A Study of Impact of Print Media on Human Life using Statistical Methods

Prakash S. Chougule

Head, Department of Statistics, Prof. Dr. N. D. Patil Mahavidyalya (MS), India

Abstract: *News papers play a pivotal role in day to day life. The article is not just a carrier of news .The newspaper serves humankind in different manner and newspapers are printed in various languages. Now a day's every house is familiar with daily newspaper services. Everyone can know many important incidents happening throughout the world sitting in home. So our interest is to know what is the influence of varieties news paper on society .For this purpose we are collected primary information through questionnaires containing various question and collected data are analyzed using various statistical methods and our study shows that most of the males read lokmat newspaper whereas most popularly read where as pudhari newspaper and average amount paid on newspaper in the rural, urban and slum area is not same. The attribute Gender and Online newspaper readers are positively associated to each other.*

Keywords: Graphical Representation, Chi-square Test, Nonparametric Test, Level of significance

1. Introduction

Newspaper developed in the 17th century, as information sheets for businessmen. The history of newspaper starts from 1605 when the first newspaper got printed in Europe. James Augustus Hickey is considered as the "father of Indian press" as they started the first Indian newspaper from Calcutta Most of the newspapers is aimed at a broad spectrum of readers, usually geographically defined; some focus on groups of readers defined more by their location. A newspaper is a periodical publication containing written information about recent events. Newspaper can cover a wide variety of fields like as politics, business, sport and art, and often include materials such as opinion columns, weather forecasts, and reviews of local services.

Generally newspaper reading habit in the house starts with the traditionally family newspaper. the perception of the readers about newspaper start from writing style, editorial, layout feel of the newspaper and convenience of reading etc. most of the time the family newspaper or first choice newspaper of the family is the regional newspaper Marathi , Hindi, etc. secondly is English newspaper. The 1st and 2nd choice of newspaper normally reflects the impact on their socio economic status. Most of the newspapers are aimed at a broad spectrum of readers, usually geographically defined; some focus on groups of readers defined more by their location.

Today's mornings newspaper publishing is a competitive and became a very complex market the morning newspaper complete with each other and with other media such as TV, radio and the internet. The important of the newspaper is not yet changed in the life of people. Newspaper always treated as most reliable, analytical, trusted news source but definitely the content of the newspaper has been changed over the period of time

In Kolhapur city, there are different types of newspaper like Lokmat, Pudhari, Sakal, Maharashtra times, times of India, etc. From these newspapers we select Pudhari, Lokmat, Sakal and Maharashtra times. We collect data from three different area slum, rural and urban.
Objectives

a) To study the independence between the gender and type of news papers.
b) To study the average reading of male and female daily newspaper readers.
c) To study the independence between the education status and newspapers
d) To study the association between online newspaper readers and gender.
e) To study of the reading of different types of a news paper

2. Methodology

The main object of our project is to study the impact of newspaper on society in Kolhapur city .So for this project we have collected data from various areas in Kolhapur city. For this process, we have prepared a questionnaire satisfying some characteristics of good questionnaire, from overall city nearly about 700 samples of peoples. We have been collected randomly from following three different areas of Kolhapur direct.

Statistical Softwares:

- MS-EXCEL
- MS-WORD

Statistical Tools:

- **Graphical Tools:** Bar diagram, Multiple Bar diagram, Pie chart
- **Test:** Chi-Square Test, Proportion test, Coefficient of association, Z test for two sample means
- **Non Parametric Test:** Mann Whitney test, Run test, Median test
- **Other Statistical Methods**: ANOVA
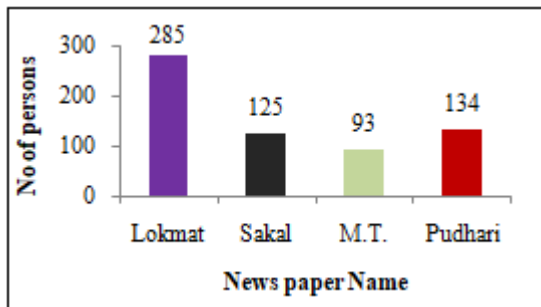
Method of Data Collection

For this study, we have collected primary data from 170 peoples from three areas.
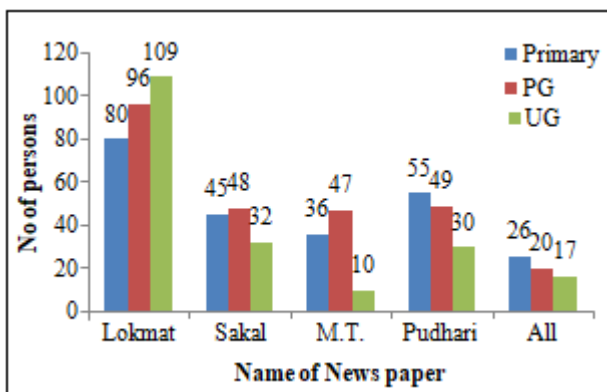
Graphical Representation

Gender	Newspapers					Total
	Lokmat	Sakal	M.T	Pudhari	All	
Male	150	50	45	45	18	308
Female	135	75	48	89	45	392
Total	285	125	93	134	63	700
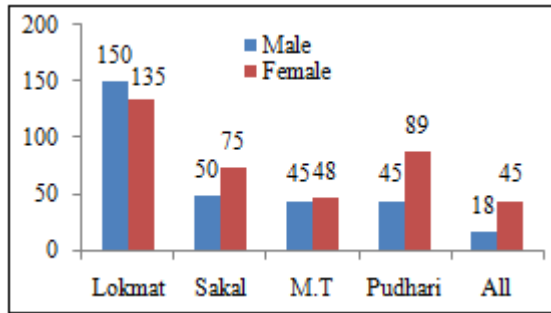
Newspapers	Peoples
Lokmat	285
Sakal	125
M.T.	93
Pudhari	134
Total	637

Education	Type paper					Total
	Lokmat	Sakal	M.T.	Pudhari	All	
Primary	80	45	36	55	26	242
PG	96	48	47	49	20	260
UG	109	32	10	30	17	198
Total	285	125	93	134	63	700

3. Testing of Hypothesis

a) Test for Independence between the Education status and Newspapers

H_0: The attribute education status and newspapers are independent. *V/S*

H_1: The attribute education status and newspapers are not independent.

Under H_0 the test statistic is,

$$\chi^2_{cal} = \Sigma \frac{Oi^2}{Ei} - N \; ; \; \chi^2_{cal} = 8.2602 \; ; \; \chi^2_{tab} = \chi^2_8 = 15.51$$

b) Test for Independence between the Gender and type of newspapers.

H_0: The attribute gender and type of news is independent. *V/S*

H_1: The attribute gender and type of news are not independent.

Under H_0 the test statistic is,

$$\chi^2_{cal} = \Sigma \frac{Oi^2}{Ei} - N \; ; \; \chi^2_{cal} = 10 \; ; \; \chi^2_{tab} = \chi^2_4 = 9.49$$

c) Association between mode newspaper readers and their gender.

The attribute A, α, B and β has following usual meaning,

(A)= No. of males, (α) =No. of females and (B) = No. of online newspaper readers,

(β) = No. of offline newspaper readers. Our observed frequencies are

(AB)= 208; (Aβ) = 100 ; (αB)= 347 ; (αβ) = 45

d) Coefficient of association:

$$Q = \frac{\{(AB)(\alpha\beta) - (A\beta)(\alpha B)\}}{\{(AB)(\alpha\beta) + (A\beta)(\alpha B)\}} = -0.5758$$

e) Coefficient of Colligation:

$$Y = \frac{\sqrt{(AB)(\alpha\beta)} - \sqrt{(A\beta)(\alpha B)}}{\sqrt{(AB)(\alpha\beta)} + \sqrt{(A\beta)(\alpha B)}} = -0.3163$$

f) Kruskal Wallis test for reading of different types of a news paper

H_0: The average reading of different types news papers same V/S

H_1: The average reading of different types news papers not same

Observation Table

Gender	Types of News paper			
	Lokmat	Sakal	M.T	Pudhari
Male	150	50	45	45
Female	135	75	48	89

From table, n = n1 + n2 + n3= 2+ 2+ 2+ 2=8 and $H = \sum_{i=1}^{n} \left(\frac{T_i^2}{n_i}\right) = 222.75$

Test Statistic: Under Ho,

$$H = \frac{12}{n(n+1)} \sum_{i=1}^{n} \left(\frac{T_i^2}{n_i}\right) - 3(n + 1)$$

$H = \frac{12}{8(8+1)}(222.75) - 3(8 + 1) = 10.125$

$\chi^2{}_{table} = \chi^2{}_{table} \ (0.05 , 4-1) = 9.488 \quad$ and $\quad H > \chi^2{}_{table}$,

a) Mann-Whitney U-Test for reading a news paper of male and females is same:

H_0: The average reading of news papers of male and female is same V/S

H_1: The average reading of news papers of male and female not same

Observation table

Gender	Types of News paper			
	Lokmat	Sakal	M.T	Pudhari
Male	150	50	45	45
Female	135	75	48	89

From table, $\quad n = n1 + n2 = 4 + 4 = 8$ and $R_1 = 17$ and $R_2 = 23$

Test Statistic: Under Ho,

$U_1 = n_1 n_2 + \frac{n_1(n_1+1)}{2} - R_1 \quad$ and $\quad U_2 = n_1 n_2 + \frac{n_2(n_2+1)}{2} - R_2$

$U_1 = 16 + \frac{4(4+1)}{2} - 17 = 9$ and $U_2 = 16 + \frac{5(5+1)}{2} - 23 = 8$

$Let \quad U = min(U_1, U_2) = 8 \ and \ U' = max(U_1, U_2) = 9$

$C = \left\{ U \ \le U_{\frac{\alpha}{2}} \ or \ U' \le U'_{\frac{\alpha}{2}} \right\}$

$U_{\frac{\alpha}{2}} = 0 \ $ and $\ \ U > U_{\frac{\alpha}{2}}$

4. Conclusions

The percentage of reading of lokmat, daily sakal, Maharashtra times, pudhari is 41%,18%,13% and 19% respectively and 9% peoples are reading all types of paper. Percentage of reading lokmat paper is more than other type of news paper and percentage of reders daily sakal and pudhari paper is nearly same. The proportion of news paper readers of female is more than male as well as the majority of Lokmat newspaper is mostly read by educated peoples.The attribute Education status and Newspapers and the attribute Gender and types of news are not independent of each other. The proportion of male and female of reading daily newspaper is same. The attribute Gender and Online newspaper readers are negatively associated to each other and the average reading of news papers of male and female is not same. Also the average reading of different types news papers not same.

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