

# **ASSINGMENT REPORT**

## **ON**

### **An Observational Study design based on a Journal Reference**

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Section: 3

Course Name: Fundamental of Biostatistics

**Reference Journal:** [Journal of Basic and Clinical Pharmacy](#)

**Article link:**

[https://www.researchgate.net/publication/262149807\\_Antimicrobial\\_resistance\\_pattern\\_in\\_a\\_tertiary\\_care\\_hospital\\_An\\_observational\\_study](https://www.researchgate.net/publication/262149807_Antimicrobial_resistance_pattern_in_a_tertiary_care_hospital_An_observational_study)

**Title:** Antimicrobial resistance pattern in a tertiary care hospital

### **Assignment section I**

**Justification of selecting this article:**

Antimicrobial Resistance (AMR) is now a worldwide issue and Bangladesh is the major contributor on this owing with our poor healthcare standards. We want to measure the capacity and availability of the electronic surveillance system both in the government and private medical colleges and hospitals. We would also see the how the integrated electronic system can help to take decisions about the hospital acquired infections or organism and community level outbreak. Based on my current engagement with AMR activities all over Bangladesh I selected this article for this competitive analysis aligned with STROBE statement.

**Competitive review on this Article:**

I have read the STROBE and CONSORT guidelines very carefully. According to the STORBE statement the above mentioned article is the observational study. The title and the abstract of this study clearly indicate that it has been followed by the STROBE statement. The scientific background with evidence has been explained in the introduction section with the specific objectives and hypothesis though hypothesis could be written in a separate paragraph and with different kind of associations.

In the methodology section, the authors have written the subjects and methods with short paragraphs. They could extend this section with specific objectives and hypothesis and I don't find the rationalization section here. The authors have described and mentioned the sample data size and data collection detail procedure but didn't mention the exposure and outcome clearly for the specific analysis like out-patient and in-patient species wise resistance pattern. The study has been prepared based on non-repetitive 999 samples from a private hospital with necessary variables for the antimicrobials organism, bacteria and antibiotics.

In this article the outcomes, exposures, predictors, potential confounders and effect modifiers variables are not defined clearly. Potential sources of bias and control of confounding are not maintained properly. The authors have focused on the demographic, clinical and social

information on exposures that the social factors have been enumerated for the emergence of AMR.

The result section of this study nicely represented different kinds of association with the isolated organism and the samples. The results are described with the necessary tables and graphs but can't see the confounders adjustment detail. In the discussion section the authors mentioned the observational study period, supported international patterns, resistance comparison, prevalence measurement and summarizes the study objectives. Finally, the conclusion section clearly summarized the study objectives and limitations.

As mentioned STROBE study, the references are defined clearly but here is no funding information stated.

**Conclusion:** This comparative study helps me to learn a lot on the standard descriptive study design and necessary components for an article.

### Assignment Section II

For doing this statistical analysis aligned with the above mentioned article, I have used the Stata software. I found the distribution of samples with different categories as tables and graphical presentation as Pie and Bar charts. Here I have presented both the tabular and graphical view.

**Table # 1 Age group distribution**

Age Group	Freq.	Percent	Cum.
15-39 Years	12	4.94	4.94
40-59 Years	160	65.84	70.78
60-79 Years	71	29.22	100.00
Total	243	100.00	

#### **Age summarization:**

Variable	Obs	Mean	Std. Dev.	Min	Max
age	243	54.15226	8.960742	29	77

**Table # 2 Gender distribution**

Sex	Freq.	Percent	Cum.
Male	79	32.51	32.51
Female	164	67.49	100.00
Total	243	100.00	

**Age and Sex distribution**

Age Group	Male	Female	Total
15-39 Years	4	8	12
40-59 Years	43	117	160
60-79 Years	32	39	71
Total	79	164	243

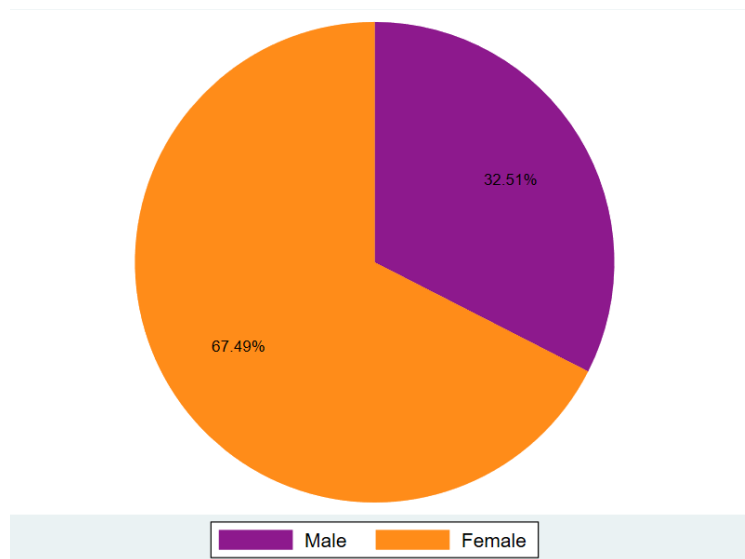


Figure: Gender distribution

**Table # 3: Type of chest-pain experienced by the individual**

Chest Pain Type	Freq.	Percent	Cum.
Typical angina	18	7.41	7.41
Atypical angina	38	15.64	23.05
Non-angina pain	73	30.04	53.09
Asymptomatic angina	114	46.91	100.00
<b>Total</b>	<b>243</b>	<b>100.00</b>	

**Average Chest pain:**

Variable	Obs	Mean	Std. Dev.	Min	Max
chest_pain	243	3.164609	.9478458	1	4

**Type of chest-pain experienced by the individual by sex**

Sex	Typical	Atypical	Non-angin	Asymptoma	Total
Male	3	15	28	33	79
Female	15	23	45	81	164
<b>Total</b>	<b>18</b>	<b>38</b>	<b>73</b>	<b>114</b>	<b>243</b>

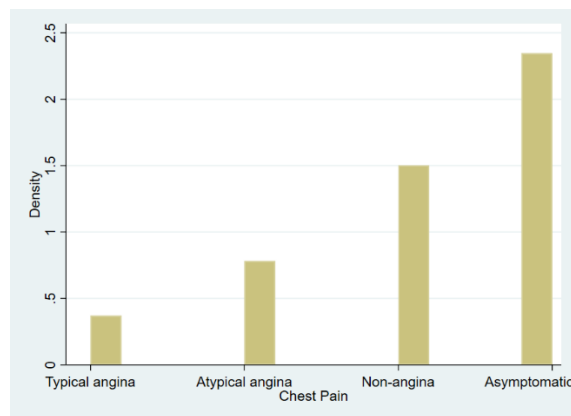


Figure: Type of chest-pain experienced by the individual

**Table # 4: Resting blood pressure in mm Hg**

Resting BP	Freq.	Percent	Cum.
Normotensive	107	44.03	44.03
Hypertensive	136	55.97	100.00
Total	243	100.00	

**Note: 0.0000 to 129.99999 = Normotensive and 130.00000/250.0000 = Hypertensive**

**Resting blood pressure by Sex:**

	Resting BP		
Sex	Normotensive	Hypertensive	Total
Male	28	51	79
Female	79	85	164
Total	107	136	243

**Resting blood pressure frequency:**

Variable	Obs	Mean	Std. Dev.	Min	Max
Resting BP	243	.5596708	.4974512	0	1

**Average distribution:**

Mean estimation                      Number of obs =    243

	Mean	Std. Err.	[95% Conf. Interval]	
Resting BP	.5596708	.0319115	.496811	.6225306

**Table # 5: Average Serum Cholesterol Serum cholesterol in mg/dl**

Mean estimation

Number of obs = 243

	Mean	Std. Err.	[95% Conf. Interval]
Serum cholesterol	251.3457	3.342323	244.7619 257.9294

**Table # 6: Fasting blood sugar level relative to 120 mg/dl**

Fasting_B_Sugar	Freq.	Percent	Cum.
fasting blood sugar <= 120 mg/dl	206	84.77	84.77
fasting blood sugar > 120 mg/dl	37	15.23	100.00
Total	243	100.00	

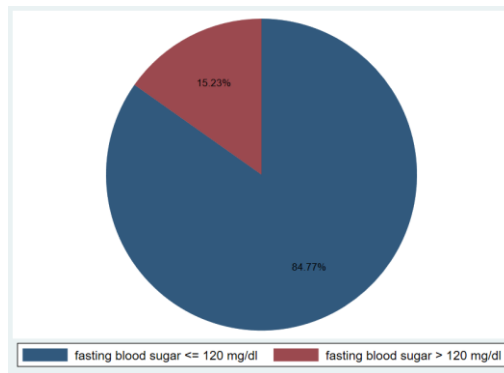


Figure: Fasting blood sugar level relative to 120 mg/dl

**Table # 7: Resting electrocardiographic results**

Resting ECG	Freq.	Percent	Cum.
Normal	111	45.68	45.68
ST-T wave abnormality	1	0.41	46.09
Left ventricle hypertrophy	131	53.91	100.00
Total	243	100.00	

**Table # 8 Max Heart Rate Achieved**

maxHeartRate	Freq.	Percent	Cum.
202	243	100.00	100.00
Total	243	100.00	

**Average of Heart Rate Achieved**

Variable	Obs	Mean	Std. Dev.	Min	Max
maxhr	243	150.9465	22.50219	88	202

**Table # 9: Exercise Induced Angina**

Exercise	Freq.	Percent	Cum.
No	160	65.84	65.84
Yes	83	34.16	100.00
Total	243	100.00	

**Table # 10: Average ST Depression Induced by Exercise Relative to Rest**

Mean estimation	Number of obs = 243		
	Mean	Std. Err.	[95% Conf. Interval]
st_depression	1.046502	.0747366	.8992847 1.193719

**Table: 11: Peak Exercise ST Segment**

Peak_Exer	Freq.	Percent	Cum.
Up-sloping	117	48.15	48.15
Flat	108	44.44	92.59
Down-slopingy	18	7.41	100.00
Total	243	100.00	



### Average Peak Exercise ST Segment

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Mean estimation	Number of obs = 243		
	Mean	Std. Err.	[95% Conf. Interval]
peak_exer	1.592593	.0401225	1.513559 1.671626

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**Table # 12: Number of Major Vessels (0-3) Visible on Flouroscopy**

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Major_Vessels	Freq.	Percent	Cum.
0	144	59.26	59.26
1	50	20.58	79.84
2	28	11.52	91.36
3	19	7.82	99.18
Total	241	99.18	

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**Table # 13: Form of thalassemia 3**

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Thanlassemia	Freq.	Percent	Cum.
Normal	135	55.56	55.56

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**Table # 14: Diagnosis of Heart Disease**

Diag_HD	Freq.	Percent	Cum.
Absence	136	55.97	55.97
Heart disease present	77	44.03	44.03
Total	243	100.00	

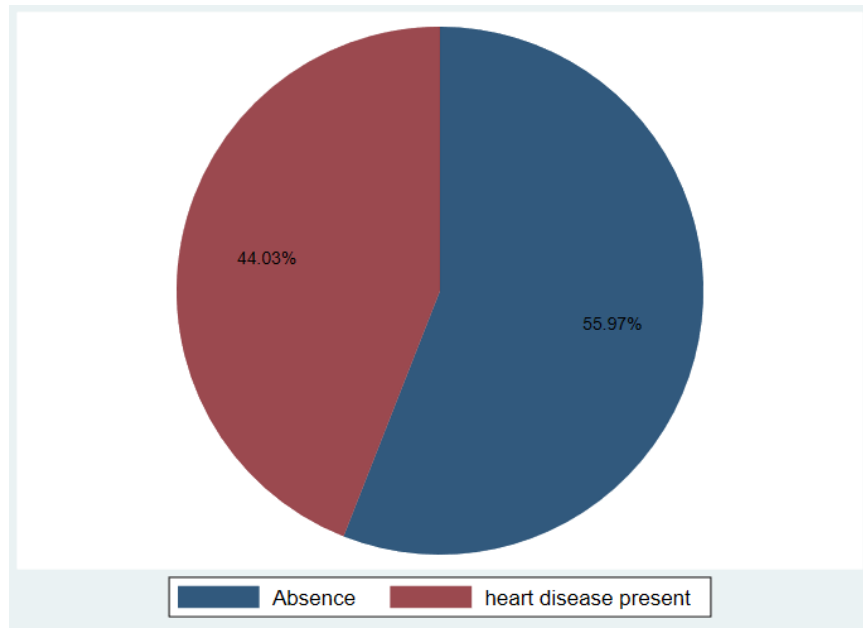


Figure: Diagnosis of Heart Disease

**Conclusion:** In the end, we found no heart disease in 136 out of 243 people and found heart disease in 77 people.