

How do Personality Factors Associate with Prosocial Behavior? The Mediating Role of Empathy

²Als Salman Arwa Abdullah, ^{1, 2}Hanina H. Hamsan, and ^{1,}
²Aini Azeqa Ma'rof

¹Institute for Social Science Studies, Putra Infoport, Universiti Putra Malaysia, 43400 UPM Serdang, Selangor, Malaysia, ²Faculty of Human Ecology Manusia, Universiti Putra Malaysia, 43400 UPM Serdang, Selangor Darul Ehsan, Malaysia
Email: hanina@upm.edu.my, aab97@gmail.com, azeqa@upm.edu.my

To Link this Article: <http://dx.doi.org/10.6007/IJARBS/v10-i16/8303>

DOI:10.6007/IJARBS/v10-i16/8303

Published Date: 30 November 2020

Abstract

This research aims to examine the relationships between empathy, prosocial behaviour, and personality factors among Saudi undergraduate students. In total, 394 Saudi undergraduates participated in the study, which employed the prosocial behaviour scale (PBC), international personality item pool (IPIP), and Toronto empathy questionnaire (TEQ). The Pearson correlation analysis was used to investigate the associations between the research variables, while process macro analysis used to examine whether empathy mediates the association between agreeableness and prosocial behaviour. The research findings indicate that personality factors are related to empathy. Saudi undergraduates who show higher degrees of empathy would also show high degrees of prosocial behaviours. In addition, personality factors were similarly associated with prosocial behaviour. The results also show that empathy mediates the relationship between prosocial behaviour and agreeableness. The results of this study expand the existing literature review on prosocial behaviour by explaining how personality factors influence prosocial behaviour through the mediation role of empathy.

Keywords: Prosocial Behavior, Personality Factors, Empathy, Undergraduates.

Introduction

Prosocial behaviour is one of the most considerable types of positive behaviour that promote social relationships (Fabes, Carlo, Kupanoff, & Laible, 1999). It is a useful behaviour directed at others too (Eisenberg & Miller, 1987). This positive behaviour is a broad, multi-component structure comprising assistance, participation, cooperation, and donation (Fabes & Eisenberg, 1998). However, young people tend to live in a selfish environment in which they seek personal accomplishments and ignore others (Finkelstein, 2010). Studies have revealed the

low level of prosocial behaviour among young people, which is an indicator that may have severe consequences on their behaviour (Caprara, & Pastorelli, 1993). A decrease in this behaviour can have negative effects on the personal and social levels (Carlo et al., 2014). Individuals who have a low level of prosocial behaviour can have weak social skills (Stormshak, Bierman, Bruschi, Dodge, & Coie, 1999). According to McDonald, Wang, Menzer, Rubin, and Booth-LaForce (2011), the low prosocial behaviour leads to an imbalance in social relations. The lowering of the level of prosocial behaviour amongst the youth increases their level of violence and aggression (McMahon et al, 2013). It may even be an indication of crimes (Hamalainen & Pulkkinen, 1995). Therefore, it is important to consider carefully the steps for raising the level of prosocial behaviour.

In the past few decades, psychologists have examined the determinants of prosocial behaviour and the factors that influence it (Grant and Mayer, 2009). Prosocial behaviour is a challenging field of study, as it is difficult to understand why individuals participate in behaviours that are beneficial to others and what costs an individual who performs positive behaviour has to bear, especially because in some cases individuals may put their lives at risk to help others (Penner, Dovidio, Piliavin, & Schroeder, 2005). Psychologists propose various reasons why people engage in prosocial behaviour (Batson & Powell, 2003). Research has identified the major role of empathy in prosocial behaviour (Eisenberg, & Miller, 1987; Eisenberg et al., 1991; Roberts, & Strayer, 1996). Other research has revealed the significant role that personality factors (extraversion, neuroticism, conscientiousness, agreeableness, and openness) play in prosocial behaviour. Every factor of personality has considerable impact on behavior (Batson, 1987; Ma, Shek, Cheung, & Lee, 1996; Pisheh et al., 2014). In the context, this study focuses on examining the factors that play an effective role in prosocial behaviour.

Literature Review

Personality Factors and Prosocial Behaviour

Personality factors (extraversion, neuroticism, conscientiousness, agreeableness, and openness) influence various elements including prosocial behaviour (Thielmann, Spadaro, & Balliet, 2020). Personality factors are internal factors that affect thinking and emotion, which lead individuals to act pro-socially (Shah & Rizvi, 2016). In fact, research has already found that personality factors influence prosocial behaviour positively (Brown and Taylor, 2015). Afolabi (2013) studied factors that influence prosocial behaviour among 358 undergraduate students in Nigeria and found that all personality factors are related to prosocial behaviour and that conscientiousness has a great influence on the behaviour of university students. In another study, Hilbig, Glockner, and Zettler (2014) found that students with a high level of agreeableness are more involved in prosocial behaviour and are more helpful to others. Kline, Bankert, Levitan, and Kraft (2019) also observed that agreeableness and openness are related to prosocial behaviour. Agreeable individuals have good relationships with others and they seek to help others in need. Conversely, personality factors may negatively affect prosocial behaviour too. According to Guo, Sun, and Li (2018), neuroticism limits the level of prosocial behaviour. Researchers also explained that the neurotic individuals are less empathetic, which leads them to not care for or respond to the needy and those around them.

Personality Factors and Empathy

Personality factors are not only related to prosocial behaviour but also are associated with empathy. Personality is considered as a set of traits that influence empathy (Decety, 2011). According to De Aguiar, Formiga, and Cantinilo (2017) personality factors contribute to the level of empathy. Agreeableness, extraversion, conscientiousness, and openness increase the level of empathy. However, neuroticisms reduce the level of empathy. Likewise, Song and Sh (2017) noted that Chinese medical students are characterised by a high level of agreeableness and openness, conscientiousness, and neuroticisms which in turn contribute to influence their empathy positively or negative. In line with this, Melchers, Li, Haas, and Reuter (2016) reported that individuals with agreeableness, conscientiousness, and openness are more likely to empathize others in need. Karmakar, Chatterjee, and Dogra (2017) found that agreeableness enhances individual feelings and raises the level of empathy. Personality factors, especially agreeableness, play a crucial role in improving the empathy of university students (Costa, Alves, Neto, Marvao, Portela, & Costa, 2014).

Empathy and Prosocial Behaviour

According to Telle and Pfister (2015), empathy is an internal factor and is closely related to prosocial behaviour. Davis and Franzoi (1991) indicated that empathy is a personal skill that links individuals with the outside world and allows them to understand the painful feelings of others and help them. Evidence indicates that empathy is an essential component that stimulates prosocial behaviour and a high degree of empathy leads to a trend towards prosocial behaviour (Hoffman, 2008). Similarly, Sze, Gyurak, Goodkind, and Levenson (2012) explored the associations between empathy and prosocial behaviour by watching a film depicting the needy individuals. The researchers found that sad scenes stimulate empathy and predict greater prosocial behaviour in the future. Taylor, Eisenberg, Spinrad, Eggum, and Sulik (2013) reported that empathy is the main element behind the occurrence of prosocial behaviour. Individuals' high empathy predicts more prosocial behaviour in the future. Johnson (2012) conducted two studies. He noted in the first study that fairy tales contribute to improving the empathy of the participants. In the second study, the individuals who participated in the first study showed a high prosocial behaviour compared to those who did not participate in the first study. According to Lockwood, Seara-Cardoso, and Viding (2014), empathy is an emotional and psychological indicator that can dramatically raise the level of prosocial behaviour. Across the decades, investigation and modelling of the relationship between prosocial behaviour and empathy has led to consideration of the latter as a great motivator as well as determining factor in the incidence of prosocial behaviour (Gordon, 2014).

Based on the existing literature on empathy, prosocial behaviour, and personality factors, it was established that all variables relate to one another. However, their common relationships are not well understood. Theoretically, the empathy-altruism hypothesis mentioned that empathy has a key role in prosocial behaviour (Batson et al., 1988). This hypothesis explains why empathy, when influenced by certain personality factors and in particular, agreeableness, will lead to prosocial behaviour. Hence, the aim of this research is to explain these associations more clearly, in terms of the role of empathy in mediating the relationship between prosocial behaviour and agreeableness.

Objectives of the Study

This study aims to investigate the relationship between empathy, prosocial behaviour, and personality factors. Furthermore, its other objective is to determine if empathy has a mediating role in the relationship between personality factors and prosocial behaviour.

Hypotheses of the Study

H₁: Personality factors would be related to prosocial behaviour.

H₂: Personality factors would be related to empathy.

H₃: Empathy would be positively associated with prosocial behaviour.

H₄: Empathy would mediate the association between agreeableness and prosocial behaviour.

Methodology

This section presents the participants, measurement, and data analysis for this study.

Participant

The researchers collected the data from a sample of 394 undergraduates across three universities in Riyadh, Saudi Arabia in December 2019. The sample included 178 (45.2%) male and 216 (54.8%) female; more than 26% respondents were 21 years old and 25.6% 20 years old. Most respondents were from King Saud University (54.8%), followed by Imam Muhammad bin Saud University (32.7%), 12.5% of the respondents were from Majmaah University.

Measurement

The researchers have used the prosocial behaviour scale prepared by Cabrara et al. (2005) to measure the prosocial of individuals. The items refer to the tendency involved in prosocial behaviour such as cooperation and helping behaviour towards others. The scale includes 16 phrases, and these phrases are in a positive direction. This questionnaire was followed by a five-point Likert scale for indicating whether the statement was: never, rarely, sometimes, always, or permanently (Caprara et al., 2005). The overall score refers to an individual's participation in prosocial behaviour. The higher scores on this questionnaire indicate a high level of prosocial behaviour. In this research, the scale was shown to be highly reliable using the alpha-Cronbach coefficients (0.933).

Personality factors: To examine students' personality factors, the international personality item pool (IPIP) is used (Goldberge, Johnson, Eber, Hogan, Ashton, Cloninger & ,Gough, 2006). This questionnaire follows the five-factor model. It consists of 50 items that depict the importance of 5 personality factors (neuroticism, extraversion, conscientiousness, agreeableness, and openness). Each type of personality has 10 items and every phrase is based on the 5-point Likert scale "very inaccurate, moderately inaccurate, neutral, moderately accurate, very accurate" with a value of 1 to 5, ranging from very inaccurate to very accurate. The Cronbach Alpha of personality factors is as follows: neuroticisms 0.832, extraversion 0.911, agreeableness 0.851, conscientiousness 0.871, and openness 0.870, which means that all personality factors had acceptable reliability.

Empathy: The Toronto empathy questionnaire was utilised to measure undergraduates' empathy. This scale consists of sixteen items that contain positive statements that are 1, 3, 5, 6, 8, 9, 13, 16. It also embraces reverse elements which are 2, 4, 7, 10, 11, 12, 14, 15. The

measurement of the phrases are never = 0; Rarely = 1; Sometimes = 2; Often = 3; Always = 4 (Spreng et al., 2009). Indeed, the reliability of the empathy questionnaire is (0.917) which indicates a high reliability.

Data analysis

SPSS was utilized to analyse the data. Pearson correlation was applied to investigate the relationship between empathy, prosocial behaviour, and personality factors. Besides, process macro was used to ascertain whether there is mediation for empathy in the relation between agreeableness and positive behaviour.

Results/Findings

This study was hypothesised that conscientiousness, extraversion, openness, and agreeableness are positively associated with prosocial behaviour, whereas neuroticism is negatively associated with prosocial behaviour. Table 1 shows that all personality factors had relationships with prosocial behaviour. Extraversion ($r=0.109$, $p < .05$), conscientiousness ($r=0.260$, $p < .01$), agreeableness ($r= 0.475$, $p < .01$), and openness ($r=0.162$, $p < .01$) were positively associated with prosocial behaviour. Thus, H_{1a} supported. Moreover, a neuroticism ($r =-.89$, $p < .05$) was negatively related to prosocial behaviour. Hence, H_{1a} and H_{1b} was supported.

Table 1

The association between Personality Factors, Empathy, and Prosocial behavior

Personality Factors	Empathy		Prosocial behavior	
	Coefficient	Sig.	Coefficient	Sig.
Extraversion	.077	.064	.109	.015
Neuroticism	-.005	.458	-.089	.039
Conscientiousness	.109	.015	.260	.000
Agreeableness	.424	.000	.475	.000
Openness	.172	.000	.162	.001

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

The results indicated that undergraduates who had extroversion, agreeableness, conscientiousness, and openness were found involved in prosocial behaviour activities. Meanwhile, an increase in neuroticism limits the prosocial behaviour of undergraduates.

Table 1 also shows that conscientiousness ($r=0.109$, $p < .01$), agreeableness ($r=0.424$, $p < .01$), and openness ($r=0.172$, $p < .01$) were positively related to empathy. But there is no association between extraversion and empathy. H_{2a} is partly supported. Neuroticism did not correlate with empathy, and thus H_{2b} is rejected. The relationships imply that higher degrees of conscientiousness, openness, and agreeableness lead to higher degrees of empathy.

H_3 is hypothesised:

Empathy is positively associated with prosocial behaviour.

Table 2

Correlation between Empathy and Prosocial Behavior

	Prosocial behavior	
	Coefficient	Sig.
Empathy	.394	.000

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

Table 2 shows that empathy is positively associated with prosocial behaviour ($r=0.394$; $p < .01$). It was also found that undergraduates with a high level of empathy had a high level of prosocial behaviour. Therefore, H_3 is supported.

H_4 hypothesises that empathy mediates the association between agreeableness and prosocial behaviour.

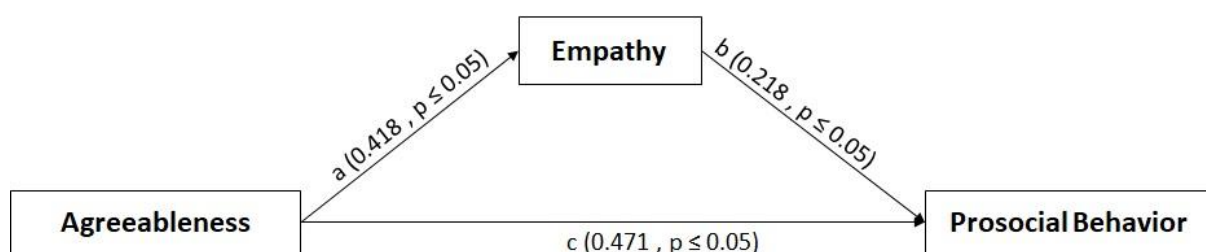


Figure 1: Association between Agreeableness and Prosocial Behavior Mediated through Empathy

Figure 1 show that the direct association between agreeableness and empathy was noted where agreeableness positively predicted empathy ($\beta = .418$, $SE = .045$, $p < .05$). Moreover, agreeableness ($\beta = .471$, $SE = .057$, $p < .05$) and empathy ($\beta = .218$, $SE = .058$, $p < .05$) positively predicted prosocial behaviour. In addition, the indirect coefficient was similarly established as significant ($\beta = 0.091$, $SE = 0.030$ at the 95% interval level, upper level confidence interval (ULCI) = 0.1540 and lower level confidence interval (LLCI) = 0.0349). Subsequently, H_4 is supported. This finding suggests that empathy mediates the association between prosocial behaviour and agreeableness.

Discussion

The aim of this research is to investigate the relationship between empathy, prosocial behaviour, and personality factors. Furthermore, this study aims to examine the role of empathy in mediating the relationship between prosocial behaviour and agreeableness. Firstly, it was first established that associations are present among all research variables regarding Saudi undergraduates. Secondly, analysis of the correlations between empathy, agreeableness, and prosocial behaviour recognised the mediating influence of empathy between both variables.

The findings of this study report that undergraduates who had extraversion, agreeableness, conscientiousness, and openness were more actively prosocial which corresponds to (Pursell et al., 2008; Kanacri et al., 2014). The results also show that neurotic undergraduates had low level of prosocial behaviour. Indeed, neuroticism leads to a decrease in the involvement in prosocial behaviour activity and that agree with (Chaparro & Grusec, 2016). In fact, these

findings support the Five Factors Model that explains the extent to which personality factors are related to behavior, and that each factor has a distinct and unique effect on prosocial behavior (Caprara et al., 2012). According to this fact, the agreeable has an interest in the feelings of the needy and thus seeks to share and help them. In addition, the individual who hold openness tends to participate in new actions, as he believes that his involvement in prosocial behaviors such as volunteer work is kind of the new experience that contributes to self-realization. Further, conscience individual considers prosocial behavior as one of the duties and tasks that could be provide towards their societies and requires to be aware of others. It also indicates that the extroverted tends to participate in the social activities, particularly that he is a social person (Muetia, 2016). On the contrary, a neurotic has negative feelings towards others, which hinders his progress in all positive behaviors including prosocial behavior (Koffi, 2020).

In this research, it was also noted that undergraduates who hold agreeableness, conscientiousness, and openness had also high level of empathy. These findings support a considerable portion of previous studies on the association between personality factors and empathy (Decety, 2011). For instance, Melchers, et al. (2016) noted that agreeableness, openness, and conscientiousness are the most significant factors that lead to rising empathy. However, the findings of this study partly supported De Aguiar, et al. (2017); Song and Shi (2017) who reported that extravert, agreeable, conscious, and openness individuals are more empathetic compared to neurotic people. Although the report indicated that there are statistically significant effects of some of the five factors on empathy, it points out that further investigation into these issues could help researchers improve students' empathy towards the issues of their society.

Based on the study objectives, the association between prosocial behaviour and empathy was examined. Research has shown empathy to be positively associated with prosocial behaviour, wherein undergraduates who showed higher degrees of empathy would act pro-socially. The research findings align with that of past studies in this area, wherein empathy plays a key pivot role as regards prosocial behaviour (Deschamps, Schutter, Kenemans & Matthys, 2015; Majdandzic, Amashauffer, Hummer, Windischberger, & Lamm, 2016). Based on Telle & Pfister (2016), empathy leads individuals to share feelings that contribute towards getting involved in prosocial behaviour. Davis (2015) considered empathy as an internal driver and a major determinant of whether a person will help others. Indeed, psychologists indicate that empathy plays a crucial and major role in pro-sociality.

The findings of this research showed that there are significant associations between personality factors, empathy, and prosocial behaviour. These findings reinforce the results of the previous research. However, these relationships do not offer a clear understanding of how these elements are related to each other. It was therefore useful to examine the mediating influence of empathy in the relationship between prosocial behaviour and agreeableness. In this study, it was hypothesised that agreeableness influences the prosocial behaviours of undergraduates, whereas the relationship between prosocial behaviour and agreeableness is supposedly mediated by empathy. Research results appear to show that the relationship between prosocial behaviour and agreeableness is mediated by empathy. The findings suggest that agreeableness has a direct influence on the empathy of Saudi undergraduates. According to Graziano, Habashi, Sheese, & Tobin, (2007), agreeableness

heightens the degree of empathy. Butrus & Witenberg (2013) reported that the youth who are agreeable express their emotions, especially their empathy, towards others. Agreeableness was similarly established as a meaningful predictor of empathy among Saudi undergraduates, as well as a positive indicator of their prosocial behaviour. In this research, it was established that agreeableness and empathy both have indirect effects on prosocial behaviour and that the influences point to the considerable mediating role of empathy. Hypothetically, the empathy-altruism model states that agreeable persons are more empathetic, which leads to such individuals being more involved in prosocial behaviour. Prosocial behaviour will not occur unless the person who has an agreeableness personality shows empathy (Batson, & Powell, 2003). According to Batson (2010), individuals who have an agreeableness personality understand the situation of the needy, and this touches their empathy and thus they are looking for ways to help them.

Despite several studies investigating the associations between personality, empathy, and prosocial behaviour separately, no research has yet investigated these correlations at the same time. The primary objective of this study is to determine whether empathy has a mediating role in the relationship between prosocial behaviour and agreeableness. We believe that our analysis of mediation contributes to deeper understanding of how personality factors relate to prosocial behaviour and empathy.

Conclusion

This research emphasises the importance of empathy and personality factors regarding prosocial behaviour among Saudi undergraduates. The results of this study offer support for future research through the combined effect of agreeableness and empathy to improve the prosocial behaviour. This study finds that students who had agreeableness were also more empathetic and that contributed significantly to their participation in prosocial behaviour. Therefore, the results of this research have implications for university officials and faculty members in terms of directing students according to their type personalities and empathy and engaging in prosocial behaviour, which contributes to promoting prosocial behaviour among students. Students should recognise their personalities and emotions and the officials and faculty should lead them in a positive direction to help develop their prosocial behaviour.

Limitation and Study Forward

Future research might address the limitations of this study. First, the sample of this study comprised undergraduate students, and hence the results may not apply to other age groups. Future researchers should study the factors of personality, empathy, and prosocial behaviour on children, adolescents, and the elderly. Second, the result of this study can be attributed to a specific geographical area or the tools used. Expansions of study area and tools may give more general results. Lastly, the influence of personality factors on prosocial behaviour may vary through the mediating role of empathy. In such case, it is proposed that evaluations of other personality factors be included in the analysis of mediation, especially as this research only examined the mediating role of empathy in correlations between prosocial behaviour and agreeableness.

References

Afolabi, O. A. (2013). Roles of personality types, emotional intelligence, and gender differences in prosocial behavior. *Psychological Thought*, 6(1), 124–139.

- <http://dx.doi.org/10.23668/psycharchives.1918>
- Batson, C. D., Dyck, J. L., Brandt, J. R., Batson, J. G., Powell, A. L., McMaster, M. R., & Griffitt, C. (1988). Five studies testing two new egoistic alternatives to the empathy-altruism hypothesis. *Journal of Personality and Social Psychology*, 55(1), 52–77.
<https://doi.org/10.1037/0022-3514.55.1.52>
- Batson, C. D. (1987). Prosocial motivation: Is it ever truly altruistic. In *Advances in experimental social psychology* (Vol. 20, pp. 65-122). Academic Press.
[https://doi.org/10.1016/S0065-2601\(08\)60412-8](https://doi.org/10.1016/S0065-2601(08)60412-8)
- Batson, C. D., Batson, J. G., Slingsby, J. K., Harrell, K. L., Peekna, H. M., & Todd, R. M. (1991). Empathic joy and the empathy-altruism hypothesis. *Journal of Personality and Social Psychology*, 61(3), 413–426.
<https://doi.org/10.1037/0022-3514.61.3.413>
- Batson, C. D., & Powell, A. A. (2003). Altruism and prosocial behavior. *Handbook of psychology*, 463-484. <https://doi.org/10.1002/0471264385.wei0519>
- Batson, C. D. (2010). *Empathy-induced altruistic motivation*. In M. Mikulincer & P. R. Shaver (Eds.), *Prosocial motives, emotions, and behavior: The better angels of our nature* (p. 15–34). American Psychological Association.
<https://doi.org/10.1037/12061-001>
- Bierhoff, H. W., & Rohmann, E. (2004). Altruistic personality in the context of the empathy–altruism hypothesis. *European Journal of Personality*, 18(4), 351-365.
<https://doi.org/10.1002/per.523>
- Brown, S., & Taylor, K. (2015). Charitable behaviour and the big five personality traits: Evidence from UK panel data. Sheffield economic paper research series (pp. 30). IZA Discussion Paper No. 9318.
<https://ssrn.com/abstract=2656503>
- Butrus, N., & Witenberg, R. T. (2013). Some personality predictors of tolerance to human diversity: The roles of openness, agreeableness, and empathy. *Australian Psychologist*, 48(4), 290-298. <https://doi.org/10.1111/j.1742-9544.2012.00081.x>
- Caprara, G. V., & Pastorelli, C. (1993). Early emotional instability, prosocial behaviour, and aggression: Some methodological aspects. *European Journal of personality*, 7(1), 19-36.
<https://doi.org/10.1002/per.2410070103>
- Caprara, G. V., Steca, P., Zelli, A., & Capanna, C. (2005). A new scale for measuring adults' prosocialness. *European Journal of Psychological Assessment*, 21(2), 77-89.
doi:10.1027/1015-5759.21.2.77
- Carlo, G., Mestre, M. V., McGinley, M. M., Tur-Porcar, A., Samper, P., & Opal, D. (2014). The protective role of prosocial behaviors on antisocial behaviors: The mediating effects of deviant peer affiliation. *Journal of Adolescence*, 37(4), 359-366.
<https://doi.org/10.1016/j.adolescence.2014.02.009>
- Chaparro, M. P., & Grusec, J. E. (2016). Neuroticism moderates the relation between parenting and empathy and between empathy and prosocial behavior. *Merrill-Palmer Quarterly (1982-)*, 62(2), 105-128.
DOI: 10.13110/merrpalmquar1982.62.2.0105
- Costa, P., Alves, R., Neto, I., Marvao, P., Portela, M., & Costa, M. J. (2014). Associations between medical student empathy and personality: a multi-institutional study. *PLoS one*, 9(3), e89254.
<https://doi.org/10.1371/journal.pone.0089254>

- Davis, M. H. (2015). *Empathy and prosocial behavior*. In D. A. Schroeder & W. G. Graziano (Eds.), *Oxford library of psychology. The Oxford handbook of prosocial behavior* (p. 282–306). Oxford University Press.
<https://doi.org/10.1093/oxfordhb/9780195399813.013.026>
- Davis, M. H., & Franzoi, S. L. (1991). Stability and change in adolescent self-consciousness and empathy. *Journal of research in Personality, 25*(1), 70-87.
[https://doi.org/10.1016/0092-6566\(91\)90006-C](https://doi.org/10.1016/0092-6566(91)90006-C)
- De Aguiar, C. S., Formiga, N. S., & Cantinilo, A. (2017). Personality traits and empathic abilities: A predictive study on medical students. *Boletim Academia Paulista de Psicologia, 37*(92), 129-138.
- Decety, J. (2011). The neuroevolution of empathy. *Annals of the New York Academy of Sciences, 1231*(1), 35-45.
Doi: 10.1111/j.1749-6632.2011.06027.x.
- Deschamps, P. K. H., Schutter, D. J. L. G., Kenemans, J. L., & Matthys, W. (2015). Empathy and prosocial behavior in response to sadness and distress in 6-to 7-year olds diagnosed with disruptive behavior disorder and attention-deficit hyperactivity disorder. *European child & adolescent psychiatry, 24*(1), 105-113.
<https://doi.org/10.1007/s00787-014-0535-x>
- Eisenberg, N., & Miller, P. A. (1987). The relation of empathy to prosocial and related behaviors. *Psychological Bulletin, 101*(1), 91–119.
<https://doi.org/10.1037/0033-2909.101.1.91>
- Eisenberg, N., Miller, P. A., Shell, R., McNalley, S., & Shea, C. (1991). Prosocial development in adolescence: A longitudinal study. *Developmental Psychology, 27*(5), 849–857.
<https://doi.org/10.1037/0012-1649.27.5.849>
- Fabes, R. A., & Eisenberg, N. (1998). Meta-analyses of age and sex differences in children's and adolescents' prosocial behavior. *Handbook of child psychology, 3*, 1-29.
- Fabes, R. A., Carlo, G., Kupanoff, K., & Laible, D. (1999). Early adolescence and prosocial/moral behavior I: The role of individual processes. *The Journal of Early Adolescence, 19*(1), 5-16.
<https://doi.org/10.1177/0272431699019001001>
- Finkelstein, M. A. (2010). Individualism/collectivism: Implications for the volunteer process. *Social Behavior and Personality: An international journal, 38*(4), 445-452.
<https://doi.org/10.2224/sbp.2010.38.4.445>
- Goldberg, L. R., Johnson, J. A., Eber, H. W., Hogan, R., Ashton, M. C., Cloninger, C. R., & Gough, H. G. (2006). The international personality item pool and the future of public-domain personality measures. *Journal of Research in Personality, 40*(1), 84–96.
<https://doi.org/10.1016/j.jrp.2005.08.007>
- Gordon, H. (2014). *Investigating the relation between empathy and prosocial behavior: An emotion regulation framework* (Doctoral dissertation, Virginia Tech).
<http://hdl.handle.net/10919/78070>
- Grant, A. M., & Mayer, D. M. (2009). Good soldiers and good actors: Prosocial and impression management motives as interactive predictors of affiliative citizenship behaviors. *Journal of Applied Psychology, 94*(4), 900–912.
<https://doi.org/10.1037/a0013770>
- Graziano, W. G., Habashi, M. M., Sheese, B. E., & Tobin, R. M. (2007). Agreeableness, empathy, and helping: A person × situation perspective. *Journal of Personality and Social Psychology, 93*(4), 583–599.

- <https://doi.org/10.1037/0022-3514.93.4.583>
- Guo, Q., Sun, P., & Li, L. (2018). Why neurotic individuals are less prosocial? A multiple mediation analysis regarding related mechanisms. *Personality and Individual Differences, 128*, 55-61. <https://doi.org/10.1016/j.paid.2018.02.026>
- Hamalainen, M., & Pulkkinen, L. (1995). Aggressive and non-prosocial behaviour as precursors of criminality. *Studies on Crime & Crime Prevention, 4*(1), 6–21.
- Hilbig, B. E., Glockner, A., & Zettler, I. (2014). Personality and prosocial behavior: Linking basic traits and social value orientations. *Journal of Personality and Social Psychology, 107*(3), 529–539.
<https://doi.org/10.1037/a0036074>
- Hoffman, M. L. (2008). Empathy and prosocial behavior. *Handbook of emotions, 3*, 440-455.
- Johnson, D. R. (2012). Transportation into a story increases empathy, prosocial behavior, and perceptual bias toward fearful expressions. *Personality and individual differences, 52*(2), 150-155. <https://doi.org/10.1016/j.paid.2011.10.005>
- Kanacri, B. P. L., Pastorelli, C., Eisenberg, N., Zuffianò, A., Castellani, V., & Caprara, G. V. (2014). Trajectories of prosocial behavior from adolescence to early adulthood: Associations with personality change. *Journal of adolescence, 37*(5), 701-713.
<https://doi.org/10.1016/j.adolescence.2014.03.013>
- Karmakar, A., Chatterjee, P., & Dogra, A. K. (2017). Does relationship between agreeableness and empathy vary considering other personality factors? An empirical study. *Indian Journal of Health and Wellbeing, 8*(8), 826-831.
http://www.iahrw.com/index.php/home/journal_detail/19#list
- Kline, R., Bankert, A., Levitan, L., & Kraft, P. (2019). Personality and prosocial behavior: A multilevel meta-analysis. *Political Science Research and Methods, 7*(1), 125.
DOI: <https://doi.org/10.1017/psrm.2017.14>
- Koffi, B. J. (2020). *Inferring Big Five Personality Factors using Text Analysis Its Assessment and Impact on Prosocial Behavior and IS Security Compliance* (Unpublished doctoral dissertation). The University of Texas at Arlington.
Retrieved from <http://hdl.handle.net/10106/29116>
- Kwon, S. J. (2018). A relationship between personality and empathy in teenagers' school sports club participation. *Journal of exercise rehabilitation, 14*(5), 746.
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6222162/>
- Lockwood, P. L., Seara-Cardoso, A., & Viding, E. (2014). Emotion regulation moderates the association between empathy and prosocial behavior. *PloS one, 9*(5), e96555.
<https://doi.org/10.1371/journal.pone.0096555>
- Ma, H. K., Shek, D. T., Cheung, P. C., & Lee, R. Y. (1996). The relation of prosocial and antisocial behavior to personality and peer relationships of Hong Kong Chinese adolescents. *The Journal of Genetic Psychology, 157*(3), 255-266.
<https://doi.org/10.1080/00221325.1996.9914863>
- Magalhaes, E., Costa, P., & Costa, M. J. (2012). Empathy of medical students and personality: evidence from the Five-Factor Model. *Medical Teacher, 34*(10), 807-812.
<https://doi.org/10.3109/0142159X.2012.702248>
- Majdandzic, J., Amashafer, S., Hummer, A., Windischberger, C., & Lamm, C. (2016). The selfless mind: How prefrontal involvement in mentalizing with similar and dissimilar others shapes empathy and prosocial behavior. *Cognition, 157*, 24-38.
<https://doi.org/10.1016/j.cognition.2016.08.003>

- McDonald, K. L., Wang, J., Menzer, M. M., Rubin, K. H., & Booth-LaForce, C. (2011). Prosocial behavior moderates the effects of aggression on young adolescents' friendships. *International Journal of Developmental Science*, 5(1-2), 127-137.
DOI: 10.3233/DEV-2011-10066
- McMahon, S. D., Todd, N. R., Martinez, A., Coker, C., Sheu, C. F., Washburn, J., & Shah, S. (2013). Aggressive and prosocial behavior: Community violence, cognitive, and behavioral predictors among urban African American youth. *American Journal of Community Psychology*, 51(3-4), 407-421.
<https://doi.org/10.1007/s10464-012-9560-4>
- Melchers, M. C., Li, M., Haas, B. W., Reuter, M., Bischoff, L., & Montag, C. (2016). Similar personality patterns are associated with empathy in four different countries. *Frontiers in psychology*, 7, 290. <https://doi.org/10.3389/fpsyg.2016.00290>
- Muetia, R. (2016). The Association of Traits Personality and Pro-Social Behavior among Volunteers in Jakarta. *Advanced Science Letters*, 22(5-6), 1738-1741.
- Penner, L. A., Dovidio, J. F., Piliavin, J. A., & Schroeder, D. A. (2005). Prosocial behavior: Multilevel perspectives. *Annu. Rev. Psychol.*, 56, 365-392.
<https://doi.org/10.1146/annurev.psych.56.091103.070141>
- Pursell, G. R., Laursen, B., Rubin, K. H., Booth-LaForce, C., & Rose-Krasnor, L. (2008). Gender differences in patterns of association between prosocial behavior, personality, and externalizing problems. *Journal of Research in Personality*, 42(2), 472-481.
<https://doi.org/10.1016/j.jrp.2007.06.003>
- Pisheh, H. F., Ahmadi, A., & Naderi, G. (2014). Relation between Geography and Security in Rights of Islamic Republic of Iran. *International Journal of Academic Research in Public Policy and Governace*, 1(1), 30-40.
- Ritter, K., Dziobek, I., Preißler, S., Ruter, A., Vater, A., Fydrich, T., ... & Roepke, S. (2011). Lack of empathy in patients with narcissistic personality disorder. *Psychiatry research*, 187(1-2), 241-247. <https://doi.org/10.1016/j.psychres.2010.09.013>
- Roberts, W., & Strayer, J. (1996). Empathy, emotional expressiveness, and prosocial behavior. *Child development*, 67(2), 449-470.
<https://doi.org/10.1111/j.1467-8624.1996.tb01745.x>
- Shah, A. M., & Rizvi, T. (2016). Prosocial behavior and big five-factor model of personality: A theoretical review. *The International Journal of Indian Psychology*, 4(1), 162-170.
- Spreng, R. N., McKinnon, M. C., Mar, R. A., & Levine, B. (2009). The Toronto Empathy Questionnaire: Scale development and initial validation of a factor-analytic solution to multiple empathy measures. *Journal of personality assessment*, 91(1), 62-71.
<https://doi.org/10.1080/00223890802484381>
- Song, Y., & Shi, M. (2017). Associations between empathy and big five personality traits among Chinese undergraduate medical students. *PloS one*, 12(2), e0171665.
<https://doi.org/10.1371/journal.pone.0171665>
- Stormshak, E. A., Bierman, K. L., Bruschi, C., Dodge, K. A., & Coie, J. D. (1999). The relation between behavior problems and peer preference in different classroom contexts. *Child development*, 70(1), 169-182.
<https://doi.org/10.1111/1467-8624.00013>
- Sze, J. A., Gyurak, A., Goodkind, M. S., & Levenson, R. W. (2012). Greater emotional empathy and prosocial behavior in late life. *Emotion*, 12(5), 1129-1140.
<https://doi.org/10.1037/a0025011>

- Taylor, Z. E., Eisenberg, N., Spinrad, T. L., Eggum, N. D., & Sulik, M. J. (2013). The relations of ego-resiliency and emotion socialization to the development of empathy and prosocial behavior across early childhood. *Emotion, 13*(5), 822–831.
<https://doi.org/10.1037/a0032894>
- Telle, N. T., & Pfister, H. R. (2016). Positive empathy and prosocial behavior: A neglected link. *Emotion Review, 8*(2), 154-163.
<https://doi.org/10.1177/1754073915586817>
- Thielmann, I., Spadaro, G., & Balliet, D. (2020). Personality and prosocial behavior: A theoretical framework and meta-analysis. *Psychological Bulletin, 146*(1), 30–90.
<https://doi.org/10.1037/bul0000217>