Modern Family Analysis

Viewership Trends and Statistics

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A brief description of the show

Modern Family is an American television sitcom, created by Steven Levitan and Christopher Lloyd, that aired on ABC for 11 seasons from September 23, 2009, to April 8, 2020. The series follows the lives of three diverse but interrelated family set-ups living in suburban Los Angeles.

A photo with the logo from the show itself.

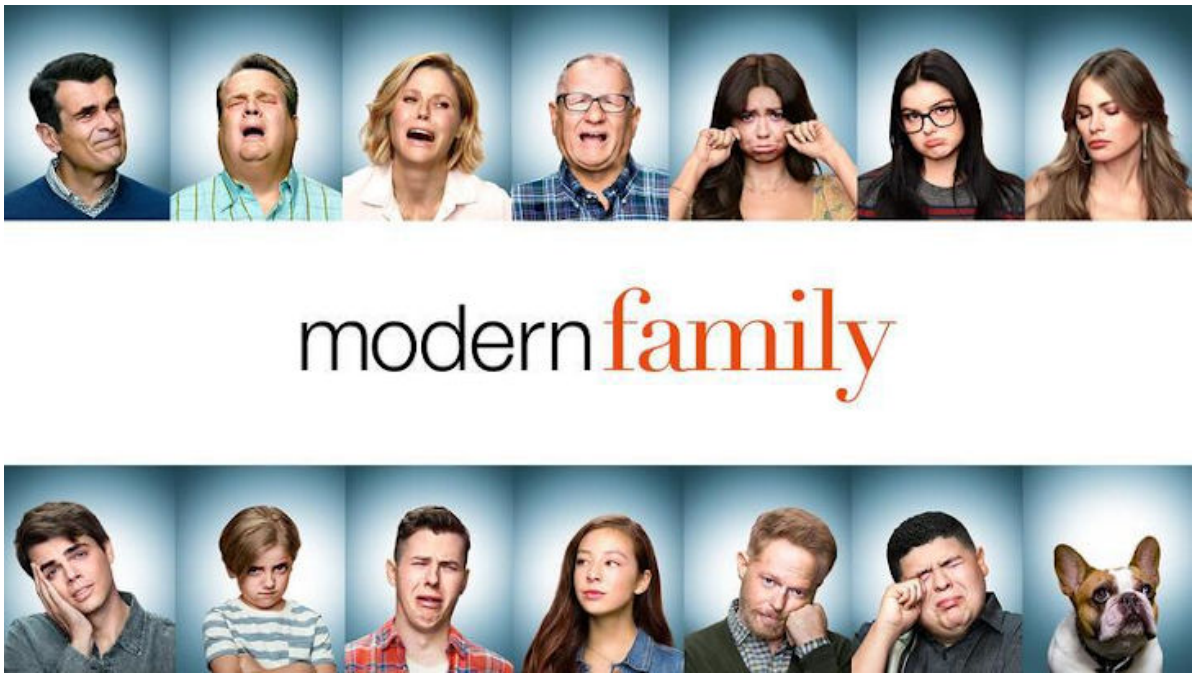


Figure 1: Modern Family Logo

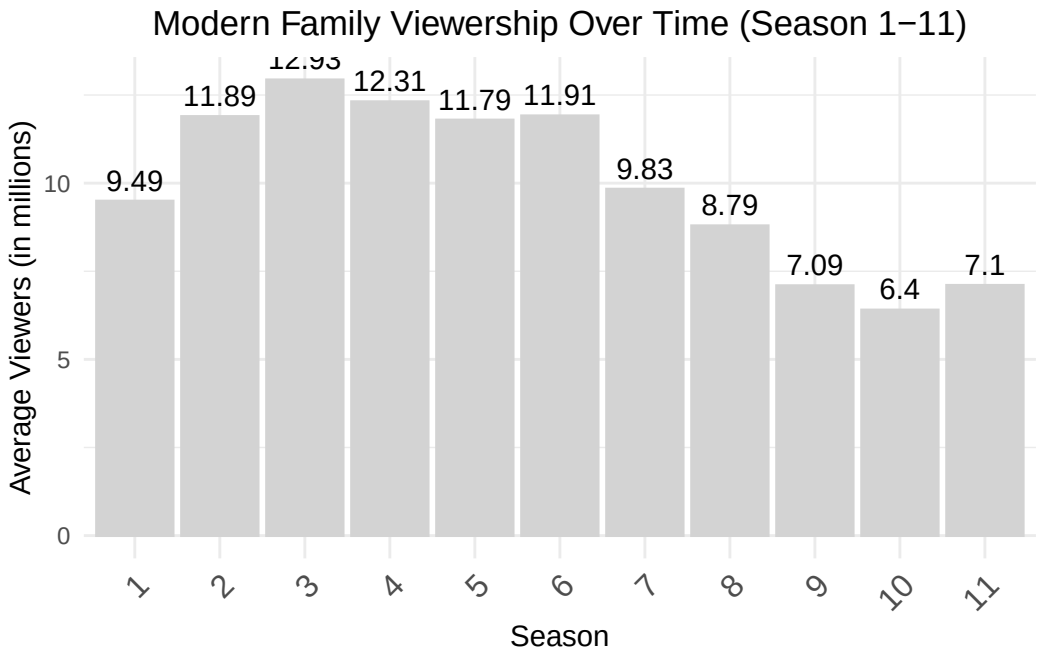
A summary of viewership or ratings.

```
```{r}
# Load the knitr package for table formatting
library(knitr)

# Create a data frame with Modern Family season info
df <- data.frame(
  Season = 1:11,  # Season numbers
  Episodes = c(24, 24, 24, 24, 24, 24, 22, 22, 22, 22, 18),  # Number of episodes per season
  First_Released = c("September 23, 2009", "September 22, 2010", "September 21, 2011",
                     "September 26, 2012", "September 25, 2013", "September 24, 2014",
                     "September 23, 2015", "September 21, 2016", "September 27, 2017",
                     "September 26, 2018", "September 25, 2019"),  # First air date
  Last_Released = c("May 19, 2010", "May 25, 2011", "May 23, 2012", "May 22, 2013",
                    "May 21, 2014", "May 20, 2015", "May 18, 2016", "May 17, 2017",
```
```

```
                    "May 16, 2018", "May 8, 2019", "April 8, 2020"),  # Last air date
  Rank = c(36, 24, 15, 18, 19, 24, 36, 34, 58, 65, 48),  # Nielsen rating rank
  Average_Viewers = c(9.49, 11.89, 12.93, 12.31, 11.79, 11.91, 9.83, 8.79, 7.09, 6.40, 7.10)
)

# Generate a basic table using kable
kable(df, caption = "Modern Family Season Overview", align = "c")
```

Table 1: Modern Family Season Overview

Season	Episodes	First_Released	Last_Released	Rank	Average_Viewers
1	24	September 23, 2009	May 19, 2010	36	9.49
2	24	September 22, 2010	May 25, 2011	24	11.89
3	24	September 21, 2011	May 23, 2012	15	12.93
4	24	September 26, 2012	May 22, 2013	18	12.31
5	24	September 25, 2013	May 21, 2014	19	11.79
6	24	September 24, 2014	May 20, 2015	24	11.91
7	22	September 23, 2015	May 18, 2016	36	9.83
8	22	September 21, 2016	May 17, 2017	34	8.79
9	22	September 27, 2017	May 16, 2018	58	7.09
10	22	September 26, 2018	May 8, 2019	65	6.40
11	18	September 25, 2019	April 8, 2020	48	7.10

- Despite the decline in viewership numbers each season, *Modern Family* consistently maintained high ratings among the 18-49 demographic. The show won multiple Emmy Awards for Outstanding Comedy Series and is regarded as one of the most iconic modern sitcoms.

A graph of the viewership over time.

```
```{r}
# Load the necessary libraries
library(ggplot2)

# Create the bar plot of viewership over time
ggplot(df, aes(x = factor(Season), y = Average_Viewers)) +
  geom_bar(stat = "identity", fill = "lightgray", color = "lightgray") +
  geom_text(aes(label = Average_Viewers), color = "black", vjust = -0.5) +
  labs(title = "Modern Family Viewership Over Time (Season 1-11)",
```
```

```
       x = "Season",
       y = "Average Viewers (in millions)") +
  theme_minimal() +
  theme(axis.text.x = element_text(angle = 45, hjust = 1, size = 12),  # Merged both definiti
        plot.title = element_text(hjust = 0.5))
```

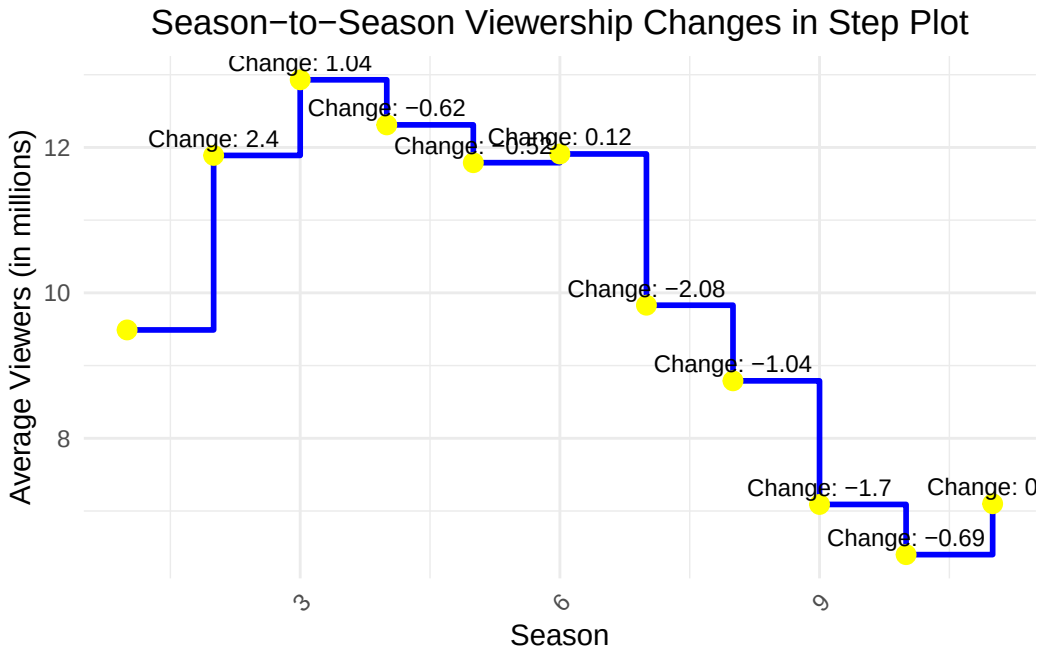


A graph of the season-to-season changes in viewership.

```{r}
# Calculate the change in viewership between each season
df$Change_Viewers <- c(NA, diff(df$Average_Viewers))

# Create the step plot with annotations of the change between seasons
ggplot(df, aes(x = Season, y = Average_Viewers)) +
  geom_step(color = "blue", size = 1) +  # Step plot line with blue color
  geom_point(color = "yellow", size = 3) +   # Red points for each data point
  geom_text(aes(label = ifelse(!is.na(Change_Viewers),
                               paste0("Change: ", round(Change_Viewers, 2)),
                               "")),  # Label the change between seasons
```

```
            color = "black", vjust = -0.5, size = 3) +  # Adjust label position and size
  labs(title = "Season-to-Season Viewership Changes in Step Plot",  # Title
       x = "Season",  # X-axis label
       y = "Average Viewers (in millions)") +  # Y-axis label
  theme_minimal() +  # Use minimal theme for cleaner appearance
  theme(axis.text.x = element_text(angle = 45, hjust = 1),  # Rotate x-axis labels for readal
        plot.title = element_text(hjust = 0.5))  # Center the plot title
```

```
Warning: Using `size` aesthetic for lines was deprecated in ggplot2 3.4.0.
i Please use `linewidth` instead.
```



A short description of the observed changes that includes inline references to numbers.

```{r}
# Introductory statement
intro <- "The viewership of Modern Family experienced significant changes across seasons."
```

```
# Generate a short description with inline references to viewership changes
paragraphs <- vector("list", length = 10)

# Loop through each season pair (1-2, 2-3, etc.)
for (i in 1:10) {
  change_value <- df$Change_Viewers[i + 1]  # Change in viewers between consecutive seasons

  # Only proceed if the change value is valid (not NULL or NA)
  if (!is.na(change_value)) {
    direction <- ifelse(change_value > 0, "increased", "decreased")
    paragraphs[[i]] <- paste(
      "- The viewership", direction, "by", round(abs(change_value), 2), "million viewers betw
    )
  }
}

# Remove any NULL entries from the list (if any)
paragraphs <- paragraphs[!sapply(paragraphs, is.null)]

# Print the introductory statement followed by each paragraph with a newline for separation
cat(intro, "\n\n", paste(paragraphs, collapse = "\n\n"))
```

The viewership of Modern Family experienced significant changes across seasons.

- The viewership increased by 2.4 million viewers between season 1 and season 2 .

- The viewership increased by 1.04 million viewers between season 2 and season 3 .

- The viewership decreased by 0.62 million viewers between season 3 and season 4 .

- The viewership decreased by 0.52 million viewers between season 4 and season 5 .

- The viewership increased by 0.12 million viewers between season 5 and season 6 .

- The viewership decreased by 2.08 million viewers between season 6 and season 7 .

- The viewership decreased by 1.04 million viewers between season 7 and season 8 .

- The viewership decreased by 1.7 million viewers between season 8 and season 9 .

- The viewership decreased by 0.69 million viewers between season 9 and season 10 .

- The viewership increased by 0.7 million viewers between season 10 and season 11 .