RESEARCH ARTICLE

A Statistical Study of Dropouts in Indian School during 2015-16

Palak Dhankar[1], Pooja Choraria*[1], Pooja Sharma[2]
[1]Department of Statistics, IIS (deemed to be University)
[2]Department of Statistics, University of Rajasthan

Abstract

The present study aims to analyze the relationship between gender & enrolment rate and gender & dropout rate in schools at different level of schoolings in India for the year 2015-16. In this study secondary data has been taken to test the hypothesis. Chi-square test has been applied to analyze if there is an association between gender and enrolment rate and gender and dropout rate in schools. The findings of the study state that students enrolment rate is highest in primary level and it decreases as levels of schooling increase while the dropouts are higher in primary and secondary levels as compared to upper primary and senior secondary levels. The study shows that there is association between dropout rate and gender in schools of India showing that girls dropout more than boys.

Keywords: Chi-square test, Dropout, Enrolment, Indian Schools

Introduction

Education is defined as attainment of knowledge, process of learning beliefs, skills, habits and values. Methods of education include teaching, training, storytelling and discussions.

Education provides us an opportunity to use our skills and knowledge at extreme level. This highlights the importance of a good education for human beings. It is very important that our society is created in such a way such that all the sections receive good education. Education makes us human beings and teaches us to lead a good life.

There has been wide change in the teaching methods of different countries. The focus is shifting from teaching skills of learning towards the direction of creating new knowledge quickly and efficiently. Education is not only important for children but is equally important for adults. Governmental bodies, like the Finnish Innovation Fund Sitra has made education as a compulsory course. There are 2 levels of schooling in India, Primary and Secondary. Further this system is divided into 4 levels namely Primary level, Upper Primary level, Secondary and Senior Secondary level. There are two categories of Primary education in India from Class I-IV lower primary and from Class V-VIII upper primary (Desai et al., 2017). Primary education (Class I-VIII) is also known as elementary education and is important for the overall development of a country. In order to promote and increase the literacy rate of the country, the government of India has banned child labour. However, in our country due to weak economic status free education as well as ban on child labour is quite difficult to implement. Secondary education considers teaching children between the age group of 14 to 18 years, a group consisting of 8.85 crore children as per census 2011 published in India. The process of dropping out means leaving college, high school, university or another group for practical reasons or other necessities, is called dropout (Rai, 2015).

It is identified that of an initial enrolment of 100 students in India, on an average only 70 students are able to finish their schooling. While the number of students in the elementary education level is high i.e. nearly 90% students finish their elementary education, but many dropouts the secondary education. In India Jharkhand is the state with highest dropout rate in India where only 30 students out of every 100 students complete their education. The current data according to the figures of Annual Status of Education Report, 2018 shows that greater than 2.8 percent children are out of school in India. The level of girls dropout has also declined, from 6 percent in the year 2010 to 4 percent in the year 2018. This status of eight years ago where the figure is more than 5% was for 9 states and now it has come down to 4 states. There are various reasons for school dropout in India. Some students drop out of schools willingly while others are involuntarily forced to do so under unavoidable circumstances (Chugh, 2011). Dropout from schools is universal. Whatever be the reason, the fact that a child is not completing her/his school education is not beneficial for the child as well as the society and country. Such

children lack knowledge and fail to be an asset for the nation due to their inability to contribute in any way. Various reasons due to which school students drop-out are:

- **Accessibility, Poverty and Availability:** In India major cause of school dropouts are accessibility, poverty and availability. For example, during monsoon season the government schools are used as relief camps near the coastal areas and not as school buildings.

- **Low Interest in Studies:** It has been observed that there are always students who do not pay attention to the subjects that are being taught in the classroom. It is usually found that every class of students has some students who refuse to show any attention to the subjects being taught. Lack of attention in whatever is being taught decreases their interest in studies (Gouda and Sekher, 2014).

- **High Academic Pressure from Schools and Parents:** Another reason to leave the school is that they are highly pressurised to study which increases their anxiety level. The expectations of parents according to their interest and not considering abilities of children are another major factor.

- **Changes in Schools:** Changes in schools also lead to low level of interest and dropout due to adjustments problems to new environment.

- **High Bullying:** Many children face the problem and fear of continuous bullying. This develops a fear of being judged and laughed among children due to which they make excuses to not go to school. The parents of the students need to understand and take full action about it.

The government if India has launched schemes to reduce dropout rate. Some of them are:

- **The Mid Day Meal Scheme (1995):** The Mid-day Meal Scheme is a meal programme for schools started by Government of India to improve nutritional standard of school children. The meal programme supplies free lunch facility to the students during school time. This facility is not only limited to schools but also extend to Education Guarantee Scheme, government aided local bodies, and Maqtabs Madarsa which are supported by Sarva Shiksha Abhiyan and National Child Labour Project schools. This serves 120,000,000 children in over 1,265,000 schools and Education Guarantee Scheme centres.

- **Sarva Shiksha Abhiyan (2000):** Sarva Shiksha Abhiyan is an Indian Government programme which aims to facilitate free education facilities to children of India under the 86th Amendment in the Constitution of India which makes free and compulsory education to children between the age group of 6 to 14. This programme was started by former Indian Prime Minister Atal Bihari Vajpayee. The objective of the scheme is to educate all children between the ages 6 to 14.

- **Beti Bachao, Beti Padhao Scheme (2015):** This scheme was launched in the year 2015 to save and educate the daughters of India. This campaign by Indian Government aspires to increase efficacy and awareness of welfare services for girls in India. Initially the scheme was started with the funding of 100 crore (US$14 million) to mainly target underdeveloped clusters of Uttar Pradesh, Haryana, Uttarakhand, Punjab, Bihar and Delhi.

- **Samagra Shiksha (2018):** The scheme of Samagra Shiksha Abhiyan is a scheme for the school education sector for students of pre-school till class 12 students. The objective of this scheme is to improve school effectiveness in terms of learning outcomes and equal opportunities.

In this study block level analysis was done and it showed a very high dropout rate in both primary and secondary education. It was observed that as level of education increases the dropout rate decreases. The regression model showed that pupil teacher ratio, student classroom ratio have positive influence on dropout. There were many reasons for dropouts like child labour, poverty, parental education, seasonal migration, and sibling care by elder children as both parents are engaged in some earning activities (Roy, 2013). Data was collected from 35 states and UTs of India for the year 2009-10. Dropout rate was taken as dependent variable and independent variables were literacy rate, student classroom ratio, pupil teacher ratio and gross enrolment ratio. Regression models were designed and studied for this data. It was concluded that dropout had largest standard deviation whereas pupil teacher ratio had smallest standard deviation (Basumatary, 2012). A sample of 100 dropout girls from different years was taken. The objective was to find out dropout rate and its main reasons. It was found that the dropout was more in Muslim community because of traditional thinking. Apart from this uneducated family environment was also an important factor for high dropouts in girls (Rana and Rani, 2015).

Objectives of study

To test whether there is association between gender and enrolment at various levels of schooling in India.

Hypothesis 1: - There is no association between gender and enrolment at different levels of schooling in India.

To test whether there is association between gender and dropout rate at various levels of schooling in India.

Hypothesis 2: - There is no association between gender and dropout rate at various levels of schooling in India.

Material and Methods

In this study, Secondary data has been taken from Ministry of Human Resource Development Department of School Education and Literacy Statistics Division of India MHRD 2015-16 (MHRD, 2015). Level wise enrolment of students in males and females is taken and similarly level wise dropout in males and females is taken in this study.
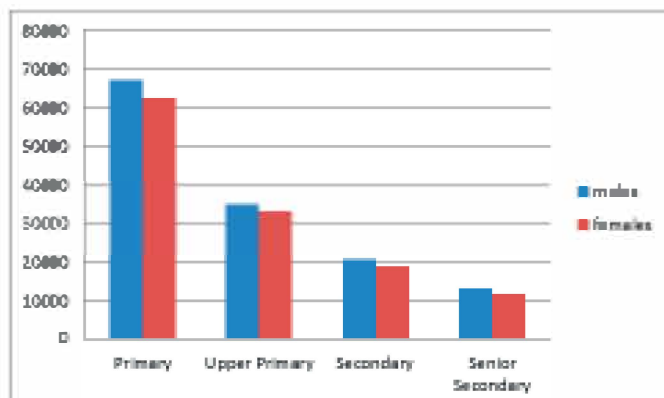

Fig. 1. Level wise Enrollment of Males and Females in Schools of India (2015-16)

(Source: prepared using MHRD 2015-16 data)

Fig. 1 show that enrolment rate of girls and boys is highest in primary education and it is lowest in senior secondary education. Also the enrolment of boys is more than that of girls for all levels of schooling.
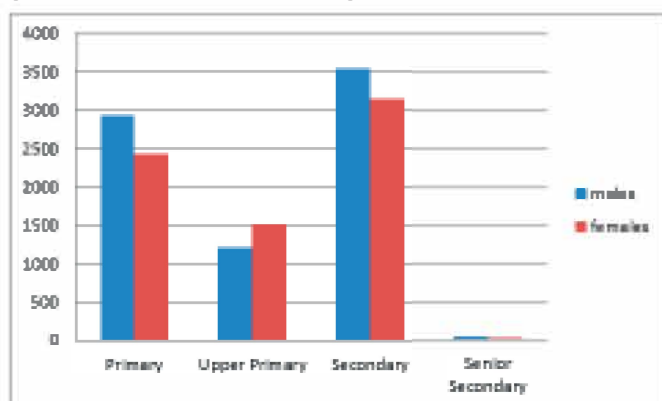

Fig. 2. Level wise Dropout of Males and Females in Schools of India (2014-15)

(Source: prepared using MHRD 2015-16 data)

As per Fig. 2, dropout rate is highest in secondary education while it is lowest in senior secondary education. The dropout rate is more for girls of upper primary level and for others it is more for boys.

Chi-square test of Pearson is used to identify if there is a statistically significant difference between the observed frequencies and expected frequencies under contingency table (Gupta and Kapoor, 1970).

Chi square test of Independence of Attributes: - In this study this test is applied to the enrolment and dropout rate for all 4 basic divisions i.e., Primary level, Upper Primary level, Secondary and Senior Secondary level for Females and Males.

A contingency table is formed which shows the frequency distribution of the variables. It gives us a general idea of the interrelation among two or more variables. Using chi square statistic, the observed count is compared to the expected count for each cell of the table under the assumption of no association. In our study a 4 x 2 contingency table is formed. We then find out the row total of all rows and column total of all columns and one grand total. Now we calculate expected values by the formula given below for each observed value.

= (row total x column total) / overall total

Now after finding all expected values we apply chi square test of attributes by using the formula

$$\sum\left((Oi - Ei)\right)\hat{}2 \div Ei))$$

Here Oi = observed values and Ei = expected values

Test criteria: - Now the calculated value under chi square test will be compared with the tabulated value for given degree of freedom. If chi square calculated d chi square tabulated with (r-1) x (c-1) degree of freedom at 5% level of significance then we dont reject null hypothesis.

The p-value is another major alternative used for the rejection or acceptance of null hypothesis in the chi-square test. In order to find p-value we first need to find our test statistics z and then we find the corresponding level of p from the z value obtained by looking at z table.

Table 1. Observed value of enrolment rate for males and females

Levels	Males	Females	Row total
Primary	66873	62250	129123
Upper Primary	34720	32874	67594
Secondary	20547	18598	39145
Senior Secondary	13002	11733	24735
Column total	**135142**	**125455**	**260597**

(Source: MHRD 2015-16)

Table 2. Observed value of dropout rate

Levels	Males	Females	Row total
Primary	2916	2415	5331
Upper Primary	1212	1512	2724
Secondary	3536	3139	6675
Senior Secondary	33	26	59
Column total	**7697**	**7088**	**14789**

(Source: MHRD 2015-16)

Results and Discussion

From all the calculations it was observed that the p value for level wise enrolment for males and females is 0.000437287 with 3 degree of freedom and 5% level of significance (Table 1). Therefore, the null hypothesis is rejected.

This shows that the 2 attributes are not independent.

It means there is an association between gender and enrolment at various levels of schooling in India.

From all the calculations we observe that the value of p value for level wise dropout for males and females is 0.000572345 with 3 degree of freedom and 5% level of significance (Table 2). So, the null hypothesis is rejected.

This shows that the 2 attributes are not independent.

It means there is an association between gender and dropout at various levels of schooling in India.

Conclusion

Drop out is a serious issue in India. From the above analysis we can conclude that students enrolment rate is highest in primary level and it decreases as levels of schooling increase and dropouts are higher in primary and secondary levels as compared to upper primary and senior secondary levels. Government has launched various policies like improved school infrastructures, sanitation facilities, low fee amount, mid-day meal schemes for the retention of students in school and in future also we need various policies to reduce the dropout rate in schools. Along with this parents and families also need to understand the importance of education in life.

References

Basumatary, R. (2012) School Dropout across Indian states and UTs: An Econometric *Int Res J Social Sci* **1**(4): 28-35.

Desai, K., Moitra, M., Chaudhary, V., Dave, B. (2017) Education status, school dropouts and its reasons, determinants and perspectives among young girls of a city of western India *Int J Med Sci Public Health* **6**(8): 1261-1266 doi: 10.5455/ijmsph.2017.1162422052017.

Chugh, S. (2011) Dropout in Secondary Education A Study of Children living in slums of Delhi *NUEPA* Ocassional Paper **37**: 1-53.

Gouda, S., Sekher, T.V. (2014) Factor leading to school Dropout in India: An analysis of National Family Health Survey-3 Data *Int J Res Meth Educ* **4(6)**: 75-83 doi: 10.9790/7388-04637583.

Gupta, S.C., Kapoor, K. (1970) Fundamentals of Mathematical Statistics. Sultan Chand & Sons, India.

MHRD (2015) Annual Report. https://www.education.gov.in/sites/upload_files/mhrd/files/document-reports/AR_2015-16%20ENGLISH.pdf Accessed 18 April 2018.

Rai, M. (2015) School dropouts and its impact on the society in Sikkim. Thesis, Sikkim University, India.

Rana, S.S., Rani, S. (2015) Study of the causes of girls dropout in Haryana *JESR* **5**(1): 13-20.

Roy, C. (2013) A Study on the Dropout Problem of Primary Education in Uttar Dinajpur District, West Bengal Available at *SSRN:* https://ssrn.com/abstract=2601969 or http://dx.doi.org/10.2139/ssrn.2601969.