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Gender Inequality in Physics Faculty: A case study of Universities and Colleges of West Bengal

Dr. Moumita Patra

Department of Physics, Raghunathpur College, Raghunathpur, Purulia, West Bengal, India

Email: sspmpiacs@gmail.com

Abstract: From the ancient till now women are excessively under represented throughout the world. It has been proved that the subject has one of the largest gender gaps even in science background. Here I have studied the data from website of different universities in West Bengal and the provisional merit lists for the posts of Assistant professor in different degree colleges under West Bengal College Service Commissions. From our analysis it is obvious that the Physics has a largest gender gap according to the ratio of male and female teaching staff present in the departments. Though the inequality becomes less for colleges than the universities, Physics remain the subject with largest gender gap. The most interesting fact is the percentage of woman in physics faculties of universities and colleges of west Bengal is about 12% which is almost same as reported in other parts of world.

Keywords: Gender inequality, college faculty diversity, woman in physics.

*Corresponding author: M. Patra

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1. Introduction

From Hypatia (Greek astronomer and Mathematician ~c351) to Donna Stricland (Noble Laureate, 2018), Women are still wildly underrepresented in Physics^{1,2}. In Nature News, an article came on 1st August, 2016 that “Women in Physics face big Hurdles-still” where it has been shown that in spite of increasing participation in all fields, the number of women at all levels in physical science is woefully

behind. Only about 20 % of US undergraduate and graduate students in physics are women. About 8% of US universities with PhD granting physics departments don't have any women and only an average of 11% of the professors is women according to American Institute of Physics (AIP)³. Again, an article came on 7th November, 2018 in New Scientist named "Women in Physics: Why there is a problem and how we can solve it" addressing the same gender inequality in context of England describing the same scenario as in US⁴. In July, 2013, Susan White et. Al. Reported that "Women make up 13% of professorial-rank faculty members (assistant, associate, and full professors) overall"⁵. In India, in a report in 2005 Rohini M. Godbole et. al. states that though woman enrolling in MSc, Physics is about 30% of the total number of students but it drops out to about 20% for the enrolment in PhD⁶. Recently the reason of this large gender inequality has been reported as the lack of motivation by instructors and teaching assistance for the female students to study Physics as if female students can't be a "Physics person"⁷.

In this context I am trying to get the scenario of the engagement of female faculties in different Physics departments of universities of west Bengal. And also, in this paper I want to compare the inequality with other subjects. From the merit panel of West Bengal college service commission, we have tried to get a picture if the inequality prevails among the college teachers of West Bengal also.

2. Methodology

Here I analyse the data from websites from different universities of West Bengal dated Feb, 2020 and from the provisional merit panel for general degree colleges (ref:Advt No. 1/2015) of West Bengal College service Commission.

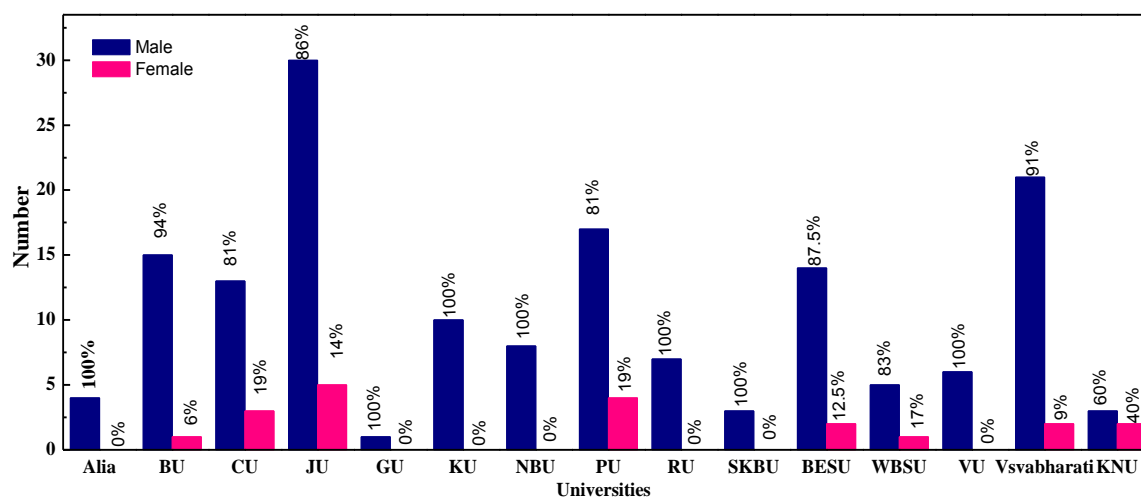


Fig.1: Women in Physics departments of fifteen universities of West Bengal.

3. Results and discussions:

As shown in figure 1, about 50 % of physics departments of total fifteen universities have no women faculties. Percentage of women faculty is higher around Kolkata and highest in Kaji Najrul University, Asansol.

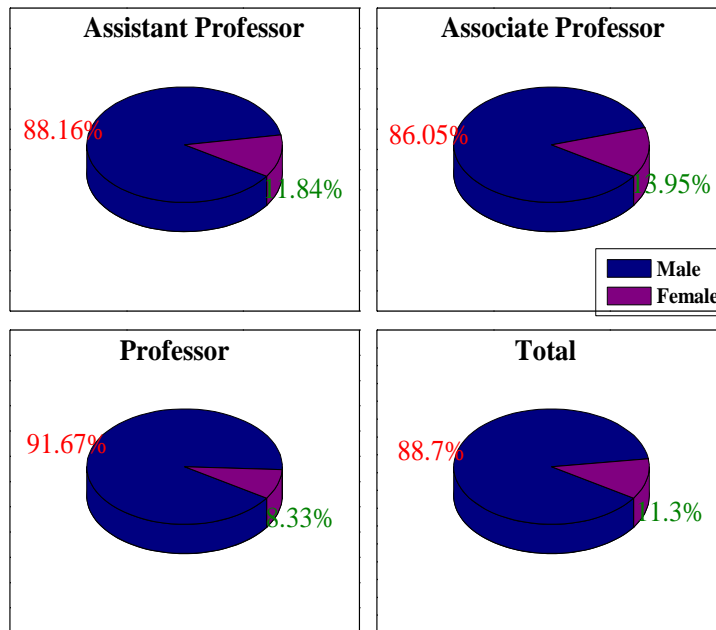


Fig.2: Percentage of woman faculty for different designation in Physics for all universities dated Feb, 2020 in total has been shown.

Figure 2 shows that in total on an average 11 % of total faculty are women. Among them only about 8.33% are in Professor Designation.

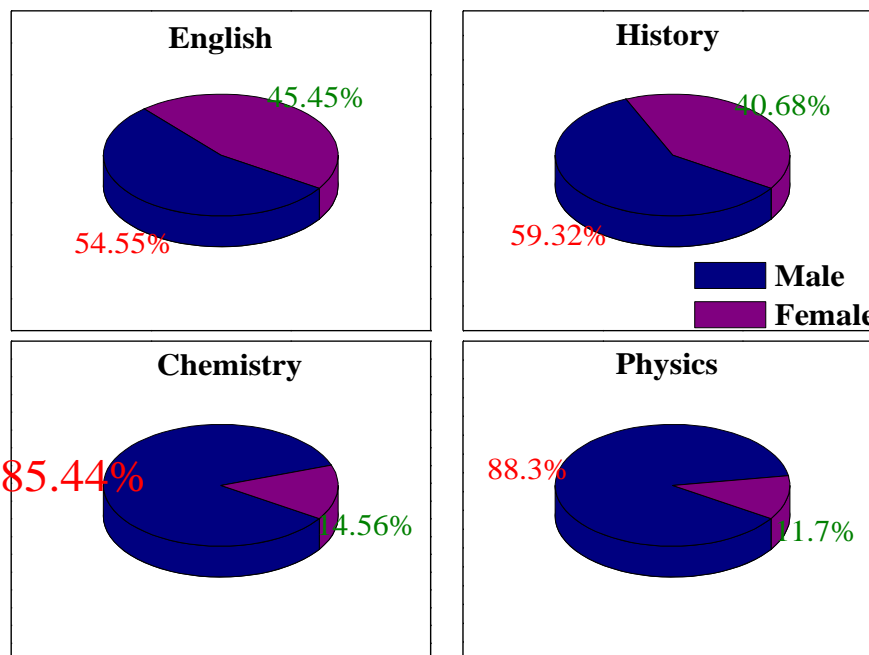


Fig.3: Percentage of woman faculty in other three subjects along with Physics for 5 main universities of West Bengal.

In figure 3, I have compared the percentage of women faculty with other three subjects: English (Literature), History (social science), and chemistry (another physical science). It is clear from the figure that physics has the largest gap whereas the English has the lowest. To get a further insight in this scenario, I have analyzed another set of data taken from the provisional merit panel for the Assistant Professor for Govt. Aided colleges published in 2017. The ordering remains same as English remains in the no. 1 position then come History and then Chemistry and Physics. But percentage of Women faculty is much higher than that of universities.

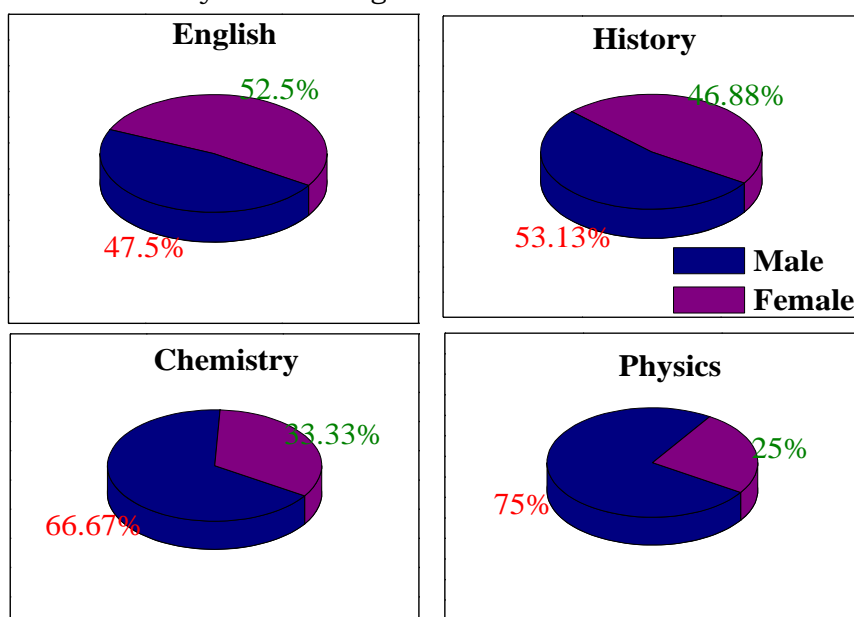


Fig.4: Data from provisional merit panel of WBCSC for degree colleges:

Area	Designation	Subject	Male	Female
Universities of West Bengal	Asst. Professor	Physics	67	9
	Asso. Professor		37	6
	Professor		55	5
	All faculty	Physics	83	11
	All faculty	English	24	20
	All faculty	History	35	24
	All faculty	Chemistry	88	15
WBCSC	Merit listed	Physics	90	30
	Merit listed	English	95	105
	Merit listed	History	85	75
	Merit listed	Chemistry	80	40

Table 1: The number of male and female faculty in universities and colleges of different designations and subjects.

Even in English Percentage of Women (52.5%) participants is slightly higher than their male counterpart (47.5%). But again, in Physics the percentage of Women Participants is below average (35.7%) according to AISHEE report.

Table 1 shows the exact participation of male and female faculties in all the area such as physics, chemistry (science), history (social science) and English (humanities). And only there are more female faculties merit listed in the West Bengal college service commission's panel for college teachers.

4. Conclusion

So, in conclusion, we can say that Physics has one of the largest gender gaps in case of different colleges and universities of West Bengal. Women faculties of universities are 11.3% of total faculty in Physics which is almost same as in US or England^{8, 9}. Gender gap is higher for universities than colleges.

The universal nature of gender gap in Physics suggests some inherent features for detachment of Women with Physics. Different country is taking initiatives with arrangement of workshop, conferences, sanctioning different grants. But we have to take further more than that.

According to Luke Holman, University of Melbourne "If we want to see 50% of Physicists being women sooner, we need to implement new initiatives to do this – over and above any currently running initiatives"

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