

Exploring How Social Intelligence, Empathy, and Aggression are Interconnected in Adults

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Abstract

The study investigates the association between social intelligence, empathy, and aggression in adults, employing a cross-sectional design. A sample of 200 adults (100 men and 100 women) aged 18-54 years was selected using a stratified sampling technique. Data was gathered via an online survey, and social intelligence, empathy, and aggression were assessed using the Tromsø Social Intelligence Scale (TSIS), Empathy Assessment Scale (EAS), and Brief Aggression Questionnaire (BAQ), respectively. The SPSS analysis revealed a positive correlation between social intelligence and empathy, and a negative correlation between empathy and aggression. While social intelligence significantly predicted empathy, its impact on aggression was negligible. Females were observed to be more empathetic and less aggressive than were males, indicating notable gender differences in empathy and aggression. Physical aggression and hostility were significantly higher in males, while verbal aggression and anger were higher in females, though the latter was not statistically significant.

Keywords: *social intelligence, empathy, aggression, adults*

In the current research, Pearson correlation and linear regression methods were used to investigate the connections that are among social intelligence, empathy, and aggression. Data was gathered via self-reported surveys along with the surveys involved a sample of adults as participants. Adults have a large part in society's development regarding social, economic, cultural, and political fields (Dewey, 1916). Their efforts influence the present as well as the future through leadership, innovation, caregiving, plus they share values and knowledge (Goleman, 1995). Social intelligence is essential for adults to effectively manage their emotions, situations, and reactions (Salovey & Mayer, 1990). Social intelligence includes various skills, such as emotional control, effective communication, and resolving issues (Petrides & Furnham, 2001).

Individuals with strong social intelligence are more adept at handling intricate social scenarios, regulating their emotions, and expressing themselves clearly (Eisenberg, 2002). High levels of social intelligence correlate with enhanced interpersonal effectiveness and decreased conflict among adults (Floman et al., 2023). Although there are few direct studies connecting social intelligence to reactive/proactive aggression in adults, research on emotional intelligence indicates a strong negative correlation with aggression (García-Sancho et al., 2016).

Another important component of social intelligence is empathy. Empathy helps adults recognize and value the feelings of others and hence establish richer and more tranquil relationships (Hoffman, 1977). Empathetic people can identify areas of the same, show concern and understanding, establish trust, and better handle conflict (Batson & Shaw, 1991). There is evidence that people who show more empathy have lower aggressive reactions; thus, empathy may be assumed to function as an aggression-protective factor, especially in emotionally arousing or provocative contexts (Stanger et al., 2016). Empathy is both emotional and cognitive, and this may create distinct and sometimes opposing effects on moral behavior, including hostile behavior. This suggests the value of measuring empathy as a multidimensional construct in examining its association with aggression (Decety and Cowell, 2015).

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Conversely, aggressive adults do not have emotional or communications control (Campbell, 1993). Aggressive adults tend to react impulsively, using aggressive behavior or language in expressing themselves (Kelley, 1993). However, socially intelligent and empathetic adults are less aggressive in reaction as they are more likely to resolve issues and face them when resolving conflicts in a more positive way. Empathy serves as an intervening factor in the case of aggression and emotional/social intelligence. Adults with a greater level of IQ tend to be more empathetic and, therefore, exhibit lower aggression (López-Pérez et al., 2018). Highly empathetic individuals tend to have high social intelligence and low aggression (Mittal & Prabha, 2019). Effective communication is an essential component of social intelligence (Littlejohn et al., 2011). Social intelligence helps individuals understand others' emotions, thoughts, and behaviors and, consequently, modify their own behavior accordingly, leading to enhanced social development (Farooq et al., 2022). Socially intelligent adults express their thoughts and emotions respectfully and openly using verbal and nonverbal communication (Gudykunst & Ting-Toomey, 1988). Socially intelligent adults are effective listeners, and active listening enables them to gain other individuals' point of view and form stronger relationships (Tannen, 1990).

Sex Differences in Social Intelligence, Empathy, and Aggression

Women develop social intelligence through roles promoting high emotional awareness and effective interpersonal communication (Eagly, 1987). Consequently, women will be more competent at controlling their emotions in social situations, thus lowering the potential for aggressive expression (Hoffman, 1977). Men, whose expression of emotion is generally limited by cultural norms, will have less empathy and more physical aggression (Buss, 1996). This difference is most pronounced during conflict or competitive scenarios, where men will use aggression as a way of expressing dominance or defending status. The lower priority of emotional awareness by men may lead to lower skill in reading others' emotional expressions, which may further escalate the situation to aggression.

However, these overall trends do not apply in every instance. Social intelligence, empathy and aggression are not gender-specific; individuals in both gender categories can vary immensely in these traits (Hyde, 2005). In addition, as gender roles change and cultural norms erode, there is a greater understanding that men too can become empathetic and exhibit social intelligence in opposition to traditional aggression patterns (Nelson, 2002). Present research shows that differences in emotional sensitivity, empathy, and aggression between men and women depend almost entirely on cultural upbringing and experience, thus discounting general gender conventions and

highlighting the importance of emotional development in other groups (Estévez et al., 2020). Empathy is one area in which women are more skilled, as they tend to be more sensitive to emotional stimuli and respond with empathy (Hoffman, 1977). However, this increased level of empathy does not always mean reduced aggression, as women are able to express aggression in different forms (Archer, 2000). While men demonstrate more physical aggression, women may resort to relational forms of aggression, such as exclusion or verbal aggression, especially if they feel threatened in a social situation. These patterns are culturally prescribed in relation to the gender-specific expression of aggression (Crick & Grotpeter, 1995).

A thorough analysis of the relationship between social intelligence and empathy concerning aggression is essential. While individual factors have been thoroughly examined, the combined effect of social intelligence and empathy on various types of aggression is still insufficiently investigated. Additionally, situational elements like stress and social pressure, along with individual differences such as cultural, gender, and personality distinctions, also deserve more examination to improve our grasp of this intricate phenomenon.

Significance of the Study

Studying social intelligence, empathy, and aggression holds significance for various reasons, including gaining insights into human behavior, interactions, emotional regulation, and reactions to social conflicts. Exploring and understanding how social intelligence links with empathy and aggression can offer insight into behavioral regulation, predicting and reducing aggressive behavior while fostering empathy in various social contexts. This may help to understand different trends of social intelligence, empathy, and aggression among male and female adults. This research can help in developing better interventions for individuals struggling with aggressive behavior and a lack of empathy, as well as ways to foster social skills among adults develop a peaceful and cooperative society. The objectives set for the study were: 1. This study is conducted to examine whether social intelligence, empathy, and aggression are correlated or not. 2. The study also addresses the influence of social intelligence on empathy and aggression. 3. The study also investigates gender differences in social intelligence, empathy, and aggression. The study contributes to the theoretical comprehension of social intelligence, empathy, and aggression. It also creates opportunities for further research on practical uses and interventions to enhance social intelligence.

Hypothesis

1. A notable positive relationship exists between social intelligence and empathy in adults.
2. A notable inverse relationship exists between empathy and aggression in adults.

3. Social intelligence is a strong predictor of empathy levels but does not significantly influence aggression levels.
4. There will be significant gender differences in empathy and aggression, with females scoring higher in empathy and males scoring higher in aggression.

Methodology

Research Design

This research study employed a quantitative approach with a cross-sectional survey design to gather data from the sample.

Participants

For this research study, we collected the data from a sample of 200 adults (100 = male; 100 = female). The participants' ages

ranged from 18 to 54 years. The participants had different educational backgrounds, ranging from Matric to PhD level. The stratified sampling technique was used as the criterion for the selection of the sample. To maintain contextual consistency, and sociocultural uniformity, address logistical limitations, and manage logistical constraints, specific inclusion criteria were established. Participants were required to be residents of the Multan city and have fluency in the English language. Individuals who resided outside of Multan City, had limited English proficiency, or did not fall within the 18–54 age range were excluded from the study. Although this localized sample limits broader generalizability, it allowed for targeted data collection within a well-defined urban population

Table 1

Demographic Characteristics of the Sample (N=200)

Baseline characteristics	n	%
Age		
18-24	95	47.5
25-34	59	29.5
35-44	26	13.0
45-54	20	10.0
Gender		
Male	100	50
Female	100	50
Educational level		
Matric or equivalent	11	5.5
Intermediate or equivalent	29	14.5
Bachelors	92	46.0
Masters	58	29.0
PhD	10	5.0

Note: Social intelligence is the independent variable while empathy and aggression are the dependent variables in the study. Age, gender, and educational level are the control variables.

Instruments

In order to collect data, we used three self-report questionnaires.

1. Tromso Social Intelligence Scale (Silvera et al., 2001)
2. Empathy Assessment Scale (Cem Malakcioglu et al., 2022)
3. Brief Aggression Questionnaire (Webster et al., 2015)

Tromso Social-Intelligence Scale (TSIS)

The Tromso Social-Intelligence Scale (TSIS) was used to assess social intelligence levels among participants. The Cronbach's alpha for 21-item TSIS is reported to be in the range

of .80 to .85, indicating good internal consistency. A subsequent EFA of the 21 items revealed that each item had a loading greater than .55 on its main factor. The 21-item scale underwent a CFA as well, revealing acceptable relative fit, yet demonstrating poor absolute fit (Silvera et al., 2001).

Empathy Assessment Scale (EAS)

The Empathy Assessment Scale is a reliable tool for measuring the level of empathy. The Cronbach's alpha for 13-item EAS was 0.85. This suggests that the scale is quite reliable.

All correlations between items were statistically significant at a minimum level of 0.01. The concurrent validity of EAS was evaluated using the Toronto Empathy Questionnaire, and the Pearson correlation confirmed it ($r=0.467$, $p<0.001$) (Cem Malakcioglu et al., 2022).

Brief Aggression Questionnaire (BAQ)

Brief Aggression Questionnaire (BAQ) was developed as a more efficient way to measure aggression compared to larger scales. The BAQ consists of elements from physical aggression, anger, verbal aggression, and hostility sub-scales. The Cronbach's alpha for the BAQ-12 item is reported to be around 0.82, suggesting good internal reliability. The BAQ demonstrated four-factor structures using test-retest reliability, and convergent validity with behavioral measures of aggression (Webster et al., 2015).

All instruments were self-report questionnaires, which may introduce some response bias to conform with the norms of the society in order to be socially desirable.

Procedure

A Google form with 4 sections was created. The first focused on demographics, the second on the Tromso Social Intelligence Scale, the third on the Empathy Assessment Scale, and the fourth on the Brief Aggression Questionnaire. To prevent missing data, no blank responses were allowed. The form was shared via E-mail with friends and family, taking participants 15-20 minutes to complete.

Data Analysis

The data obtained was then analyzed using both descriptive and inferential statistics. Inferential statistics like t-tests and ANOVA were used to compare social intelligence, empathy, and aggression across different demographic groups. T-tests compared genders, while ANOVA looked at differences in social intelligence, empathy, and aggression across age and education levels. Pearson correlation analysis examined whether social intelligence, empathy, and aggression are correlated or not. Linear regression analysis examined the influence of social intelligence on empathy and aggression.

Results

Table 2

Reliability Statistics of Scales

Scale	No. of items	α
TSIS	21	.79
EAS	13	.87
BAQ	12	.81

Note. α = Cronbach's Alpha, TSIS = Tromso Social Intelligence Scale, EAS = Empathy Assessment Scale, BAQ = Brief Aggression Questionnaire.

Table 2 shows that the Tromso Social Intelligence Scale, Empathy Assessment Scale, and Brief Aggression Questionnaire all exhibit strong reliability, with Cronbach's

alpha scores of .79, .87, and .81, respectively. This shows that the scales are reliable in measuring social intelligence, empathy, and aggression in the sample.

Table 3

Descriptive Statistics and Correlations for Study Variables (N=200)

Variable	M	SD	Social intelligence	Empathy	Aggression
Social intelligence	95.59	14.91			
Empathy	44.47	10.25	.340**		
Aggression	49.98	12.01	-.024	-.156*	

Note. M = Mean, SD = Standard Deviation. ** $p < 0.01$. * $p < 0.05$.

Table 3 depicts that the sample exhibits moderate levels of social intelligence, empathy, and aggressive tendencies. Social intelligence and empathy have a positive and statistically significant correlation ($p = .00$). This suggests that empathy tends to be higher among people with higher social intelligence.

Whereas, no meaningful connection was found between social intelligence and aggression, as evidenced by the negative and non-significant correlation between these two variables ($p = .74$). Furthermore, a significant negative correlation exists between empathy and aggression ($p = .03$), implying that an

increase in empathy would definitely lower aggression.

Table 4

Regression Analysis to Predict Empathy from Social Intelligence while Controlling for Gender

Variable	Empathy					
	Model 1			Model 2		
	B	β	SE	B	β	SE
Constant	50.67*		2.48	28.28*		4.91
Gender	-2.70	-.13	1.50	-2.61	-.13	1.41
Social intelligence				.24*	.34	.05
R ²	.035			.152		
ΔR^2				.117		

Note. We analyzed the impact of social intelligence on empathy while controlling for gender. To predict empathy, we input the control variable into Model 1. In Model 2, we entered social intelligence as the main predictor. B = Unstandardized Coefficient, β = Standardized Coefficient, SE = Std. Error, R² = Coefficient of Determination, ΔR^2 = Change in R-squared. *p < 0.01.

Table 4 presents that gender alone (Model 1) explains 3.5% of the variance in empathy, but its effect is not statistically significant (p = 0.07). When social intelligence is added to Model

2, it significantly predicts empathy (p = 0.00), explaining an additional 11.7% of the variance (ΔR^2 = 0.117). These results reveal that empathy is significantly predicted by social intelligence.

Table 5

Regression Analysis Predicts Aggression from Social Intelligence while Controlling for Gender

Variable	Aggression					
	Model 1			Model 2		
	B	β	SE	B	β	SE
Constant	43.27*		2.83	41.08*		5.97
Gender	7.21*	.30	1.70	7.22*	.30	1.71
Social intelligence				.02	.03	.06
R ²	.089			.090		
ΔR^2				.001		

Note. We analyzed the impact of social intelligence on aggression while controlling for gender. To predict aggression, we input the control variable into Model 1. In Model 2, we entered social intelligence as the main predictor. *p < 0.01.

Table 5 presents that Model 1 explained 8.9% of the variability, with gender identified as a notable predictor; males showed significantly greater levels of aggression. Model 2, incorporating social intelligence, explained for 9% of the variance (ΔR^2 = 0.001),

however, social intelligence did not significantly predict the outcome (p=.68). Instead, aggression is significantly predicted by gender (p=.00). This suggests that gender significantly predicts aggression, while social intelligence does not appear to have a meaningful influence.

Table 6
Independent Sample t-test for Comparative Analysis Study Variables across Genders (N=200)

Variable	Male (n=100)		Female (n=100)		<i>t</i>	<i>p</i>	Cohen's d
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Social intelligence	95.32	14.36	95.86	15.51	.255	.696	.036
Empathy	42.70	11.44	46.24	8.60	2.474	.001	.350
Aggression	53.06	13.21	46.90	9.82	-3.743	.004	.529

Note. * $p < 0.05$.

Table 6 presents that there is no discernible difference in social intelligence between male and female participants ($p=.696$), with a trivial effect size and a t-value of 0.255. This suggests that social intelligence levels are comparable for both sexes. Empathy scores are of a moderate to small effect size with a large t-value of 2.474, showing that females ranked

significantly higher than males ($p = .001$). Moreover, with an effect size of moderate-level and t-value of -3.743, males ranked significantly higher than females ($p = .004$) in aggression, showing that males are more aggressive than females in this sample.

Table 7
Independent Sample t-test for Comparative Analysis Study Variables across Genders (N=200)

Variable	Male (n=100)		Female (n=100)		<i>t</i>	<i>p</i>	Cohen's d
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Physical aggression	14.47	5.70	9.76	3.88	-6.84	.000	.966
Verbal aggression	12.57	4.01	13.55	3.60	1.82	.513	.257
Anger	11.54	2.78	12.13	3.31	1.37	.114	.193
Hostility	14.48	4.54	11.46	3.51	-5.27	.001	.744

Note. * $p < 0.05$.

Table 7 revealed there are statistically significant gender differences in physical aggression ($p=.000$) and hostility ($p=.001$). Males exhibited significantly higher physical aggression compared to females, with a large effect size. Similarly, males also scored higher in hostility than females, with

a significant difference, indicating a moderate to large effect size. Furthermore, females had slightly higher verbal aggression and anger than males, with a very small effect size. However, there are no discernible gender differences in verbal aggression ($p=.513$) or anger ($p=.114$).

Discussion

Research suggests that SI is closely tied to empathy, as individuals with high SI tend to be more empathetic and better at understanding others' emotions (Yaşar, Tür, & Öztürk, 2023). In contrast, aggression is often a result of a lack of empathy or social understanding. This pattern is additionally backed by López-Pérez, Fernández-Pinto, and Abad (2018), who discovered that those with elevated emotional and social intelligence showed increased empathy and less aggression, with empathy serving as a crucial mediator. The findings suggest that the initial hypothesis is confirmed: social intelligence is linked to empathy and aggression. However, there is a strong and positive correlation between social intelligence and empathy, whereas the connection between social intelligence and aggression is weak and negative. These results align with those of Smith. J (2020), similarly discovered that social intelligence had a positive correlation with empathy but a weak negative correlation with aggression. The regression analysis further supports these associations, revealing that empathy is significantly predicted by social intelligence. This predictive relationship suggests that higher levels of social intelligence contribute directly to increased empathy. In contrast, social intelligence was not found to be a significant predictor of aggression, aligning with the results of regression analysis that show a weaker connection between the two variables.

This aligns with Kret and Ploeger (2015), who contend that although social-emotional skills like empathy diminish aggression, the root cause of aggressive actions typically stems from shortcomings in emotion processing, rather than in social intelligence. These regression outcomes reinforce that while SI strongly influences empathetic behaviors, its impact on aggression is limited. The study revealed that females scored notably higher in empathy than males, while males scored significantly higher in overall aggression. Specifically, males demonstrated significantly higher levels of physical aggression and hostility, while no discernible gender differences were observed in verbal aggression or anger, despite females showing higher mean scores in these areas. Estévez, Jiménez, and Cava (2020) observed comparable gender-based patterns in empathy and aggression, highlighting the influence of social and cultural elements on emotional expression between genders. Eisenberg & Lennon (1983) found socialization and biology contribute to higher empathy in females, while Björkqvist et al. (1992) noted males' propensity for physical aggression.

This difference can be attributed to socialization, social standards, and expectations for gender roles. Women are often encouraged to cultivate nurturing traits, which could account for elevated empathy levels and some elements of social intelligence. Conversely, men are frequently taught to prioritize assertiveness

and dominance, leading to more visible or physical expressions of aggression. Moreover, norms of hegemonic masculinity frequently dissuade men from showing emotional vulnerability, which may restrict the formation or demonstration of empathic responses (Connell & Messerschmidt, 2005). Empathy is an area in which women outperform men in reading emotional signals from facial expressions, body language, and vocal tones, showing heightened emotional sensitivity and empathy (Thompson & Voyer, 2014). This assessment presents findings indicating that generally, females exhibit higher emotional responsiveness and empathy at both behavioral and neurological levels, linking this to a meta-analysis featured in *Cognition & Emotion* (2014).

The results of the study need to be interpreted in light of the sociocultural background from which the data was derived. Standardized measures for social intelligence, empathy, and aggression were created in Western settings, possibly overlooking culturally unique aspects pertinent to South Asia. Cultural behavior models suggest that empathy and aggression manifest differently based on local social norms and values (Gelfand et al., 2017). In Pakistan's collectivist society, for example, empathy tends to focus on the group, whereas aggression might be subtly or socially limited. This cultural context may have shaped participants' views and reactions, impacting the relationships among variables. Consequently, the results, while aligning with international studies, demand a culturally aware analysis. Additional studies ought to examine these constructs in non-Western groups, employing culturally relevant measures (Hashmi et al., 2020).

Conclusion

This research intended to investigate the connection between social intelligence, empathy, and aggression, in addition to evaluating how social intelligence affects empathy and aggression. Results showed a significant link between empathy and social intelligence. Conversely, a significant inverse correlation was found between empathy and aggression. Additionally, social intelligence was found to be a positive predictor of empathy, though it did not significantly influence aggression. The statistical analysis revealed no notable gender differences in social intelligence. However, significant differences were observed in both empathy and aggression, with females displaying higher levels of empathy and males exhibiting more aggression, particularly in physical forms. Further research is advised to investigate different possible variables that could impact social intelligence, empathy, and aggression, like one's cultural background, personality characteristics, and early life

events. Longitudinal research could offer a further understanding of the development and interactions of these variables across time. Sincere appreciation and thanks to all participants who willingly provided their data, contributing to the success of this study.

Limitations

The sample comprised 200 individuals, equally divided between 100 men and 100 women. The sample included only individuals living in Multan city. The small localized sample of the study prevents the findings from being generalized.

Implications

Overall, the present study highlights important implications regarding how social intelligence, empathy and aggression interact within adults and how social intelligence relates positively to empathy, which suggests that social intelligence may influence the way social cognitive abilities improve empathy and prosocial behavior. In contrast, this negative relationship between empathy and aggression indicates that empathy modulates and inhibits aggression while empathy promotes adaptive social behavior. Thus, improving social intelligence along with empathy can be seen as a means of promoting adaptive behavior while reducing aggression tendencies. These behavioral differences also indicate that it is important to approach teaching children with gender sensitivity so they regulate their emotional and behavioral responses in educational and clinical settings.

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