

Statistical Data Analysis Plan

Data management and statistical analysis will be performed using IBM SPSS Version 26. Descriptive analysis will be carried out and the level of translucency, colour changes, surface roughness and flexural strength and the price analysis will be recorded as mean and standard deviation for each group. One-way ANOVA (between groups of thermoplastic retainer cleansing agent (TRCA)) will be used to compare the translucency, colour changes, surface roughness and flexural strength at baseline level. Two-way ANOVA (the effects) of group will be used to evaluate the groups (TRCA) x time interaction (baseline and 6months). The significance will be set at $p < 0.05$.

Table 11. Statistical test for the research objectives

Objectives	Outcomes		Statistical test	
	Variable	Type		
Specific Objective 1: To determine the effects of thermoplastic retainer cleansing agent on polymer physical properties, based on translucency.	<i>Independence variable:</i> Thermoplastic retainer cleanser groups	Categorical	One-way ANOVA	Two-way ANOVA
	<i>Dependence variable:</i> Polymer translucency (A1, B1, C1)	Continuous		
Specific Objective 2: To determine the effects of thermoplastic retainer cleansing agent on polymer physical properties, based on colour changes.	<i>Independence variable:</i> Thermoplastic retainer cleanser groups (ABC)	Categorical	One-way ANOVA	
	<i>Dependence variable:</i> Polymer colour changes (A2, B2, C2)	Continuous		

<p>Specific objective 3: To determine the effects of thermoplastic retainer cleansing agent on polymer physical properties, based on surface roughness.</p>	<p><i>Independence variable:</i> Thermoplastic retainer cleanser groups (ABC)</p> <p><i>Dependence variable:</i> Polymer surface roughness (A3, B3,C3)</p>	<p>Categorical</p> <p>Continuous</p>	<p>One-way ANOVA</p>	<p>Two-way ANOVA</p>
<p>Specific objective 4: To determine effects of thermoplastic retainer cleansing agents on polymer physical properties based on flexural strength.</p>	<p><i>Independence variable:</i> Thermoplastic retainer cleanser groups (ABC)</p> <p><i>Dependence variable:</i> Polymer flexural strength (A4, B4,C4)</p>	<p>Categorical</p> <p>Continuous</p>	<p>One-way ANOVA</p>	
<p>Specific Objective 5: To compare the price between the thermoplastic retainer cleansing agents (Toothpaste, Retainer Brite® and Tap water) using descriptive analysis.</p>	<p><i>Independence variable:</i> Thermoplastic retainer cleanser groups (ABC)</p> <p><i>Dependence variable:</i> Direct and indirect cost</p>	<p>Categorical</p> <p>Continuous</p>	<p>Descriptive statistic</p>	