

Gender Discrimination in Research World: Why Eve Doesn't Outshine

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Abstract—Every individual is born free and equal- free from every sort of discrimination or exploitation and equal in every right but globally individuals are exploited and deprived of their basic rights because of one factor or the other, and gender is one such factor. Gender disparity is not confined to a particular part of the world or society but is prevalent over the years in all corners of the globe. Gender biasness can be found in many areas of the society like education, economy politics etc. The present study aims to know the extent to which gender discrimination prevails in the area of research. Various studies conducted on the topic of gender biasness covering various dimensions were thoroughly reviewed and examined. Influence of gender was accessed with respect to male – female productivity, output at individual and collaborative levels, and quality in terms of citedness and citation count, academic promotion and receipt of research grants.

Introduction

The term gender can be defined as the different roles constructed for men and women in society. These societies differ in terms of roles to be played in them but the only thing that is common between societies is that major and important role in each society is almost dominated by a specific gender overpowering the opposite, giving rise to gender disparity. Gender disparity can be defined as the difference in men's and women's access to resources, social well being, status, power etc in which male gender is usually preferred over the other and is favored by law, society, culture etc. Gender disparity exists almost in every field; the causes for it are multifarious and are related to gender relationships in different parts of the world [1]. Gender biases in many societies can be seen right before and after the birth of the child. The menace of aborting the female fetus or female infanticide is prevalent in many societies; a girl child is believed to bring hard luck while the male child is considered a blessing. Universally, girls are given less access to scarce resources, poorer health care, limited education, less employment outside the home and circumscribed autonomy [2]. Talking about education in most fields of science, medicine and technology men comprise more than half of the workforce, while women form a minority and are often less trained in elite groups and are promoted slowly as compared to men [3]. Similar is the case in the industrial or management fields where men are paid

more than the women. According to [4] economy is locked into the gendered division of labor because of the benefits offered to men as a whole compared to women. Politics is another domain where biasness is prevalent; Governments are often criticized by many female activists for the absence of women from key posts or decision-making posts. The policies drafted by the government are often criticized for being gender-blind favoring men. The dominance of men in decision-making positions in various governments is the core issue that has a gendered effect on policymaking and its implementation [5]. Gender disparity thus can be found almost in every section of the society. Research is one of the core activities that is carried out in the society, many important decisions pertaining to different fields are taken on the basis of research output. The process of research experiences a number of obstacles and is under continuous pressure to be relevant to the society [6]. Within the last decade, the number of researchers has increased continuously as well as the number of women in education but the percentage of female researchers has not changed by a satisfying number [7]. Amount of progress in the research area is nowadays considered on the basis of citation impact, and the male researchers' significantly outperform the female researchers in this department as well [8].

Purpose

The study aims to highlight the effect of gender discrimination in the various fields and areas of research.

Objectives

To know:

Biasness in research productivity

Discrimination in Research Funding

Collaboration pattern between genders

Gender effect on citations and impact

Gender biasness in promotion of researchers

Literature Review

Productivity

Women by tradition and culture are viewed as housekeepers, they are expected to take care of children and bear the burden of marriages, whether true or not but this belief certainly affects women's career opportunities including the productivity [9]. Different studies carried in different parts of the world using wide variety of measuring methods show low productivity of females in research field [10]. A study conducted by J. Scott Long reveals that in terms of productivity males publishes more on average during the first nine years of their careers as compared to females [11]. [12] Conducted a study in the field of psychology and found that the percentage of women in papers published with national or international collaboration was significantly lower than the percentage of women in papers produced within the same institution. Similarly [13] a study on scientific productivity in Nano Science & Technology during 2005-2007 show majority of the nano scientists is male (923 out of 1,151 researchers accounting for 80.1 %). [6] conducted a study on the difference in the research output of males and females in the field of library and information science and found low participation of females in the research world compared to males. Study conducted by [14] show that in the field of commercial science out of over 5,000 total inventors, less than 900 were women resulting in fewer publications from a specific gender. Men also dominate the patenting activity with only 4% of the patents being discovered by women alone.

Funding

Gender disparity in research funding is well-known phenomenon in the scientific community, with varying intensity [15]. Women researchers are usually not preferred by funding agencies, they receive limited funds than the male researchers [16], which may be one of the reasons of their low productivity. [6] In their study found that the external funding agencies tend to fund male authors more than the female authored research. Male-female or male-male authorship pattern was preferred by research funding agencies more than a single female or female- female authorship pattern. Further a paper published in an edition dedicated to only gender issues in the *Lancet Medical Journal* conducted a study and came out with surprising revelation. Near about 24000 grant applications over the period of 5 years, received by *Canadian Institute of Health Research* were analyzed. Researchers found when institute assessed applications on the basis of quality only without knowing the gender of the person, the difference came as 0.9 percent but when same applications were accessed when gender of person was known the gender gap rose to 4 percent, which means the quality of proposals made by both the genders was almost same but still research proposals made by male researcher were accepted more [17].

Collaboration Pattern

[18] conducted a study by analyzing the dataset of more than 270,000 scientists and found differences in scientific collaborations; men are more likely to collaborate with a male partner rather than a female, while females tend to collaborate equally with both males as well as females. Study also reveals that women prefer to collaborate at domestic/national level while as males collaborate more at international level. [19],[20],[16] and [12] conducted a study in the field of psychology and found that Of the total number of papers, 42.3 % had female first authors and the remaining 57.7 % had male as their primary author. Papers published by Indian scientists and indexed by Web of Science in 12 sub-disciplines of life sciences during 2008–2009 indicated that of the total papers 340 (3.4 %) were contributed by female scientists exclusively and 4,671 (47 %) were written jointly by male and female scientists. Women scientists work in small teams and have very less international collaborative papers [21].

Gender and Citation Count

Lower research productivity implies that female researchers receive less number of citations than men do. A study conducted by [22] during 1980-2006, based on 3000 articles show that average women's citation impact is 20% lower than that of average male. But such is not the case everywhere; a study conducted by [23] reveals that even though females publish fewer papers than males in the field of science but on average receive more citations. On average a paper by a woman was cited 1.5 times more as compared to that of a male. Study conducted by [13] on scientific productivity in Nano Science & Technology during 2005-2007; show no significant difference in terms of citation and impact of male and female researchers. Similarly [24] on the basis of his study found that in management studies women are slightly cited more than men and women author more papers in the top 10% of highly cited in the field.

Promotion

Gender biasness can also be seen when it comes to promoting a female gender to higher positions e.g a study conducted by [25] reveal that the percentage of women decreases as we go higher in the professional category, that is, 44% of MAT scientists are women in the lower category (tenured scientist), while only 32% and 4% appear in the middle and upper categories (research scientist and research professors respectively). [26] also found in his study that women gender professionals are at a large number at lower posts but as the rank goes higher the number of females become less in number .He conducted a study on the 5 major established universities of Scotland and found that the number of female formed a total of 50% as researchers. 32% as lecturers, 10% as senior lecturers and only 2% as professors thus showing the declining trend as the rank or position in the university goes up. [27] observed two things in the study. First, career prospects for female university researchers are clearly worse

than for their male counterparts. Women have a 37 % lower chance of becoming full Professors compared to men across cohorts. Second, and most important, gender differences in promotion rate have not decreased. This means that the increasing share of female professors is not a function of a changing probability of females being promoted, but a result of changes in the gender composition within universities

Conclusion

Gender disparity affects female gender one way or the other. The unevenness in terms of research productivity exists between males and females in various dimensions. Despite the various global policies in place that try to improve the position of women, the proportion of female researchers is not promising and no significant change has been observed over time. Though in certain areas of research like that of management, nano technology and commercial science the difference in the citation and impact has reduced and in some cases women researchers are more cited than men, women gender still there has a long way to go as majority of fields are still heavily men dominated. Also funding agencies still prefer men over women and in various academic institutions though female researchers are in equal number or often exceeds the number of male researchers but still females can't reach to higher positions or ranks in the academic institutions. That said it becomes important to empower women at least in the area of education and research as it is fundamental to their basic human right. A world where a woman has neither to beg for her basic rights, the right to life (as female fetus infanticide is on rise) nor for equal status in different systems of the society such as education, research, health, politics etc, is to be developed. Women are to be encouraged and supported, enabling them to hop across the walls of gender biasness and discrimination.

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