

## THE IMPACT OF PERSONALITY TRAITS ON COGNITIVE BEHAVIORAL THERAPY EFFECTIVENESS IN ADULTS WITH MAJOR DEPRESSIVE DISORDER: A PRE-POST EXPERIMENTAL STUDY

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### Article Info



### Abstract

**Objective:** This study examined the Impact of Personality Traits on Cognitive Behavioral Therapy Effectiveness in Adults with Major Depressive Disorder.

**Design:** Pre-Post Experimental Design

**Place and duration of study:** Lahore, Pakistan, June 2024- September 2024.

**Subject and method:** The participants were adults ranging in age between 18-65 years diagnosed with Major Depressive Disorder. The sample was selected through purposive sampling from different psychiatric hospitals of Lahore, Pakistan. The sample size was 40 (20 male & 20 female), equally divided and randomly assigned to a control group and an experimental group. In the pre assessment phase, Big Five inventory and Hamilton Depression Scales were employed to assess the participants' personality traits and severity of their depression. In the intervention phase 16 group sessions of Cognitive Behavioral Therapy were carried out followed by re-assessment in the post assessment phase.

**Result and conclusion:** The results confirmed that there is a significant difference in pre and post assessment score of Major Depressive Disorder in experimental group ( $t=9$ ,  $p<.00$ ). Results also showed that Personality traits are likely to impact the effectiveness of Cognitive behavioral therapy where Conscientiousness ( $M=18.25$ ,  $SD=4.99$ ) showed the highest significant difference with depression ( $p<.005$ ). Moreover, Agreeableness also showed significant difference ( $p<.005$ ) with depression ( $M=18.30$ ), ( $SD=5.19$ ). The findings indicated that clients with these two personality traits benefit the most from Cognitive Behavioral Therapy as compared to participants with other personality traits.



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**Keywords:** Personality traits, agreeableness, neuroticism, Depression, Cognitive behavioral therapy

## Introduction

Major depression disorder is a prevalent condition that is affecting the mental health of millions of people globally. It varies from ordinary mood fluctuation to chronic condition (American Psychiatric Association, 2013). Depression can significantly impair the overall functioning and quality of life. In depression, there is an imbalance of the neurotransmitters like serotonin, norepinephrine, and dopamine (Kessler et al., 2005). To treat major depressive disorder, there are different therapeutic approaches that help in alleviating the symptoms (Snyder, 2013).

Cognitive behavioral Therapy (CBT) is clinically proven to be one of the efficient therapeutic techniques in treating depression. Cognitive behavioral therapy focuses on how your thoughts, beliefs and attitudes affect your feelings and actions (Beck et al., 1979). It is efficient in the treatment of depression and alleviating the symptoms of it. It helps in fostering long-term recovery. Cognitive behavioral therapy's basic principle is identifying the negative automatic thoughts and the belief system. It changes negative thoughts into positive ones and alleviate the symptoms of depression (Sakurai & Uchida, 2014). CBT effectiveness and outcomes can vary based on factors like individual differences, cultural aspects and personality traits.

Personality traits are among the most important factors to study while measuring the effectiveness of CBT. Personality is the relatively stable pattern of our thoughts, actions and our feelings (Costa & McCrae, 1992). Personality traits vary from individual to individual and culture to culture to culture. The big five personality traits are openness, conscientiousness, extraversion, agreeableness, and neuroticism. These traits are also known as an acronym called OCEAN. Personality traits affect the effectiveness of cognitive behavioral therapy. It can significantly influence treatment adherence, response to therapeutic strategies, and the overall trajectory of recovery for individuals with mild depressive disorder (Digman, 1990).

Openness to experience is a person's associated with innovation, willingness to learn, and attempt to consider new information which appears to the subject (Caspi et al., 2005). Those with high level of openness would enjoy beauty, creativity and uniqueness, can do well in jobs that requires creativity and adaptability. They also are accepting of new ideas are likely to adopt the change and complexity. On the other hand, the individuals low in openness may have preference for order, schedules, and conventional and may have more utilitarian attitude towards ideas (Costa & McCrae, 1992).

Conscientiousness refers to a persons, self-organization, self-discipline and purposeful behavior. People with high levels of conscientiousness are responsible, accurate and self-disciplined, they tend to perform well in the organization plan and implement tasks (Goldberg, 1992). They do not procrastinate and are highly dependable whether it is in your workplace or in your home. Low conscientiousness, on the other hand, can be manifested in a tendency not to plan, may give an impression of disorganization, and they tend to act on impulse, which will adversely affect their capacity to meet responsibilities on time (DeYoung et al., 2007).

The Extroversion is the personality dimension that reflects friendliness, dominance, and use of derived stimulation originating from external interactions. Highly extraverted people tend to be social, lively, and perform optimally within the social context (John et al., 2008). They are more likely to post or react positively and participate or assume leadership roles in a group or team. On the other hand, people who have low level of this trait may be more inclined to be socially avoidant, reflective and get energized in low stimulation surroundings (Soto & John, 2017).

Agreeableness, reflecting interpersonal orientation and cooperation, can significantly influence how individuals interact and cooperate with others.

Agreeableness refers to the ability of a person in perceiving empathy, sharing, and the balance of life. Highly agreeable people are people oriented, and those people are kind, trusting and others focused (McCrae & Costa, 1997). Therefore, they are good in teamwork and nurturing jobs. They prefer to not argue and would do everything in their power to stay out of trouble with people. On the other hand, low agreeableness makes people may look competitive, skeptical or even antagonistic who are too self-oriented and not much concerned for others or the wellbeing of others (Judge et al., 2002).

Neuroticism can be defined as, emotional stability and negative emotionality of an individual. High levels of neuroticism in individuals are vulnerable to depressive symptoms (Judge et al., 2002). Individuals with high levels of neuroticism tend to feel emotional and anxious whenever the situation gets stressful. It can make them feel unstable and insecure about themselves. Those who score high on neuroticism are sensitive to their emotions, and they show a lot of mood swings; sometimes, they feel so happy, and at other times, they feel a rush of anger in their bodies (Goldberg, 1992).

Understanding the impact of personality traits on CBT outcomes and how it modulates it can help refine therapeutic approaches, develop targeted interventions, and optimize treatment plans. By gaining insight, personalized and précised mental health interventions can be formulated. It will help develop the CBT into more personalized and individualized plans (Soto, 2019). This study helps fill the knowledge gap between CBT intervention and personality traits. This research helps understand the impact of personality traits on treatment outcomes (Roberts et al., 2007).

## **Method**

### ***Participants***

The participants were adults ranging in age between 18-65 years diagnosed with Major Depressive Disorder. The sample was selected through purposive sampling from different psychiatric hospitals of Lahore, Pakistan. The sample size was 40 (20 male & 20 female), equally divided and randomly assigned to a control group and an experimental group.

## **Measures**

### ***Informed consent form***

It will be a written form in which the research objectives and purpose will be mentioned. The participants will be asked for their voluntary participation in this research before conducting it.

### ***Demographic information sheet***

A demographic information sheet will be developed to accurately measure the client's record. Necessary information will be gathered from the clients. This demographic information sheet will assess certain domains of the client's life. It will include the client's age, gender, family structure, socioeconomic status, educational background, occupational history, ethnic background, and health-related information.

### ***Big Five Inventory***

Big Five Inventory (BFI) is globally used to assess personality traits. There are five main dimensions of personality: openness to experience, conscientiousness, neuroticism, agreeableness, and extraversion (Soto & John, 2017). Openness to experience reflects an individual's imagination, curiosity, and unconventional thinking. Its item involves, "I enjoy trying new things and exploring different ideas." This provides the information that an individual is open to new experiences and open-mindedness. Moreover, conscientiousness measures aspects. It also refers to self-discipline and organization (John & Naumann,

2008). Its items are, "I am known for being organized and reliable." Extraversion refers to more social, assertive, and energetic individuals when interacting with others. In addition, agreeableness refers to assessing others, like empathy, kindness, and cooperation. Lastly, neuroticism involves traits like anxiety, stress, and unstable emotions. Individuals self-report it and rate themselves on these items related to personality. This scale has a 1 to 5 and a 1-to-7-point Likert scale. Internal consistency and test-retest reliability show good reliability of the Big Five Inventory. Cronbach's alpha values of 0.64 and 0.69 prove its validity (John & Naumann, 2008).

### ***Hamilton Depression Scale***

Max Hamilton (1960) developed this instrument mainly for assessing the depression symptoms of individuals. Researchers use this scale to assess the presence and intensity of depressive symptoms. This scale is comprised of 17 items that assess the emotional (mood, guilt), physical (weight loss and weight gain), and cognitive symptoms of depression. Individuals rate their responses from 0-2 or 0-4. Total high scores on the scale indicate severe symptoms (Hamilton, 1960). The brief overview of items is presented as a depressed mood: 0 represents the absence, and item 2, which is a feeling of guilt, 2 is present. This scale is best known for reliability, and that's why it is widely used in research for objectively assessing depression symptoms and understanding the treatment plan

### **Procedure**

#### ***Pre-Intervention Assessment Phase***

In the assessment phase, the Big Five inventory and Hamilton Depression Scale will be employed. This will be done to understand the participant's initial personality traits and the severity of depression disorder. This will help explore the factors that might influence the effectiveness of CBT.

#### ***The Intervention Phase***

In this research, there will be two groups. The participants will be divided into a control group and an experimental group. The control group will act as a baseline. In the control group, we will not give any CBT intervention to the clients but will continue with standard care and alternative treatment. The control group will help account for natural changes in depressive symptoms over time and also give a reference point for assessing the effect of personality traits on the effectiveness of CBT. The experimental group will receive the cognitive behavior therapy (CBT) intervention. Participants in this group will undergo the planned CBT sessions. This will allow the researcher to assess the impact of the therapy on depressive symptoms, taking into account the influence of personality traits.

### **CBT Sessions Plan**

Sessions	Techniques
Session 1 (Introduction and Assessment)	<ul style="list-style-type: none"><li>• Establish rapport and discuss the therapeutic alliance.</li><li>• The purpose and structure of CBT will be reviewed.</li></ul>
Session 2-4 (Psychoeducation and goal setting)	<ul style="list-style-type: none"><li>• Psychoeducation on CBT principles will be provided, and how thoughts, feelings, and behaviors are interconnected will be explained.</li><li>• Negative thought patterns that are related to depressive symptoms will be explored and challenged.</li><li>• Behavior activation techniques will be introduced.</li></ul>
Session 5-8 (Cognitive restructuring)	<ul style="list-style-type: none"><li>• Cognitive distortions will be identified and challenged.</li><li>• Cognitive restructuring techniques will be implemented, and negative thought patterns will be modified.</li><li>• Motivate the participants to maintain thought records and track changes in their pattern of thinking.</li><li>• The connection between personality traits and cognitive processes will be discussed.</li></ul>
Session 9-12 (Behavioral strategies)	<ul style="list-style-type: none"><li>• The main focus will be reinforcing positive behaviors and teaching them coping strategies.</li><li>• The exposure techniques will be implemented to confront and overcome the avoidance behaviors gradually.</li><li>• Discuss the association between personality traits and behavioral responses.</li><li>• Goals will be monitored and adjusted.</li></ul>
Session 13-15 (relapse prevention and review)	<ul style="list-style-type: none"><li>• Strategies to prevent relapse will be discussed.</li><li>• Review progress, and the remaining challenges will be addressed.</li><li>• Long-term goals will be revised.</li><li>• The final assessment will be conducted using BDI, and changes in the personality traits will be evaluated.</li></ul>
Session 16 (termination and follow-up)	<ul style="list-style-type: none"><li>• Discuss the conclusion of formal therapy sessions.</li><li>• Provide resources for ongoing support.</li><li>• For follow-up assessments, plans and evaluation of the maintenance of treatment gains will be evaluated.</li><li>• Gain clients' feedback on their overall experience with CBT.</li></ul>

*Post Intervention Phase*

Hamilton Depression scale will be administered again to measure changes in depressive symptoms post-intervention. The Big Five personality inventory will be re- administered to assess differences in personality traits concerning the effectiveness of CBT.

*Statistical Analysis*

Mean and standard deviation were calculated for pre-post intervention scores on the Hamilton Depression scale and the Big Five Personality Inventory. A paired Samples t-test compared pre-post intervention scores on the Hamilton Depression scales in control and experimental group. Personality traits were also assessed in pre-post assessment phase of experimental and control group to measure any significant differences.

*Ethical Consideration*

The research was conducted by getting approval from the institution and providing the correct information about our research proposal. Informed consent was taken in written form from all research participants. They were informed about the purpose, procedure, and confidentiality limit of research, their rights to withdraw from research, and the consequences of withdrawing. In the study, no participants were harmed or exploited. The confidentiality of research participants will be ensured. The deception will not be done while reporting results. Results were not fabricated and were reported as they will be. The ethical review committee of the Department of Humanities of COMSATS University, Islamabad, Lahore campus will approve the research.

**RESULTS**

*Table 1*

Descriptive Statistics of Demographic Variables

Demographic Variables	f (%)	M (SD)
<b>Age</b>		25.05(1.89)
<b>Gender</b>		
Male	20(50)	
Female	20(50)	
<b>Education</b>		
Matric	00(00)	
Bachelor	15(37.5)	
Graduate	25(62.5)	
<b>Birth Order</b>		
First born	9(22.5)	
Second born	7(17.5)	
Middle born	18(45.0)	
Last born	6(15.0)	
<b>Family system</b>		
Nuclear	29(72.5)	
Joint	11(27.5)	

<b>Marital Status</b>		
Single	29(72.5)	
Married	11(27.5)	

Note. M=Mean; SD=Standard deviation, N=40.

**Table 2**  
*Paired sample t-test analysis between pre- and post-assessment of Control group*

Measures	PRE		POST		t	P	95% CI
	M	SD	M	SD			LL - UL
<b>HDSCON</b>	10.50	1.66	10.55	1.60	-2.7	.78	<b>-.43 .33</b>
<b>EXTCON</b>	26.85	4.93	26.10	4.59	1.39	.17	<b>-.37 1.87</b>
<b>AGRCON</b>	25.30	3.98	25.45	3.81	-1.14	.26	<b>-.42 .12</b>
<b>CONCON</b>	25.85	5.52	25.95	5.43	-.49	.62	<b>-.52 .32</b>
<b>NEUCON</b>	26.80	5.20	26.95	5.21	-1.00	.33	<b>-.46 .16</b>
<b>OPECON</b>	<b>24.60</b>	<b>4.03</b>	<b>24.05</b>	<b>4.11</b>	<b>2.06</b>	<b>.06</b>	<b>-.08 1.11</b>

Note. N=20, HDS= Hamilton Depression Scale of Control group, AGR=Agreeableness of Control group, EXT= Extroversion of Control group, CON=Conscientiousness of Control group, NEU=Neuroticism of Control group, OPE= Openness of Control group.

Paired Sample T Test was applied to find out the difference between pre and post assessment of control group. Personality traits and Depression rate were assessed between pre and post assessment. The results of control group indicates that there is no significant difference between pre and post analysis. As no intervention (CBT) is given. Depression scores remain persistent throughout pre (M=10.50), (SD=1.66) and post (M=10.55), (SD=1.60) assessment, showing no significant changings (P>.05). There was no significant difference found between pre and post assessment of personality traits (P>.05).

**Table 3**  
*Paired sample t-test between pre-test and post-test assessment phase on Experimental Group*

Measures	PRE		POST		t	p	95% CI
	M	SD	M	SD			LL - UL
<b>HDSEXP</b>	10.60	1.73	9.23	1.33	9	.00	<b>1.03 1.66</b>
<b>EXTEXP</b>	23.45	4.11	24.70	3.80	-3.94	.001	<b>-1.84 -.56</b>
<b>AGREXP</b>	26.15	4.50	27.60	4.40	-4.91	.00	<b>-1.99 -.80</b>
<b>CONEXP</b>	24.30	5.02	27.50	4.01	-8.80	.00	<b>-4.02 -2.47</b>
<b>NEUEXP</b>	28.01	5.01	24.00	4.04	8.04	.00	<b>2.95 5.04</b>



<b>OPEEXP</b>	<b>24.30</b>	<b>3.20</b>	<b>24.90</b>	<b>3.10</b>	<b>-1.24</b>	<b>.23</b>	<b>-1.61</b> <b>.41</b>
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Note. N=20, HDS= Hamilton Depression Scale of Control group, AGR=Agreeableness of Control group, EXT= Extroversion of Control group, CON=Conscientiousness of Control group, NEU=Neuroticism of Control group, OPE= Openness of Control group.

Results showed significant negative score of depression between pre (M=10.60), (SD=1.73) and post assessment (M=9.25), (SD=1.33), showing that after the intervention the symptoms of depression are reduced (P<.05). There was also significant difference found between pre and post assessment of personality traits.

**Table 4**

Paired sample t-test measuring the difference between depression and personality traits of post-test assessment phase in Experimental Group

HDSEXP2					95% CI
Measures	M	SD	t	p	LL - UL
<b>EXTEXP2</b>	15.40	4.46	15.42	.00	<b>13.31</b> <b>17.48</b>
<b>AGREXP2</b>	18.30	5.19	15.76	.00	<b>15.87</b> <b>20.72</b>
<b>CONEXP2</b>	18.25	4.99	16.34	.00	<b>15.91</b> <b>20.58</b>
<b>NEUEXP2</b>	14.45	2.89	22.34	.00	<b>13.09</b> <b>15.80</b>
<b>OPEEXP2</b>	<b>15.65</b>	<b>3.85</b>	<b>18.14</b>	<b>.00</b>	<b>13.84</b> <b>17.45</b>

Note. N=20, HDS= Hamilton Depression Scale of Control group, AGR=Agreeableness of Control group, EXT= Extroversion of Control group, CON=Conscientiousness of Control group, NEU=Neuroticism of Control group, OPE= Openness of Control group.

Results of post assessment of experimental group were calculated to find out which personality traits had shown greater impact in the reduction of the symptoms of depression. All personality traits showed impact on the reduction of the level of depression, but Conscientiousness (M=18.25), (SD=4.99) showed the highest significant difference with depression (p<.005) showing that the person that are more conscientious are likely to perform effectively in intervention (Cognitive Behavioral Therapy) and after it, Agreeableness also showed significant difference (p<.005) with depression (M=18.30), (SD=5.19).

**DISCUSSION**

This research aimed to find out the impact of personality traits on the effectiveness of cognitive behavioral therapy (CBT) in individuals with major depressive disorder. The present study supports previous findings of effectiveness of CBT in reducing the symptoms of depression among the participants. Thus, the obtained result of pre-and post-test confirms that all participants felt enhanced mood and functioning after the given intervention. It is in consistent with existing literature review across the globe (Hofmann et al., 2012) Depression is a common disorder for which CBT is widely applied as a predominant method of psychotherapy because of its advice-oriented approach and the focus on the change of maladaptive



patterns of thinking. In clinical trials CBT was consistently effective in reducing depressive symptoms this is supported by the vast literature categorizing CBT as one of the best evidenced treatments for mood disorders. (Cuijpers et al., 2013)

Findings in the study revealed that there was a marked enhancement in all the domains of personality among the experimental group arguing that CBT is an appropriate form of treatment for adults diagnosed with Major Depressive Disorder regardless the type of personality they possess (Smith & Alloy, 2020; Hopwood et al., 2021). CBT is likely to prove beneficial in this respect because of its focus on structure and skill acquisition and because through the process CBT can enable a vast number of people to recognize and restructure their negative thinking style (Beck, 2019). The positive outcome for different personality traits demonstrates the versatility of CBT to accommodate personality aspects and recommend itself as a suitable treatment choice for diverse personality holders struggling with depression (Powers et al., 2021).

## **Conclusion**

In conclusion we concluded that personality traits impact the effectiveness of Cognitive behavioral therapy (CBT). It is concluded that there is a significant difference in pre and post assessment score of Major Depressive Disorder in experimental group. Results also showed that Personality traits are likely to impact the effectiveness of Cognitive behavioral therapy where Conscientiousness showed the highest significant difference with depression. Moreover, Agreeableness also showed significant difference with depression. The findings indicate that clients with these two personality traits benefit from Cognitive Behavioral Therapy more as compared to participants with other personality traits. This research has several implications in making personalized interventions, predicting treatment success, and highlighting potential changes in personality traits that contribute to sustained improvements and relapse prevention.

## ***Limitation and future directions***

Generalizability is likely to be an issue because sample size is small, and participants may not be demographically diverse, especially with regard to culture. In this pre-post design, the outcomes reflect only the short-term change due to CBT, and therefore offer no understanding of the persistence of altered personality traits post treatment or subsequent relapse rates. Focusing exclusively on CBT without comparing it to other therapies may overlook differences in how personality traits affect various therapeutic approaches. The lack of comparison with other types of therapy might do blind to some fine points in how personality traits influence one or another therapy procedure.

Longitudinal and Follow-Up Studies should be done in future researches. Including long-term assessments may offer understanding of how personality characteristics influence CBT efficacy after the therapy is administered. Gender Roles and Cultural Factors are important factors and should be considered in future researches. Focusing on gender roles, especially in the context of cultures where women are willing to participate more in assignments like therapy homework, and how gender roles affect treatment outcomes as well as the patient's willingness to participate in therapy homework. Comparative Therapy Studies should be considered in future researches.

References

- Ashton, M. C., Lee, K., & de Vries, R. E. (2014). The HEXACO Honesty-Humility, Agreeableness, and Emotionality factors: A review of research and theory. *Personality and Social Psychology Review*, 18(2), 139–152. <https://doi.org/10.1177/1088868314523838>
- Bech, P., Rasmussen, N. A., Noerholm, V., Abildgaard, W., & Gøransson, L. (2001). The sensitivity and reliability of the Hamilton Rating Scale for Depression in a psychiatric outpatient population. *International Journal of Methods in Psychiatric Research*, 10(4), 159–169. <https://doi.org/10.1002/mpr.104>
- Caspi, A., Roberts, B. W., & Shiner, R. L. (2005). Personality development: Stability and change. *Annual Review of Psychology*, 56(1), 453–484. <https://doi.org/10.1146/annurev.psych.55.090902.141913>
- Costa, P. T., & McCrae, R. R. (1995). Solid ground in the wetlands of personality: A reply to Block. *Psychological Bulletin*, 117(2), 216–220. <https://doi.org/10.1037/0033-2909.117.2.216>
- Cuijpers, P., van Straten, A., & Andersson, G. (2008). Psychological treatment of depression: Results of a series of meta-analyses. *Nordic Journal of Psychiatry*, 62(1), 10–17. <https://doi.org/10.1080/08039480802315604>
- DeYoung, C. G. (2010). Personality neuroscience and the biology of traits. *Social and Personality Psychology Compass*, 4(12), 1165–1180. <https://doi.org/10.1111/j.1751-9004.2010.00327.x>
- DeYoung, C. G., Quilty, L. C., & Peterson, J. B. (2007). Between facets and domains: 10 aspects of the Big Five. *Journal of Personality and Social Psychology*, 93(5), 880–896. <https://doi.org/10.1037/0022-3514.93.5.880>
- Fergusson, D. M., & Boden, J. M. (2008). The developmental antecedents of personality dysfunction: From early to middle adulthood. *Development and Psychopathology*, 20(3), 1021–1037. <https://doi.org/10.1017/S0954579408000498>
- Goldberg, L. R. (1992). The development of markers for the Big-Five factor structure. *Psychological Assessment*, 4(1), 26–42. <https://doi.org/10.1037/1040-3590.4.1.26>
- Hamilton, M. (1960). A rating scale for depression. *Journal of Neurology, Neurosurgery & Psychiatry*, 23(1), 56–62. <https://doi.org/10.1136/jnnp.23.1.56>
- Hamilton, M. (1967). Development of a rating scale for primary depressive illness. *British Journal of Social and Clinical Psychology*, 6(4), 278–296. <https://doi.org/10.1111/j.2044-8260.1967.tb00530.x>
- Jarrett, R. B., Minhaj Uddin, A., Gerstenfeld, H., Friedman, E. S., & Thase, M. E. (2013). Preventing depressive relapse and recurrence in higher-risk cognitive therapy responders: A randomized trial. *JAMA Psychiatry*, 70(11), 1152–1160. <https://doi.org/10.1001/jamapsychiatry.2013.1969>
- John, O. P., Naumann, L. P., & Soto, C. J. (2008). Paradigm shift to the integrative Big Five trait taxonomy: History, measurement, and conceptual issues. In O. P. John, R. W. Robins, & L. A. Pervin (Eds.), *Handbook of personality: Theory and research* (pp. 114–158). Guilford Press.
- Judge, T. A., Bono, J. E., Ilies, R., & Gerhardt, M. W. (2002). Personality and leadership: A qualitative and quantitative review. *Journal of Applied Psychology*, 87(4), 765–780. <https://doi.org/10.1037/0021-9010.87.4.765>
- Karsten, J., Penninx, B. W., Riese, H., Ormel, J., Nolen, W. A., & Hartman, C. A. (2012). The state effect of depressive and anxiety disorders on Big Five personality traits. *Journal of Psychiatric Research*, 46(5), 644–650. <https://doi.org/10.1016/j.jpsychires.2012.01.024>

- McCrae, R. R., & Costa, P. T. (1997). Conceptions and correlates of openness to experience. In R. Hogan, J. A. Johnson, & S. R. Briggs (Eds.), *Handbook of personality psychology* (pp. 825–847). Academic Press.
- Roberts, B. W., Kuncel, N. R., Shiner, R., Caspi, A., & Goldberg, L. R. (2007). The power of personality: The comparative validity of personality traits, socioeconomic status, and cognitive ability for predicting important life outcomes. *Perspectives on Psychological Science*, 2(4), 313–345. <https://doi.org/10.1111/j.1745-6916.2007.00047.x>
- Roberts, B. W., Walton, K. E., & Viechtbauer, W. (2006). Patterns of mean-level change in personality traits across the life course: A meta-analysis of longitudinal studies. *Psychological Bulletin*, 132(1), 1–25. <https://doi.org/10.1037/0033-2909.132.1.1>
- Soto, C. J. (2019). How replicable are links between personality traits and consequential life outcomes? The life outcomes of personality replication project. *Psychological Science*, 30(5), 711–727. <https://doi.org/10.1177/0956797619831612>
- Soto, C. J., & John, O. P. (2017). The Next Big Five Inventory (BFI-2): Developing and accessing a hierarchical model with 15 facets to enhance bandwidth, fidelity, and predictive power. *Journal of Personality and Social Psychology*, 113(1), 117–143. <https://doi.org/10.1037/pspp0000096>
- Zimmerman, M., & Mattia, J. I. (2001). The Hamilton Rating Scale for Depression: A comprehensive review of the literature. *Journal of Affective Disorders*, 62(1), 69–79. [https://doi.org/10.1016/S0165-0327\(00\)00307-8](https://doi.org/10.1016/S0165-0327(00)00307-8)