Article can be accessed online at http://www.publishingindia.com

STATUS OF WOMEN CONTRIBUTION IN POLITICAL RESEARCH WORLD: A CASE STUDY OF THE JOURNAL "POLITICAL ANALYSIS"

Sumeer Gul*, Sangita Gupta, Sumaira Jan***, Sabha Ali*****

**Senior Assistant Professor, Department of Library and Information Science, University of Kashmir, J&K, India. Email: sumeersuheel@gmail.com*
***Head Department of Library and Information Science, University of Jammu, J&K, India. Email: sangitauniv@gmail.com*
****PhD scholar, Library and Information Science, University of Kashmir, J&K, India. Email: sumaira.mattoo@gmail.com*

Abstract *Purpose: The study endeavours to highlight the contribution of women in the field of Political research globally.*

Methodology: The study is based on the data gathered from journal, "Political Analysis" which comprises a list of articles published by authors for the period; 2004-2014.The proportion of the male and female authors listed in the publication was ascertained.

Findings: There exists a colossal difference among male and female researchers in the field of Political Science research, which is evident from the fact that 88.30% of publications are being contributed by male authors while as just 11.70 % of publications are contributed by female authors. Furthermore, citation analysis reveals that highest number of citations is for the male contributions. In addition, the collaborative pattern indicates that largest share of the collaboration is between male-male authors. This evidently signifies that female researchers are still lagging behind in the field of Political Science research in terms of research productivity (publications)and thus, accordingly, need to excel in that particular field to overcome the gender difference.

Research limitations: The study highlights status of women contribution in the "Journal of Political Analysis" from the period 2004-2014.

Future research: The study provides a wider perspective of female research-contribution based on select parameters. However, the study can be further be enriched by taking into consideration various other criteria like what obstacles are faced by female researchers impeding their research, what are the effects of age and marital status on the research-productivity of female authors, etc.

Keywords: *Female Researchers, Female Researchers-Politics, Bibliometrics, Research Trends, Political Analysis*

Introduction

Human beings, the ultimate creation of God, have created the society for an uncomplicated livelihood. Amongst them are men and women who in times of yore have varied traditional responsibilities like males have to work outside and take the responsibility of earning the livelihood, somehow show the supremacy over their female counterparts who work inside the house taking care of family and children and start depending on men for her totality. This in turn has given birth to differences; centuries back and largely continue to this day (Mohanty, 2005). Thus, one faction that exhibits feelings of disenfranchisement in all regions of the world is women (Allen, 1997). However, the precedent few centuries has witnessed a swift transformation in every sphere of life that in turn redefined the role of both genders but particularly of women folk. Nowadays, women in addition to their traditional responsibilities have successfully stepped into male-dominated fields of work from education to the profession as discussed by LERU (2010 as cited in Maes, Gvozdanovic, Buitendijk, Hallberg, & Mantilleri, 2012) which has consequently lessened the differences between women and men in the scientific and academic world's also(Guerrero-Bote, Gomez-Crisostomo, Romo-Fernandez & Moya-Anegon, 2009). Although, despite the fact that women are progressively more representative than earlier which is evident from the fact that proportion of overall female contribution has amplified over the years (Mauleon

& Bordons, 2010; Mendlowicz, Coutinho, Laks, Fontenelle, L., ValenccaA., Berger, Figueira, & de Aguiar, 2011), yet there is still certain distinction of females with respect to their male counterparts signifying that gender differences persist (Tower, Plummer & Ridgewell, 2007). However, it has been sturdily realized that for the strong and prosperous development of the nation it is very much necessary to utilise the potential, inventiveness and talent of both genders –men and women uniformly in every field but more significantly in research, which, in actual senses will lead to the development by promoting new and nascent ideas. In this perspective LERU (2010)(as cited in Maes *et al.*, 2012) put forward a clear statement "that to make certain nation's vim and vigour a dominant and globally competitive research base is crucial for developed as well as predominantly for developing nations. This in turn is reliant on nation's potential to create a centre of attention and keep hold of highly skilled and creative researchers both women and men. As there has been a growing acknowledgment, that research acts as a powerful engine for developed countries' economic progress and innovative dynamism. The research universities in particular fulfil a crucial role in building or maintaining a country's research base and that the researchers both men and women equally are a vital asset to modern societies." However, Ritchie (2009) states that research fields have always witnessed gender partiality from ages. Even though gender partiality in research in the twenty-first century is less pervasive than it was in the past (Mauleon & Bordons 2010; Mendlowicz *et al*., 2011; Ritchie, 2009), but persists even at present (Ritchie, 2009). In line with that European Commissioner for Research, Innovation and Science MaireGeoghegan-Quinn says, "despite some advances in recent years, women in research remain a minority, and a glass ceiling is in particular blocking women from top positions. This is a serious injustice and a scandalous waste of talent" (European Platform of Women Scientists) (as cited in Giannoula, 2014).

To deliberate upon the cause of gender difference in research of a particular subject area, Alon and Gelbgiser (2010) state that horizontal sex segregation by field of study continues to be an important structural contour of gender inequality in higher education, determining male and female enrolment patterns, academic achievements, degree accomplishment and ultimately the research productivity. Moreover, to explain and comment about the reasons of gender difference in the research-productivity there has been frequent research of the publication and citation behaviour of men and women in an array of subject fields. Acker (1980); Kaplan, Sullivan, Dukes, Phillips, Kelch and Schaller (1996); Long 2001; Mathews and Andersen (2001); National Science Foundation (2003); Prpic (2002) state that gender prejudice in research emerges for the reason that researchers' stereotypes and injustice about gender become absolute and hence unintentionally, but systematically infuse with the research practice. Further, elucidating rationale for the same they state that such a partiality typically shore up the unfair adherent treatment of masculine characteristics (enhances men) and inequitable negative treatment of feminine characteristics (derogates women). Consequently, gender bias in research is, therefore, undesirable and to be shunned. Since, gender is one of the crucial components in understanding individuals and their working lives. In line with that, a key element of academic working life is the publication of the research findings, and the subsequent citation of those publications. Accordingly, gender equality in political participation is a fundamental facet of contemporary democratic governance. In view of the fact that, that under international standards, both men and women should have equal rights and opportunities to participate wholly in all aspects and at all levels of political processes. In practice, but, it is incessantly more challenging for women to access and put into effect these rights (Kobelyanska, Suslova, Yena & Skorbun, 2011). However, contemporary society has acknowledged that unless the world female population is not in a situation to enjoy practically the equal social opportunities, no social change, economic gain or political authority can lead to peaceful development of human society. Thus, women are considered as a vital force of social change and development (Mahadevappa, 2012). As Rachel Mayanja, the Special Adviser of the UN Secretary-General on Gender Issues and Advancement of Women has pointed out, "Women's participation enriches the process as women are likely to put gender issues on the agenda, set different priorities and possibly bridge the political divide more effectively" (as cited in Falch 2010). On the contrary, it is not always that women can contribute to the political field only by joining or stepping into political ground by joining political parties, rather women can contribute more through indirect means of research in political fields by analysing various facets and concerns of that particular field. Commenting upon the same, Finifter (1973 as cited in Maliniak, Powers and Walter, 2012) states that the status of women contribution in academia and political science has long been a topic of discussion and concern. Since, the scientific and scholarly systems reflect a strong gender bias favouring men that make it more difficult for women researchers to fully develop their potential and careers (Kretschmer, Kundra, Beaver & Kretschmer, 2012). Therefore, women have been and persist to be under-represented in political science faculty as students in graduate programs, at conferences as well as in peer-reviewed publications (Committee on the Status of Gruberg and Sapiro, 1979; Women, 1992) (as cited in Maliniak*et al.*, 2012). However, nowadays, women are earning Ph.D.'s in political science in record numbers, but are then failing to earn tenure in proportion to these numbers (Ginther, 2004; Sedowski & Brintnall, 2007; APSA Report 2000) (as cited in Maliniak *et al.*, 2012). To support the statement Maliniak *et al.* (2012) state that Universities are

still dominated by male faculty, in spite of the fact that their student bodies are now nearly all majority female. However, the number of women in academia, as well as their influence, will depend on the factors that how frequently their research is published and whether other scholars then cite their work. Hence, if departments of the concerned institutions are strong-minded to amplify the number of women in their ranks, then revealing the existence of systematic bias and then correcting for it will become a necessary step in reaching this goal. However, the causes for that gender bias are intricate and related to overall gender relationships in most of the countries of the world (Kretschmer *et al.*, 2012). Hence, it becomes imperative to investigate various aspects in which publication patterns differs among males and females to ascertain the existence of gender difference among research publication of a particular field.

Review of Literature

The status of women in academia and research has been an incredibly significant area to explore and investigate. This section provides a brief overview of the literature related to various aspects of women and research.

Maes *et al.* (2012) state that gender is a self-evident aspect of societal diversity and is as such a major source of creativity, exploration, discovery and innovation acting as an important factor in the quality. Thus, from a superior societal perspective, a balanced gender representation contributes to the quality in research, optimistically influences the research-outcomes and impact and promotes the acceptance of scientific insights. Commenting upon the same, Abramo, D'Angelo and Caprasecca (2009) reveal that to scrutinise the contribution of a particular gender in the research world, the studies related to exploring the differences in productivity between men and women engaged in the scientific world has persistently engrossed curiosity from a wide range of observers all over the globe. Since, research brings about much advancement in our contemporary world and endow with hope that one can resolve some of the apparently difficult problems human race is facing, from the environment to expanding population (Adler, Ewing & Taylor 2009). Dever, Morrison, Dalton and Tayton (2006) observe that it has been strongly established that research performance is often a fundamental factor in promotion to senior levels, hence, the relationship between gender and research activity is of critical importance. Falch (2010) states that regardless of the fact that women constitute 50% of the population in the world they are still underrepresented in various male-dominated fields including politics. In view of the fact that, only the most committed women, choose male-dominated fields (Ayalon, 2003; Correll, 2001). Thus, in spite of women enlarged in all aspects of administration, employment and education, the gender bias still exists in many places including research (Mahadevappa, 2012). Commenting about women representation in the research world Abramo *et al.*(2009); Dever *et al.* (2006); Garg and Kumar (2013); Goel (2002); Guerrero-Bote *et al.* (2009); Kretschmer and Kretschmer (2013); Lariviáere, Vignola-Gagne, Villeneuve, Ge´linas and Gingras (2011); Lopez, Svider, Misra, Bhagat, Langer, & Eloy (2014); Mauleon and Bordons (2006); Mauleon, Hillan, Moreno, Gomez and Bordons (2013); Penas and Willett (2006); Prpic (2002); Pudovkin, Kretschmer, Stegmann and Garfield (2012) state that the women are less productive than men in terms of research productivity and thus, have lower publication rates than their male counterparts. In line with this in terms of male: female distributions in diverse disciplines Bird (2011); Hartley and Cabanac (2013) observe that female academics publish proportionally a smaller amount than male ones (for various reasons) in the sciences, but publish at an equivalent level with men in the social sciences. However, Hartley and Cabanac (2013) state that "male: female ratio in the social sciences was double the 1:1 as implied by (Bird, 2011)." Contrarily, some studies suggest that there is no significant difference between the productivity of male and female researchers (Gupta, Kumar & Aggarwal, 1999; Borrego, Barrios, Villarroya & Olle, 2010; Tomei, Nahass, Husain, Agarwal, Patel, Svider, & Liu, 2014). On the other hand, as far as quality of research productivity is concerned (Hamilton, 1990) observe that for assessing the quality of publications citations are widely considered a measure of scientific success and relative significance of the article and its author. In line with same Maliniak *et al.* (2012) reveal that, a simple cross-tabulation put forward that author gender plays a significant role in determining the number of citations a given article garners after publication. Copenheaver *et al.* (as cited in Maliniak *et al.*, 2012) argue that, "Gender differences in citation rates appear to be discipline specific, so identifying whether a difference exists within a discipline is an important factor for making fair and equitable decisions regarding the evaluation and promotion of female and male researchers." Abramo *et al.* (2009); Kretschmer, Pudovkin and Stegmann (2012) state that although in quantitative dimension male researcher's lead female researchers in research productivity yet, in terms of quality index the gap amid the genders, though still present, appears less prominent. However, Leta and Lewison (2003)observe that women published as much as men, in terms of both quantity as well as quality. Commenting upon the same, Housri, Cheung, Koniaris and Zimmers (2008) opine that even though females comprise a small proportion of the principal researcher, the quality of research work presented by females is equal to or better than those of their male counterparts. Moreover, Guerrero-Bote *et al.* (2009) emphasize that the difference between males and females in terms of research output is still obvious in the position or order of authorship with greater significance. Besides, Dever *et al.* (2006); Leta and Lewison (2003); Kretschmer,

Kundra, Beaver and Kretschmer (2012) reveal that females were least possible to be research group leaders compared to their male counterparts and are relatively overrepresented as first authors in articles.

Brooks, Fenton and Walker (2013) state that gender differences in scientific performance to a certain extent can be explained by women's potential to network and or their individual circumstances. In line with same Fletcher (2007); Haynes and Fearfull (2008); McDowell, Singell, andStater (2005); Pezzoni, Sterzi and Lissoni (2012) highlight that the research network are vital and had a significant impact on research productivity as well as co-authorship pattern. Moreover, commenting upon collaborative or co-authorship pattern Maliniak *et al.* (2012) state that co-authorship has a positive and significant effect on citation counts of publications. In above perspective, Abramo, D'Angelo and Murgia (2013), Bozeman and Gaughan (2011) bring to light that female researchers tend to have more collaborators than their male counterparts. However, Garg and Kumar (2013) observe that women scientists work in small teams as compared to their male counterparts. Furthermore, Bozeman and Gaughan (2011) highlight that males and females follow a varied collaborative pattern emanating due to the difference in their collaborator choice strategies and affiliations. While both genders are enthused by "mentoring" strategies, males are more likely to be oriented to "instrumental," and "experience" strategies. The study also reveals that although females tends to have more collaborators compared to males but for both genders, those with more interactions that are industrial and those affiliated with university research centres have more collaborators. Jordan, Clark and Vann (2008) observe that women tend to experience gender selection bias since men tend to collaborate towards male co-authors while women tend towards female collaborators. However, contrarily Isfandyari-Moghaddam and Hasanzadeh (2013) observe that women gave less preference to collaborate with the same gender. Brooks *et al.* (2013) highlighting the significance of extending collaborative network reveal that there is a constructive and strong correlation between research quality and co-authoring with researchers outside the institution. However, Abramo *et al.* (2013) observe that females are less inclined towards international collaboration, in comparison to male colleagues owing to various restrictive factors.

Hartley and Cabanac (2013) highlight various parameters in which difference between male and female research-productivity is prominent which includes the number of papers, sum of impact factor values of the journals in which the papers are published, the cumulative number of citations to these papers, H-index and some other indicators. Since, these indexes are characterizing either productivity or both productivity and quality. Commenting upon the significance of H-index, Tomei *et al.* (2014) state that the H-index is an important metric that takes into consideration both the quantity as well as influence of research contributions to academic communication within a particular field. Besides, Paik, Mady, Villanueva, Goljo, Svider, Ciminello, & Eloy (2014) state that the H-index may measure academic productivity and emerges to be highly associated with academic rank. In above perspective,Lewison and Markusova (2011); Kretschmer and Kretschmer (2013); Maliniak *et al.* (2012) state that articles authored by women are less cited than those authored by men. Moreover, women authored articles are often less cited than articles co-authored with at least one man. This in turn indicates a prominent and distressing pattern owing to the importance assigned to citation counts in evaluating scholars and their institutions (Maliniak *et al.*, 2012). Furthermore, Paik *et al.* (2014) found that H-indices of males are higher than that of their female colleagues, which is amplified with higher academic rank. However, Pudovkin *et al.* (2012) observe that the values of indexes characterizing the quality of papers (average citation rate per paper and similar indexes) are not significantly different among female and male researchers. Furthermore, Borsuk, Budden, Leimu, Aarssen and Lortie (2009) reveal that gender of the first author had no effect on the citation rate of articles; signifying scientists or researchers may not deem author traits when citing research.

Commenting upon the barriers that hinder research wok of women researchers, Schneider (1998, as cited in Dever *et al.*, 2006) squabble that women are expected to do more teaching, counselling and administrative work, which obstructs their comprehensive involvement in research. This idiom is applied to obstacles in the career of women and refers to the hidden, yet strong barrier that keeps women from rising to the higher levels of the corporate ladder, regardless of their qualifications or achievements. In the above scenario, Lariviere *et al.* (2011) highlight various factors responsible for male–female indifference in the research world that include more restricted collaboration networks of women, motherhood and the accompanying division of labour, women's rank within the hierarchy of the scientific community and access to resources, as well as their choice of the research-topics and level of specialisation. Besides, Lariviere *et al.* (2011); Leta and Lewison (2003) reveal that women were less likely than men to receive fellowships to supplement their salaries, signifying that some sexual discrimination may still be occurring women at research institutions particularly universities causing economic hindrance towards research productivity. However, Abramo *et al.*(2009); Eloy, Svider, Chandrasekhar, Husain, Mauro, Setzen and Baredes (2013); Holliday, Jagsi, Wilson, Choi, Thomas, and Fuller (2014); McDowell *et al.* (2005) state that for females, performance as well as network gap appears to diminish with career advancement. This could in part be due to the effect of motherhood, it being realistic that the experience of motherliness would be

more frequent and for age reasons. Moreover, Isfandyari-Moghaddam and Hasanzadeh (2013) highlight inhibitory factors repressing female researchers and conclude that the most hindered factors affecting negatively publishing of scholarly articles by females are 'Shortcomings in the existing laws,' 'Stereotypes and beliefs concerning women,' 'Family work,' 'Social and cultural contingencies,' 'Childcare', and 'Low collaboration with male colleagues and even low collaboration with their female colleagues. Accordingly, Abramo *et al.* (2013) observe that the various discriminations, obscurity in accessing funds and restrictions caused by family responsibilities, have a significant impact on the prospective forms in which women can extend their collaborations, and accordingly their scientific productivity and profession.

Problem

In contemporary society, women act as one of the strongest pillars of the nation. Yet, despite the fact, every nation is witnessing gender difference in almost every sphere with some exceptions. However, for the appropriate growth and development of the nation on every forefront, there must be a balance between males and females in every field i.e. from education to the profession. In this perspective the current study attempts to bring to light the contribution of women in the field of political research to ascertain whether the particular field suffers from gender difference or not.

Objectives

1. To study the status of women contribution in the field of Political Science.
2. To investigate the extent to which citation and publication patterns differ among men and women
3. To explore the collaborative pattern among genders.

Methodology

The study is based on the data gathered from journal, "Political Analysis".The proportion of the male and female authors listed in the publication was ascertained. "Political Analysis" is a highly cited journal in the field of Political Science confirmed according to the 2012 Journal Citation Reports, Thomson Reuters (2014 as cited in Political Analysis, 2015). The journal has been ranked 5 out of 157 journals with an impact fact factor of (4.655) and 5-year impact factor of 4.659. "Political Analysis" is also rated A* by the Australian Research Council (Political Analysis, 2015). Data gathered comprise a list of articles published by the contributing authors for the period, 2004-2014. To ascertain the gender of authors, their affiliated institutions, specified in the articles were visited. Furthermore, for the authors whose gender couldn't be ascertained, their names were checked through "Google Images" and also through "Facebook". Further, the articles were thoroughly analysed based on select parameters viz. gender contribution, gender association with universities and concerned departments, collaborative pattern among genders, and citation pattern of contributions to achieve the laid down objectives. Moreover, to divulge the citation pattern of articles Create Citation Report feature of Web of Science database of Thomson Reuter's was used to gather the relative data.

Data Analysis and Interpretation

Prime Contributor in Terms of Gender

Males emerge out to be major research contributors in contrast to females (Table 1).

Table 1:Prime Contributor in Terms of Gender

Gender	Number	%age
Male	383	85.87%
Female	63	14.13%
Total	446	100%

Article Contribution

Females represent a low productivity in terms of the research- publications in comparison to males (Table 2).The findings are also in tune with the studies carried out by Abramo *et al.*(2009); Dever *et al*. (2006); Eloy *et al*. (2013); Eloy, Mady, Svider, Mauro, Kalyoussef, Setzen, Baredes, and Chandrasekhar (2014); Garg and Kumar (2013); Gelinas and Gingras (2011); Goel (2002); Guerrero-Bote et al.(2009); Kretschmer and Kretschmer (2013); Larivie`re *et al.* (2011); Mauleon and Bordons (2006); Mauleon *et al.* (2013); Penas and Willett (2006); Prpic, (2002); Pudovkin *et al.* (2012) which also report low female productivity (in terms of research-publications) in comparison to their male counterparts.

Table 2:Article Contribution

Gender	Number of publications	%age
Male	536	88.30%
Female	71	11.70%
Total	607	100%

Note: Total no. of publications exceeds actual no. of publication

Since, for each individual author one or more than one publication is counted

Author affiliation

45research organisations are represented by female authors out of 142, while as all other research-organisations are dominated by male authors except four which include"Tsinghai University", "Netherlands Forensic Institute", "Temple University","Johns Hopkins Bloomberg School of Public Health","University of North Texas", "University of New Mexico", and "Florida State University"with no male contributors(Table 3)."Michigan University" and "University of South Carolina" have the highest numbers of female researchers followed by "University of Illinois" and "University of California" respectively. One thing to worth mention is that among the "independent scholar" category, there is no female.

Table3:Author affiliation

Name of the organisation*	Female	Male
Australian National university	2	6
Yale University	4	27
London school of Economics and Political Science	1	5
Michigan University	7	34
New York University	2	24
Binghamton	2	6
Ohio state University	2	7
Okhlama University	1	2
Penn State University	2	4
Texas A&M University	2	14
Tsing Hua University	2	0
University of Essex	3	6
University of Illinois	4	9
University of South Carolina	5	2
California Institute of Technology	1	9
University of Washington	2	23
University of Chicago	2	4
Princeton University	3	24
University of California	4	45
University of Pennsylvania	3	17
University of Amsterdam	1	1
Columbia University	3	21
Harvard University	3	26
Netherlands Forensic Institute	1	0
Temple University	1	0
Queensland Institute of Medical Research	1	1
Kellogg School of Management	1	2
University of Iowa	1	7
NICTA, College of Charleston	1	3
University of Alabama	1	3
Arizona State University	1	4
Duke University	3	10
University of Rochester	1	17
University of North Carolina	1	10
University of Colorado	1	2
Southern Illinois University	1	5
Eastern Illinois University	1	1
Ohio State University	1	2
Universidad del País Vasco	1	1
Tilburg University	1	3
Johns Hopkins Bloomberg School of Public Health	1	0
University of North Texas	1	0
University of New Mexico	1	0
Florida State University	1	0
Other Organisations (97)	0	245
Independent Scholar	0	1
Total	84	633

Note: No. of authors exceeds the actual no., since one author isaffiliated with more than one organisation

∗Organisation: It includes universities and other research based institutions

Departmental Affiliation

Majority of authors of both genders are affiliated with the departmentsconcerned with "Political Science". Furthermore, among rest of the 70 departments males are in lead except "Department of Psychiatry and Behavioural Sciences","Interdisciplinary Investigations", "Statistics and Knowledge Management", and"Department of Science"with zero male affiliation (Table 4).

Table4: Departmental affiliation

Department	No. of Authors	
	Male	Female
Political Science	351	46
Politics	51	3
Economics	33	2
Crawford School Economics & Govt.	6	3
Government	45	8
Humanities and Social Sciences	9	1
Department Of Sociology	8	3
The Bush school of Govt. and public services	3	2
Statistics	21	1
Psychiatry and Behavioural Sciences	0	1

Institute for Social & Policy Studies	17	1
MEDS Department	2	1
Interdisciplinary Investigations, Statistics and Knowledge Management	0	1
Science	0	1
Centre for Advanced Study of India	2	1
Genetic Epidemiology	1	1
Institute for Quantitative Social Science	5	1
Statistics, Statistical Machine Learning	6	2
Faculty of Social Sciences & Amsterdam School of Communication Research	2	2
Other departments (52)	90	0
Independent Scholar	1	0
Total	653	81

Note: No. of authors exceeds the actual no., since one authoris affiliated with more than one department

Collaborative Pattern Among Genders

Major share (140; 45.60%) of publications are contributed through male-male collaboration, followed by 99 (32.24%) independent male author publications and 59 (19.22%) male-female co-authored publications(Table 5). The findings are also in consistency with that of Isfandyari-Moghaddam and Hasanzadeh (2013); Moya-Anegon, Chinchilla-Rodriguez, Vargas-Quesada, Corera-Alvarez, Munoz-Fernandez, Antonio, Vicente, and Grupo(2007) asserting that females have low collaboration with male colleagues. Furthermore, a noteworthy thing to mention is that although independent female researchers contribute least number of (8; 2.61%) publications but only one publication is contributed through female-female collaboration. This is in tune with the study of Isfandyari-Moghaddam and Hasanzadeh (2013)which also affirms that females prefer less collaboration with the same gender.

Table 5:Collaborative Pattern Among Genders

Collaborative Pattern	Number of Publications	%age
Male	99	32.24%
Female	8	2.61%
Male-female	59	19.22%
Male-Male	140	45.60%
Female-Female	1	0.33%
Total	307	100

Citation Pattern in Terms of Citation Count of Publication

Citation count is the number of times an article is cited by other articles. It is considered (by some) to indicate the quality of the article i.e. if the article is cited often it must be an important or influential article (Reuters, 2009). Table 6 indicates that majority of 355 male and 51 female-authored publications receive citation count in the range of 1-20 followed by 71male and 12 female-authored publications with zero citations. However, highest citation count between 901-920 is received by only 3 male-authored publications to that of zero (0) female-authored publications. Accordingly, males lead in citation pattern of publications than females. This is in coherence with earlier studies (Eloy *et al*., 2013; Kretschmer and Kretschmer, 2013; Kretschmer, Pudovkin and Stegmann, 2012; Lewison and Markusova 2011; Maliniak et al., 2012; Paik *et al*., 2014) affirming that male- authored publication are more qualitative compared to female-authored publications in terms of citation pattern received.

Table 6:Citation Count of Publication

Range of citing articles	Male authored publications	Female authored publications
0	71	12
1-20	355	51
21-40	64	5
41-60	17	1
61-80	14	2
81-100	4	0
101-120	0	0
121-140	4	0
201-220	1	1
361-380	3	1
901-920	3	0
Total	479	57

Total no. of publications exceeds actual no. of publication

Since, for each individual author one or more than one publication is counted

Publication Pattern of Female-Authored Publications

Among female-authored publications, citation pattern in terms of citation count is highest for the publications having males as co-authors (Table 7). The findings are also in tune with studies conducted by Lewison and Markusova (2011); Kretschmer and Kretschmer (2013); Maliniak*et al.* (2012) that ascertain female-authored publications are often less cited than articles co-authored with at least one male author

Table 7: Publication Pattern of Female-Authored Publications

Article	Collaborative pattern of publications	Citation count
1	M-M-M-F	378
2	M-F	204
3	M-F	75
4	M-M-F-M	64
5	F-M	45
6	F-M	36
7	M-F-M	31
8	M-F	23
9	F-M-M	22
10	F-M	21
11	M-F	20
12	F-M	17
13	M-F	16
14	F-F-M	14
15	M-F	14
16	M-F	13
17	F-M	13
18	F	13
19	M-F-M	12
20	M-F-M-F	11
21	M-M-F	10
22	M-F	9
23	M-F-M	8
24	M-F	7
25	M-M-F-M	7
26	M-M-F	7
27	F	6
28	M-M-F	6
29	M-F-M	6
30	F-M-M	6
31	M-F	5
32	F-M-M	4
33	M-F	4
34	F-M	4
35	F-M-F	4
36	F	3
37	M-F	3
38	F	3
39	M-M-F	3
40	M-F-M	3
41	F-M-M	2
42	F-M-M	2
43	M-F-M-M	2
44	M-F-M	2
47	M-M-M-F	2
48	F	2
49	M-M-F	2
50	M-F	2
51	M-F	1
52	F-M-M-M	1
53	M-F-F-M	1
54	F-M	0
55	M-F	0
56	F	0
57	F-M	0
58	M-F	0
59	M-F	0
60	M-F	0
61	M-F	0
62	F-F-M	0
63	F-M	0
64	F-M	0
65	F-M-M	0
66	M-M-F	0
67	M-M-F	0
68	F	0

Note: M=Male, F=Female

Principal Author of Publications

Males lead as first author in the majority of 539 publications while females represent just 26 publications as principal authors. This is in tune with findings of Dever *et al.*(2006); Guerrero-Bote *et al.* (2009); Kretschmer, Kundra, Beaver and Kretschmer (2012); Leta and Lewison (2003) revealing that males outnumber females being first author of publication (Table 8).

Table 8:Principle Author of Publications

Gender	Number of publications as principal author	%age
Male	539	95.40%
Female	26	4.60%
Total	565	100

Findings and Discussion

Research Productivity

Research productivity of females (in terms of the research-publications) is far less than that of male counterparts. Low participation of females in research may be attributed to an array of factors including social, cultural, economic and legal, which include obscurity to balance between family and profession, women health problems, childcare, stumpy self-confidence, restrictive workplace, drawbacks in the existing laws and choice of the subject field. Isfandyari-

Moghaddam and Hasanzadeh (2013) also substantiate that 'stereotypes and beliefs concerning women,' 'family work, 'inadequate legal system', and 'social and cultural contingencies' are the most dominant inhibitory factors affecting pessimistically the research productivity of women. Moreover, "in certain cases situational and structural factors interact, as when negative academic department (workplace) norms or expectations interfere with family obligations and, in turn, differentially affect women's research" (Fox, 2010). Lariviere *et al.* (2011) state that the motherhood, choice of topic, restricted collaborative networks among women can be the possible reasons for low productivity among female researchers. Moreover, Larivie`re *et al.* (2011); Leta and Lewison (2003) reveal that women are less likely than men to receive fellowships to supplement their salaries ensuing economic barriers towards research. Furthermore, Alon and Gelbgiser (2010) corroborate that since males and females are likely to choose different majors (like ambition, self-image, conformity, insecurity, career plans, educational expectations, family plans, etc.) they are subject to different academic and social environments that in turn determine the gender difference in the subject field and ultimately gender difference in research productivity of a particular field.

Collaborative Pattern

Collaboration is one of the most important ways of addressing the needs of modern day research that is increasingly complex & demands an ever-widening range of skills (Gupta & Dhawan, 2008). As far as collaborative pattern is concerned, the major share of publication is contributed through male-male collaboration followed by independent male publications. This may be endorsed to social issues like family restrictions; physiological factors viz; lack or less communication with the opposite gender and various other ethical and moral issues that have a downbeat impact on the collaboration among opposite genders. Hunter and Leahey (2010) also confirm that the complexity of gender-based differences in collaboration intensifies when one considers the many non-work concerns that may tend to interrupt on collaboration. Furthermore, Bailey and Cooke (1998); Harvey (1998); Shauman and Noonan (2007) observe that females are frequently considered as "trailing partners" and thus are given less preference for collaboration in comparison to males. Accordingly, Tower *et al.* (2007) state that Higher Education Research Institute harangues that the females may possibly be publishing a lesser number of publications for the reason that they are not able to establish professional and collegial networks since females suffer from a lot of restricted opportunities for co-authorship (Stack 2004). In this context, Brooks *et al.* (2013) substantiate that "the potential to develop research networks, predominantly outside the institution, is reliant upon various factors like the mobility of staff, such as being able to travel to conferences and stay away from home. Besides, females with errands for children find it harder to arrange childcare". Furthermore, Hamovitch and Morgenstern (1977)observe that women have a propensity of greater child rearing responsibilities even when both spouses are academicians. Moreover, Bentley (2003 as cited in Tower *et al.* 2007); Jordan *et al.* (2008) highlight that women may suffer from gender selection bias since both males and females are inclined to collaborate with co-authors of the same gender.

Besides, while as a considerable no. of publications are contributed through the male-female collaboration and independent female researcher, merely one of the publications is contributed through female-female collaboration. This can be attributed to the fact that majority of academic and research organisation are still dominated by males. Bentley (2003 as cited in Tower *et al.*, 2007); Jordan *et al.* (2008) also authenticate that in view of the fact that high proportion of academic institutions is under-represented by women at higher academic levels, this gender selection bias may put women at a disadvantage for finding suitable research partners for collaboration. Accordingly, Brooks *et al.* (2013) reveal that lacks of networks in addition to individual circumstances are vitally illustrative variables in differential quality outcomes for males and females.

Quality of Publications in Terms Citations

Adams, Gurney and Marshall (2007); Hamilton (1990) state that the citation analysis of research publications act as an indicator of the quality and impact. Since, it has been comprehensively accepted that the number of times a paper is consequently referred to or 'cited' is an indication of its 'impact' on allied work. Therefore, a citation analysis reflects the impact; higher impact reflects higher quality, and thus, impact indices become a substitute for relative performance or excellence (Adams *et al.*, 2007). The quality assessment of publications in terms of citation pattern reveals that the males are in lead in citation pattern of publications than females. This may be due to fact that the male researchers are contributing more than that of female researchers. Stack (2004) also confirms the fact that males publish more than females. In view of the fact that, the constraints of collaboration and communique with colleagues or stumpy human relations (Barjak, 2006; Fonseca, Velloso, Wofchuck & De Meisv, 1997; Kyvik & Teigen, 1991), the family work, family obligation or family commitment (Prpic´, 2002) downbeat impact of motherhood (Abramo *et al.*, 2009) had a significant impact on the research productivity of female research and in turn on the citation count of publications. Moreover,Pezzoni *et al.* (2012) reveal that females perhaps may be less proficient to engage in the sort of competitiveness essential to build up broad peripheral networks of co-authorship and citation. Moreover, Warner (1981), (as cited

in Trifunac, 2005); Wenneras and Wold (1997) observe that the variations in the number of publications and citations amplifies during the first decade of a career but are upturned later on in a career, so that the variations in the productivity are reduced.

Furthermore, a notable thing to mention is that, although males are dominating as principle authors in terms quantity as well as quality. However, in case of co-authored publications involving opposite genders, the citation count is highest for the publication having femaleco-authors, which suggests that although due to varied restriction females tend to publish less but more qualitative work than males. Feller (2004); Garfield (1981); Garfield (1983); Nilsson (1997); Schiebinger (1999); Zuckerman (1997) (as cited in Moya-Anegon *et al*., 2007); Sonnert and Holton (1995) as cited in Maliniak *et al.*, 2012) also assert that males are likely to be more productive in terms of quantity, however even though females are less productive in terms of the number of publications, they produce higher quality work as measured by citations.

Order of Authorship

Males outnumber females as principle author. This may be endorsed to a range of facts that include under-representation of females in the majority of institutions, underrepresentation of females at superior academic ranks and in positions of headship. Bozeman and Gaughan(2011); Holliday *et al*., (2014); Tower *et al.*(2007); Svider *et al*., (2014) also affirm that in numerous fields, men are more likely to occupy academic leadership positions. In line with same Eloy *et al*. (2014); Holliday *et al*. (2014) reveal that women are mostly under-represented relative to men at senior academic level. Besides, due to various individual circumstances viz; family obligations, health issues, etc. females are enabled to dedicate full potential towards research ultimately effecting productivity of publications leading under-representation of females as first authors. Moreover, since scholarly, productivity is an imperative constituent of the academic rendezvous and promotion process, differences in gender representation may in turn potentially be associated to difference in research output (Svider *et al*., 2014).

Gender Structure in Research-Organisations

Preponderance of research-organisations is dominantly represented by male researchers. This may be attributed to the verity that majority of academic institutions are subjugated by males. Brooks *et al.*(2013); Bozeman and Gaughan (2011); Svider et al. (2014); Tower *et al.* (2007) also affirm that mainstream of academic institutions are under-represented by females. In the above scenario, Lewin and Duchan (1971) highlight that amid two equally qualified applicants being well thought-out for an academic position; a male would be preferred over a female leading their under-representation.

Suggestions

Ideal Work Environment

It is observed that the majority of research-institutions are dominated by males and in turn underrepresented by females leading differences in scientific productivity of gender. This may be due to lack of appropriate work environment that may not be evenly suitable for both genders. Since, it must be sturdily recognised that women are women; they cannot be expected to work in a similar manner as men. In view of the fact, that women have certain limitations predominantly those who have families and even those who do not have family care obligations- there are still certain roles that women are expected to fulfil as compulsory social obligations (Creating the ideal workplace for women, 2011). Consequently, it is imperative to focus on creating unbiased and ideal work environment to make certain that women can more efficiently balance family and work responsibilities that in turn will boost women participation in scientific work.

Reducing Family-Related Barriers

Family errands including homemaking, childcare and other social responsibilities have been recognized as an important obstruction towards the research-productivity of females. In view of the fact, it becomes imperative to reduce the burden of such tasks by mutually sharing the responsibilities of family-related obligations by both spouses in case of marital couples. Besides, even for those females who have or have not childcare and other marital obligations, family and friends must create an encouraging environment through various means including emotional and mental support that can relieve females from anxiety of work within as well as outside their homes. Accordingly, it will pay-off as an effective measure to eradicate family allied barriers and thereby enhancing their scientific productivity.

Elimination of Financial Barriers

Females continue to encounter prejudiced obstacles in their educational, as well as work environment with monetary barrier as one of the impeding hindrances towards quality work. Since, it has been robustly observed that females are more likely than men to be positioned in places that pay much less (Renzullia, Reynolds, Kelly & Grant, 2013). Commenting upon the same, Larivie`re *et al.* (2011); Leta and Lewison (2003) reveal that females are less probable than

males to receive fellowships to supplement their salaries. Moreover, Ashcroft, Bigger and Coates (1996) (as cited in Tower *et al.* 2007) argue that, "women are less likely to be part of a system of networking, and are, therefore, less often sponsored by influential scholars." Accordingly, it creates a sense of discontent among females that critically affect the quality of their work. Besides, this visibly signifies that gender discrimination is still prevailing leading disparities in scientific productivity of females. Consequently, it is of immense importance to create such a work structure and policies that will eradicate the various barriers including financial barrier and provide equal opportunities for both males and females while competing in the same field. That in turn will help to create an appropriate, tranquil and encouraging environment for females, which will help them to exhibit their full potential toward scientific productivity.

Conclusion

"Gender disparities persist in several areas of society and scientific research is no exception" (Paul-Hus, Bouvier, Ni, Sugimoto, Pislyakov & Larivière, 2014). Gender balance acts as a mirror to determine the development of the nation and hence acts as the strongest determinant of nation's growth and development. In the field of Political Science research, males are at the forefront contributing the major share of research-publications while as female researchers contributed least. This clearly signifies that women still lag behind compared to males indicating gender difference in various research parameters in that particular field. However, despite the fact females exhibit the potential to produce high quality research, which is evident from the fact that female-authored publications although less in number receive significant citation count in co-authored publications. As a result, in view of immense importance of Political Science research having a direct influence on the nation's growth and development, it becomes imperative to encourage more and more women to participate in political research through different means viz. motivation, funding, awareness, etc. to overcome this significant gender difference. Further, it is very much imperative to find and deliberate upon the causes that are impeding the research potential of women folk. Since, it is observed that after revamping the factors affecting gender status the future performance of females, given the opportunity, can rank as high as the recognized male leaders in a particular field (Trifunac, 2006). This in turn will lead into the inexistence of gender difference resulting into prosperous and developed nation.

References

Abramo, G., D'Angelo, C. A., & Caprasecca, A. (2009). Gender differences in research productivity: A bibliometric analysis of the Italian academic system. *Scientometrics,* 79(3), 517-539. DOI: 10.1007/s11192-007-2046-8

Abramo, G., D'Angelo, C. A., & Murgia, G. (2013). Gender differences in research collaboration. *Journal of Informetrics,* 7(2013), 811-822. DOI: 10.1016/j.joi.2013.07.002

Acker, S. (1980). Women, the Other Academics. *British Journal of Sociology of Education*, 1(1), 81-91.DOI: 10.1080/0142569800010106

Adams, J., Gurney, K., & Marshall, S. (2007). Patterns of international collaboration for the UK and leading partners (Summary report): A report commissioned by the UK Office of Science and Innovation. *Evidence*, 1-27. Retrieved from http://image.guardian.co.uk/sysfiles/Education/documents/2007/07/13/OSICollaborationSummaryRepo.pdf

Adler, R., Ewing, J & Taylor, P. (2009). A Report from the International Mathematical Union (IMU) in Cooperation with the International Council of Industrial and Applied Mathematics (ICIAM) and the Institute of Mathematical Statistics (IMS). *Statistical Science*, 24 (1), 1-14. DOI: 10.1214/09-STS285

Allen, G. I. (1997). Maximizing the Contribution of Women to Society. *Statement delivered to a group of diplomats at the U.N. 3 April 1997.* 1-8.Retrieved from http://www.christianmission-un.org/resource-center/manuscripts/pdf/maximizing-the-contribution-of-women-to-society.pdf

Alon, S. & Gelbgiser, D. (2011). The female advantage in college academic achievements and horizontal sex segregation. *Social science research*, 40(1), 107-119.DOI: 10.1016/j.ssresearch.2010.06.007

Ayalon, H. (2003). Women and men go to university: Mathematical background and gender differences in choice of field in higher education. *Sex Roles*, 48(5-6), 277-290. DOI: 10.1023/A: 1022829522556

Bailey, A. J., & Cooke, T. J. (1998). Family Migration and Employment: The Importance of Migration History and Gender. *International Regional Science Review*, 21(2), 99-118. DOI:10.1177/016001769802100201

Barjak, F. (2006). Research productivity in the internet era. *Scientometrics*, 68(3), 343-360. DOI:10.1007/s11192-006-0116-y

Bird, K. S. (2011). Do women publish fewer journal articles than men? Sex differences in publication productivity in the social sciences. *British Journal of Sociology of Education,* 32(6), 921-937. DOI:10.1080/01425692.2011.596387

Borrego, A., Barrios, M., Villarroya, A., & Olle, C. (2010). Scientific output and impact of postdoctoral scientists: A gender perspective. *Scientometrics*, 83, 93–101. DOI: 10.1007/s11192-009-0025-y

Borsuk, R. M., Budden, A. E., Leimu, R., Aarssen, L. W., &Lortie, C. J. (2009). The Influence of Author Gender,

National Language and Number of Authors on Citation Rate in Ecology. *The Open Ecology Journal*,2, 25-28. Retrieved from http://izt.ciens.ucv.ve/ecologia/Archivos/ECO_POB%202009/ECOPO1_2009/Borsuk%20y%20col%202009.pdf

Brooks, C., Fenton, E., & Walker, J. (2014). Gender and the evaluation of research. *Research Policy*, 43(6), 990-1001. DOI: 10.1016/j.respol.2013.12.005

Bozeman, B.,& Gaughan, M. (2011). How do men and women differ in research collaborations? An analysis of the collaborative motives and strategies of academic researchers. *Research Policy*, 40(10), 1393-1402. DOI:10.1016/J.RESPOL.2011.07.002

Correll, S. J. (2001). Gender and the career choice process: the role of biased self-assessments. *American Journal of Sociology,*106(6), 1691-1730. DOI: 10.1086/321299

Creating the ideal workplace for women. (2011). LRMG Performance Agency. Retrieved fromhttp://www.lrmg.co.za/news/450174.htm

Dever, M., Morrison, Z., Dalton, B., & Tayton, S. (2006). *When Research Works for Women Project Report.* Retrieved from http://monash.edu/equity-diversity/women/when-research-works.pdf

Eloy, J., Mady, L., Svider, P., Mauro, K., Kalyoussef, E., Setzen, M., Baredes, S., & Chandrasekhar, S. (2014). Regional differences in gender promotion and scholarly productivity in otolaryngology. *Otolaryngology-Head and Neck Surgery*, 150(3), 371-377. DOI: 10.1177/0194599813515183

Eloy, J. A., Svider, P., Chandrasekhar, S. S., Husain, Q., Mauro, K. M., Setzen, M., & Baredes, S. (2013). Gender disparities in scholarly productivity within academic otolaryngology departments. *Otolaryngology--head and Neck Surgery: Official Journal of American Academy of Otolaryngology-Head and Neck Surgery,* 148(2), 215-22. DOI: 10.1177/0194599812466055

Falch, A. (2010). Women's Political Participation and Influence in Post-Conflict Burundi and Nepal.*Peace Research Institute Oslo (PRIO).* Retrieved fromhttp://www.peacewomen.org/assets/file/Resources/Academic/partpol_postconburundinepal_falch_2010.pdf

Fletcher, C. (2007). Passing the buck: Gender and management of research production in UK Higher Education: Management perspectives from a case study. *Equal Opportunities International*, 26(4), 269-286. DOI: 10.1108/02610150710749395

Fonseca, L., Velloso, S., Wofchuck, S., & De Meis, L. (1997). The importance of human relationships in scientific productivity. *Scientometrics,* 39(2), 159-171. DOI: 10.1007/BF02457445

Fox, M. F. (2010). Women and men faculty in academic Science and Engineering: Social-organizational indicators and implications. *American Behavioral Scientist*, 53(7), 997-1012. DOI: 10.1177/0002764209356234

Garg, K. C., & Kumar, S. (2014). Scientometric profile of Indian scientific output in life sciences with a focus on the contributions of women scientists. *Scientometrics,* 98(3), 1771-1783. DOI: 10.1007/s11192-013-1107-4

Giannoula, F. (2014). The Economies of Balkan and Eastern Europe Countries in the Changed World (EBEEC 2013): Female university staff in Greece and Turkey. *Procedia Economics and Finance,* 9 (2014), 342-348. DOI: 10.1016/S2212-5671(14)00035-5

Goel, K. (2002). Gender differences in publication productivity in psychology in India. *Scientometrics,* 55, 243-258.DOI: 10.1023/A:1019667708012

Guerrero-Bote, V. P., Gómez-Crisóstomo, R., Romo-Fernández, L. M., & Moya-Anegón, F. (2009). Visibility and responsibility of women in research papers through the order of signatures: the case of the University of Extremadura, 1990–2005. *Scientometrics,* 81(1), 225-238. DOI: 10.1007/s11192-009-2122-3

Gupta, B. M., Kumar, S., & Aggarwal, B. S. (1999). A Comparison of productivity of male and female Scientist of CSIR. *Scientometrics*, 45, 269-289. DOI: 10.1007/BF02458437

Gupta, B. M., & Dhawan, S. M. (2008). Status of India in science and technology as reflected in its publication output in Scopus international database, 1997-2007. *India, Science and Technology.* Retrieved from

http://www.nistads.res.in/indiasnt2008/t5output/t5out1.htm

Hamilton, D. P. (1990). Publishing by and for? The Numbers. *Science. Retrieved from*

http://www.garfield.library.upenn.edu/papers/hamilton1.html

Hamovitch, W., & Morgenstern, R. D. (1977). Children and the productivity of academic women. *Journal of Higher Education*, 48(6), 633-645. Retrieved from

http://www.jstor.org/stable/1979009

Hartley, J., & Cabanac, G. (2014). Do men and women differ in their use of tables and graphs in academic publications?. *Scientometrics*, 98(2), 1161-1172. DOI: 10.1007/s11192-013-1096-3

Harvey, M. (1998). Dual-career couples during international relocation: The trailing spouse. *International Journal of Human Resource Management, 9*(2). DOI: 10.1080/095851998341116

Haynes, K., & Fearfull, A. (2008). Exploring ourselves: Exploiting and resisting gendered identities of women academics in accounting and management. *Pacific Accounting Review*, 20(2), 185-204. DOI:10.1108/01140580810892508

Holliday, E. B., Jagsi, R., Wilson, L. D., Choi, M., Thomas, C. R., & Fuller, C. D. (2014). Gender Differences in Publication Productivity, Academic Position, Career Duration, and Funding Among U.S. Academic Radiation

Oncology Faculty. *Academic Medicine*, 89(5), 767-773. DOI: 10.1097/ACM.0000000000000229.

Housri, N., Cheung, M., Koniaris, L., & Zimmers, T. (2008). Scientific impact of women in academic surgery. *Journal of Surgical Research*, 148(1), 13-16. DOI:10.1016/j.jss.2008.02.015

Hunter, L. A., & Leahey, E. (2010). Parenting and research productivity: New evidence and methods. *Social Studies of Science*, *40*(3), 433-451. DOI: 10.1177/0306312709358472.

Isfandyari-Moghaddam, A., & Hasanzadeh, M. (February 25, 2013). A study of factors inhibiting research productivity of Iranian women in ISI. *Scientometrics,* 95(2), 797-815. DOI: 10.1007/s11192-013-0980-1

Jordan, C., Clark, S., & Vann, C. (2011). Do gender differences exist in the publication productivity of accounting faculty?. *Journal of Applied Business Research (JABR)*, 24(3), 77-86. Retrieved from http://journals.cluteonline.com/index.php/JABR/article/view/1344/1327

Kaplan, S. H., Sullivan, L. M., Dukes, K. A., Phillips, C. F., Kelch, R. P., & Schaller, J. G. (1996). Sex Differences in Academic Advancement - Results of a National Study of Pediatricians. *New England Journal of Medicine*, 335, 1282-1290. DOI: 10.1056/NEJM199610243351706

Kobelyanska, L., Suslova, O., Yena, O., & Skorbun, I. (2011).Women's Participation in Politics and Decision-Making in Ukraine: Strategy Paper. *Ukrainian Women's Fund.* Retrieved from http://www.osce.org/odihr/85974

Kretschmer, H., Kundra, R., Beaver, D. D., & Kretschmer, T. (2012). Gender bias in journals of gender studies. *Scientometrics*, 93, 135-150. DOI: 10.1007/s11192-012-0661-5.

Kretschmer, H., & Kretschmer, T. (April 13, 2013). Gender bias and explanation models for the phenomenon of women's discriminations in research careers. *Scientometrics,* 97, 25-36. DOI: 10.1007/s11192-013-1023-7

Kretschmer, H., Pudovkin, A., & Stegmann, J. (2012). Research evaluation. Part II: gender effects of evaluation: are men more productive and more cited than women?. *Scientometrics,* 93 (1), 17-30. DOI: 10.1007/s11192-012-0739-0

Kyvik, S., & Teigen, M. (1991). Childcare, research collaboration, and gender differences in scientific productivity. Science, Technology and Human Values, 21(1), 54–71. DOI:10.1177/016224399602100103

Lariviáere, V., Vignola-Gagnâe, E., Villeneuve, C., Gâelinas, P., & Gingras, Y. (2011). Sex differences in research funding, productivity and impact: An analysis of Quâebec university professors. *Scientometrics,* 87(3), 483-498. DOI: 10.1007/s11192-011-0369-y

Leta, J., &Lewison, G. (2003). The contribution of women in Brazilian science: A case study in astronomy, immunology and oceanography. *Scientometrics*, 57*(*3), 339-353. DOI: 10.1023/A:1025000600840

Lewin, A.,&Duchan, L. (1971). Women in Academia. *Science*, 173(4000), 892-895. DOI: 10.1126/science.173.4000.892.

Lewison, G., &Markusova, V. (2011). Female researchers in Russia: have they become more visible?. *Scientometrics*, 89(1), 139-152. DOI: 10.1007/s11192-011-0435-5

Long, J. S. (2001). *From scarcity to visibility: Gender differences in the careers of doctoral scientists and engineers.* Washington, D.C: National Academy Press. Retrieved from http://www.nap.edu/download.php?record_id=5363

Lopez, S. A., Svider, P. F., Misra, P., Bhagat, N., Langer, P. D., & Eloy, J. A. (2014). Gender Differences in Promotion and Scholarly Impact: An Analysis of 1460 Academic Ophthalmologists. *Journal of Surgical Education.* DOI: 10.1016/j.jsurg.2014.03.015

Maes, K., Gvozdanovic, J., Buitendijk, S., Hallberg, I. R., &Mantilleri, B. (2012). Women research and universities: Excellence without gender bias. *League of European Research Universities.*Retrieved from

http://www.ub.edu/farmacia/recerca/LERU/LERU_Paper_Women_universities_and_research.pdf

Mahadevappa, T .C. (2012).Gender Bias and Social Justice. *IOSR Journal of Humanities and Social Science (JHSS),* 4(2), 42-44. Retrieved from

http://www.iosrjournals.org/iosr-jhss/papers/Vol4-issue2/H0424244.pdf

Maliniak, D., Powers, R. M., & Walter, B. F. (2012*). The Gender Citation Gap in International Relations.* Retrieved from

http://visionsinmethodology.org/wp-content/uploads/2011/09/the-gender-citation-gap-in-ir.pdf

Mathews, A., & Andersen, K. (2001). A gender gap in publishing?Women's representation in edited political science books. *Political Science & Politics*, 34(1), 143-147. DOI:10.1017/S1049096501000221

Mauleón, E., &Bordons, M. (2006).Productivity, impact and publication habits by gender in the area of Materials Science. *Scientometrics*, 66 (1), 199-218. DOI: 10.1007/s11192-006-0014-3

Mauleón, E., & Bordons, M. (2010).Male and female involvement in patenting activity in Spain, *Scientometrics*, 83, 605-621. DOI: 10.1007/s11192-009-0131-x

Mauleon, E., Hillan, L., Moreno, L., Gomez, I., & Bordons, M. (2013).Assessing gender balance among journal authors and editorial board members. *Scientometrics*, 95, 87-114. DOI: 10.1007/s11192-012-0824-4

McDowell, J. M., Singell, L. D., & Stater, M. (2005).Two to tango? Gender differences in the decisions to publish and co-author. *Economic Inquiry,* 44(1), 153–168. DOI: 10.1093/ei/cbi065

Mendlowicz, M., Coutinho, E., Laks, J., Fontenelle, L., Valencca, A., Berger, W., Figueira, I. & de Aguiar, G. (2011).Is there a 'gender gap' in authorship of the main

Brazilian psychiatric journals at the beginning of the 21st century. *Scientometrics,* 86, 27–37.DOI: 10.1007/s11192-010-0296-3

Moya- Anegón, F., Chinchilla-Rodriguez, Z., Vargas-Quesada, B., Corera-Alvarez, E., Munoz-Fernandez, F., Antonio, G., Vicente, G., …Grupo, S. (2007). *Scientific output by gender in Spain (Web of Science, 2004).* Retrieved from

http://www.ugr.es/~benjamin/ISSI-2007.pdf

Mohanty, P. C. (2005). Gender Bias - A Sociological Approach.*Orissa Review,* 44-47. Retrieved from http://orissa.gov.in/emagazine/Orissareview/jun2005/engpdf/gender_bias_a_sociology_approach.pdf

National Science Foundation, Division of Science Resources Statistics. (2003). Gender Differences in the Careers of Academic Scientists and Engineers: A Literature Review, NSF 03-322, Project Officer, Alan I. Rapoport. (Arlington, VA 2003). Retrieved from

http://www.nsf.gov/statistics/nsf03322/pdfstart.htm

Paik, A., Mady, L., Villanueva, N., Goljo, E., Svider, P., Ciminello, F., & Eloy, J. (2014). Research Productivity and Gender Disparities: A Look at Academic Plastic Surgery. *Journal of Surgical Education*, DOI: 10.1016/j.jsurg.2014.01.010

Paul-Hus, A., Bouvier, R. L., Ni, C., Sugimoto, C. R., Pislyakov, V., &Larivière, V. (2014). Forty years of gender disparities in Russian science: a historical bibliometric analysis. *Scientometrics*, *102*(2), 1541-1553.DOI: 10.1007/s11192-014-1386-4

Penas, C. S., & Willett, P. (2006). Brief communication: Gender differences in publication and citation counts in librarianship and information science research. *Journal of Information Science*, 32 (5), 480-485. DOI: 10.1177/0165551506066058

Pezzoni, M., Sterzi, V., & Lissoni, F. (2012). Career progress in centralized academic systems: social capital and institutions in France and Italy. *Research Policy*, 41(4), 704-719. DOI: 10.1016/j.respol.2011.12.009

Political analysis.(2015). *Oxford Journals | Social Sciences | Political Analysis*. Retrieved from http://pan.oxfordjournals.org/

Prpic, K. (2002). Gender and productivity differentials in science. *Scientometrics*, 55, 27-58.DOI: 10.1023/A:1016046819457

Kretschmer, H., Pudovkin, A., & Stegmann, J. (2012b). Performance evaluation. Part II: Gender effects of evaluation-Are men more productive and more cited than women? Scientometrics,. doi:10.1007/s11192-012-0658-0.

Pudovkin, A., Kretschmer, H., Stegmann, J., & Garfield, E. (2012).Research evaluation. Part I: Productivity and citedness of a German medical research institution. *Scientometrics,* 93(1), 3-16. DOI: 10.1007/s11192-012-0659-z

Ritchie, T. D. (2009). Gender Bias in research. In J. O'Brien, J. Fields, & E. Shapiro (Eds.), *Encyclopaedia of gender and society*, 2, 713-715.DOI: org/10.4135/9781412964517

Renzullia, L. A., Reynolds, J., Kelly, K., & Grant, L. (2013). Pathways to gender inequality in faculty pay: The Impact of institution, academic division, and rank. *Research in Social Stratification and Mobility,* 34 (2013), 58-72. DOI: 10.1016/j.rssm.2013.08.004

Reuters, T. (2009). *What is a citation count?*. Retrieved from

http://www.library.uq.edu.au/research/citation.html

Shauman, K. A., & Noonan, M. C. (2007). Family Migration and Labor Force Outcomes: Sex Differences in Occupational Context. *Social Forces*, *85*(4), 1735-1764. DOI:10.1353/sof.2007.0079

Stack, S. (2004). Gender, children and research productivity. Research in Higher Education, 45(8), 891-920.DOI: 10.1007/s11162-004-5953-z

Svider, P. F., D'Aguillo, C. M., White, P. E., Pashkova, A. A., Bhagat, N., Langer, P. D., & Eloy, J. A. (2014) (in press). (2014). Gender Differences in Successful National Institutes of Health Funding in Ophthalmology. *Journal of Surgical Education*, 1-9. DOI:10.1016/j.jsurg.2014.01.020

Tomei, K., Nahass, M., Husain, Q., Agarwal, N., Patel, S., Svider, P., … Liu, J. (2014).A gender-based comparison of academic rank and scholarly productivity in academic neurological surgery.*Journal of Clinical Neuroscience*, 21 (2014), 1102-1105. DOI: 10.1016/j.jocn.2013.11.006

Tower, G., Plummer, J.,&Ridgewell, B. (2011).A multidisciplinary study of gender-based research productivity in the world's best journals. *Journal of Diversity Management (JDM)*, 2(4), 23-32. Retrieved from

http://journals.cluteonline.com/index.php/JDM/article/view/5020/5111

Trifunac, M. D. (2006). A note on publication and citation rates of female academics in earthquake engineering. *Soil Dynamics and Earthquake Engineering*, 26(2006), 1063-1075. DOI:10.1016/j.soildyn.2006.05.011

Wenneras, C., &Wold, A. (1997).Nepotism and sexism in peer-review. *Nature*, *387*(6631), 341-343.DOI: 10.1038/387341a0