

# End of Module Assessment 1

## Statistical Analysis Presentation

### Health Survey for England 2011 Data

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# Brief introduction to alcohol in England

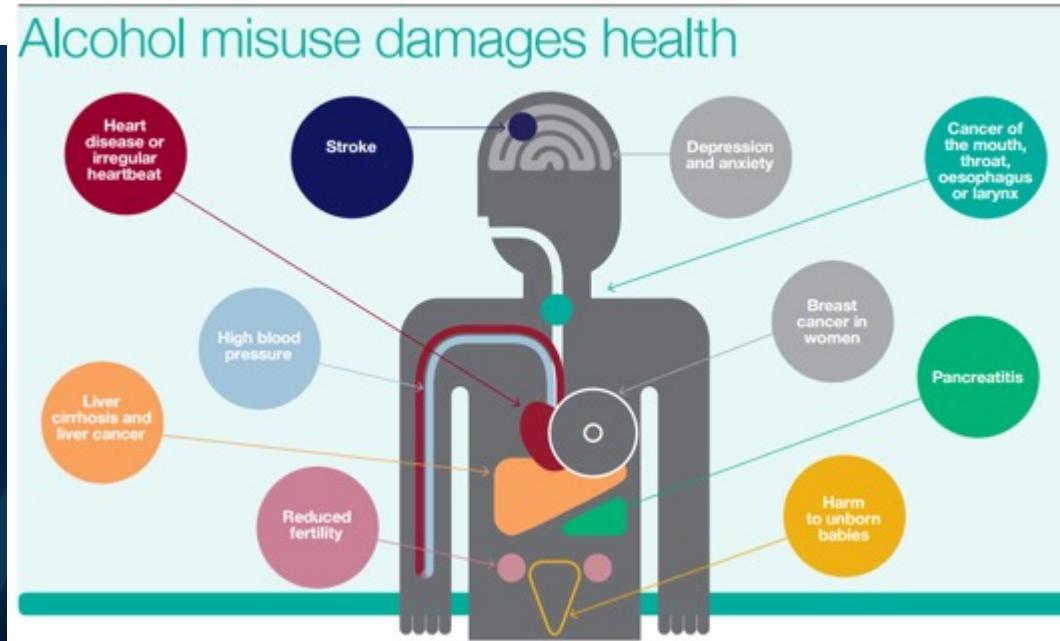
JOURNAL ARTICLE

## The burden of alcohol-related ill health in the United Kingdom FREE

Ravikumar Balakrishnan, Steven Allender , Peter Scarborough,  
Premila Webster, Mike Rayner

*Journal of Public Health*, Volume 31, Issue 3, September 2009, Pages 366–373,  
<https://doi.org/10.1093/pubmed/fdp051>

Published: 03 June 2009



# The data set used

A screenshot of a GOV.UK website page. At the top left is the GOV.UK logo. Below it, the breadcrumb navigation shows 'Home > Health and social care'. The main content area has a dark grey header with the text 'Research and analysis' and a large, bold, black title 'Health Survey for England 2011'.

Home > Health and social care

Research and analysis

**Health Survey for England 2011**



# Descriptive statistics of the dataset

Variable	Value
Total number of people in sample N=	10617
N= (%) of people drink alcohol	6712 (8534 answered this question, so 78.7%)
N= (%) of women in the sample	5765 (54.3%)
Highest educational level	NVQ4/NVQ5/Degree or equivalent
N= divorced people	549
N= separated people	224

## Interpretation

A large majority of participants drank alcohol and just over half were women. One in five obtained the highest educational level which was a NVQ4/5 or degree/equivalent. A minority were divorced, and a smaller minority were separated. The majority were married or single.



# Descriptive statistics of the dataset

	Household size	BMI	Age at last birthday
Mean	2.8	25.9	41.6
Median	3	25.6	42
Mode	2	25.3	64
Minimum	1	8.3	0
Maximum	10	65.3	100
Range	9	56.9	100
Standard deviation	1.3685	6.1383	23.8320

## Interpretation

Household size, BMI and age at last birthday are summarised here with some basic descriptive statistics to highlight the centre, spread and variance of the data. The majority of people seem to live in households of around 3 people, have a slightly overweight BMI and are around 42 years old.



# Inferential statistics of the dataset

Drinking Status				Value of the test and p value
Gender	Yes	No	Total	
Male	3172	605	3777	Chi-square= 114.15 P-value < 0.001
Female	3540	1217	4757	
Total	6712	1822	8534	

## Interpretation

A Chi-square test is appropriate here to examine for differences in proportions between two categories. Before running the test, I made a 2x2 contingency table above. The chi-square demonstrated that the association between gender and drinking status can be considered to be extremely statistically significant.



# Inferential statistics of the dataset

	Drinking status (1=yes; 2=no)		
	1	2	
North East	1	576	135
North West	2	833	270
Yorkshire and The Humber	3	686	201
East Midlands	4	624	136
West Midlands	5	686	207
East of England	6	763	172
London	7	674	304
South East	8	1130	255
South West	9	740	142

## Interpretation

A Chi-square test is appropriate here to examine for differences in proportions between categorical variable. Before running the test, I ran another contingency table above. The chi-square statistic was 98.53 with a p-value < 0.0001 and therefore, the association between region and drinking status can be considered to be extremely statistically significant.



# Inferential statistics of the dataset

```
Shapiro-Wilk normality test
```

```
data: height_male  
W = 0.73755, p-value < 2.2e-16
```

```
Shapiro-Wilk normality test
```

```
data: height_female  
W = 0.75777, p-value < 2.2e-16
```

```
Shapiro-Wilk normality test
```

```
data: weight_male  
W = 0.93674, p-value < 2.2e-16
```

```
Shapiro-Wilk normality test
```

```
data: weight_female  
W = 0.96551, p-value < 2.2e-16
```

## Interpretation

Normality test was failed for both variables in both genders, so a non-parametric test Mann-Whitney U test was used to compare the medians. For differences between valid height between men and women, the statistic was 14713021, p-value < 0.0001. For differences between valid weight between men and women, the statistic was 12449400, p-value < 0.0001.



# Inferential statistics of the dataset

	Drink now a days	Total household income	Age at last birthday	Gender
Drink now a days	1.000	0.733	0.0766	0.1167
Total household income	0.073	1.000	0.0512	0.0025
Age at last birthday	0.0766	0.0512	1.00	-0.0159
Gender	0.1166	0.0025	-0.0159	1.000

## Interpretation

Normality test was failed for both variables in both genders, so a non-parametric test Mann-Whitney U test was used to compare the medians. For differences between valid height between men and women, the statistic was 14713021, p-value < 0.0001. For differences between valid weight between men and women, the statistic was 12449400, p-value < 0.0001.



# Discussion

## >From this dataset:

Women and those from the South East are more likely drink currently.

## >Existing literature:

The effect of gender on alcohol consumption seems to be a topic of active research.

Concerning rise in female abusive drinking habits fuelled by a range of biological and socioeconomic factors.

## >Conclusions and recommendations

1. More detailed data and analysis is needed to unpick underlying complex mechanisms.
2. Research into targeted interventions for females on a public and individual level is needed to curb alcohol abuse.



# References

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<https://ukhsa.blog.gov.uk/2015/06/17/alcohol-some-encouraging-trends/> Date accessed: 10.02.2024.

## Appendix: Selected R commands and output



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