychological health (Bartholomaeus et al., 2020). More specifically, positive emotions say feeling well with engaging in activities a person is interested in, while relationships represent a strong social connection, meaning representing purpose in life and lastly, accomplishment is achieving a goal in life (de Carvalho et al., 2023). Conclusively, wellbeing is something that can be enhanced by building character strengths in order to decrease the symptoms of psychological distress. Through our findings, it is confirmed that the PERMA model of wellbeing (Seligman, 2011) strongly impacts character strength and reduces psychological distress among adolescents with a physical disability.

Like other studies, our study has some limitations which need to be overcome in future research studies. The limitations of our study is that it was conducted on a small number of disability populations in which only orthopedic impairment was included. Therefore, future potential researchers can contribute by studying different groups of disabilities such as sensory impairment and brain traumatic injury, etc. Moreover, our sample predominantly consisted of students as adolescents.

Therefore, it can be said that their experiences are different in many ways than others, such as their daily activities which can contribute to a high level of psychological distress in students as compared to community samples. In addition, we considered studying character strengths as a whole rather than 24-character strengths, which is limited to configuring which specific strengths predict wellbeing and distress. Therefore, it is an opportunity for future researchers to investigate which specific strength is the best predictor of wellbeing in adolescents with physical disability. Another limitation of this study was the data collected only from students, however, in the future, more studies can be conducted by collecting data through triangulation, which means that the data can be collected from teachers and parents as well. Moreover, future research studies can be carried out to reduce the psychopathological symptoms in adolescents with a disability by administering positive psychology approaches. Because adolescents with physical disabilities are already vulnerable to illness and other health conditions, as a result, it leads them to experience uncertain poor self-esteem and psychological distress in late adulthood. Therefore, there is a need to treat them by administering strength-based interventions in order to overcome their psychological conditions.

### **Conclusion**

This study was cross-sectional research to investigate character strengths, psychological wellbeing, and psychological distress among adolescents with physical disability in Pakistan. Our findings revealed that character strengths like bravery, creativity, hope, perspective, and zest were positively correlated and predicted psychological wellbeing. Moreover, in this study, psychological distress showed a mediated relationship between psychological wellbeing and character strengths. This gives evidence about character strengths that they can reduce psychological distress such as depression and anxiety among adolescents with a physical disability. It is crucial to support adolescents with a physical disability in order to prevent them from psychological illnesses.

### **Conflict of Interest Disclosure**

The authors declare no potential conflicts of interest.

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### **Ethical Approval**

The study has been approved by the University's Ethics Committee.

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