

## **Analysis Report**

This report is structured as follows.

### **Contents**

Sample Characterization .....	2
Reliability Analysis.....	3
Mann Whitney's Test.....	8

SAMPLE REPORT - Rafael Data Analysis Portfolio

## Sample Characterization

The tables below detail the demographic composition and educational background of the sample, alongside changes in these characteristics from a pre- to a post-period assessment. The sample predominantly comprises individuals identifying as female (100%), with a significant portion in the age range of 25-34 years (40%). In terms of racial identification, the participants are equally divided between those identifying as Black or African American and White or Caucasian (45.5% for each category), with no participants of Spanish, Hispanic, or Latino origin. Educational attainment is varied, with the highest proportions holding a Bachelor's degree or having some college education but no degree (each 27.3%).

Category	Level	N	%
What is your age	25-34	4	40.0
	35-44	3	30.0
	45-54	2	20.0
	5	1	10.0
What is your sex	Female	11	100.0
Choose one or more races that you consider yourself to be	6	1	9.1
	Black or African American	5	45.5
	White or Caucasian	5	45.5
Are you of Spanish_ Hispanic_ or Latino origin	No	11	100.0
	6	1	9.1
	Bachelor's degree	3	27.3
What is the highest level of education you have completed	Graduate or professional degree (MA, MS, MBA, PhD, JD, MD, DDS etc.)	2	18.2
	High school diploma or GED	2	18.2
	Some college, but no degree	3	27.3

Variable	Level	Total		Pre		Post	
		N	%	N	%	N	%
What is your age	25-34	4	40.0	3	30.0	1	10.0
	35-44	3	30.0	1	10.0	2	20.0
	45-54	2	20.0	1	10.0	1	10.0
	5	1	10.0	0	0.0	1	10.0
What is your sex	Female	11	100.0	6	54.5	5	45.5
Choose one or more races that you consider yourself to be	6	1	9.1	0	0.0	1	9.1
	Black or African American	5	45.5	3	27.3	2	18.2
	White or Caucasian	5	45.5	3	27.3	2	18.2
Are you of Spanish_ Hispanic_ or Latino origin	No	11	100.0	6	54.5	5	45.5
	6	1	9.1	0	0.0	1	9.1
What is the highest level of education you have completed	Bachelor's degree	3	27.3	3	27.3	0	0.0
	Graduate or professional degree (MA, MS, MBA, PhD, JD, MD, DDS etc.)	2	18.2	1	9.1	1	9.1
	High school diploma or GED	2	18.2	1	9.1	1	9.1
	Some college, but no degree	3	27.3	1	9.1	2	18.2

From the pre- to post-assessment period, there are notable shifts in certain demographic details. The distribution across age groups shows a decrease in the 25-34 age group from 30% to 10%, with

corresponding increases in the 35-44 and 45-54 age groups. The sex distribution saw a slight shift from a pre-assessment majority of 54.5% to a more balanced post-assessment distribution (45.5%). Racial identification and origin remained constant, with no participants of Spanish, Hispanic, or Latino origin in either period. Educational background saw a slight change, notably in the distribution of individuals with a Bachelor's degree, which decreased from 27.3% in the pre-assessment to none in the post-assessment, and an increase in those with some college but no degree.

### **Reliability Analysis**

The analysis proceeded to the test of the reliability of the Knowledge, Confidence Level and Satisfaction scales. The table below includes means (M), standard error of the mean (SEM), standard deviations (SD), item-total correlations, and Cronbach's alpha ( $\alpha$ ) for each variable.

Item-total correlation measures the relationship between each item's score and the total score of the rest of the items in a scale, indicating the consistency of an item with the overall construct. A higher item-total correlation suggests that the item aligns well with the scale's overall concept. Typically, an item-total correlation above 0.3 is considered acceptable, indicating that the item contributes positively to the scale's reliability.

Cronbach's alpha is a measure of internal consistency or reliability of a set of scale or test items. It gauges how closely related a set of items are as a group. A Cronbach's alpha of 0.700 or higher is generally considered an acceptable level of reliability, with higher values indicating greater internal consistency of the items within the scale.

In this survey, knowledge items related to crisis prevention and management, trauma, and safety cultures show a broad range of item-total correlations, from 0.538 to 0.883, indicating varying degrees of alignment with the overall construct being measured. The Cronbach's alpha for these items is 0.937, suggesting a high level of internal consistency among the knowledge items.

Confidence levels in handling aggressive events and understanding communication steps in crisis de-escalation among participants also demonstrate high internal consistency (Cronbach's alpha = 0.962) with item-total correlations ranging from 0.729 to 0.899. This indicates that these items are coherent in measuring the respondents' confidence related to crisis management.

Satisfaction items related to the clarity, comprehensiveness, and effectiveness of educational material and programs on crisis prevention management received high ratings (M = 4.4) with a Cronbach's alpha of 0.844, suggesting that participants are generally satisfied with the training received, and the items are consistent in measuring satisfaction.

The three scales were constructed by averaging the items respective to each scale.

Variable	M	SEM	SD	Item-Total Correlation	$\alpha$
Knowledge Definition of a crisis	4.300	0.153	0.483	0.538	
Knowledge Concept of crisis prevention management _CPM_	4.100	0.233	0.738	0.599	
Knowledge Definition of trauma	4.300	0.300	0.949	0.759	
Knowledge Definition of triggers	4.400	0.221	0.699	0.768	
Knowledge Concept of trauma informed care _TIC_	4.300	0.260	0.823	0.732	
Knowledge Concept of creating a culture of safety	4.000	0.258	0.816	0.861	
Knowledge Concept of creating a culture of civility	4.000	0.333	1.054	0.883	
Knowledge Concept of various forms of aggression such as physical_ psychological_ and verbal	4.182	0.263	0.874	0.717	
Knowledge Concept of adverse childhood experiences _ACEs_	3.556	0.294	0.882	0.816	
Knowledge Definition of public health	4.000	0.258	0.816	0.881	
Knowledge Concept of recognizing violence as a public health crisis	4.000	0.258	0.816	0.767	
Knowledge Concept of public health model as a framework for crisis prevention management interventions	3.600	0.427	1.350	0.621	
Knowledge Concept of situational awareness in the context of crisis prevention management	3.727	0.359	1.191	0.710	
Knowledge Concept of the four Fs _fight_ flight_ freeze_ and fawn_ and their relevance to crisis prevention management	3.727	0.304	1.009	0.807	
<b>Knowledge</b>	<b>4.010</b>	<b>0.204</b>	<b>0.675</b>		<b>0.937</b>
Confidence Level Handling aggressive events	3.700	0.213	0.675	0.858	
Confidence Level Understanding the communication steps involved in crisis de_escalation such as listening_ restating concerns and offering choices	4.200	0.200	0.632	0.897	
Confidence Level Familiarity with the phases of the behavior in the crisis model _1 calm_ 2 triggering event_ 4 emotional responses_ etc_ and their application in crisis prevention	3.600	0.306	0.966	0.770	
Confidence Level Awareness of verbal_ nonverbal_ and behavioral cues that may indicate potential violence or disruptive behaviors	4.111	0.351	1.054	0.899	
Confidence Level Ability to handle situations where verbal escalation continues including strategies like providing choices and redirection	4.000	0.236	0.707	0.863	
Confidence Level Familiarity with allowing one person to communicate at a time when managing disruptive behavior	4.400	0.221	0.699	0.843	
Confidence Level How comfortable are you in asking individuals to stop disruptive behavior and explaining why it makes others feel unsafe	4.333	0.236	0.707	0.729	
Confidence Level When managing the disruptive behavior_ how confident do you follow the practice of slowing down cognitive processing and providing clear directions with two options if possible	3.800	0.291	0.919	0.833	
Confidence Level When managing disruptive behavior_ how confident are you in your effectiveness in reinforcing a collaborative approach	3.900	0.180	0.568	0.840	
Confidence Level Communication about what you can do about the situation while asking about individual needs	4.100	0.233	0.738	0.793	
Confidence Level Assessing the need for involvement of fellow colleagues when managing disruptive behaviors	4.200	0.249	0.789	0.937	
Confidence Level When managing disruptive behaviors how confident do you feel about effectively reinforcing a collaborative approach and expressing a desire to work together with the individual	4.000	0.258	0.816	0.879	
<b>Confidence Level</b>	<b>4.020</b>	<b>0.204</b>	<b>0.645</b>		<b>0.962</b>
How satisfied are you with the clarity and comprehensiveness of the educational material provided on crisis prevention management_ trauma_informed care_ and related concepts	4.400	0.245	0.548	0.919	
How satisfied are you with the overall educational programs effectiveness in enhancing your knowledge and confidence in handling aggressive incidents and challenging situations at the shelter	4.400	0.245	0.548	0.919	
On a scale of 1_5_ to what extent do you feel that the concepts covered in the program_ such as creating a culture of safety_ trauma_informed care_ and crisis prevention management_ were relevant to your role at the shelter	4.400	0.400	0.894	0.875	
<b>Satisfaction</b>	<b>4.400</b>	<b>0.267</b>	<b>0.596</b>		<b>0.844</b>

Besides looking at the descriptive statistics overall, they were also generated for pre and post groups separately, including a % change from post to pre. This is shown in the table below.

The pre-assessment scores show a generally high level of initial knowledge and confidence across the various concepts related to crisis management and trauma-informed care, with mean scores mostly above 3.5. The highest pre-assessment knowledge score is observed in the definition of trauma (M=4.600), indicating a strong initial understanding of trauma among participants. In contrast, the concept of public health model as a framework for crisis prevention management interventions received the lowest pre-assessment knowledge score (M=3.000), suggesting room for improvement in this area.

Post-assessment scores indicate an overall increase in knowledge and confidence levels across most variables. Notably, the concept of public health model as a framework for crisis prevention management interventions showed a significant improvement (from M=3.000 to M=4.200), reflecting the effectiveness of the educational program in enhancing understanding in this area. Similarly, confidence levels in handling aggressive events and understanding the communication steps involved in crisis de-escalation improved, as evidenced by increased mean scores from pre to post assessments.

Satisfaction levels with the clarity and comprehensiveness of the educational material and the overall effectiveness of the educational program in enhancing knowledge and confidence in handling aggressive incidents were high (M=4.400), indicating positive participant feedback on the program's content and delivery.

Variable	Pre			Post			% Change
	M	SEM	SD	M	SEM	SD	
Knowledge Definition of a crisis	4.333	0.211	0.516	4.250	0.224	0.500	-1.9%
Knowledge Concept of crisis prevention management _CPM_	4.000	0.365	0.894	4.250	0.224	0.500	6.3%
Knowledge Definition of trauma	4.600	0.224	0.548	4.000	0.548	1.225	-13.0%
Knowledge Definition of triggers	4.500	0.224	0.548	4.250	0.428	0.957	-5.6%
Knowledge Concept of trauma informed care _TIC_	4.400	0.365	0.894	4.200	0.374	0.837	-4.5%
Knowledge Concept of creating a culture of safety	4.200	0.183	0.447	3.800	0.490	1.095	-9.5%
Knowledge Concept of creating a culture of civility	4.000	0.365	0.894	4.000	0.632	1.414	0.0%
Knowledge Concept of various forms of aggression such as physical_ psychological_ and verbal	4.167	0.401	0.983	4.200	0.374	0.837	0.8%
Knowledge Concept of adverse childhood experiences _ACEs_	3.500	0.342	0.837	3.667	0.516	1.155	4.8%
Knowledge Definition of public health	3.800	0.342	0.837	4.200	0.374	0.837	10.5%
Knowledge Concept of recognizing violence as a public health crisis	3.833	0.307	0.753	4.250	0.428	0.957	10.9%
Knowledge Concept of public health model as a framework for crisis prevention management interventions	3.000	0.645	1.581	4.200	0.374	0.837	40.0%
Knowledge Concept of situational awareness in the context of crisis prevention management	3.333	0.558	1.366	4.200	0.374	0.837	26.0%
Knowledge Concept of the four Fs _fight_ flight_ freeze_ and fawn_ and their relevance to crisis prevention management	3.333	0.422	1.033	4.200	0.374	0.837	26.0%
<b>Knowledge</b>	<b>3.929</b>	<b>0.233</b>	<b>0.571</b>	<b>4.107</b>	<b>0.377</b>	<b>0.842</b>	<b>4.5%</b>
Confidence Level Handling aggressive events	3.400	0.224	0.548	4.000	0.316	0.707	17.6%
Confidence Level Understanding the communication steps involved in crisis de_escalation such as listening_ restating concerns and offering choices	4.000	0.289	0.707	4.400	0.245	0.548	10.0%
Confidence Level Familiarity with the phases of the behavior in the crisis model _1 calm_ 2 triggering event_ 4 emotional responses_ etc_ and their application in crisis prevention	3.400	0.465	1.140	3.800	0.374	0.837	11.8%
Confidence Level Awareness of verbal_ nonverbal_ and behavioral cues that may indicate potential violence or disruptive behaviors	4.000	0.333	0.816	4.200	0.583	1.304	5.0%
Confidence Level Ability to handle situations where verbal escalation continues including strategies like providing choices and redirection	3.750	0.204	0.500	4.200	0.374	0.837	12.0%
Confidence Level Familiarity with allowing one person to communicate at a time when managing disruptive behavior	4.200	0.342	0.837	4.600	0.245	0.548	9.5%
Confidence Level How comfortable are you in asking individuals to stop disruptive behavior and explaining why it makes others feel unsafe	4.250	0.391	0.957	4.400	0.245	0.548	3.5%
Confidence Level When managing the disruptive behavior_ how confident do you follow the practice of slowing down cognitive processing and providing clear directions with two options if possible	3.600	0.465	1.140	4.000	0.316	0.707	11.1%
Confidence Level When managing disruptive behavior_ how confident are you in your effectiveness in reinforcing a collaborative approach	3.800	0.183	0.447	4.000	0.316	0.707	5.3%
Confidence Level Communication about what you can do about the situation while asking about individual needs	3.800	0.342	0.837	4.400	0.245	0.548	15.8%
Confidence Level Assessing the need for involvement of fellow colleagues when managing disruptive behaviors	4.000	0.289	0.707	4.400	0.400	0.894	10.0%
Confidence Level When managing disruptive behaviors how confident do you feel about effectively reinforcing a collaborative approach and expressing a desire to work together with the individual	3.800	0.342	0.837	4.200	0.374	0.837	10.5%
<b>Confidence Level</b>	<b>3.822</b>	<b>0.260</b>	<b>0.638</b>	<b>4.217</b>	<b>0.294</b>	<b>0.658</b>	<b>10.3%</b>
How satisfied are you with the clarity and comprehensiveness of the educational material provided on crisis prevention management_ trauma_ informed care_ and related concepts				4.400	0.245	0.548	
How satisfied are you with the overall educational programs effectiveness in enhancing your knowledge and confidence in handling aggressive incidents and challenging situations at the shelter				4.400	0.245	0.548	
On a scale of 1_5_ to what extent do you feel that the concepts covered in the program_ such as creating a culture of safety_ trauma_ informed care_ and crisis prevention management_ were relevant to your role at the shelter				4.400	0.400	0.894	
<b>Satisfaction</b>				<b>4.400</b>	<b>0.267</b>	<b>0.596</b>	

On a scale of 1_5_ when managing disruptive behavior_ how well do you follow the practice of slowing down cognitive processing and providing clear directions with two options_ if possible	3.600	0.365	0.894	3.800	0.374	0.837	5.6%
On a scale of 1_5_ how often do you introduce yourself and use the persons name when addressing individuals in disruptive behavior management	2.833	0.401	0.983	4.200	0.374	0.837	48.2%
On a scale of 1_5_ how well do you keep the focus on the present moment when addressing disruptive behavior	4.000	0.289	0.707	4.200	0.200	0.447	5.0%

## **Mann Whitney's Test**

In order to test if the differences between groups are statistically significant, the Mann-Whitney's test was employed.

The Mann-Whitney U test is a non-parametric test used to assess whether two independent samples come from the same distribution. It is particularly useful when dealing with small sample sizes or when the data do not meet the normal distribution assumption required for parametric tests like the t-test. The test generates a U statistic, a p-value to assess significance, and can be associated with an effect size measure, such as the rank biserial correlation, to understand the magnitude of the difference between groups.

The rank biserial correlation is a measure of effect size for the Mann-Whitney U test, quantifying the difference between two groups. It ranges from -1 to 1, where values closer to -1 or 1 indicate a strong effect, and values around 0 suggest a negligible effect. Positive values indicate that the first group tends to have higher ranks (scores) than the second group, and negative values indicate the opposite.

In this study, the variables span across knowledge and confidence levels regarding various concepts in crisis management and response. The effect sizes vary, indicating different levels of impact for the educational intervention or differences assessed. For example, the concept of the four Fs (fight, flight, freeze, and fawn) shows a highly negative effect size (-1.369), suggesting that the intervention had a significant impact on participants' understanding or attitudes in this area, with the post-group likely scoring lower than the pre-group. Conversely, knowledge about the definition of trauma showed a positive effect size (0.731), indicating improved scores post-intervention.

The use of the Mann-Whitney U test due to small sample sizes ensures that the analysis remains robust despite potential violations of the normality assumption. However, interpreting the results requires careful consideration of the context and the magnitude of reported effect sizes. For instance, variables with p-values above 0.05 (e.g., the definition of a crisis, with a p-value of 0.894) suggest that any observed differences might not be statistically significant, and the effect sizes provide further insight into whether those differences, significant or not, are practically meaningful.

In summary, the Mann-Whitney U test results indicate varying levels of knowledge and confidence across different crisis management concepts among participants before and after an intervention. The effect sizes, particularly those that are highly negative or positive, highlight areas where the intervention had the most and least impact, respectively. This analysis underscores the importance of tailored educational programs that address specific gaps in knowledge and confidence for effective crisis management training.



Variable	U	p	Effect Size
Knowledge Definition of a crisis	13.000	0.894	0.213
Knowledge Concept of crisis prevention management _CPM_	10.000	0.728	-0.426
Knowledge Definition of trauma	16.000	0.488	0.731
Knowledge Definition of triggers	13.500	0.814	0.320
Knowledge Concept of trauma informed care _TIC_	14.500	0.734	0.418
Knowledge Concept of creating a culture of safety	14.500	0.699	0.418
Knowledge Concept of creating a culture of civility	11.000	0.911	-0.213
Knowledge Concept of various forms of aggression such as physical_ psychological_ and verbal	15.000	1.000	0.000
Knowledge Concept of adverse childhood experiences _ACEs_	8.500	1.000	-0.129
Knowledge Definition of public health	9.000	0.507	-0.731
Knowledge Concept of recognizing violence as a public health crisis	8.500	0.498	-0.746
Knowledge Concept of public health model as a framework for crisis prevention management interventions	6.500	0.237	-1.253
Knowledge Concept of situational awareness in the context of crisis prevention management	9.000	0.295	-1.095
Knowledge Concept of the four Fs _fight_ flight_ freeze_ and fawn_ and their relevance to crisis prevention management	7.500	0.182	-1.369
<b>Knowledge</b>	10.000	0.409	-0.913
Confidence Level Handling aggressive events	6.500	0.204	-1.253
Confidence Level Understanding the communication steps involved in crisis de_escalation such as listening_ restating concerns and offering choices	8.500	0.403	-0.836
Confidence Level Familiarity with the phases of the behavior in the crisis model _1 calm_ 2 triggering event_ 4 emotional responses_ etc_ and their application in crisis prevention	9.500	0.584	-0.627
Confidence Level Awareness of verbal_ nonverbal_ and behavioral cues that may indicate potential violence or disruptive behaviors	7.500	0.602	-0.612
Confidence Level Ability to handle situations where verbal escalation continues including strategies like providing choices and redirection	6.500	0.416	-0.857
Confidence Level Familiarity with allowing one person to communicate at a time when managing disruptive behavior	9.000	0.488	-0.731
Confidence Level How comfortable are you in asking individuals to stop disruptive behavior and explaining why it makes others feel unsafe	9.500	1.000	-0.122
Confidence Level When managing the disruptive behavior_ how confident do you follow the practice of slowing down cognitive processing and providing clear directions with two options if possible	10.000	0.654	-0.522
Confidence Level When managing disruptive behavior_ how confident are you in your effectiveness in reinforcing a collaborative approach	10.500	0.699	-0.418
Confidence Level Communication about what you can do about the situation while asking about individual needs	7.000	0.257	-1.149
Confidence Level Assessing the need for involvement of fellow colleagues when managing disruptive behaviors	8.500	0.434	-0.836
Confidence Level When managing disruptive behaviors how confident do you feel about effectively reinforcing a collaborative approach and expressing a desire to work together with the individual	9.000	0.507	-0.731
<b>Confidence Level</b>	7.000	0.296	-1.149
On a scale of 1_5_ when managing disruptive behavior_ how well do you follow the practice of slowing down cognitive processing and providing clear directions with two options_ if possible	10.500	0.734	-0.418
On a scale of 1_5_ how often do you introduce yourself and use the persons name when addressing individuals in disruptive behavior management	4.500	0.058	-1.917
On a scale of 1_5_ how well do you keep the focus on the present moment when addressing disruptive behavior	10.500	0.699	-0.418