Applicability of Chi-Square Test in Popularity Assessment of Newspapers – A Study of Hyderabad

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Abstract: *News Papers is a publication that appears regularly and frequently. It carries news about a wide variety of current events. The news paper publishes an overall control by its business and news operations. Newspapers have played an important role through the years by not only bringing us local happenings in the community, but also news from across the country and around the world. Over the years many records regarding our ancestors were lost or destroyed in fires, floods, and other natural disasters. Newspapers contain much information that may not be found elsewhere such as births, marriages, deaths, court notices, land sales, tax notices, businesses, etc. They also hold many glimpses of information in their community news and provide us with fascinating details about the lives of our ancestors. So, we are interested to know which news paper is reading by the people in Hyderabad. The popularity of Newspapers rating is purely on attributes (Age, Gender, Occupation, Qualification etc…); to test the dependency of attributes we used Chi – Square test. It is the reason why, a research paper titled "Applicability of Chi-Square test in popularity assessment of Newspapers – a study of Hyderabad".*

Keywords: Accuracy of information in news papers coverage, Coverage of News, Quality of Writing, Statistical Analysis Using R Programming

1. Introduction

A newspaper is a publication printed on paper and issued regularly, usually once a day or once a week. It gives information and opinions about current events and news. One can buy a newspaper at a store or at a news stand. Also, newspapers can be delivered to one's home, if one subscribes to it. Hyderabad has three chief print media groups that bring out a number of magazines and newspapers in Telugu, Hindi and English. They are categorized on the basis of their language of publications. Telugu journalism played an important role in unification of Telugu-speaking areas and the formation of a separate province of Telangana and Andhra Pradesh. The trend of newspapers venturing into other publications and media and gradually becoming a multi 'product' media house started with Telugu papers too. Almost all the big newspapers started sister publications. Some of the leading Telugu Newspaper are Eenadu, Saakshi, Namaste telangana, Andhra Bhoomi, Andhra Jyothi, Andhra Prabha and Vartha etc., English is a universal accepted language. Their are many English news papers online and in print media providing Indian news on hourly and daily basis. Some of the leading English Newspapers in Hyderabad are,Deccan Chronicle, The Times of India, The Hindu, Economics Times Indian Express and Hans India etc., Hindi is a National language. There are many Hindi news papers online and in print media providing Indian news on hourly and daily basis. There are Some of the leading Hindi Newspapers in Hyderabad are Hindi Milap, Swathanthra Vartha etc.,

2. Review of Literature

V. Yoga Lakshmi, (March 2013)[1]: have made use of percentages and bar diagram to know the consumer preference towards different news papers. She surveyed 96 respondents age above 20 years to find their preference of news papers.

Dipika Majumder and Md. Mehedi Hasan (July, August 2013)[2]: have made the study completely based on primary data, simple observation and structured interview taken place through an open end and closed end questionnaire. The information collected from 200 randomly selected respondents, the data was analyzed through simple percentage and data analysis.

Effery J. Mondak, (May 1995)[3]: He Surveyed data from the Pittsburgh and Cleveland areas are compared via a quasi-experimental method. Exposure to a major local newspaper does not enhance knowledge of national or international politics, but contributes to self-perceived knowledge regarding local political campaigns. Characteristics of respondents, including education and prior political knowledge, are the strongest predictors of information acquisition concerning national and international events.

Roya Akhavan-Majid, Anita Rife, Sheila Gopinath, (1989)[4]: They did a comparison of the editorial positions taken on three public issues in 1989 by 56 newspapers in the Gannett group with a matched set of 155 other newspapers finds that Gannett newspapers were more likely to take positions, but also less likely to vary in the positions taken. (Also, 72% of the Gannett newspapers responded to the survey of editors versus 52% of the matched set of editors queried.) The study did not seek to find evidence that the newspapers were influenced by higher headquarters, but does suggest a number of ways that subtle influences may work within groups.

Marcel Lubbers, Peer Scheepers, Maurice Vergeer (29 Oct 2010)[5]: Their study aims to test whether exposure to certain newspapers leads people to perceive ethnic minorities as more threatening. Building on cultivation theory as developed by Gerbner, this study extends his theory by looking at the possible effects of exposure to newspapers. Results indicate that exposure to a newspaper

characterized by negative reporting about ethnic crime leads people to perceive ethnic minorities as more of a threat than exposure to other newspapers does.

3. Objectives of the Study

- To find out Newspapers readers behavior by demographics (Gender, Age, Occupation and Qualification).
- To compare the Accuracy, Coverage and Quality of Writing in different Newspapers among three different languages.

4. Research Methodology

- The first objective which tries to assess the impact of Newspapers readers' behavior and Demographics is tested through the following Hypothesis.

Null Hypothesis H_0: There is no significance difference between Newspapers readers and demographics.

Alternative Hypothesis H_1: There is a significance difference between Newspapers readers and demographics.

The above Hypothesis is two-tailed test accomplished through Chi-Square and Fisher Chi-Square tests using R-Programming.

- The Second objective which tries to assess the relationship among the Accuracy, Coverage and Quality of Writing in different Newspapers among three different languages through the Correlation Analysis.

Impact of Newspapers Readers behavior in Hyderabad:

Hyderabad is the capital of the southern Indian state of Telangana and de jure capital of Andhra Pradesh. Occupying 650 square kilometers (250 sq mi) along the banks of the Musi River, it has a population of about 6.7 million and a metropolitan population of about 7.75 million, making it the fourth most populous city and sixth most populous urban agglomeration in India. At an average altitude of 542 meters (1,778 ft), much of Hyderabad is situated on hilly terrain around artificial lakes, including Hussain Sagar—predating the city's founding—north of the city centre.

We conducted Survey on 133 respondents among them 3 of them are not reading Newspapers and 130 reads the Newspapers. In 130 respondents 55% are male respondents, 45% are female respondents, 1% are <15, 29% are 15-24, 33% are 25-34, 19% are 35-44, 10% are 45-54 and 8% are above 54 age groups,
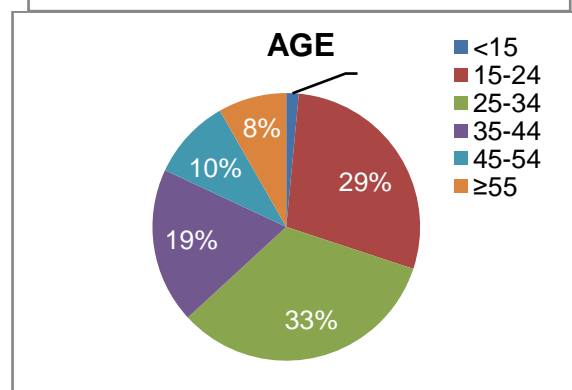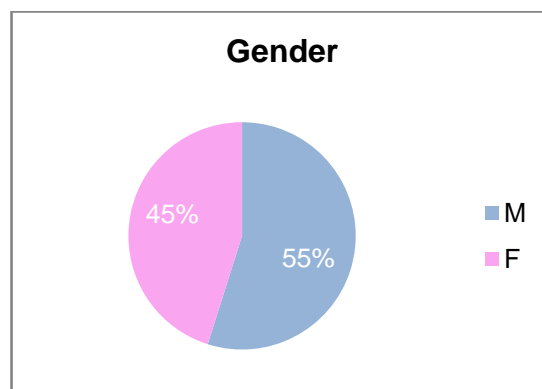
Among 130 respondents 7% are $\leq 10^{th}$, 10% are Inter, 26% are U.G., 53% are P.G. and 5% are Ph.D., 10% are Business people, 8% are Government employees, 11% are House wives, 16% are Professionals, 20% are Private employees, 5% are Retired persons and 32% are Students.
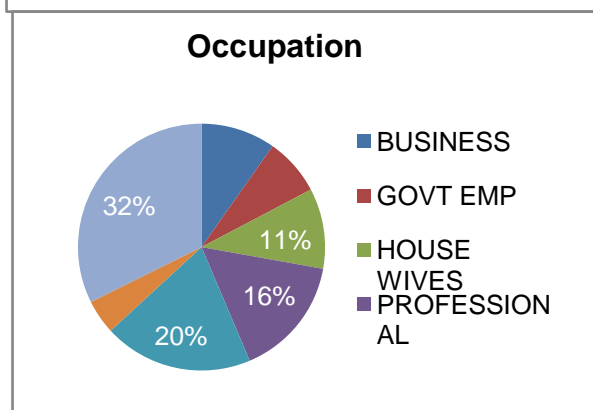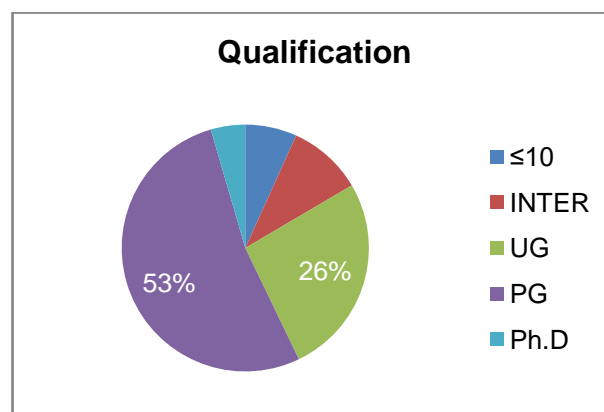
Behavior of Reading habit of Newspaper by Occupation
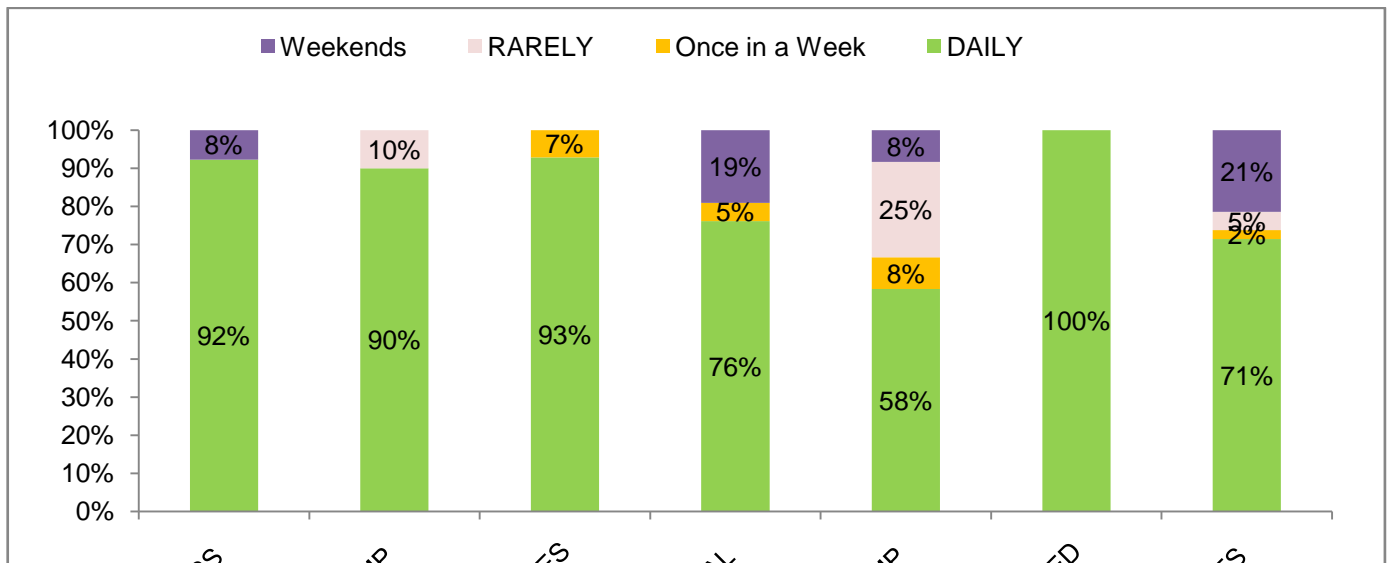
The following Bar Diagrams shows what percent of respondents reading the different Newspapers in different languages.
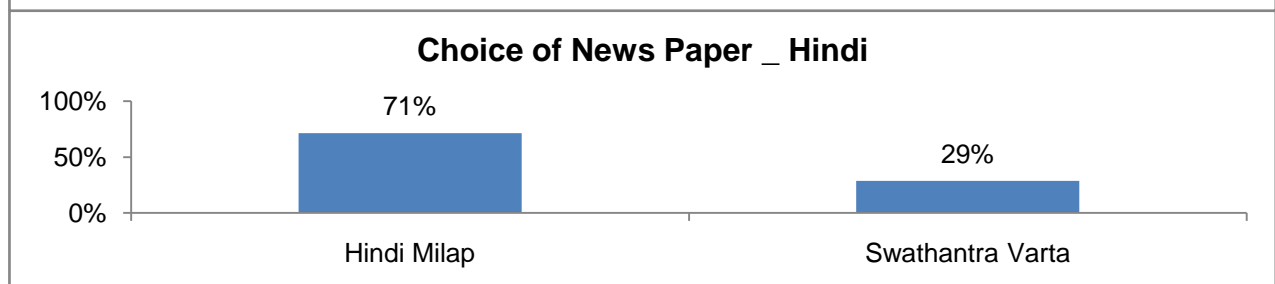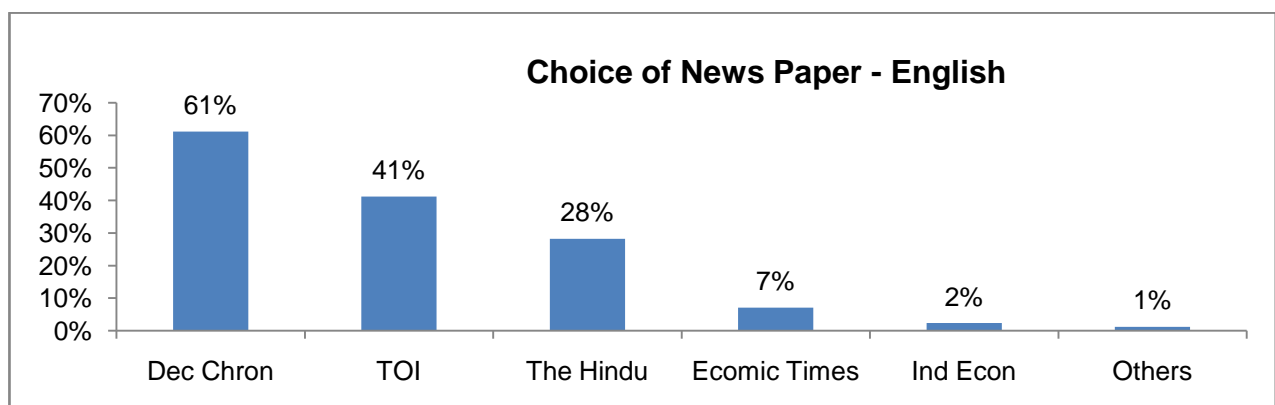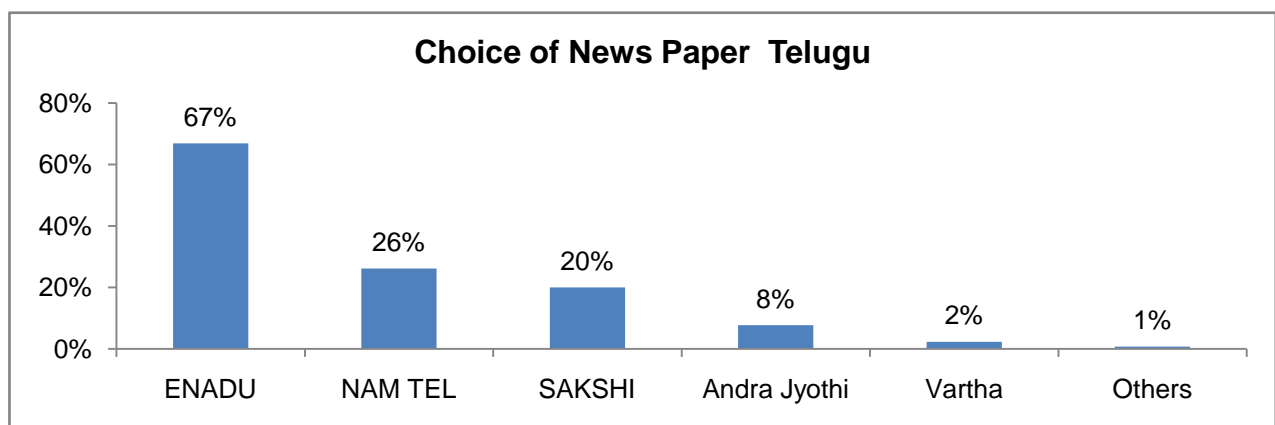
Time spent on reading NP By Occupation
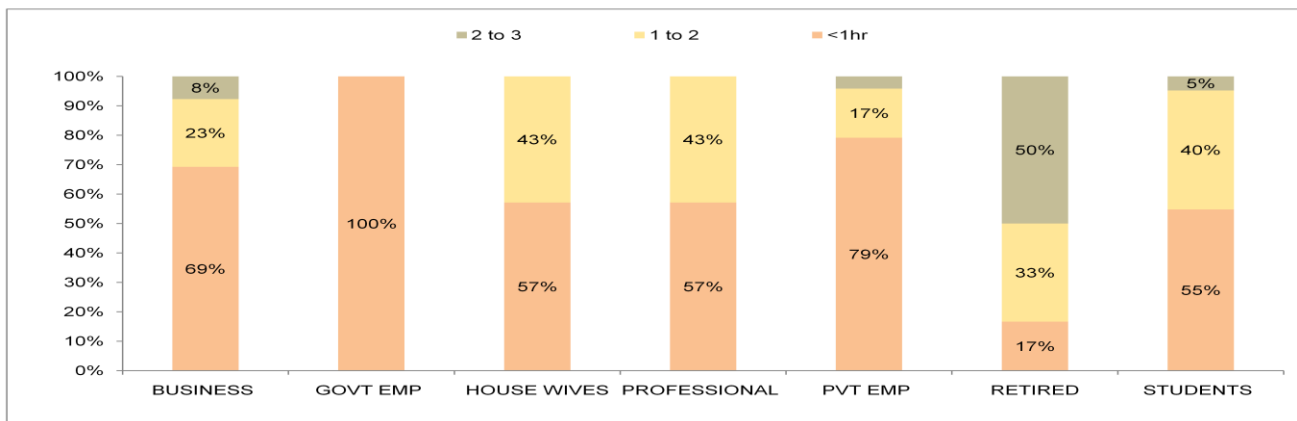
Time spent on reading NP By AGE
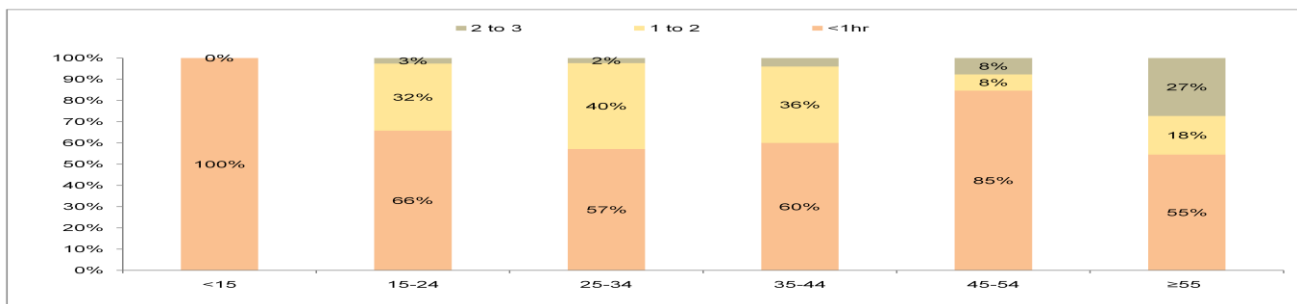
The following Bar diagram shows the percentage of Primary reason to read the newspaper and which content of the Newspaper respondents like to read.

Primary reason to read the Newspaper

Content of the Newspapers respondents like to read

The following Bar Diagrams shows Average accuracy of information in different Newspapers in different languages.

Avg.Accuracy of Information In Telugu Newspapers

Eenadu	Saakshi	Namaste Telangan	Andhra Bhoomi	Andhra Jyothi	Andhra Prabha	Vaarta
4.0	3.0	3.5	2.7	3.0	2.5	2.8

Avg.Accuracy of Information in English Newspapers

Deccan Chronicle	Times Of India	The Hindu	Economic Times	Indian Economics	Hans India
3.7	3.9	4.1	3.9	3.5	3.0

Avg.Accuracy of Information In Hindi Newspapers

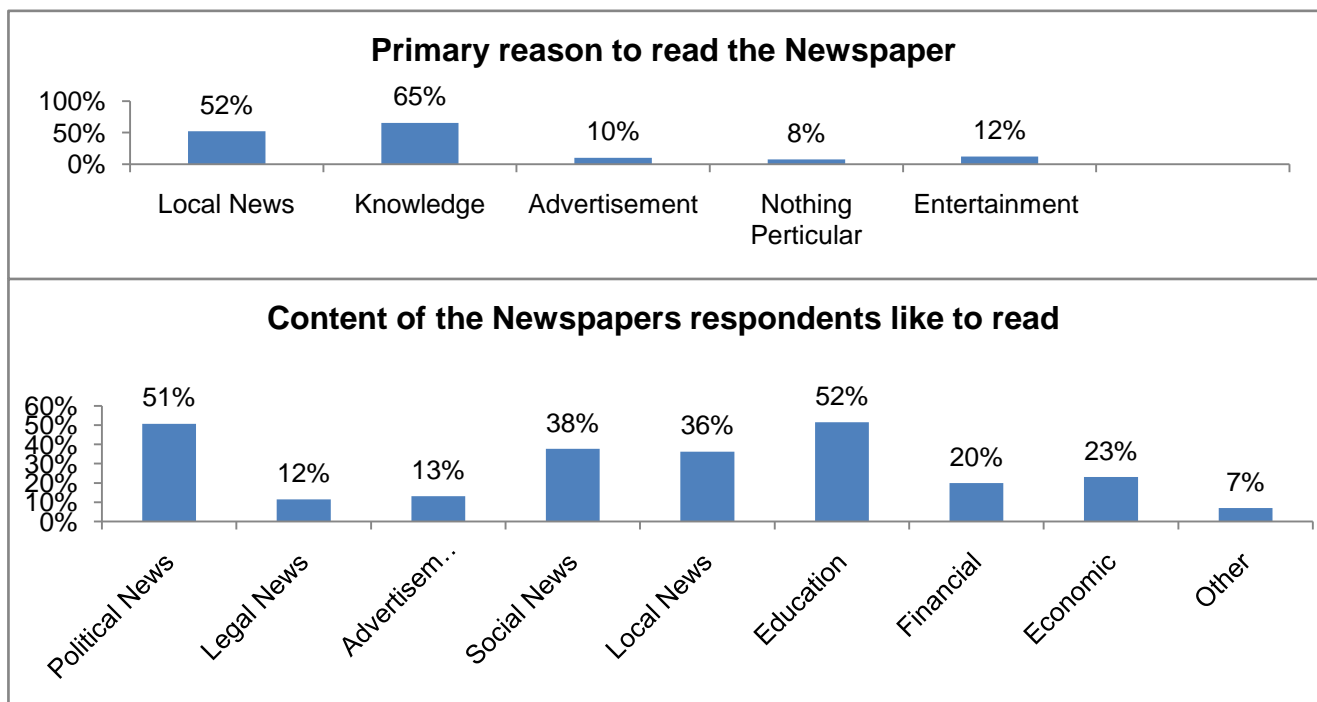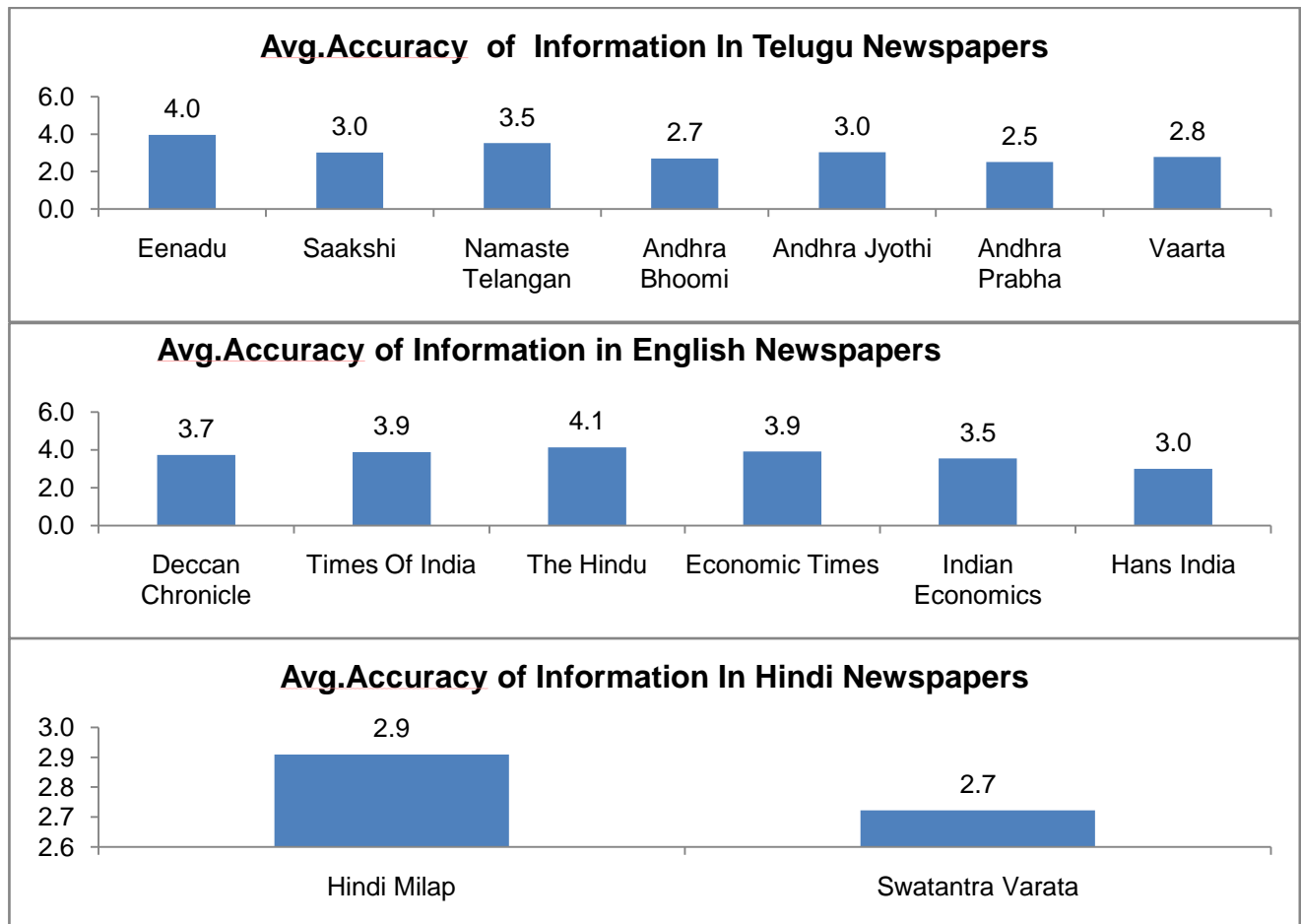| Hindi Milap	Swatantra Varata
2.9	2.7

The following Bar Diagrams shows Average Quality of writing in different Newspapers in different languages.

Avg.Quality of writing in English Newspaper

The Hindu	Times Of India	Economic Times	Deccan Chronicle	Indian Economics	Hans India
4.2	4.1	3.9	3.8	3.4	3.3

Avg.Quality of writing In Telugu Newspaper

Eenadu	Saakshi	Namaste Telangan	Andhra Jyothi	Andhra Bhoomi	Vaarta	Andhra Prabha
4.2	3.5	3.4	3.1	2.9	2.7	2.7

Avg.Quality of writing In Hindi Newspaper

Hindi Milap	Swatantra Varata
2.8	2.6
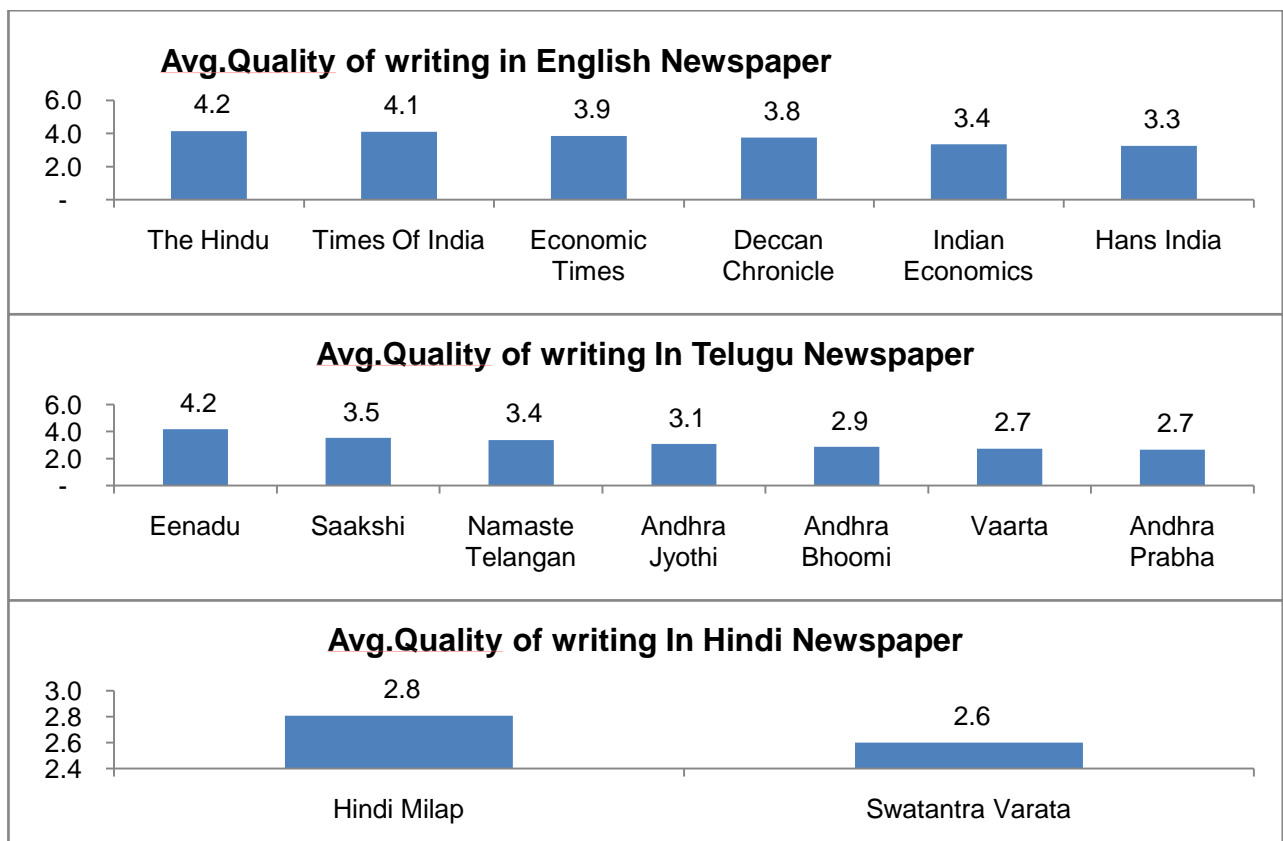
Statistical Analysis Newspapers readers' behavior by demographics (Gender, Age, Occupation and Qualification) by R - Programming

S. No.	Association of Attributes	P - Value	Conclusion
1	Gender **Vs** No. of days in a week respondents read Newspapers	0.3808	There is no significance difference between Gender and No. of days in a week respondents read Newspapers
2	Age **Vs** No. of days in a week respondents read Newspapers	0.1159	There is no significance difference between Age and No. of days in a week respondents read Newspapers
3	Qualification **Vs** No. of days in a week respondents read Newspapers	0.6511	There is no significance difference between Qualification and No. of days in a week respondents read Newspapers
4	Occupation **Vs** No. of days in a week respondents read Newspapers	0.09845	There is no significance difference between Occupation and No. of days in a week respondents read Newspapers
5	Gender **Vs** Quantity of Newspaper read by respondents	0.00032	There is a significance difference between Gender and Quantity of Newspaper read by respondents
6	Age **Vs** Quantity of Newspaper read by respondents	0.7706	There is no significance difference between Age and Quantity of Newspaper read by respondents
7	Qualification **Vs** Quantity of Newspaper read by respondents	0.4903	There is no significance difference between Qualification and Quantity of Newspaper read by respondents
8	Occupation **Vs** Quantity of Newspaper read by respondents	0.04448	There is a significance difference between Occupation and Quantity of Newspaper read by respondents
9	Gender **Vs** Online Newspaper readers	0.01274	There is a significance difference between Gender and Online Newspaper readers
10	Age **Vs** Online Newspaper readers	0.009193	There is a significance difference between Age and Online Newspaper readers
11	Qualification **Vs** Online Newspaper readers	0.4292	There is no significance difference between Qualification and Online Newspaper readers
12	Occupation **Vs** Online Newspaper readers	0.02245	There is a significance difference between Occupation and Online Newspaper readers
13	Gender **Vs** Time Spending on reading Newspapers	0.1929	There is no significance difference between Gender and Time spending on Newspapers
14	Age **Vs** Time Spending on reading Newspapers	0.1039	There is no significance difference between Age and Time spending on Newspapers
15	Qualification **Vs** Time Spending on reading Newspapers	0.6002	There is no significance difference between Qualification and Time spending on Newspapers
16	Occupation **Vs** Time Spending on reading Newspapers	0.003998	There is a significance difference between Occupation and Time spending on Newspapers

Computation of Correlation coefficients between Accuracy and Coverage of Newspapers, Coverage and Quality of writing in Newspapers, Quality of writing and Accuracy of Newspapers

S. No	Name of the News paper	Coverage of News Paper Vs Accuracy of News Paper	Coverage of News Paper Vs Quality of Writing	Quality of Writing Vs Accuracy of News Paper
1	Enadu	0.7486	0.6502	0.6370
2	Sakshi	0.6865	0.6867	0.5085
3	Namaste Telangana	0.7800	0.7418	0.5846
4	Andhra Bhoomi	0.6434	0.6030	0.6049
5	Andhra jyothi	0.7377	0.5401	0.6945
6	Andhra Prabha	0.4338	0.6748	0.7097
7	Vartha	0.7542	0.6034	0.3124
8	Deccan Chronicle	0.7334	0.7676	0.7317
9	The Times of India	0.7750	0.6657	0.5000
10	The Hindu	0.6796	0.7648	0.5977
11	Economics Times	0.6545	0.5999	0.4997
12	Indian Express	0.4694	0.5202	0.3127
13	Hans India	0.3994	0.3282	0.5835
14	Hindi Milap	0.5986	0.2330	0.2702
15	Swathanthra Vartha	0.5347	0.6009	0.4386

5. Conclusion

The computed correlation coefficient between Coverage of News Paper Vs Accuracy of News Papers is above 50% except Andhra prabha, Indian Express and Hans India. it indicates that The Coverage of Newspaper increases then Accuracy of Newspaper also increasing.

The computed correlation coefficient between Coverage of News Paper Vs Quality of writing in Newspapers is above 50% except Indian Express and Hans India. It indicates that The Coverage of Newspaper increases then Quality of writing in Newspapers also increasing.

The computed correlation coefficient between Quality of Writing Vs Accuracy of News Paper is above 50% expect

Vartha, Economics Times, Indian Express, Hindi Milap and Swathanthra Vartha. It indicates that The Quality of Writing increases then Accuracy of Newspaper also increasing.

Telugu Newspapers

Null Hypothesis H_{0R}: There is no significance difference between the Rows Null Hypothesis H_{0c}: There is no significance difference between the Columns.

ANOVA TABLE OF TELUGU NEWSPAPERS						
Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Rows	5.19	6.00	0.87	58.17	0.00	3.00
Columns	0.06	2.00	0.03	2.02	0.18	3.89
Error	0.18	12.00	0.01			
Total	5.43	20.00				

Conclusion: There is a significance difference between all the Rows.

There is no significance difference between Columns.

Hindi Newspapers

Null Hypothesis H_{0R}: There is no significance difference between the Rows Null Hypothesis H_{0c}: There is no significance difference between the Columns.

ANOVA TABLE OF HINDI NEWSPAPERS						
Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Rows	0.13	1.00	0.13	8.52	0.10	18.51
Columns	0.03	2.00	0.02	1.05	0.49	19.00
Error	0.03	2.00	0.02			
Total	0.20	5.00				

Conclusion: There is no significance difference between all the Rows as well as Columns.

English Newspapers

Null Hypothesis H_{0R}: There is no significance difference between the Rows. Null Hypothesis H_{0c}: There is no significance difference between the Columns.

ANOVA TABLE OF ENGLISH NEWSPAPERS						
Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Rows	1.93	5.00	0.39	38.47	0.00	3.33
Columns	0.01	2.00	0.00	0.49	0.63	4.10
Error	0.10	10.00	0.01			
Total	2.04	17.00				

Conclusion: There is no significance difference between all the Rows.

There is a significance difference between Columns.

Where **Rows** represent different Newspapers in respective languages.

Columns represent Accuracy of information, Coverage and Quality of writing in Newspapers.

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[1] V. Yoga Lakshmi, (March 2013) Anna University, Chennai.
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