Understanding Others' Mental State Makes it Easy to Forgive: Number of Friends Moderate the Process

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ABSTRACT

Objective: To investigate the association between theory of mind, ability and forgiveness, along with the moderating role of various demographic influences.

Study Design: Cross-sectional study.

Place and Duration of study: Quaid-i-Azam University, Islamabad Pakistan, from May to Aug 2020.

Methodology: Four hundred eighty-seven young adults with an age range of 20-30 years were included. Reading Mind in the Eyes test and behavioural measures of forgiveness were explored. Correlation and moderation analysis were performed.

Results: Results presented that forgiveness and theory of mind were positively correlated (r=0.71, p<0.05) and also supported the established demographic influences, i.e., women (11.59±5.39) score more than men on the indicator of Theory of Mind (9.92±5.56). In addition, those who have interest in literature (11.30±5.56) tended reading others' mental state to a greater extent than others (9.49±5.41). Several friends emerged as a moderator for the relationship between the theory of mind and forgiveness. In contrast, fewer friends depicted the best tendency to infer others' mindsets or empathize, thus facilitating forgiveness.

Conclusion: Our findings depict that the number of friends has a moderating role in the relationship between the theory of mind and forgiveness. It shows that an increase in forgiveness is associated with an increase in the theory of mind for all groups.

Keywords: Behavioral measures, Forgiveness, Mental States, Theory of mind, Young adults.

INTRODUCTION

The ability to attribute mental states to oneself and the people around is known as the theory of mind (ToM).[1] Common sense psychology, naïve psychology, folk psychology, mind reading, and metalising are the other names for this ability. In neuroscience, it is regarded as a set of metacognitive abilities. It includes the potential for being able to understand and reflect on the intentions, knowledge, and even desires of human beings.[2] It is recognised that this tendency has a basic and essential role in the interaction of living beings with each other, enabling them to communicate effectively.[3] Empathy is required to understand their emotions, and the functioning affective ToM requires integrating these two processes. Thus, it represents a specific and challenging higher-order cognitive process to reflect the functioning of affective ToM.[4] The literature presented a strong connection between forgiveness and empathy with lots of evidence. The neurological evidence is empirically advocating, and common sense demonstrates the link between the theory of mind and forgiveness.[5,6] Similarly, a good piece of research evidence presents that the socio-cognitive abilities of individuals usually reflect the size of their social network.[7,8]

As far as the status of Pakistan is concerned, forgiveness is one of the well-researched concepts in Pakistan. However, quite a limited work is available for the theory of mind and almost nothing to find the association among the said.[9] A study presented work on the theory of mind in which the role of language interaction in children's theory of mind among pre-schoolers was explored. In addition, researchers identified personality traits affecting vengeful & forgiving behaviours among young adults.[10] Further, consistently positive results were found for the relationship between well-being and forgiveness explored in another study.[1] Therefore, the present attempt is directed to find the role of the ability to infer others' mental states while decision-making, which presents when people forgive in detail.

METHODOLOGY

The cross-sectional study was conducted in Islamabad, Pakistan, from May to August 2020 after

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taking permission Institutional and Ethical Review Board.

Inclusion Criteria: Individuals of either gender aged 19-35 years having no apparent mental or psychological problems were included in the study.

Exclusion Criteria: Individuals with severe mental health complications (to be evident from their overt behaviour) were not included.

Study participants were included through a convenient sampling technique. Reading the Mind in the Eyes Test (RMET) was used to assess the theory of Mind. The test contains 36 images of pairs of eyes with four adjectives around each picture requiring participants to pick up (Urdu meanings were also presented to facilitate participants) the state of mind being depicted. One score received for each correct answer, and a high score depicted a greater mentalising ability. Validation studies of the test showed that it has acceptable reliability, i.e.,α=.63.[11]

For measuring forgiveness, a behavioural measure was taken from the work having scenario-based punishment assignment tasks for the wrongdoers or criminals.[12] Those situations were modified after obtaining their permission as per the Pakistani context. Participants have to rate the typical crime ranging from no punishment to lifetime punishment. Though the reliability of a behavioural measure is usually not presented, it was established here.

All the requirements of a standardised data collection procedure were considered consciously. Consent of participants was taken; confidentiality was ensured, and the right to withdraw at any stage of the study was communicated. Participants were seated in a comfortable environment, and the questionnaires were presented. Thus, data was collected, and queries were responded to candidly.

Statistical Package for Social Sciences (SPSS) version 21.0 was used for the data analysis. Quantitative variables were expressed as Mean±SD. Pearson's correlation test was applied to measure the strength of the linear relationship between variables. Independent sample t-test & moderation analysis were computed to find the role of demographic variables in the emerging relationship.

RESULTS

A total number of 487 young adults participated in the study. The age range of young adults was 20-30 years (23.08±1.99), including 267(54.8%) men and 220 (45.2%) women. Alpha coefficients were computed to assess the internal consistency of the measures. It came to be 0.83 for RMET and 0.72 for the behavioural measure of forgiveness, reflecting an acceptable value.

Pearson Product-Moment correlation was computed to assess the relationship between the theory of mind & forgiveness (as presented in Table–I), which resulted is significant positive relationship $r=0.71$, $p<0.05$.

Table–I: Correlation between Theory of Mind & to Forgiveness (n=487).

Variable	Comparative Variable	Pearson's Correlation Coefficient (r)	p-value
TOM	FOR	0.71	<0.05

Note. TOM=Theory of Mind, FOR=Forgiveness.

The results depicted that the female participants scored high on both theories of mind and forgiveness than males. However, the result was significant only for the theory of mind (Table-II).

Table–II: Gender difference for the ability to Infer other's mental states and the tendency to forgive among participants (n=487).

Baseline Characteristics	Men (n=267)	Women (n=220)	p-value
TOM	9.92±5.56	11.59±5.39	0.010
FOR	27.76±6.15	29.14±5.56	0.070

Note: TOM=Theory of Mind, FOR=Forgiveness

In addition, the same significantly high score on the theory of mind is found for those who have reported having an interest in literature than those who do not have any interest in literature, but the difference for forgiveness is again non-significant (Table-III)

Table–III: Difference among groups having interest in literature and having no interest in literature for the ability to Infer other's mental states and the tendency to Forgive others (n=487).

Baseline Characteristics	Have Interest in Literature (n=290)	Have No Interest in Literature (n=165)	p-value
TOM	11.30±5.56	9.49±5.41	0.010
FOR	28.82±5.66	28.03±6.20	0.310

Note: TOM=Theory of Mind, FOR=Forgiveness.

The regression analysis was used to examine the moderating role of several friends in the relationship between the theory of mind and forgiveness. Results indicated that the interaction between several friends and the theory of mind explained a significant increase in variance for forgiveness. These results support the moderation hypothesis (Table-IV).

Table–IV: Moderating role of No. of Friends in the relationship between Theory of Mind and Forgiveness (n=487).

Variables	B	F	R²	95% CI LL	95% CI UL	p-value
Constant	22.15			17.25	27.04	<0.001
No. of Friends	2.32	2.66*	.03	0.16	4.47	0.03
Theory of Mind	.49			0.11	0.87	0.01
No. of Friends * Theory of Mind				-0.32	-0.02	0.04

Note: p<05, β=Beta Value, CI=Class Interval, p=Significance level, LL=Lower Limit, UL=Upper Limit.

DISCUSSION

Our findings depict that the number of friends has a moderating role in the relationship between the theory of mind and forgiveness. It shows that an increase in forgiveness is associated with an increase in the theory of mind for all groups, but for the first group having the least or limited number of friends, an increase in the forgiveness of participants is reflected. This showed that with an increase in the number of friends, there is a decrease in the theory of mind, and thus, the decrease in the forgiving tendency of individuals will be evident.

Established evidence was available for the relationship between ToM and forgiveness in neurological research.[13] The relationship between forgiveness and empathy was greatly assessed. However, the direct relationship of ToM &forgiveness was missing, which is added here with the idea that ToM is, in actuality, a broader concept having similar activation of the brain as cognitive empathy.[14] The affective ToM, which is the complex component of ToM having the second component (cognitive ToM) as its prerequisite, was repeatedly found to be similar to empathy, thus presenting the route for the connection of ToM & forgiveness.

Another significant difference is found for having an interest in literature depicted higher scores on the ToM measure, reflecting that more interest in literature would result in greater mentalising (inferring others' mind) ability than those who do not have an interest in literature.[15] Researchers also added that they believe that reading literature enhances the imagination of reading about the lives of others and allows them to understand the emotional state and desires of those individuals.[16]

The moderating role of number of friends was also found in the study. As the literature presented, the socio-cognitive abilities of individuals usually reflect the size of their social network. Mentalising is repeatedly found to be associated with having larger social circles. Specifically, it predicts the size of people's support groups. Further, it was established that people reflect the greater mentalising specialities for the closer & intimate beings only.[17,18] The findings support the established notion that empathetic abilities are usually being exercised strategically in individuals' social networks where more empathising attempts are essentially oriented to intimate or closer relationships. It also clarifies the nature of the relationship between Tom and forgiveness.

There could be multiple reasons for non-significant findings, but mainly due to the changing contexts, reducing behavioural differences, and possibly, due to equal treatment of individuals, such findings could emerge. In addition, one could reflect that in the case of demographic influences, gender stereotypes for forgiveness particularly, the most provoking effects are contextual mainly.

CONCLUSION

Our findings depict that the number of friends has a moderating role in the relationship between the theory of mind and forgiveness. It shows that an increase in forgiveness is associated with an increase in the theory of mind for all groups. Further, an interesting role of the social circle has also emerged as an additive feature and has potential for future research to enrich positivity and solidify interactions.

Conflict of Interest: None.

Author's Contribution

Following authors have made substantial contributions to the manuscript as under:

MK & MA: Data acquisition, data analysis, concept drafting the manuscript, critical review, approval of the final version to be published.

NM: Study design, drafting the manuscript, data interpretation, critical review, approval of the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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