

Guilt Proneness and Prosocial Behaviour Intentions across University Students: A Predictive Study.

Ishan Chawla

Abstract

“A dispositional tendency to experience negative self-conscious emotions following transgressions or failures to live up to one's own or others' standards is termed as guilt proneness” (Tangney et al., 2007). Guilt is usually seen in negative light and often labelled as uncomfortable and guilt proneness is labelled undesirable, but a common motivation for individuals to engage in prosocial behaviours is to manage the guilt in their lives. The deliberate actions individuals engage in, to benefit others or society as a whole, sometimes even at a cost to themselves are termed as prosocial behaviour intentions. These actions can include acts of kindness, cooperation, volunteering, sharing, donating, and helping others in need (Eisenberg & Mussen, 1989). It was hypothesized that guilt proneness acts as a predictive factor for prosocial behaviour intentions in an individual. Guilt and Shame Proneness (GASP), developed by Cohen et al. (2011) and Prosocial Behavioural Intentions Scale (PBIS), developed by Baumsteiger & Siegel (2018) were used to measure guilt proneness and prosocial behaviour intentions, on a data set of 155 university students, and this study explored the relationship between these variables through simple linear regression and further, a fitted regression model was formulated. Inferential and descriptive statistical tests were used to study guilt proneness and prosocial behaviour intentions across various demographic variables. The findings of this study indicate that guilt proneness acts as significant predictor of prosocial behaviour intentions and there were statistically significant differences in the mean scores of guilt proneness across age groups and annual household incomes. These results are discussed along with limitations of the study and the scope for future research.

Keywords: Prosocial Behaviour Intentions, Guilt Proneness, Predictive Factor, University Students.

Introduction

Guilt is complex and multifaceted and is defined as “an aversive conscious emotion that involves criticism of and remorse for one's thoughts, feelings, or action” (Blum A, 2008). It is a complex emotion which can be experienced in a wide variety of situations ranging from minor transgressions to major moral failures and can have a significant impact on an individual's emotional, social and physical well-being. Several different types of guilt have been discovered, including adaptive and maladaptive guilt, primary and secondary guilt, and shame-based guilt. Adaptive guilt is thought to be a healthy response to a wrongdoing, as it promotes self-reflection, accountability, and the desire to make amends. Maladaptive guilt, on the other hand, can be detrimental to one's mental health, leading to self-blame, rumination, and feelings of worthlessness. Primary guilt is a term used to describe guilt that arises from a specific action or event. Secondary guilt, on the other hand, is a more generalized feeling of guilt that is not tied to any particular action or event, but rather to a sense of self-worth or moral character. Shame-based guilt, which is often

associated with feelings of inferiority, humiliation, and social isolation, is a particularly potent form of guilt that can be difficult to overcome.

Guilt is embedded not only in our daily lives but also in various mythologies and religions. Ancient civilizations viewed guilt as a supernatural force enforced by god, that punished humans for their wrongdoings. Philosophers have debated guilt elaborately and have formed and disregarded various definitions of guilt over time. Jean-Paul Sartre (1956) argued that guilt stemmed from an individual's freedom and his responsibility to make choices, and the knowledge of responsibility of his own self. Sartre believed that guilt is not simply a feeling, but rather, it is a form of self-punishment. When we act in a way that goes against our own values or beliefs, we experience guilt as a way to punish ourselves for our actions. He also emphasized that guilt is imposed upon us by others. When we feel guilty, it is often because we are aware that our actions have disappointed or hurt someone else, and we feel responsible for their reactions. Kant (1785) argued that guilt arises from violating our moral duties, and it is a necessary component of moral responsibility. In this way, guilt is not simply a feeling, but rather, it is a moral judgment that we make about ourselves. He believed that moral duty is determined by the categorical imperative, which is a universal principle that applies to all rational beings. The categorical imperative states that we should always act in such a way that our actions could be made into a universal law. This means that we should only act in ways that we would want everyone else to act in similar situations. When we violate our moral duties, we feel guilty because we have failed to live up to our own moral standards. Nietzsche (1887) argued that guilt is a social construct that has been imposed upon us by religion and other societal institutions to create morality of obedience and submission and to maintain their power and authority over the society and in this way, guilt is a means of social control and manipulation. He went as far as arguing that guilt is a hindrance to personal growth and fulfillment because it is a form of self-punishment that prevents individuals from living their lives to the fullest, and individuals should strive to overcome their guilt and to embrace their own desires and passions, rather than conforming to societal norms and expectations. However, guilt proneness is a relatively new topic and hence, very little research has been conducted exploring facets of the topic. Guilt proneness can be described as a personality characteristic related to "a predisposition to experience negative feelings about personal wrongdoing, even when the wrongdoing is private" (Cohen et al., 2012), and it varies from person-to-person based on different variables including cultures, immediate surroundings, age, economic background, professions, etc. Although it is usually used in negative light and often labelled as 'uncomfortable and undesirable', guilt can act as a moral compass for us to align our behaviour with our ideologies and beliefs. Guilt often moves people to make amends or compensate for their actions in some form, usually altruism or prosocial behaviour. Prosocial Behaviours are acts performed with an intent to help others and it can include acts of kindness, cooperation, empathy, and altruism" (Batson & Powell, 2003). It is an essential aspect of human behaviour that makes us survive and thrive in a society. Prosocial behaviour is critical for maintaining positive relationships, building trust and cooperation, and creating a more just and harmonious society. Prosocial behaviour can be a minute act of kindness to a stranger such as holding the door open for someone or a magnificent feat of altruism such as donating a kidney to someone in need. It also includes behaviours cooperation, empathy, and emotional and social support to people going through a difficult time. There can be multiple factors that influence prosocial behaviour, including individual differences, situational factors, and cultural factors. Individual differences, such as personality traits and values, can play a role in determining whether or not someone engages in prosocial behaviour. Situational factors, such as the presence of others or the perceived urgency of a situation, can also influence prosocial

behaviour. Cultural factors, such as norms and values related to helping and cooperation, can shape the extent to which prosocial behaviour is valued and encouraged within a society. Some aspects of prosocial behaviours are empathy, altruism, cooperation, and gratitude. Empathy involves understanding and sharing the feelings of others, which can lead to increased understanding, compassion, and kindness. Altruism involves helping others without expecting anything in return, even if it may involve personal sacrifice. Cooperation is another essential aspect of prosocial behaviour. It involves working together with others to achieve common goals, which can lead to increased success and efficiency. Gratitude usually involves acknowledging and appreciating the support, kindness, and help of others. (Raposa et al., 2016) found that people who help others tend to experience negative moods less frequently and people who engage in prosocial behaviours are more likely to experience better moods. Engaging in prosocial behaviours helps mitigate the negative emotional effects of stress, so helping others can reduce a great deal of impact of stress on everyday lives. (Haller et al., 2022) found that prosocial behaviour was consistently associated with individual well-being across various western countries. A Longitudinal Study of Aging (LSOA) assessed the health and social functioning of a representative sample of 7527 American community-focused older people (> 70 years) for 96 months and found that frequent volunteers had significantly reduced mortality compared to non-volunteers (S. Harris & Thoresen, 2005). Hence, cultivating prosocial behaviour intentions can lead to a more compassionate and caring world to live in. Prosocial behavioural intentions are used to avoid many problems and is associated with the willingness and intentions to help others without any personal benefit (Salim A., Rajput N., 2021). Sometimes, people engage in prosocial behaviours in an attempt to compensate for their immoral behaviours which have created some amount of guilt in their lives- in an attempt to balance out the effects of their guilt-producing behaviours.

Hence, it is hypothesized that proneness to guilt acts as a predictive factor for prosocial behaviour intentions and this study used the Guilt and Shame Proneness (GASP), developed by Cohen et al. (2011) and the Prosocial Behavioural Intentions Scale (PBIS), developed by Baumsteiger & Siegel (2018) for the exploration of this facet among university students.

Objectives

1. To study guilt proneness as a predictive factor for prosocial behaviour intentions.
2. To analyze the levels of guilt proneness of students of ages 19 to 23.
3. To analyze the levels of prosocial behaviour intentions of students of ages 19 to 23.
4. To examine the differences and relationships of guilt proneness and prosocial behaviours across gender, age and annual household income.

Hypothesis

H0 Proneness to guilt does not act as a predictive factor for prosocial behaviour intentions.

H1 Proneness to guilt acts as a predictive factor for prosocial behaviour intentions.

Methodology

Sample

The research population constituted of university students, including undergraduate and postgraduate students within the age group 19 to 23 years. The final sample size was 155, with 92 females (59.3%) and 63 males (40.7%), within the age group of 17 to 23. The non-probability sampling technique of deliberate

sampling, namely, convenience sampling was used. This technique had been chosen with due consideration of the relatively large sample size used for the study. This technique allowed for a relatively more accessible sample.

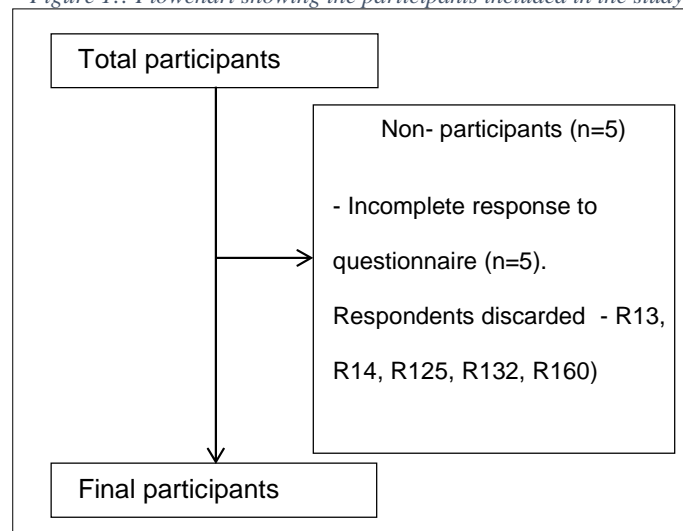
The following inclusion criteria was considered while choosing the sample:

- The participant must be a university student, currently.
- The participant must be within the age group of 19 to 23 years.

The following exclusion criteria was considered while choosing the sample:

- The participants did not fall in the age group of 19 to 23 years.
- The participants were not university students, currently.
- Incomplete response to questionnaire.

Figure 1:: Flowchart showing the participants included in the study



Instruments

The data collection technique used was the self-report questionnaire technique. Participants responded to a questionnaire including demographic and previously validated tools to measure the levels of the

independent (Guilt Proneness) and the dependent variable (Prosocial Behaviour Intentions):

1. Guilt and Shame Proneness Scale (GASP)

The Guilt and Shame Proneness Scale (GASP) is a measure of individual differences in tendencies to experience guilt and shame in response to transgressions. The Guilt and Shame Proneness scale (GASP) measures individual differences in the propensity to experience guilt and shame across a range of personal transgressions. The GASP contains four four-item subscales: Guilt-Negative-Behaviour-Evaluation (Guilt-NBE), Guilt-Repair, Shame- Negative-Self-Evaluation (Shame-NSE), and Shame-Withdraw (Cohen et al., 2011b). Internal consistency, which refers to the extent to which the items within each subscale of the GASP are measuring the same underlying construct, has been found to be strong, with reported Cronbach's alphas ranging from .86 to .94 for the guilt proneness subscale and from .83 to .92 for the shame proneness subscale. Test-retest reliability, which assesses the stability of the scale over time, has also been found to be good. In one study, the GASP was administered twice with a two-week interval, and the correlation between the two administrations was found to be high, indicating that the scale produces consistent results over time. Additionally, the GASP has demonstrated good convergent validity with related constructs, such as empathy and social anxiety (Cohen et al., 2011b). Subjects answered by

using a 1 to 7 scale with Very Unlikely to Very Likely. The subscales Guilt-Negative-Behaviour-Evaluation (Guilt-NBE), Guilt-Repair were used in this study which included a total of 8 items.

2. Prosocial Behaviour Intentions Scale (PBIS)

The Prosocial Behaviour Intentions Scale (PBIS) developed by Baumsteiger and Siegel in 2019 is a tool for measuring individuals' intentions to engage in prosocial behaviour. The PBIS consists of 4 items that measure different dimensions of prosocial behaviour including empathy, altruism, volunteering, and donation. The scale uses a 7-point Likert-type response format, ranging from 1 (definitely would not do this) to 7 (definitely would do this), with higher scores indicating higher levels of prosocial behaviour intentions. One of the strengths of the PBIS is its focus on different dimensions of prosocial behaviour, which allows for a more nuanced understanding of individuals' intentions. (Baumsteiger and Siegel 2019) reported high levels of internal consistency (Cronbach's alpha = .93) and test-retest reliability ($r = .83$), indicating that the scale is reliable over time. Additionally, they found that the PBIS had good construct validity, as it was positively correlated with other measures of prosocial behaviour and negatively correlated with measures of aggression.

Procedure

After elaborate ethical considerations, the research methodology was finalized including the sampling design, data collection technique, and the methods of data analysis. The non-probability sampling technique of deliberate sampling, namely, convenience sampling was used for a sample size of 155. Data collection method chosen for this study was self-report questionnaire technique. The technique proposed for this research was online questionnaire technique. All the tools selected for the study were self-report measures which were converted to online format using Google forms. The online form included the sections for Briefing and Debriefing the participant; taking Informed Consent; Demographic detail; Guilt and Shame Proneness Scale (GASP) and Prosocial Behaviour Intentions Scale (PBIS). The questionnaire form links were distributed to the samples selected via social media platforms like WhatsApp and also directly during lectures and meetings. The participants took approximately 5 to 15 minutes to complete the questionnaire forms. Collected data was compiled, coded and analyzed using Microsoft Excel, R (Programming Language) and Statistical Package for Social Sciences (SPSS).

Data was compiled, coded, cleaned and organized using MS-Excel. Scoring was done for the responses to items of previously validated tools GASP (Guilt-NBE and Guilt-Repair) and PBIS. Scores thus obtained were computed to find the descriptive statistics. Hypothesis testing was done using linear regression for predictive analysis and a fitted regression model was formulated using MS-Excel. Analysis of Variances (ANOVA)-single factor were conducted using the Statistical Package for Social Sciences (SPSS), to compare variance across the mean of different groups for each; gender, age and annual household income, followed by Tukey's Honestly Significant Difference test (Tukey's HSD), using the R software (Programming Language) to test differences among sample means for significance. Pivot tables were used for developing the demographic profile for all items. Charts and graphs were created for illustrative representation of data and results.

Results and Discussions

Descriptive Statistics: Demographic Details

Table 1: Frequency distribution table across Gender (Guilt NBE + Guilt-Repair)

Guilt NBE + Guilt-Repair	Male	Female	Total
Average	30.97%	37.42%	68.39%
High	7.10%	8.39%	15.48%
Low	2.58%	13.55%	16.13%
Total	40.65%	59.35%	100.00%

The table 1 shows the frequency distribution table of the scores of guilt proneness scores across gender, the total population is split into three categories: average, high, and low. The average category has 68.39% representation, with 30.97% being male and 37.42% being female. The high category has 15.48% representation, with 7.10% being male and 8.39% being female. The low category has 16.13% representation, with 2.58% being male and 13.55% being female. Overall, the female representation is higher than the male representation, with 59.35% of the population being female and 40.65% being male, out of the total sample size of 155.

Table 2: Frequency distribution table across Age (Guilt NBE + Guilt-Repair)

Guilt NBE + Guilt-Repair	Age 19	Age 20	Age 21	Age 22	Age 23	Total
Average	1.94%	9.68%	25.81%	26.45%	4.52%	68.39%
High	0.65%	1.94%	7.10%	2.58%	3.23%	15.48%
Low	1.94%	3.87%	7.10%	3.23%	0.00%	16.13%
Total	4.52%	15.48%	40.00%	32.26%	7.74%	100.00%

Table 2 shows the frequency table of the scores of guilt proneness scores across ages 19 to 23 years old, with each group having a different representation in the population. The average category accounts for the highest representation, accounting for 68.39% of the population. Among the different age groups, those aged 21 and 22 have the highest representation in the population with 25.81% and 26.45%, respectively. The high category has the lowest representation among the age groups, with only 15.48% of the population falling under this category. It shows that frequency of age 19 was 4.52%, age 20 was 15.48%, age 21 was 40%, age 22 was 32.26%, and age 23 was 7.74%; out of the total data sample.

Table 3: Frequency Distribution Table across Annual Household Income (Guilt NBE + Guilt-Repair)

Guilt NBE + Guilt-Repair	Below ₹5,00,000	₹5,00,000 to ₹7,50,000	₹7,50,000 to ₹10,00,000	₹10,00,000 to ₹12,50,000	Above ₹12,50,000	Total
Average	7.10%	9.03%	4.52%	3.87%	43.87%	68.39%
High	1.94%	3.23%	0.00%	0.00%	10.32%	15.48%
Low	3.23%	1.29%	0.00%	5.16%	6.45%	16.13%

						%
Total	12.26%	13.55%	4.52%	9.03%	60.65%	100.00%

Table 3 shows the frequency table of the scores of guilt proneness scores across household income ranging from below ₹5,00,000 with increments of ₹2,50,000 up to above ₹12,50,000. The above ₹12,50,000 income range has the highest representation with 43.87%. The high category has a lower representation with only 15.48% of the population falling under this category, and the above ₹12,50,000 income range has the highest representation at 10.32%. It shows that frequency of Below ₹5,00,000 was 12.26%, ₹5,00,000 to ₹7,50,000 was 13.55%, ₹7,50,000 to ₹10,00,000 was 4.52%, ₹10,00,000 to ₹12,50,000 was 9.03%, and Above ₹12,50,000 was 60.5%; out of the total data sample.

Table 4: Frequency Distribution Table across Gender (PBIS)

PBIS	Male	Female	Total
Average	10.97%	12.26%	23.23%
High	16.77%	32.90%	49.68%
Low	12.90%	14.19%	27.10%
Total	40.65%	59.35%	100.00%

The table 4 shows the frequency distribution table of the scores of prosocial behaviour intention scores across gender, the total population is split into three categories: average, high, and low. The average category has a representation of 23.23%, with 10.97% being male and 12.26% being female. The high category has a representation of 49.68%, with 16.77% being male and 32.90% being female. The low category has a representation of 27.10%, with 12.90% being male and 14.19% being female. The table also shows that the representation of females in PBIS is higher than males, with 59.35% of the population being female and 40.65% being male, out of the total sample size of 155.

Table 5: Frequency Distribution Table across Age (PBIS)

PBIS	Age 19	Age 20	Age 21	Age 22	Age 23	Total
Average	1.29%	2.58%	12.90%	3.87%	2.58%	23.23%
High	1.29%	9.68%	20.00%	14.84%	3.87%	49.68%
Low	1.94%	3.23%	7.10%	13.55%	1.29%	27.10%
Total	4.52%	15.48%	40.00%	32.26%	7.74%	100.00%

Table 5 shows the frequency table of the scores of prosocial behaviour intention scores across ages 19 to 23 years old, with each group having a different representation in the population. The average category has the highest representation for the 21-year-old age group, with a representation of 12.90%, and an overall representation of 23.23%. The high category has the highest representation for the 20-year-old age

group, with a representation of 9.68%, and an overall representation of 49.68%. The low category has the highest representation for the 22-year-old age group, with a representation of 13.55%, and an overall representation of 27.10%. The table also shows that the representation of individuals in PBIS increases from the age of 19 to 21 and decreases after that.

Table 6: Frequency Distribution Table across Annual Household Income (PBIS)

PBIS	Below ₹5,00,000	₹5,00,000 to ₹7,50,000	₹7,50,000 to ₹10,00,000	₹10,00,000 to ₹12,50,000	Above ₹12,50,000	Total
Average	3.23%	6.45%	0.00%	1.29%	12.26%	23.23%
High	3.87%	3.87%	3.23%	5.81%	32.90%	49.68%
Low	5.16%	3.23%	1.29%	1.94%	15.48%	27.10%
Total	12.26%	13.55%	4.52%	9.03%	60.65%	100.00%

Table 6 shows the frequency table of the scores of prosocial behaviour intention scores across household income ranging from below ₹5,00,000 with increments of ₹2,50,000 up to above ₹12,50,000. The average category has the highest representation for individuals with income above ₹12,50,000, with a representation of 12.26%, and an overall representation of 23.23%. The high category has the highest representation for individuals with income above ₹12,50,000, with a representation of 32.90%, and an overall representation of 49.68%. The low category has the highest representation for individuals with income between ₹10,00,000 to ₹12,50,000, with a representation of 15.48%, and an overall representation of 27.10%; out of the total data sample.

Guilt Proneness as measured by the Guilt and Shame Proneness Scale (GASP)

The Guilt and Shame Proneness Scale (GASP) was used to measure the tendencies to experience guilt. The Guilt and Shame Proneness scale (GASP) measures the individual differences in the propensity to experience guilt and shame across a range of personal transgressions. The GASP contains four four-item subscales: Guilt-Negative-Behaviour-Evaluation (Guilt-NBE), Guilt-Repair, Shame- Negative-Self-Evaluation (Shame-NSE), and Shame-Withdraw (Cohen et al., 2011b). The subscales Guilt-Negative-Behaviour-Evaluation (Guilt-NBE), Guilt-Repair were used in this study which included a total of 8 items. The table 7 shows the descriptive statistics of the GASP scores.

Table 7: Descriptive Statistics for GASP, Guilt NBE and Guilt-Repair Scores

	GASP	Guilt NBE	Guilt-Repair
Mean	42.43225806	20.78709677	21.64516129
Standard Error	0.657910478	0.442409056	0.34477875

Median	44	22	22
Mode	45	25	22
Standard Deviation	8.19091939	5.507948326	4.292460826
Sample Variance	67.09116045	30.33749476	18.42521994
Skewness	-0.320335523	-0.652159331	-0.594173462
Range	34	19	17
Minimum	22	9	11
Maximum	56	28	28
Sum	6577	3222	3355
Count	155	155	155

Table 7 shows that the total mean score for guilt proneness was found to be 42.432 (SD=8.19) for the data sample of 155, the highest possible score being 56 and the lowest possible score being 8. The mean score for Guilt NBE was found to be 20.787 (SD=5.50) and Guilt-Repair was found to be 21.645 (SD=4.29), the highest possible score being 28 and the lowest possible score being 4 for each of them. The mean score for Guilt NBE is 20.79 and for Guilt-Repair it is 21.65. The standard error of the mean for Guilt NBE is 0.44 and for Guilt-Repair it is 0.34. The median and mode for both variables are similar, with Guilt NBE having a median and mode of 22 and 25 respectively, and Guilt-Repair having a median and mode of 22 and 22 respectively.

Table 8: Single Factor ANOVA for Gender (Guilt NBE + Guilt-Repair)

Anova: Single Factor						
SUMMARY						
Groups	Count	Sum	Average	Variance		
Male	63	2728	43.30159	50.27855		
Female	92	3849	41.83696	78.4017		
ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	80.21452	4	20.05363	0.293416	0.881894	2.431965
Within Groups	10251.82	150	68.34549			
Total	10332.04	154				

Table 8 shows a one-way ANOVA was performed to compare the effect of gender on guilt proneness scores. A one-way ANOVA revealed that there was not a statistically significant difference in mean guilt

prone to score between the male and female groups ($F(4, 150) = [0.293]$, $p = 0.881$), $\alpha (0.05) < p$ value (0.293), because it is above the level of significance. The F-test value is 0.293416 with a p-value of 0.881894, indicating that there is no significant difference between the Male and Female groups. The within-group variance is 68.34549, and the total variance is 10332.04.

Table 9: Single Factor ANOVA for Age (Guilt NBE + Guilt-Repair)

Anova: Single Factor						
SUMMARY						
Groups	Count	Sum	Average	Variance		
Age 19	7	284	40.57143	69.95238		
Age 20	24	989	41.20833	62.1721		
Age 21	62	2640	42.58065	74.67372		
Age 22	50	2048	40.96	53.71265		
Age 23	12	616	51.33333	15.87879		
ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	1120.683	4	280.1707	4.562368	0.001664	2.431965
Within Groups	9211.356	150	61.40904			
Total	10332.04	154				

Table 9 shows a one-way ANOVA was performed to compare the effect of age on guilt proneness scores. A one-way ANOVA revealed that there was a statistically significant difference in mean guilt proneness score between at least two age groups ($F(4, 150) = [4.562]$, $p = 0.0016$), $\alpha (0.05) > p$ value (0.0016), because it is below the level of significance. The between-group variation (1120.683) and within-group variation (9211.356) contribute to the total variation (10332.04). The F-value of 4.562368 is greater than the critical F-value of 2.431965, indicating that there is a significant difference between at least two of the age groups.

The p-value corresponding to the F-statistic of one-way ANOVA was lower than 0.01 which strongly suggests that one or more pairs of treatments are significantly different. $K = 5$ treatments (independent variables), for which Tukey's Honest Significance Difference (Tukey's HSD) Test to each of the 10 pairs as shown in table 10, to pinpoint which of them exhibit statistically significant difference.

Table 10: Data Codes for Tukey's HSD Test (Age)- (Guilt NBE +Guilt-Repair)

Data Coded for Tukey's HSD Test	
Age 19	A
Age 20	B

Age 21	C
Age 22	D
Age 23	E

Table 11: Tukey’s HSD Test for Age (Guilt NBE + Guilt-Repair)

treatments pair	Tukey HSD Q statistic	Tukey HSD p-value	Tukey HSD inference
A vs B	0.2676	0.8999947	insignificant
A vs C	0.9094	0.8999947	insignificant
A vs D	0.1738	0.8999947	insignificant
A vs E	4.0837	0.0355603	* p<0.05
B vs C	1.0302	0.8999947	insignificant
B vs D	0.1805	0.8999947	insignificant
B vs E	5.1682	0.0032332	** p<0.01
C vs D	1.5387	0.787825	insignificant
C vs E	5.0085	0.0047561	** p<0.01
D vs E	5.8237	0.0010053	** p<0.01

Table 11 shows a Tukey’s HSD Test for multiple comparisons found that the mean value of guilt proneness was significantly different between age 19 and age 23 {p value = 0.035 [p value < 0.05 (i.e. α)]}, age 20 and age 23 {p value = 0.003 [p value < 0.01 (i.e. α)]}, age 21 and age 23 {p value = 0.004 [p value < 0.05 (i.e. α)]}, and age 22 and age 23 (p value = 0.001 [p value < 0.05 (i.e. α)]}, because p value for all 4 pairs are below the level of significance. It was found that the average scores of guilt proneness gradually increased till the age of 23 and there was a significant level of growth from the age 22 to age 23.

Table 12: Single Factor ANOVA for Annual Household Income (Guilt NBE + Guilt-Repair)

Anova: Single Factor				
SUMMARY				
Groups	Count	Sum	Average	Variance
Below ₹5,00,000	19	770	40.5263	88.9298
₹5,00,000 to ₹7,50,000	21	930	44.2857	66.3142
₹7,50,000 to ₹10,00,000	7	293	41.8571	45.4761
₹10,00,000 to ₹12,50,000	14	474	33.8571	37.3626
Above ₹12,50,000	94	4110	43.7234	57.1699

8						
ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	1329.63	6	332.409	5.53867	0.000347019	2.431965
Within Groups	9002.40	2	60.0160	2		
Total	10332.0	4	154			

Table 12 shows a one-way ANOVA was performed to compare the effect of household income on guilt proneness scores. A one-way ANOVA revealed that there was a statistically significant difference in mean guilt proneness score between the age groups ($F(4, 150) = [5.538]$, $p = 0.0003$), $\alpha (0.05) > p$ value (0.0003), because it is below the level of significance. The critical value for the F-test at the 0.05 significance level with 4 and 150 degrees of freedom is 2.431965. The Between Groups mean square (MS) is 332.4091 and the Within Groups MS is 60.01602. The results suggest that there is a significant difference in means between at least one pair of income ranges, as indicated by the significant F-value.

The p-value corresponding to the F-statistic of one-way ANOVA was lower than 0.01 which strongly suggests that one or more pairs of treatments are significantly different. $K = 5$ treatments (independent variables), for which Tukey's Honest Significance Difference (Tukey's HSD) Test to each of the 10 pairs as shown in table 13, to pinpoint which of them exhibit statistically significant difference.

Table 13: Data Codes for Tukey's HSD Test (Annual Household Income)- (Guilt NBE + Guilt-Repair)

Data Coded for Tukey's HSD Test	
Below ₹5,00,000	A
₹5,00,000 to ₹7,50,000	B
₹7,50,000 to ₹10,00,000	C
₹10,00,000 to ₹12,50,000	D
Above ₹12,50,000	E

Table 14: Tukey's HSD Test for Annual Household Income (Guilt NBE + Guilt-Repair)

treatments pair	Tukey HSD Q statistic	Tukey HSD p-value	Tukey HSD inference
A vs B	2.1675	0.537288	insignificant
A vs C	0.5495	0.899995	insignificant

A vs D	3.4565	0.109521	insignificant
A vs E	2.3203	0.474817	insignificant
B vs C	1.0158	0.899995	insignificant
B vs D	5.5175	0.001338	** p<0.01
B vs E	0.4253	0.899995	insignificant
C vs D	3.1548	0.174283	insignificant
C vs E	0.8696	0.899995	insignificant
D vs E	6.2871	0.001005	** p<0.01

Table 14 shows a Tukey’s HSD Test for multiple comparisons found that the mean value of guilt proneness was significantly different between ₹5,00,000 to ₹7,50,000 and ₹10,00,000 to ₹12,50,000 {p value = 0.0013 [p value < 0.01 (i.e. α)]}, and ₹10,00,000 to ₹12,50,000 and Above ₹12,50,000 {p value = 0.001 [p value < 0.01 (i.e. α)]}, because p value for both pairs are below the level of significance. The results show that individuals with an annual household income of ₹10,00,000 to ₹12,50,000 scored significantly lower in Guilt Proneness than all other annual household income groups.

Prosocial Behaviour Intentions measured by the Prosocial Behaviour Intentions Scale (PBIS)

The Prosocial Behaviour Intentions Scale (PBIS) was used to measure individuals’ intentions to engage in prosocial behaviour. The PBIS consists of 4 items that measure different dimensions of prosocial behaviour including, volunteering, altruism, empathy and donation. The table 15 shows the descriptive statistics of the PBIS scores.

Table 15: Descriptive Statistics for PBIS Scores

PBIS Scores	
Mean	23.83225806
Standard Error	0.309711456
Median	24
Mode	28
Standard Deviation	3.855876532
Sample Variance	14.86778383
Skewness	-1.496223866
Range	19
Minimum	9
Maximum	28

Sum	3694
Count	155

Table 15 shows the total mean score for prosocial behaviour intentions was found to be 23.832 (SD=3.85) for the data sample of 155, the highest possible score being 28 and the lowest possible score being 4. The data indicates a range of 9 to 28. The median score is 24, and the mode is 28. The data is negatively skewed, with a skewness coefficient of -1.50 and the sample variance is 14.87.

Table 16: Single Factor ANOVA for Gender (PBIS)

Anova: Single Factor						
SUMMARY						
Groups	Count	Sum	Average	Variance		
Male	63	1486	23.5873	13.98822		
Female	92	2208	24	15.56044		
ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	6.368868	4	1.592217	0.104601	0.980756	2.431965
Within Groups	2283.27	150	15.2218			
Total	2289.639	154				

Table 16 show a one-way ANOVA was performed to compare the effect of gender on prosocial behaviour intention scores. A one-way ANOVA revealed that there was not a statistically significant difference in mean prosocial behaviour intention score between the male and female groups ($F(4, 150) = [0.104]$, $p = 0.980$), $\alpha (0.05) < p$ value (0.980), because it is above the level of significance. The table shows that the F-statistic value is 0.104601 and the associated p-value is 0.980756, meaning there is no significant difference between the means in the scores of prosocial behaviour intentions of male and female groups.

Table 17: Single Factor ANOVA for Age (PBIS)

Anova: Single Factor					
SUMMARY					
Groups	Count	Sum	Average	Variance	
Age 19	7	165	23.57143	2.619048	
Age 20	24	603	25.125	7.766304	
Age 21	62	1471	23.72581	17.18588	
Age 22	50	1164	23.28	16.32816	
Age 23	12	299	24.91667	6.083333	

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	70.23502	4	17.55875	1.248445	0.292987	2.431965
Within Groups	2109.675	150	14.0645			
Total	2179.91	154				

Table 17 shows a one-way ANOVA was performed to compare the effect of age on prosocial behaviour intention scores. A one-way ANOVA revealed that there was not a statistically significant difference in mean prosocial behaviour intention score between the ages 19, 20, 21, 22, and 23 ($F(4, 150) = [1.248]$, $p = 0.292$), $\alpha (0.05) < p$ value (0.292), because it is above the level of significance. The F-value is 1.248445 and the p-value is 0.292987, indicating that the differences between the group means are not significant at the 0.05 level of significance.

Table 18: Single Factor ANOVA for Annual Household Income (PBIS)

Anova: Single Factor						
SUMMARY						
Groups	Count	Sum	Average	Variance		
Below ₹5,00,000	19	449	23.63158	9.467836		
₹5,00,000 to ₹7,50,000	21	487	23.19048	9.161905		
₹7,50,000 to ₹10,00,000	7	156	22.28571	40.90476		
₹10,00,000 to ₹12,50,000	14	338	24.14286	18.74725		
Above ₹12,50,000	94	2264	24.08511	15.19698		
ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	33.51756	4	8.379389	0.55711	0.69413862	2.431965
Within Groups	2256.121	150	15.04081			
Total	2289.639	154				

Table 18 shows a one-way ANOVA was performed to compare the effect of household income on prosocial behaviour intention scores. A one-way ANOVA revealed that there was not a statistically significant difference in mean prosocial behaviour intention score between the Below ₹5,00,000, ₹5,00,000 to ₹7,50,000, ₹7,50,000 to ₹10,00,000, ₹10,00,000 to ₹12,50,000, and Above ₹12,50,000 groups ($F(4, 150) = [0.104]$, $p = 0.980$), $\alpha (0.05) < p$ value (0.980), because it is above the level of

significance. The F-score is 0.55711, and the P-value is 0.69413862. The critical value of F (F-crit) for the given degrees of freedom is 2.431965. The F-score is less than the F-crit value, which suggests that there is no significant difference between the groups. Thus, we can conclude that the scores for prosocial behaviour intentions for different annual household income levels are not significantly different from each other.

Guilt Proneness as a predictive factor for Prosocial Behaviour Intentions

Table 19: Linear Regression for Guilt NBE + Guilt-Repair and PBIS

SUMMARY OUTPUT		Linear Regression for Proneness to Guilt and Prosocial Behaviour Intentions				
<i>Regression Statistics</i>						
Multiple R	0.414744659					
R Square	0.172013132					
Adjusted R Square	0.166601453					
Standard Error	3.520055318					
Observations	155					
<i>ANOVA</i>						
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>	
Regression	1	393.8479255	393.8479255	31.78553937	8.07819E-08	
Residual	153	1895.790784	12.39078944			
Total	154	2289.63871				
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>		
Intercept	15.54773689	1.496396361	10.39011942	1.81275E-19		
GASP TOTAL	0.19524111	0.034630318	5.637866561	8.07819E-08		

Figure 2: Scatter Plot for Guilt NBE + Guilt-Repair and PBIS Scores

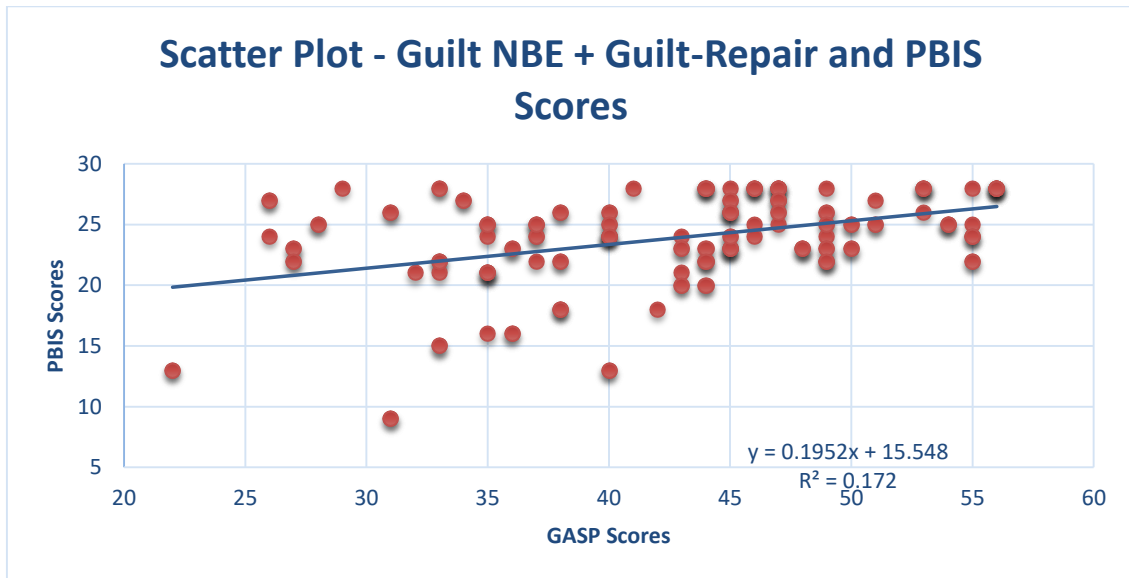


Table 19 shows that a simple linear regression was used to test if Proneness to Guilt significantly predicted Prosocial Behaviour Intentions. The fitted regression model was: $y = 0.1952x + 15.548$ as shown in figure 2; which translates to Prosocial Behaviour Intentions = $0.1952 \times$ Proneness to Guilt + 15.548 as shown in figure 4.4.1. The overall regression was statistically significant [$R^2 = 0.172$, $F(1, 153) = 31.78$, $p < 0.000$ (i.e. $1.81275E-19$)]. It was found that Proneness to Guilt significantly predicted Prosocial Behaviour Intentions [$\beta = 0.19524111$, $p < 0.000$ (i.e. $8.07819E-08$)], hence rejecting the null hypothesis.

The multiple R value is 0.414 which means that the strength of the linear relationship between Proneness to Guilt and Prosocial Behaviour Intentions is fairly strong. A multiple R of 1 indicates a perfect linear relationship while a multiple R of 0 indicates no linear relationship whatsoever. The R^2 value is 0.172, which indicates that 17.2% of the variance in Prosocial Behaviour Intentions can be explained by Proneness to Guilt. The value for R-squared can range from 0 to 1. A value of 0 indicates that the response variable cannot be explained by the predictor variable at all. A value of 1 indicates that the response variable can be perfectly explained without error by the predictor variable. The adjusted R^2 value is 0.166. The standard error of regression is 3.520 and it is the average distance that the observed values fall from the regression line. The significance F value is $8.07819E-08$ (0.0000000807819) which is lower than the significance level of α (0.05), proving that the overall regression model is significant. The p-value is less than the significance level, which is sufficient evidence to conclude that the regression model fits the data better than the model with no predictor variables.

The findings suggest a significant positive correlation between Proneness to Guilt and Prosocial Behaviour Intentions. The regression model demonstrated that Proneness to Guilt had a significant predictive effect on Prosocial Behaviour Intentions, with an intercept of 15.548 and a slope coefficient of 0.1952. The R^2 value of 0.172 shows that Proneness to Guilt explains 17.2% of the variation in Prosocial Behaviour Intentions. This value may be considered low, but it is common in social sciences research. The multiple R value of 0.414 suggests a relatively strong linear association between the two variables. The significance F value was much lower than the significance level, indicating that the regression model with predictor variables was superior to the model without them. These results imply that Proneness to Guilt significantly predicts Prosocial Behaviour Intentions, in the sample population.

Conclusion

Prosocial Behaviour is a crucial part of a well-functioning society, and it is extremely important that it is encouraged and facilitated wherever and however possible. One possible explanation as to the reason individuals engage in prosocial behaviour is, to do away with the guilt in their lives by counter-balancing the negative conscious feeling of guilt. This study proved that guilt proneness is a significant predictor of prosocial behaviour in university students across India, hence rejecting the null hypothesis of the study. Further, a fitted regression model was formulated; Prosocial Behaviour Intentions = $0.1952 \times \text{Proneness to Guilt} + 15.548$. The results of inferential statistics showed that the mean scores of guilt proneness for individuals of age 23 was significantly higher than all other age groups (19 to 22) and possible reasons for this discrepancy can be explored in further studies. The study also found that individuals with annual household incomes ranging from ₹10,00,000 to ₹12,50,000 scored significantly low in the scores for guilt proneness compared to individuals with both, higher and lower annual household incomes than them. There were no significant differences found in the mean scores of guilt proneness across gender and no significant differences found in the mean scores of prosocial behaviour intentions across gender, age or annual household incomes hinting towards the commonality of prosocial behaviour intentions in the Indian society and culture.

Further research can be conducted to explore the possibility and the methods of clinical induction of guilt as a motivating factor for prosocial behaviour intentions. The population of the current study was limited to university students and further research can be conducted on a wider data set with multiple demographic and cultural variations.

Acknowledgement

I am grateful for the invaluable support that my family and friends ceaselessly provided, my roommates for their cooperation with my obstructive working style and their company and to multiple coffee houses for their plumb ambiances.

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