Depression Prevalence by Assessment - Violin Plot

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```r
# Load the Excel data
x <- read_excel("C:/Users/Tashi/OneDrive/Documents/New folder/Covid_Depression_Case_Studyxlsx.xl
sx")
```

```r
# Make sure the variables are in correct format
x$Depression_assessment <- as.factor(x$Depression_assessment)
x$Depression_Prevalence <- as.numeric(x$Depression_Prevalence)
```

```r
# Create violin plot object
dp <- ggplot(x, aes(x = Depression_assessment, y = Depression_Prevalence, fill = Depression_asse
ssment)) +
  geom_violin(trim = FALSE) +
  geom_boxplot(width = 0.1, fill = "white") +
  labs(
    title = "Plot of Depression Prevalence by Assessment",
    x = "Depression Assessment",
    y = "Depression Prevalence"
  )

# Display the plot with a clean theme
dp + theme_classic()
```

```
## Warning: Groups with fewer than two datapoints have been dropped.
## ℹ Set `drop = FALSE` to consider such groups for position adjustment purposes.
## Groups with fewer than two datapoints have been dropped.
## ℹ Set `drop = FALSE` to consider such groups for position adjustment purposes.
```

Plot of Depression Prevalence by Assessment
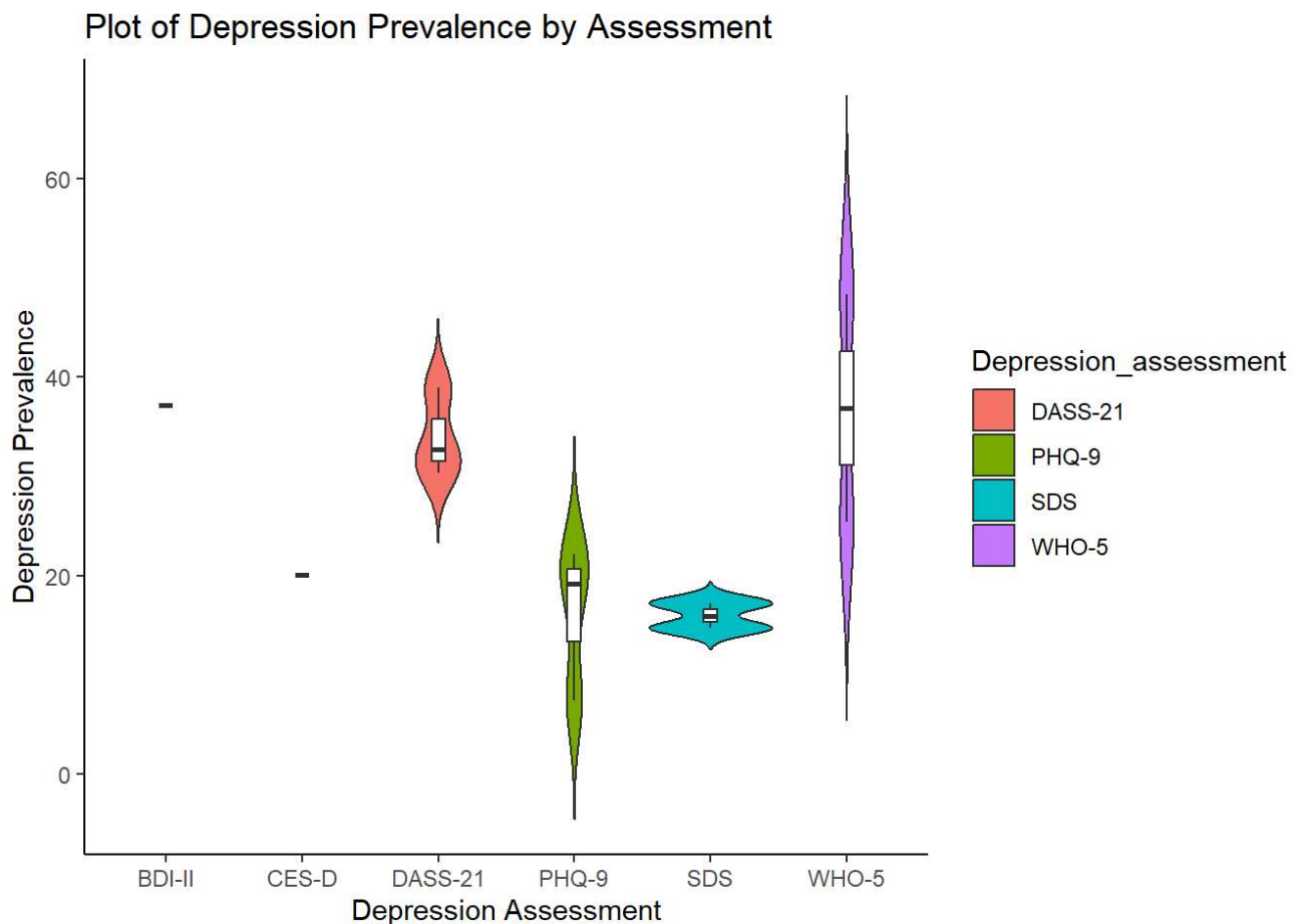
Part Three: Interpretation and Analysis

Limitations of Existing Epidemiologic Studies

Many epidemiologic studies on Covid-19 and depression have limitations such as **convenience sampling**, small sample sizes, lack of longitudinal follow-up, and limited geographic diversity. Some studies rely on **self-reported data**, which can lead to bias, and few account for pre-existing mental health conditions. These limitations reduce the ability to generalize findings or establish strong causal relationships.

Interpretation of the Plot

The violin plot shows the distribution of **depression prevalence** across different **depression assessment tools**. We can observe that certain tools, like BDI-II or PHQ-9, show **wider distributions**, indicating more variability in reported depression levels. The median values (from the boxplot inside the violin) also vary, suggesting that choice of assessment tool may influence reported prevalence rates.

Comparison with Literature

Existing literature supports the idea that different tools can produce different results. For example, studies using the PHQ-9 often report higher depression prevalence compared to tools like DASS or CES-D. This supports the findings in our plot, where assessments vary not only in central tendency but also in spread. These differences highlight the need for standardized measurement when comparing mental health outcomes across populations and countries.