BOUN IE 48A 19/20 Summer
Sp. Topics in Essentials of Data Analysis
Bogazici University

Marriage Statistics
Rammstein Group Project

Team Members & Abstract

Group Members

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Abstract

Analyzing the first marriage statistics in Turkey between 2009-2019 years.

Data consists of
- Two genders
- 7 education levels
- 10 age groups consists (4 years age period range)

Data is obtained from **TUIK** website.
- Shows number of first marriages between 2009-2019 years.
- Consists of 2568 rows and 4 variables.
- Variables are "Education Level", "Age Group" , "Year" and "Gender".

Project Plan & Objectives

Project Plan

- ✓ Data preprocessing
- Cleaning and formatting
- ✓ Exploratory Data Analysis
- ✓ Analyzing and visualization
- ✓ Getting insights !

Objectives

- Comparison between genders for number of first marriage numbers
- For each gender :
  - Find out age groups having maximum/minimum number of first marriages
  - Find out education levels having maximum/minimum number of first marriages
- Explore first marriage number trends throughout years.

Data Preparation

- Data is downloaded for Female and Male genders in xlsx format.
- Merged cells are unmerged in excel to import data into R.
- Unnecessary information in the first columns removed. Using `sub()` function.
- Two new columns created to store age groups and education levels information properly.
- Data frame is created using `cbind()` function.
- Columns are renamed upon the purpose of analysis.
- Gender column is created to flag inputs from each gender.
- After following same steps for data of both gender, data frames are united using `rbind()` function.
- Characters are converted to factor variables using `as.factor()`

Organized Data

Preprocessed data includes 5 vectors :

<u>AgeGroup</u> : 10 age groups consists of 4 years age period range

(*such as 16-19*) , and unknown group

<u>EducationLevel</u> : 7 levels of education levels and unknown level

- Primary school
- Secondary School Or Equivalent Vocational Secondary School
- High school or equivalent vocational school
- People who are literate but have not graduated from any school
- People who are illiterate
- High education level
- Educational status is unknown
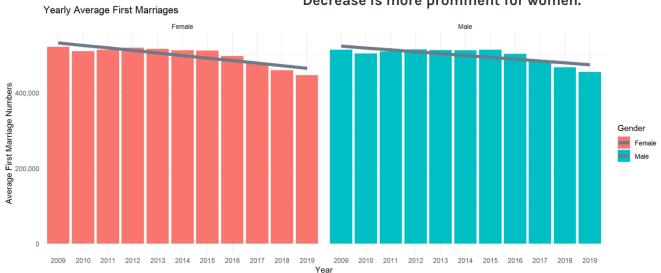
Year : Year between 2009 and 2019

NbOfFirstMarriages : Total number of first marriages

Gender : Male or Female
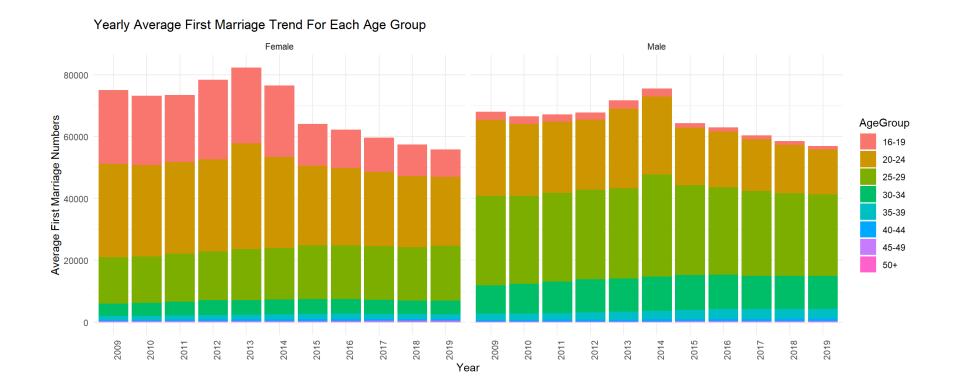
Analyze for Age Groups

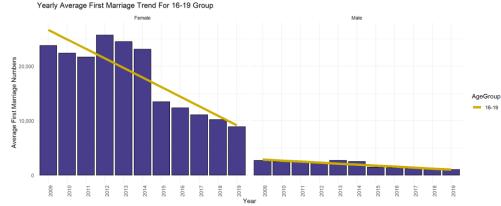~ 499 thousand men and women have their first marriage each year on average.

- Average number of first marriages declined
  - After 2013 for women
  - After 2014 for men
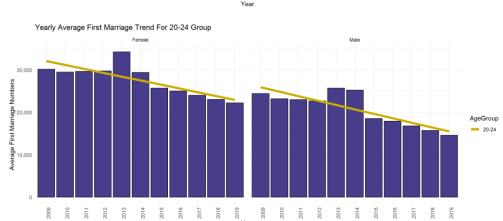- Decrease is more prominent for women.

Yearly Average First Marriages

The highest difference between men and women is in the 16-19 age range.
The average number of first marriage for women in the 16-19 age range is considerably higher than that of men.

Yearly Average First Marriage Trend For Each Age Group
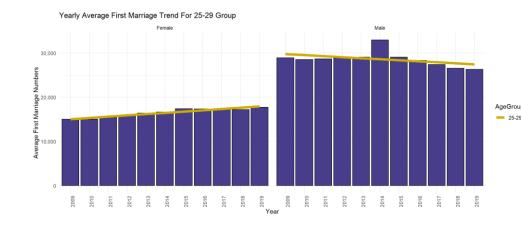
Yearly Average First Marriage Trend For 16-19 Group

Age Group 16 – 19

Average number of women having first marriage has a sharp decrease in recent years.
There is no such change in that number for men.

Yearly Average First Marriage Trend For 20-24 Group

Age Group 20 – 24

There is a decrease in the number of first marriages.
The maximum number of first marriages is realized in 2013.
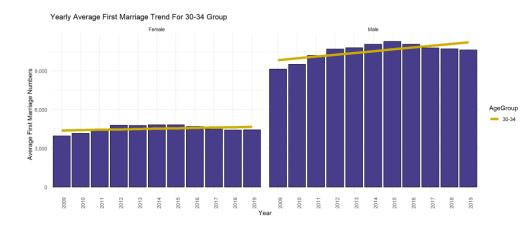
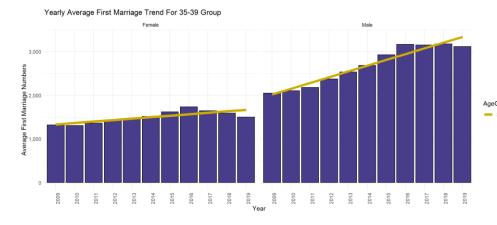Yearly Average First Marriage Trend For 25-29 Group

Age Group 25 - 29

There was a slight increase in the number of first marriages for women.
The average number of men reached its maximum value in 2014.

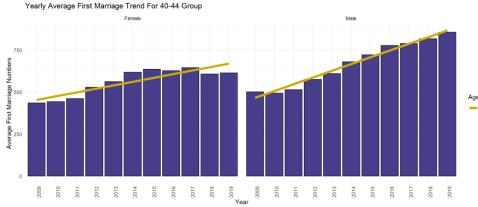Yearly Average First Marriage Trend For 30-34 Group

Age Group 30 – 34

Average number of first marriage for women between is quite low compared to men.
An increase is seen until 2015 for men.
Despite a small decrease in the following years, an increasing trend has been observed in the number of first marriages of men in general.

Yearly Average First Marriage Trend For 35-39 Group

Age Group 35 - 39

In this age group, it is significant that average number of men is higher than that of women.
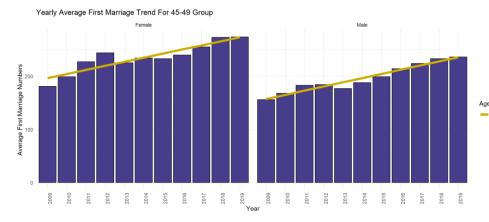Trend is not changing much for women but increasing for men through years.
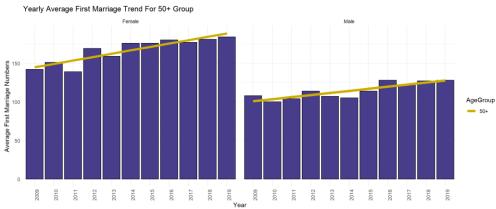

Yearly Average First Marriage Trend For 40-44 Group

Age Group 40 – 44

There is a linear increase for average number of first marriages over the years for both genders.

Yet, the average number of first marriage is quite low for people in that age group comparing younger groups.

Yearly Average First Marriage Trend For 45-49 Group

Yearly Average First Marriage Trend For 50+ Group

Age Group 45 - 49

There is an increase in the number of people marry for the first time in that age group.

In that age group, there is not much difference between the number of female and male who married for the first time.

Age Group 50 +

An increase is observed in both tables for men and women over the years despite small decreases in some years.

Average number of first marriages in ages higher than 50 has the lowest share among other age groups.
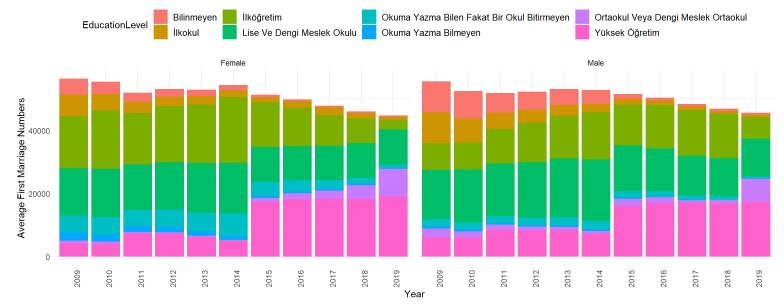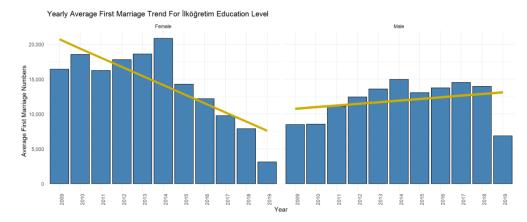
Analyze for Age Groups
Conclusion

The highest average number of first marriages observed at 20-24 age group for women and 25-29 for men.

For women, the rate of average number of first marriage are increased in 25-29 age group.

For men, the rate of average number of first marriage show a rise in 30-34 age group.

The average first marriage numbers for 16-19 aged women is almost 9 times higher than for the men at same age.

Analyze for Education Levels

Average number of people married first time is increased for higher education levels through years for both genders.

Yearly Average First Marriage Trend For Each Education Level

EducationLevel
- Bilinmeyen
- İlkokul
- İlköğretim
- Lise Ve Dengi Meslek Okulu
- Okuma Yazma Bilen Fakat Bir Okul Bitirmeyen
- Okuma Yazma Bilmeyen
- Ortaokul Veya Dengi Meslek Ortaokul
- Yüksek Öğretim

Yearly Average First Marriage Trend For İlköğretim Education Level

Yearly Average First Marriage Trend For Lise Ve Dengi Meslek Okulu Education Level

Primary School

Between 2009-2014, there was an increase in the number of primary school graduates who married for the first time.
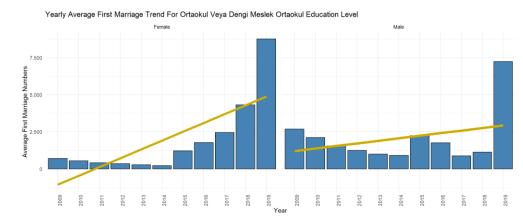
After 2014 this number started to decrease.
The number increased for men from 2009 to 2018, but there is a decline in the last year.
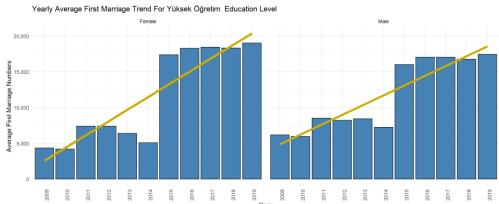
High School Or Equivalent Vocational School

Average number of first marriage for high school graduates has increased.
A significant decrease is observed in the rate of first marriage after 2015.

Number of first marriage of high school graduates is higher than other education levels in general.

Yearly Average First Marriage Trend For Ortaokul Veya Dengi Meslek Ortaokul Education Level
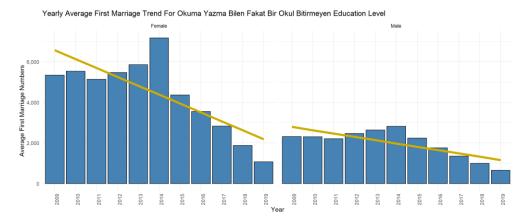
Secondary School Or Equivalent

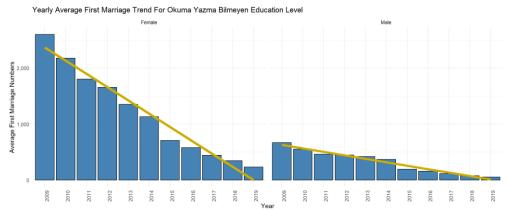That group has the lowest average number of first marriages.
The number of people married for the first time at this educational level is increasing until 2015
After a decrease in 2018, the average number reached its highest level in 2019.

Yearly Average First Marriage Trend For Yüksek Öğretim Education Level

Higher Education

Number of first marriages of higher education graduate people was low up to 2014. That number has increased after 2015.

With the increase in the level of education in recent years, marriage rates became higher in that group than others.

Yearly Average First Marriage Trend For Okuma Yazma Bilen Fakat Bir Okul Bitirmeyen Education Level

Yearly Average First Marriage Trend For Okuma Yazma Bilmeyen Education Level

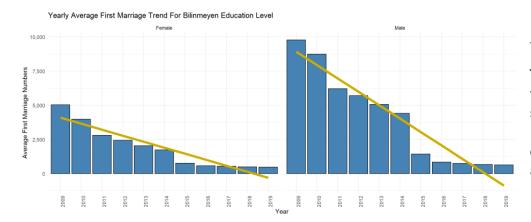## Literate But Have Not Graduated From Any School

There is a fluctuation over the years in the number of first marriages of women in that group with a spike in 2014. There is a sharp decrease after 2015 and 2019.

Average number of first marriage of men in that group is quite low compared to women, and a decrease is observed after 2015.

Illiterate

Average number of people who are illiterate and married for the first time is quite low, and it has been decreasing for both genders from 2009 to 2019.

Number of women who married for the first time without being illiterate is much more than men.

Yearly Average First Marriage Trend For Bilinmeyen Education Level

Literate But Have Not Graduated From Any School

There is a clear decrease in the average number of first marriages for people whose educational status is unknown.
Rates of first marriage for men and women in that category are very close to each other between 2015 and 2019 .

Analyze for Education Levels
Conclusion

Average number of first marriages for people that having higher education is increased through the years.

The average number of first marriages for primary school graduate women is decreased as more women can continue to their education in recent years.

Same number is increased for men between years 2009 – 2014 then decreased. Yet, the change is not sharp as for women having primary education level.

Average number of first marriages is decreased for high school graduate people since people are tend to have bachelor and higher degrees in recent years.

References

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