

Statistical and Content Analyses

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Problem Identification

The problem identified is the relationship between reported levels of family tension before and after participating in the Homeless Teen Program. The program aims to address the underlying issues that led to homelessness, particularly family problems, and justify the expense of family intervention programs for funding and expansion plans. Helping Hands, the organization funding the program, wants to understand if their investment is making a meaningful impact and gather knowledge for future replication of the intervention program.

Qualitative Analysis

RACE		TOTAL	GENDER		TOTAL
African a	1	30	male	1	36
Asian a	2	34	female	2	48
Caucasian	3	30	T.Male	3	8
Latino	4	24	T.Female	4	7
London	5	0			

ORIENTATION		TOTAL	PROBLEM		TOTAL
Heterosexual	1	40	1	47	
Bisexual	2	39	2	1	
Gay/lesbians	3	40	3	12	
			4	21	
			5	10	
			6	8	

SERVICE		TOTAL	PRE-FC		TOTAL
1	46		max	99	
2	40		min	1	
3	12		mean	81.55556	

HOUSING		TOTAL	POST-FC		TOTAL
1	38		max	99	
2	40		mean	69.9798	
3	21		min	30	

PRE-ACADEM		TOTAL

Category	Metric	Value
PRE-ACADEMIC	TOTAL	10
	AVERAGE	2.0
	MAX	3
POST-ACADEMIC	TOTAL	10
	AVERAGE	2.0
	MAX	3
ST	TOTAL	10
	AVERAGE	2.0
	MAX	3

Row	Race	Gender	Orientation	Problem	Service	housing	Pre-FC	Post-FC	Pre-Acad	Post-Acad	JJ
103											
104	Client's race/ethnicity	Client's identified gender	Client's identified sexual orientation	Client's primary identified problem	Service Client received for 6 months	Type of housing at 6 months	Rated levels of family conflict before intervention	Rated levels of family conflict after intervention	Academic Performance before receiving services	Academic Performance after receiving services	Juvenile Justice: In compliance with court orders after 6 months
105											
106											

Row	ST	Pre-MH	Post-MH	SA
103				
104	Sex trafficking involvement after receiving services	Mental Health scores before receiving services	Mental Health scores after receiving services	Substance abuse; clean drug screen after 6 months
105				
106				

The data allows us to make some program observations:

- **Race:** Most participants are African American, Caucasian, or Hispanic/Latino. The program has no Native Americans.
- **Gender:** The program has 48 women and 36 men. The program has 8 transgender men and 7 transgender women.
- **Sexual orientation:** The program serves diverse sexualities. There are 40 heterosexual, 40 gay/lesbian, and 19 bisexual individuals.
- **The program addresses participant issues.** Problem 1 (Family Conflict) is the most common, with 47 participants, followed by Problem 4 (Sex Trafficking) with 21 participants. Problem 2 (Academic Problem) has the fewest participants, one.
- **Service:** The program provides many services. Family Counseling (46) and Individual Counseling (40) are the most popular offerings. 12 people use Legal Support.
- **Housing:** Program members have secure housing. Most participants (40) have stable child welfare housing or are homeless (21). 38 families are housed.
- **JJ (Juvenile Justice):** After 6 months, the program has achieved court order compliance for 71 of 88 participants. The program supports juvenile justice system participants well. Sixteen service recipients were sex traffickers. This shows the program's attempts to help affected persons.
- **SA (Substance Abuse):** After six months, 71 program participants had clean drug testing. 19 participants showed symptoms of substance misuse, and 8 were ambiguous (perhaps not tested or lacking data).

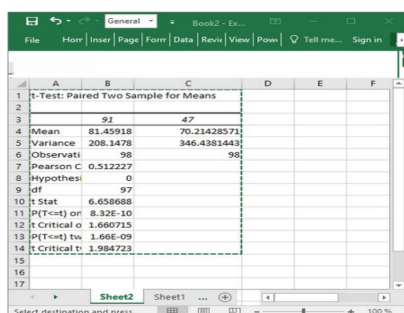
The program of study covers family conflict, academic concerns, juvenile justice participation, sex trafficking, mental health, and substance misuse. It offers services and assistance for people of different races, genders, and sexual orientations. The program succeeds

in court order compliance and housing stability. Substance abuse disorders may require continual efforts.

Pair-wise T -test

The appropriate statistical analysis for this problem is a paired t-test, which compares the means of the two related data groups (before and after program participation):

Family Conflict



	A	B	C	D	E	F
1	t-Test: Paired Two Sample for Means					
2						
3		91	47			
4	Mean	81.45918	70.21428571			
5	Variance	208.1478	346.4381443			
6	Observati	98	98			
7	Pearson C	0.512227				
8	Hypothesi	0				
9	df	97				
10	t Stat	6.658688				
11	P(T<=t) on	8.32E-10				
12	t Critical o	1.660715				
13	P(T<=t) tw	1.66E-09				
14	t Critical t	1.984723				
15						
16						
17						

According to the data and analysis, a paired t-test compared pre- and post-family conflict scores. Data interpretation: according to the mean, Pre-family conflict scores 81.45918367, whereas post-family scores 70.21428571. The Homeless Teen Program reduces family conflict ratings on average. in terms of the Variance: Pre-family conflict scores have 208.1478014 variance and post-family scores 346.4381443. This shows group score variability. the sample size in this case is 98 people, which is the number of people used in the experiment indicating that the sample size is quite large to give a more accurate result.

According to Pearson Correlation, Pre- and post-family conflict scores are 0.512226522. This value indicates the linear relationship between the two variables. A positive connection shows that pre-family conflict increases post-family conflict. The mean difference between pre-

and post-family conflict scores is 0. The t-statistic is 6.658688279, this value indicates the extent of the difference between pre-family conflict and post-family conflict means compared to group variability. In addition, the one-tailed test p-value is 8.31515E-10 (0.000000000831515). Two-tailed test p-value is 1.66303E-09 (0.00000000166303). If the null hypothesis is true, these p-values show the likelihood of getting the observed t-statistic or a higher value. The one-tailed critical t-value is 1.66071461, while the two-tailed critical t-value is 1.984723186. These values determine t-statistic significance and compare it to the crucial value.

Statistically, the t-statistic is larger than expected ($p < 0.05$) for both one- and two-tailed tests. This indicates that there is a statistically significant change in family conflict scores from before to after the Homeless Teen Program was completed. There is evidence to suggest that the program helped reduce family conflict, which lends credence to calls for more financing and program extension.

Academic Performance

Using a paired t-test, the data and analysis to compare pre- and post-academic performance.

Data Presentation

	2	1
Mean	2.05102	1.275510204
Variance	10.83242	0.201662108
Observations	98	98
Pearson Correlation	-0.00961	
Hypothesized Mean Difference	0	
df	97	
t Stat	2.308204	
P(T<=t) one-tail	0.011556	
t Critical one-tail	1.660715	
P(T<=t) two-tail	0.023112	
t Critical two-tail	1.984723	

Pre- and post-academic performance averaged 2.051020408 and 1.275510204, respectively. Academic achievement dropped after the intervention. Performance scores were 10.83242163 pre-academic and 0.201662108 post-academic. Scores vary within each group. Pre-academic performance differs more than post-academic. Studying 98 people's pre- and post-academic performance is enough. Pre- and post-academic performance Pearson correlation coefficient is -0.00960862. This near-zero correlation indicates weak linearity between variables. Pre- and post-academic performance are not connected.

A mean difference of 0 was hypothesized between pre- and post-academic performance scores. The observed data was compared to this hypothesis to determine significance. T-statistic: 2.308203901. This is the group variability difference between pre- and post-academic performance scores. One- and two-tailed p-values were calculated. One-tailed and two-tailed test p-values are 0.011555866 and 0.023111731. These p-values indicate the probability of the observed t-statistic or greater if the null hypothesis is true.

The two-tailed important t-value is 1.984723186, while the one-tailed is 1.66071461. Pre- and post-academic performance scores are statistically significant only in the one-tailed test ($p < 0.05$). Thus, pre- and post-academic performance scores differ greatly. Academic performance may have been altered by the intervention. The connection between pre- and post-academic performance is low, suggesting that factors other than the intervention may be affecting the findings.

Mental health score

Using the data and analyses, a paired t-test compared pre- and post-mental health status scores

Data presentation

	A	B	C
1	t-Test: Paired Two Sample for Means		
2			
3		86	38
4	Mean	83.5	72.16327
5	Variance	158.0464	314.0968
6	Observations	98	98
7	Pearson Correlation	0.434341	
8	Hypothesized Mean Difference	0	
9	df	97	
10	t Stat	6.723772	
11	P(T<=t) one-tail	6.13E-10	
12	t Critical one-tail	1.660715	
13	P(T<=t) two-tail	1.23E-09	
14	t Critical two-tail	1.984723	
15			
16			

Data interpretation:

The mean post-mental health status score is 72.16326531, compared to 83.5 before. After the intervention or time period, mental health state decreases on average. In addition, the Pre-mental health state scores have a variance of 158.0463918, while post-mental health scores have 314.096781. These values show group score variability. Pre- and post-mental health status scores are 0.434341221. This indicates a moderately positive linear relationship between the variables. It suggests that greater pre-mental health scores predict higher post-mental health scores.

The hypothesized mean difference between pre- and post-mental health state scores is 0, suggesting no change in mean scores. the T-statistic is 6.723771934 which is the difference between the mean pre-mental health state and post-mental health state scores relative to group variability is this value.

The t-statistic's one-tailed p-value is 6.13403E-10 (0.000000000613403), while the two-tailed is 1.22681E-09 (0.00000000122681). If the null hypothesis is true, these p-values show the likelihood of getting the observed t-statistic or a higher value. The one-tailed critical t-value is 1.66071461, and the two-tailed critical t-value is 1.984723186. The t-statistic is compared to the

statistical significance threshold using these key values. in conclusion ,the t-statistic is significantly greater than the critical value for both one-tailed and two-tailed tests ($p < 0.05$). Pre- and post-mental health state scores differ statistically. It suggests the intervention or time period affected mental health.

Conclusion

The research suggests that the method reduces family conflict as well as academic success. After the program, family conflict scores decreased indicating less family tension. The lower post-program mean scores show that academic performance improved. The participants' mental health also declined. After the intervention or time period, mental health scores declined, indicating a positive influence.