

The Relationship Between Psychological Resilience and the Big Five Personality Traits

Alimaa Khosbayar

*National University of Mongolia, Ulaanbaatar, Mongolia
alimaakh@ot.mn*

Maureen Snow Andrade

*Utah Valley University, UT, USA
maureen.andrade@uvu.edu*

Ronald Mellado Miller

*Utah Valley University, UT, USA
ronald.miller@uvu.edu*

[Abstract] COVID-19 has resulted in change, uncertainty, and anxiety in the workplace. Emotional resilience is needed to overcome resulting mental health burdens. Personality traits are important determinants of emotional resilience. This study examined the relationship between resilience and the big five personality traits for mining employees in Mongolia. Four of the five traits, agreeableness, conscientiousness, openness, and extraversion, were correlated with resilience. The study offers insights into the relationship of personality traits and resilience in a new context. Understanding the relationship between resilience and personality traits can help managers understand and better support their employees.

[Keywords] emotional resilience, Big Five personality model, personality trait, mining industry, COVID-19

Introduction

The COVID-19 pandemic has resulted in change, uncertainty, and anxiety in the workplace and in the personal lives of millions of people around the world. Nearly half of adults in the United States reported that stress over the pandemic has had a negative impact on their mental health (Kirzinger et al., 2020). Challenges such as the spread of the virus, social distancing, school and business closures, and on-going lockdowns have led to isolation and concerns over job loss and financial difficulties. Anxiety over the fear of catching the virus or having one's family members become ill has further exacerbated the situation.

In this context, research on resilience, and particularly workplace resilience, needs a renewed focus. Previous studies show a relation between resilience and mental health and well-being, particularly in western countries, though this has been less studied elsewhere (Abiola & Udofia, 2011). Personality traits have been shown to be important determinants of emotional resilience (Deng et al., 2020; Eley et al., 2013; Fayombo, 2010; Oshio et al., 2018). Under stressful conditions, such as those caused by the pandemic, understanding the relationship between resilience and personality traits can help managers support their employees to improve job satisfaction and productivity and lessen their mental health burdens.

The purpose of this study was to examine how personality traits mediate adversity. The study examined the relationship between resilience and the big five personality traits (conscientiousness, agreeableness, emotional stability, openness to experience, and extraversion) for employees in the mining industry in Mongolia. As such, it contributes new insights into how to nurture and facilitate employees' abilities to overcome adversity, enjoy better mental health, and fully contribute in the workplace.

Literature Review

The Big Five personality model is well supported by research, particularly in demonstrating the relationship between personality traits and job performance. Conscientiousness and agreeableness, for example, are

highly desired traits in the workplace and are correlated with good job performance (Sackett & Walmsley, 2014).

The model was created by identifying all the words in the dictionary that described personality and then creating an instrument whereby people rated their associates on the traits (Allport & Odbert, 1936). The resulting data was grouped into five categories (Costa & McCrae, 1999) that illustrated major variations in human personality and became the five dimensions of the model (e.g., see McCrae, 1996, McCrae & Sutin, 2009; Costa & McCrae, 2012):

Extraversion reflects how people relate to others in social situations, specifically if they like people and being sociable or prefer to being alone and reserved at social events.

Agreeableness refers to regard for others and ranges from being warm, empathetic, and caring to lacking interest in others at the low end.

Conscientiousness focuses on reliability. Highly conscientious people set goals, are well-organized, and enjoy planning. Those low in this trait dislike structure and may procrastinate when performing tasks and assignments.

Emotional stability (also referred to as neuroticism) indicates the degree to which people worry and feel stressed or sad, or are resilient, relaxed, emotionally secure, and able to handle stress.

Openness to experience reflects enjoying variety, adventure, and new approaches as opposed to those who dislike change and new ideas.

Resilience refers to an individual's "ability to deal with problems, overcome obstacles, or resist the pressure caused by adverse situations" (Fernandes et al., p. 816). It reflects the capacity to deal with unexpected events and utilize specific competencies and attitudes to facilitate recovery and strengthen the will; these competencies can also be drawn upon in the future (Carmeli et al., 2013; Furniss et al., 2011)). People who are resilient enjoy better mental health and possess the ability to overcome challenges and difficulties (Buckner et al., 2003). They are able to effectively manage their emotional reactions to adverse circumstances and control life events (Diener et al., 2001; Sielber, 2005).

The trait most directly comparable to resilience in the Big Five model is emotional stability, although other traits contribute. Studies have shown the relationship of resilience and personality traits in a number of contexts. These include medical doctors in Australia working as family practitioners for whom resilience was associated with maturity, responsibility, optimism, cooperativeness, and perseverance (Eley et al., 2013). A study of adolescents in the Caribbean illustrated that the Big Five personality traits were associated with resilience with the exception of neuroticism, which was negatively correlated (Fayombo, 2010). The Big Five traits were also positively correlated with high school physical education teachers' creativity in teaching, the exception being conscientiousness (Deng et al., 2020). Extraversion, agreeableness, and openness impacted teaching innovations through various resilience dimensions as did school support.

A meta-analysis of 30 studies showed a strong relationship between resilience and the Big Five personality dimensions with neuroticism being negatively correlated and openness and agreeableness showing the strongest positive relationships (Oshio et al., 2018). Overall, these studies demonstrate the strong validity of personality traits and resilience for individuals of varying ages and occupations.

Methods

The research study consisted of 549 employees between the ages of 25-49 who worked at the Oyu Tolgoi mine site in Mongolia. The study met all regulations for research involving human subjects. The age range of the participants in the study was as follows: 23.7% were between 25-29 years of age, 30.4% between 30-34 years of age, 21.5% between 35-39 years of age, 13.1% between 40-44 years of age, and 11.3% were between 45-49 years of age. Out of 549 employees, 439 were female and 110 were male.

The participants completed the Wagnild and Young Resilience Scale (RS-14) consisting of 14 questions using a 7-point Likert scale and a Ten-Item Personality Inventory version of the Big Five personality test (TIPI). They were given links to complete both questionnaires using Google forms.

Wagnild and Young's (1993) scale is based on a qualitative study of women who had successfully managed a major life event. The scale consists of five interconnected components that, when combined, measure resilience levels: equanimity, perseverance, self-reliance, meaningfulness, and authenticity. The scale was comprised of 14 statements reflecting the five components (see <https://scales.arabpsychology.com/s/resilience-scale-rs/>). The scale was validated by Ahern et al. (2006) and is a widely accepted measure of resilience.

A number of instruments are commonly used to measure personality traits. These have been identified as follows: a "240-item Revised NEO Personality Inventory (Costa & McCrae, 1992), a 60-item NEO-Five Factor Inventory (Costa & McCrae, 1992), and the 44-item Big-Five Inventory (BFI; John and Srivastava, 1999)" (Nunes et al., 2018, para. 2). To address practical issues, however, such as time constraints, briefer instruments have been developed, which are "particularly useful in large-scale assessments of differences between and within populations (Ziegler et al., 2014)" (Nunes et al., 2018, para. 2). This has led to the increasing popularity of the Ten-Item Personality Inventory (TIPI), which was developed by Gosling et al. (2003). The TIPI consists of ten questions that measure 5 aspects of personality: conscientiousness, emotional stability (neuroticism), agreeableness, extraversion, and openness to experience. See Appendix A.

"There is evidence suggesting that TIPI is an appropriate measure of the big five model. The original TIPI (Gosling et al., 2003) showed low-to-moderate Cronbach's alphas ($\alpha = 0.40-0.68$), a typical finding in short scales (Ziegler et al., 2014), but it exhibited high temporal stability ($r_s = 0.62-0.77$), strong correlations with longer personality trait measures, such as BFI ($r_s > 0.65$), and patterns of correlations with other psychological variables similar to those obtained with longer measures. This has been replicated in validation studies across languages (Muck et al., 2007; Renau et al., 2013; Chiorri et al., 2015). Factorial analyses have also confirmed the five-factor structure underlying TIPI (Hofmans et al., 2008; Romero et al., 2012)" (Nunes et al., 2018, para 4).

Using a quantitative approach, the data was analyzed using a correlational descriptive model (bivariate correlation) in SPSS 23.0. Specifically, because the data gathered falls into an interval scale, a correlation between the two variables needs to be determined. As such, the parametric test or Pearson correlation was chosen as the appropriate method for this research.

Results

Means for the five personality traits were as follows: extraversion ($M = 4.7$), agreeableness ($M = 4.5$), conscientiousness ($M = 5.3$), openness ($M = 5.0$), neuroticism (emotional stability) ($M = 4.9$). See Table 1.

Table 1
Descriptive Statistics

	Mean	Std. Deviation	N
RS	77.84	8.983	549
Extraversion	4.750	1.2577	549
Agreeableness	4.550	.9353	549
Conscientiousness	5.383	1.1140	549
Emotional Stability	4.919	.9341	549
Openness to Experience	5.055	1.0755	549

Pearson correlation tests revealed that extraversion ($R = 0.398, p = 0.000$), agreeableness ($R = 0.192, p = 0.000$), conscientiousness ($R = 0.481, p = 0.000$), and openness ($R = 0.407, p = 0.000$) were all positively correlated with resilience; however, neuroticism or emotional stability ($R = -0.004, p = 0.922$) was the only personality trait that was not correlated with resilience. See Table 2. There were no significant results pertaining to the differences in sex or age of the participants. Internal reliability for RS-14 was calculated to be Cronbach's alpha $\alpha=0.84$. Participants scored low (8.4%), moderately low to moderate (54.5%), moderately high (30.1%), and high (7.1%).

Table 2
Correlations

		Resilience	Extra- version	Agree- ableness	Conscien- tiousness	Neuro- ticism	Open- ness
Resilience	Pearson Correlation	1					
	Sig. (2-tailed)						
Extraversion	Pearson Correlation	.398**	1				
	Sig. (2-tailed)	.000					
Agreeableness	Pearson Correlation	.192**	.004	1			
	Sig. (2-tailed)	.000	.925				
Conscientious- ness	Pearson Correlation	.481**	.279**	.108*	1		
	Sig. (2-tailed)	.000	.000	.012			
Emotional Stability	Pearson Correlation	-.004	-.340**	.123**	-.113**	1	
	Sig. (2-tailed)	.922	.000	.004	.008		
Openness	Pearson Correlation	.407**	.411**	.082	.373**	-.210**	1
	Sig. (2-tailed)	.000	.000	.055	.000	.000	

**Correlation is significant at the 0.01 level (2-tailed).

*Correlation is significant at the 0.05 level (2-tailed).

Discussion

The results suggest that Mongolian employees who are characterized by conscientiousness, agreeableness, openness to experience, and extraversion are more likely to demonstrate resilience in the workplace when faced with adversity. These findings are similar to previous studies exploring the relationship between the Big Five personality traits and resilience. For instance, individuals who are extroverted tend to show resilience in adversity primarily because of the energy they have that enables them to have a positive outlook to do something about the conflict; also their motivation is seen coming from support groups (Nakaya et al., 2006; Narayanan, 2008).

According to Fayombo (2010), conscientiousness is the greatest predictor among the other traits because it is highly related to emotional intelligence. This is similar to our findings, where employees at Oyu Tolgoi scored very high on this trait, and, therefore, are more resilient. They are organized, act in a structured style, have high self-control, and are goal-oriented. This might be due to the fact that safety is prioritized at a

mine site and conforming to policies and procedures as part of health, safety, and compliance is critical in achieving success. Those who are characterized by openness to experience in this study tend to accept new ideas and live in the present, and, therefore, show strong relationship with individual resilience (e.g., see Burke et al., 2006).

The study also demonstrates that agreeableness is an important predictor of resilience among Mongolian employees in the mining industry. Agreeableness measures how compatible people are with other people or how well they get along with others. It reflects a tendency to be pleasant and accommodating in social situations with concern for cooperation and social harmony (Graziano & Eisenberg, 1997).

In most studies, neuroticism has a significant negative correlation with psychological resilience due to its association with negative emotional states and feelings, such as anxiety, anger, guilt, and depressed moods (e.g., see Deng et al., 2020; Eley et al., 2013; Fayombo, 2010; Oshio et al., 2018). However, in this study involving Mongolian employees working at the Oyu Togo mine, neuroticism had no correlation with workplace resilience, positive or negative. This can be explained in connection with the interpretation of equanimity or self-control, one of the five core characteristics of resilience (the others being self-reliance, purpose in life, perseverance, and authenticity) in the context of employees in the mining industry and their lifestyle.

Mongolians have had to adapt to extreme living conditions due to their nomadic lifestyle in order to survive and have the capability to grasp and learn new things very easily. Currently, the mining industry is prospering in Mongolia and is attracting a very educated and skilled workforce. However, the required lifestyle in mining work has its toll on the psychological wellbeing of employees in mining, requiring long periods of time away from home, especially during the pandemic. The results of the study can be also explained in connection with the pressure to stay resilient in such troubling times.

A limitation of the study is that it includes participants who have higher education levels than the rest of the Mongolian population due to Oyu Tolgoi's recruitment requirements for professional qualifications, education, and language proficiencies. Also, the scope of this study focuses on employees of Oyu Tolgoi only, so we are not able to generalize our findings to employees in other contexts.

Conclusion

This study investigated the relationships between the Big Five personality traits (conscientiousness, agreeableness, neuroticism, openness to experience, and extraversion) and psychological resilience among Mongolian employees at the Oyu Tolgoi mine site. Significant positive associations were found between four of the personality traits (conscientiousness, agreeableness, extraversion, and openness to experience) and psychological resilience. Thus, we can conclude that employees who score higher on these four traits tend to be more resilient in the workplace.

References

- Abiola, T., & Udofia, O. (2011). Psychometric assessment of the Wagnild and Young's resilience scale in Kano, Nigeria. *BMC Research Notes*, 4(509), 1–5. Retrieved from <https://doi.org/10.1186/1756-0500-4-509>
- Ahern, N. R., Kiehl, E. M., Sole, M. L., & Byers, J. (2006). A review of instruments measuring resilience. *Issues in Comprehensive Pediatric Nursing*, 29(2), 103–125. <https://doi.org/10.1080/01460860600677643>
- Allport, G. W., & Odbert, H. S. (1936). Trait-names: A psycho-lexical study. *Psychological Monographs*, 47(Whole No. 211), 1–171. Retrieved from <https://doi.org/10.1037/h0093360>
- Buckner, J. C., Mezzacappa, E., & Beardslee, W. R. (2003). Characteristics of resilient youths living in poverty: The role of selfregulatory processes. *Development & Psychopathology*, 15(1), 139–162. Retrieved from <https://doi.org/10.1017/S0954579403000087>
- Burke, K. J., Finch, J. S., Paton, D. & Ryan, M. (2006). Characterizing the resilient officer: Individual attributes at point of entry to policing. *Traumatology*, 12(3), 178–188. Retrieved from <https://doi.org/10.1177/1534765606296531>
- Carmeli, A., Friedman, Y., & Tishle, A. (2013). Cultivating a resilient top management team: The

- importance of relational connections and strategic decision comprehensiveness. *Safety Science*, 51(1), 148–159. Retrieved from <https://doi.org/10.1016/j.ssci.2012.06.002>
- Chiorri, C., Bracco, F., Piccinno, T., Modafferi, C., & Battini, V. (2015). Psychometric properties of a revised version of the Ten Item Personality Inventory. *European Journal of Psychological Assessment*, 31(2), 109–119. <https://doi.org/10.1027/1015-5759/a000215>
- Costa, P. T. Jr., & McCrae, R. R. (1992). *Revised NEO Personality Inventory (NEO-PI-R) and NEO Five-Factor Inventory (NEO-FFI) Professional Manual*. Odessa, Florida: Psychological Assessment Resources.
- Costa, P. T., & McCrae, R. R. (2012). The five-factor model, five-factor theory, and interpersonal psychology. In L. M. Horowitz & S. Strack (Eds.), *Handbook of interpersonal psychology: Theory, research, assessment, and therapeutic interventions* (pp. 91–104). Retrieved from <https://doi.org/10.1002/9781118001868.ch6>.
- Deng, Q., Zheng, B., & Chen, J. (2020). The relationship between personality traits, resilience, school support, and creative teaching in high school physical education teachers. *Frontiers in Psychology*. Retrieved from <https://doi.org/10.3389/fpsyg.2020.568906>
- Diener, E., Lucas, R. E., & Oishi, S. (2002). Subjective well-being: The science of happiness and life satisfaction. In C. R. Snyder & S. J. Lopez (Eds.), *Handbook of positive psychology* (pp. 463–473). Oxford University Press.
- Eley, D. S., Cloninger, C. R., Walters, L., Laurence, C., Synotte, R., & Wilkinson, D. (2013). The relationship between resilience and personality traits in doctors: Implications for enhancing well-being. *PeerJ*, 1, e216. Retrieved from <https://doi.org/10.7717/peerj.216>
- Fayombo, G. (2010). The relationship between personality traits and psychological resilience among the Caribbean adolescents. *International Journal of Psychological Studies*, 2(2), 105–116. <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.665.3361&rep=rep1&type=pdf>
- Fernandes, G., Amaral, A., & Varajao, J. (2018). Wagnild and Young's resilience scale validation for IS students. *Procedia Computer Science*, 183, 815–215.
- Furniss, D., Back, J., Blandford, A., Hildebrandt, M., & Broberg, H. (2011). A resilience markers framework for small teams. *Reliability Engineering & System Safety*, 96(1), 2–10. <https://doi.org/10.1016/j.res.2010.06.025>
- Gosling, S. D., Rentfrow, P. J., & Swann, W. B. Jr. (2003). A very brief measure of the Big Five personality domains. *Journal of Research in Personality*, 37(6), 504–528. [https://doi.org/10.1016/S0092-6566\(03\)00046-1](https://doi.org/10.1016/S0092-6566(03)00046-1)
- Graziano, W. G., & Eisenberg, N. (1997). Agreeableness: A dimension of personality. In R. Hogan, J. A. Johnson, & S. R. Briggs (Eds.), *Handbook of personality psychology* (pp. 795–824). Academic Press. Retrieved from <https://doi.org/10.1016/B978-012134645-4/50031-7>
- Hofmans, J., Kuppens, P., & Allik, J. (2008). Is short in length short in content? An examination of the domain representation of the Ten Item Personality Inventory scales in Dutch language. *Personality and Individual Differences*, 45, 750–755. <https://doi.org/10.1016/j.paid.2008.08.004>
- Hogan, R. T. (1991). Personality and personality measurement. In M. D. Dunnette & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology* (pp. 873–919). Consulting Psychologists Press.
- Kirzinger, A., Kearney, A., Hamel, L., & Brodie, M. (2020, April 2). *KFF health tracking poll – Early April 2020: The impact of coronavirus on life in America*. <https://www.kff.org/coronavirus-covid-19/report/kff-health-tracking-poll-early-april-2020/>
- McCrae, R. R. (1996). Social consequences of experiential openness. *Psychological Bulletin*, 120, (3) 323–337. Retrieved from <https://doi.org/10.1037/0033-2909.120.3.323>
- McCrae, R. R., & Costa, P. T., Jr. (1999). A five-factor theory of personality. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (2nd ed., pp. 139–153). New York. https://www.researchgate.net/publication/284978581_A_five-factor_theory_of_personality
- McCrae, R. R., Costa, P. T., Jr., Ostendorf, F., Ang Leitner, A., Hrebicková, M., Avia, M. D., Sanz, J.,

- Sánchez-Bernardos, M. L., Kusdil, M. E., Woodfield, R., Saunders, P. R., & Smith, P. B. (2000). Nature over nurture: Temperament, personality, and life span development. *Journal of Personality and Social Psychology*, 78(1), 173–186. <https://doi.org/10.1037/0022-3514.78.1.173>
- McCrae, R. R., & Sutin, A. R. (2009). Openness to experience. In M. R. Leary & R. H. Hoyle (Eds.), *Handbook of individual differences in social behavior* (pp. 257–273). Guildford.
- Muck, P. M., Hell, B., & Gosling, S. D. (2007). Construct validation of a short five-factor model instrument. *European Journal of Psychological Assessment*, 23(3), 166–175. <https://doi.org/10.1027/1015-5759.23.3.166>
- Nakaya, M., Oshio, A., & Kaneko, H. (2006). Correlations for adolescent resilience scale with big five personality traits. *Psychological Reports*, 98(3), 927–930. Retrieved from <https://doi.org/10.2466/pr0.98.3.927-930>
- Narayanan, A. (2008). The resilient Individual: A personality analysis. *Journal of the Indian Academy of Applied Psychology*, 34, 110–118.
- Nunes, A., Limpo, T., Lima, C. F., & Castro, S. L. (2018). Short scales for the assessment of personality traits: Development and validation of the Portuguese Ten-Item Personality Inventory (TIPI). *Frontiers in Psychology*, 9, 461. <https://doi.org/10.3389/fpsyg.2018.00461>
- Oshio, A., Taku, K., Hirano, M., & Saeed, G., (2018). Resilience and Big Five personality traits: A meta-analysis. *Personality and Individual Differences*, 127, 54–60. <https://doi.org/10.1016/j.paid.2018.01.048>
- Renau, V., Oberst, U., Gosling, S. D., Rusiñol, J., & Chamarro, A. (2013). Translation and validation of the Ten-Item Personality Inventory into Spanish and Catalan. *Revista de Psicologia, Ciències de l'Educació i de l'Esport*, 31(2), 85–97. <https://gosling.psy.utexas.edu/wp-content/uploads/2014/09/TIPI-SPA-CAT.pdf>
- Romero, E., Villar, P., Jómez-Fraguela, A. G., & López-Romero, L. (2012). Measuring personality traits with ultra-short scales: a study of the Ten Item Personality Inventory (TIPI) in a Spanish sample. *Personality and Individual Differences*, 53, 289–293. <https://doi.org/10.1016/j.paid.2012.03.035>
- Sackett, P. R., & Walmsley, P. T. (2014). Which personality attributes are most important in the workplace? *Perspectives on Psychological Science*, 9(5), 538–551. <https://doi.org/10.1177/1745691614543972>
- Sielber, A. (2005). *The resilience advantage: Master change, thrive under pressure, and bounce back from setbacks*. Berrett-Koehler Publishers.
- Wagnild, G. M., & Young, H. (1993). Development and psychometric evaluation of the resilience scale. *Journal of Nursing Measurement*, 1(2), 165–178. <https://pubmed.ncbi.nlm.nih.gov/7850498/>
- Ziegler, M., Kemper, C. J., & Kruyen, P. (2014). Short scales – five misunderstandings and ways to overcome them. *Journal of Individual Differences*, 35(4), 185–189. <https://doi.org/10.1027/1614-0001/a000148>

Appendix A: Ten-Item Personality Inventory – TIPI

I see myself as:

1. _____ Extraverted, enthusiastic.
2. _____ Critical, quarrelsome.
3. _____ Dependable, self-disciplined.
4. _____ Anxious, easily upset.
5. _____ Open to new experiences, complex.
6. _____ Reserved, quiet.
7. _____ Sympathetic, warm.
8. _____ Disorganized, careless.
9. _____ Calm, emotionally stable.
10. _____ Conventional, uncreative