Chart, line chart

Description automatically generated

**Figure 1.1:** Elbow Method of Metro\_Female Data

In Figure 1.1, the K-Means Elbow Method for determining the number of clusters for the Metro\_

Female data was created. The optimal number of clusters appears to be 3.

Chart, line chart

Description automatically generated

**Figure 1.2:** Elbow Method of Metro\_Male Data

In Figure 1.2, the K-Means Elbow Method for determining the number of clusters for the Metro\_

Male data was created. The optimal number of clusters appears to be 2.

Chart, line chart

Description automatically generated

**Figure 1.3:** Elbow Method of Western\_Female Data

In Figure 1.3, the K-Means Elbow Method for determining the number of clusters for the Western\_Female data was created. The optimal number of clusters appears to be 2 or 3.

Chart, line chart

Description automatically generated

**Figure 1.4:** Elbow Method of Western\_Male Data

In Figure 1.4, the K-Means Elbow Method for determining the number of clusters for the Western\_Male data was created. The optimal number of clusters appears to be 2 or 3.

Chart, line chart

Description automatically generated

**Figure 1.5:** Elbow Method of Eastern\_Female Data

In Figure 1.5, the K-Means Elbow Method for determining the number of clusters for the Eastern\_Female data was created. The optimal number of clusters appears to be 2 or 3.

Chart, line chart

Description automatically generated

**Figure 1.6:** Elbow Method of Eastern\_Male Data

In Figure 1.6, the K-Means Elbow Method for determining the number of clusters for the Eastern\_Male data was created. The optimal number of clusters appears to be 2 or 3.

Chart, line chart

Description automatically generated

**Figure 1.7:** Elbow Method of Southwestern\_Female Data

In Figure 1.7, the K-Means Elbow Method for determining the number of clusters for the Southwestern\_Female data was created. The optimal number of clusters appears to be 2 or 3.

Chart, line chart

Description automatically generated

**Figure 1.8:** Elbow Method of Southwestern\_Male Data

In Figure 1.8, the K-Means Elbow Method for determining the number of clusters for the Southwestern\_Male data was created. The optimal number of clusters appears to be 2 or 3.