

48_Djibouti

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1 How has the prevalence of obesity among adult women evolved relative to that among adult men in Djibouti between 1975 and 2015?

1.1 Abstract

Using World Bank World Development Indicators (WDI) data, this study examines the evolution of obesity prevalence among adult men and women in Djibouti between 1975 and 2015. The analysis compares the female population aged 18+ with obesity to the male population aged 18+, capturing long-term trends in health outcomes, gender disparities, and nutritional transitions. In 1975, the prevalence of obesity among women was roughly three times that of men, reflecting early gender differences in dietary patterns and lifestyle factors. Over the subsequent decades, both male and female obesity prevalence increased significantly; however, female obesity rose faster and more sharply than male obesity, resulting in a widening gap. By 2015, women remained substantially more affected than men, illustrating persistent gender disparities in health risk factors and broader structural influences on obesity trends in Djibouti.

1.2 1. Question

How has the prevalence of obesity among adult women evolved relative to that among adult men in Djibouti between 1975 and 2015?

- **Female obesity proxy:** Percentage of female population age 18+ with obesity
- **Male obesity proxy:** Percentage of male population age 18+ with obesity

1.3 2. Data

- **Source:** World Bank World Development Indicators (WDI)
- **Indicators:**
 - Prevalence of obesity, female (% of female population ages 18+)
 - Prevalence of obesity, male (% of male population ages 18+)
- **Coverage:** Djibouti, 1975–2015
- **Notes:** National-level data only

1.4 3. Method

1. Filtered dataset for Djibouti and selected the male and female obesity prevalence indicators.
2. **Extracted relevant columns:** Year, Indicator Name, and Value.

3. Pivoted the dataset to create a side-by-side chronological comparison of female versus male obesity prevalence.
4. Produced a dual-line time series plot to visualise long-term trends, divergence, and relative gaps between female and male obesity rates.

(Analysis is descriptive; no causal inference applied.)

1.5 4. Results

- **Female obesity (%)**: Increased sharply from 1975 onward, starting at roughly three times the male rate, and continued to rise faster than male obesity throughout the period.
- **Male obesity (%)**: Also increased significantly over the period but at a slower pace than female obesity.
- **Comparison**: The gap between female and male obesity prevalence widened over time, highlighting persistent and increasing gender disparities in obesity in Djibouti.

(Figure 1. Djibouti: Female vs. Male Obesity Prevalence, 1975–2015)

(Table 1. Pivoted dataset summary)

1.6 5. Interpretation

- The early and persistent higher prevalence of obesity among women may reflect gendered differences in lifestyle, nutrition, physical activity, and socio-cultural norms.
- The faster increase in female obesity suggests that structural factors, such as urbanization, economic changes, and shifts in diet, may have disproportionately affected women.
- The widening male–female gap over four decades signals the need for gender-sensitive health interventions and policies targeting obesity prevention in Djibouti.
- Understanding these trends is crucial for anticipating public health challenges, resource allocation, and the design of effective nutrition and lifestyle programs.

1.7 6. Limitations

- National aggregates may obscure regional or socioeconomic differences in obesity prevalence.
- WDI estimates rely on modeled data in some years, which may introduce uncertainty, especially for earlier decades.
- The analysis is descriptive and does not isolate causal factors such as changes in diet, urbanization, or health policy.

1.8 7. Next Steps / Extensions

- Examine correlations between obesity prevalence and urbanization, GDP per capita, or female labour force participation.
- Disaggregate data by age groups to explore whether gender differences vary across cohorts.
- Compare Djibouti’s trends with neighboring countries in the Horn of Africa to contextualize regional patterns.
- Investigate policy interventions, cultural factors, and health programs that may influence gender disparities in obesity.

```
[1]: # How has the prevalence of obesity among adult women evolved relative to that
      ↪among adult men in Djibouti between 1975 and 2015?

import pandas as pd
import matplotlib.pyplot as plt
import os

# Folders
data_raw_folder = "data_raw/"
data_clean_folder = "data_clean/"
figures_folder = "figures/"

# Load CSV
filename = "gender_dji_filtered.csv" # Filtered dataset with only relevant rows
df = pd.read_csv(os.path.join(data_raw_folder, filename))

# Keep only needed columns
df = df[["Year", "Indicator Name", "Value"]]

# Convert Year and Value to numeric, drop invalid rows
df["Year"] = pd.to_numeric(df["Year"], errors="coerce")
df["Value"] = pd.to_numeric(df["Value"], errors="coerce")
df = df.dropna(subset=["Year", "Value"])

# Pivot indicators into separate columns
df_pivot = df.pivot(index="Year", columns="Indicator Name", values="Value").
    ↪reset_index()
df_pivot = df_pivot.sort_values("Year")

print("Pivoted Djibouti dataset:")
display(df_pivot)

# Interpolate missing values for smooth plotting (optional)
df_plot = df_pivot.interpolate(method='linear')

# Plot the indicators
plt.figure(figsize=(10,6))
plt.plot(df_plot["Year"], df_plot["Prevalence of obesity, female (% of female_
    ↪population ages 18+)"],
         marker='o', linestyle='-', label="Prevalence of obesity, female (% of_
    ↪female population ages 18+)")
plt.plot(df_plot["Year"], df_plot["Prevalence of obesity, male (% of male_
    ↪population ages 18+)"],
         marker='o', linestyle='-', label="Prevalence of obesity, male (% of_
    ↪male population ages 18+)")
```

```

plt.title("Djibouti: Female vs Male prevalence of obesity ages 18+ (%)↵
↵(1975-2015)")
plt.xlabel("Year")
plt.ylabel("Percentage")
plt.legend()
plt.grid(True)
plt.tight_layout()
plt.savefig(os.path.join(figures_folder,↵
↵"djibouti_female_vs_male_prevalence_of_obesity_ages_18_plus.png"))
plt.show()

# Save cleaned CSV
df_pivot.to_csv(os.path.join(data_clean_folder,↵
↵"djibouti_female_vs_male_prevalence_of_obesity_ages_18_plus"), index=False)

```

Pivoted Djidouti dataset:

Indicator Name	Year	\
0	1975	
1	1976	
2	1977	
3	1978	
4	1979	
5	1980	
6	1981	
7	1982	
8	1983	
9	1984	
10	1985	
11	1986	
12	1987	
13	1988	
14	1989	
15	1990	
16	1991	
17	1992	
18	1993	
19	1994	
20	1995	
21	1996	
22	1997	
23	1998	
24	1999	
25	2000	
26	2001	
27	2002	
28	2003	
29	2004	

30	2005
31	2006
32	2007
33	2008
34	2009
35	2010
36	2011
37	2012
38	2013
39	2014
40	2015

Indicator Name Prevalence of obesity, female (% of female population ages 18+) □

↪ \

0	6.4
1	6.7
2	7.0
3	7.3
4	7.6
5	7.9
6	8.3
7	8.6
8	8.9
9	9.2
10	9.5
11	9.8
12	10.1
13	10.3
14	10.6
15	10.9
16	11.1
17	11.4
18	11.6
19	11.8
20	12.1
21	12.3
22	12.6
23	12.8
24	13.1
25	13.3
26	13.6
27	13.9
28	14.1
29	14.4
30	14.7
31	15.0
32	15.3

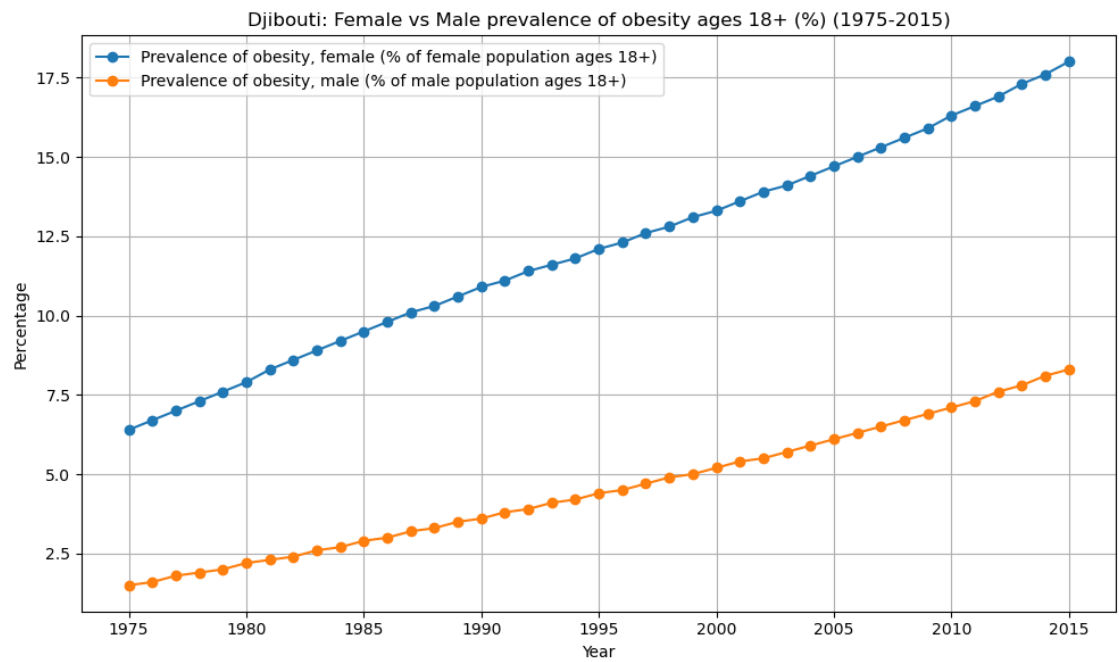
33	15.6
34	15.9
35	16.3
36	16.6
37	16.9
38	17.3
39	17.6
40	18.0

Indicator Name Prevalence of obesity, male (% of male population ages 18+)

0	1.5
1	1.6
2	1.8
3	1.9
4	2.0
5	2.2
6	2.3
7	2.4
8	2.6
9	2.7
10	2.9
11	3.0
12	3.2
13	3.3
14	3.5
15	3.6
16	3.8
17	3.9
18	4.1
19	4.2
20	4.4
21	4.5
22	4.7
23	4.9
24	5.0
25	5.2
26	5.4
27	5.5
28	5.7
29	5.9
30	6.1
31	6.3
32	6.5
33	6.7
34	6.9
35	7.1
36	7.3
37	7.6

38
39
40

7.8
8.1
8.3



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