

## **Key findings**

### **Model for Guilt (M1):**

Model Summary: About 23.52% of the variance in Guilt can be explained by Apprecia. This is significant ( $p = .0006$ ).

Apprecia on Guilt: For every unit increase in Apprecia, Guilt increases by .3963 units ( $p = .0006$ ). This relationship is significant and positive.

### **Model for Empathic (M2):**

Model Summary: Approximately 42.73% of the variance in Empathic can be explained by Apprecia and Guilt. This is significant ( $p = .0000$ ).

Apprecia on Empathic: For every unit increase in Apprecia, Empathic increases by .3794 units ( $p = .0025$ ). This relationship is significant and positive.

Guilt on Empathic: For every unit increase in Guilt, Empathic increases by .3651 units ( $p = .0154$ ). This relationship is significant and positive.

### **Model for Personal (Y):**

Model Summary: About 17.45% of the variance in Personal can be explained by Apprecia, Guilt, and Empathic. This is significant ( $p = .0430$ ).

Direct effect of Apprecia on Personal: There's a negative direct effect. For every unit increase in Apprecia, Personal decreases by .5226 units ( $p = .0180$ ). This relationship is significant and negative.

Guilt on Personal: The relationship is not significant ( $p = .6876$ ).

Empathic on Personal: For every unit increase in Empathic, Personal increases by .6014 units ( $p = .0187$ ). This relationship is significant and positive.

### **Direct and Indirect Effects of Apprecia (X) on Personal (Y):**

Direct Effect: Apprecia has a significant direct effect on Personal as mentioned above.

Total Indirect Effect: The total indirect effect of Apprecia on Personal via all mediators is .3553. This is in the opposite direction to the direct effect (as it's positive, and the direct effect is negative).

### Specific Indirect Effects:

Ind1 (Apprecia → Guilt → Personal): The indirect effect through Guilt alone is .0401. This is not significant given the bootstrapped confidence interval includes 0.

Ind2 (Apprecia → Empathic → Personal): The indirect effect through Empathic alone is .2282 and is significant as the bootstrapped confidence interval does not include 0.

Ind3 (Apprecia → Guilt → Empathic → Personal): The indirect effect through both Guilt and Empathic is .0870. This is significant as the bootstrapped confidence interval does not include 0.

### Summary:

Apprecia has a significant direct negative effect on Personal.

Apprecia also has a significant indirect positive effect on Personal through both Empathic alone and through the path of Guilt to Empathic.

## **Publication-style report**

In a hierarchical mediation analysis investigating the relationships between Appreciation (Apprecia), Guilt, Empathic Concern (Empathic), and Personal Distress (Personal), several key findings emerged. Firstly, Apprecia significantly predicted Guilt ( $\beta = .3963$ ,  $p < .001$ ), explaining 23.52% of its variance. This suggests that as appreciation levels increase, feelings of guilt tend to rise. Secondly, when considering the prediction of Empathic Concern, both Apprecia ( $\beta = .3794$ ,  $p = .0025$ ) and Guilt ( $\beta = .3651$ ,  $p = .0154$ ) emerged as significant predictors, jointly accounting for 42.73% of its variance. This finding implies that both heightened appreciation and increased guilt contribute to greater empathic concern.

However, in predicting Personal Distress, the dynamics were more complex. While the direct effect of Apprecia on Personal Distress was significant and negative ( $\beta = -.5226$ ,  $p = .018$ ), Empathic Concern exerted a significant positive effect on Personal Distress ( $\beta = .6014$ ,  $p = .0187$ ). Guilt's direct effect on Personal Distress was non-significant. More intriguingly, the mediation analysis revealed that Apprecia's indirect influence on Personal Distress via Empathic Concern was significant (Effect = .2282, BootLLCI = .0182, BootULCI = .5805). Additionally, the sequential mediation path from Apprecia through Guilt to Empathic Concern and then to Personal Distress was also significant (Effect = .0870, BootLLCI = .0028, BootULCI = .2516).

Measure	Coefficient (Coeff)	Standard Error (SE)	t- statistic (t)	p-value (p)	Lower Limit 95% CI (LLCI)	Upper Limit 95% CI (ULCI)
<b>Outcome: Guilt</b>						
Constant	2.611	.421	6.202	.000***	1.762	3.459
Apprecia	.396	.108	3.678	.001**	.179	.614
<b>Outcome: Empathic</b>						
Constant	.854	.553	1.544	.130	-.261	1.968
Apprecia	.379	.118	3.210	.003**	.141	.618
Guilt	.365	.145	2.524	.015*	.073	.657
<b>Outcome: Personal</b>						
Constant	2.012	.916	2.197	.034*	.164	3.860
Apprecia	-.523	.212	-2.463	.018*	-.951	-.094
Guilt	.101	.250	.405	.688	-.403	.606
Empathic	.601	.246	2.445	.019*	.105	1.098

\*\*\* p < 0.001

\*\* p < 0.01

\* p < 0.05