

VARIOUS POLITICAL AND SOCIAL CHALLENGES INCLUDING WARS AND DISPLACEMENT IN EMPOWERING WOMEN AND GIRLS IN SCIENCE

MORE FEMALE SCIENTIST IN THE WORLD WE WANT

Prof. Dr. Nilüfer Narlı,
Chair of Department of Sociology
Faculty of Economics, Administrative and Social Sciences, Bahçeşehir University, Istanbul, Turkey

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Corresponding author:

Prof. Nilufer Narlı

Department of Sociology, Faculty of Economics, Administrative and Social Sciences, Bahçeşehir University, Çırağan Caddesi, Osman Paşa Mektebi Sk.4-6, 34100 Beşiktaş, Istanbul, Turkey.

Tel: 0212.381.0444

Fax: 0212.381.0300

E-mail: nilufer.narli@eas.bahcesehir.edu.tr

Introduction and Background

Poor gender ratio in science and engineering has been a global concern, despite growing number of female scientists in the world [1]. Women's empowerment in science is key to achieve human progress and dignity and directly related to accomplishing SDG 16: "Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels".

What are the challenges that hinder women and girls' progress in science? Added to several challenges discussed below, wars and displaced population create obstacles for female education and women's advancement in science and technology. There are some challenges that have prevailed for the last two decades (e.g. economic insecurity) and new challenges that are the results of the new forms wars, civil wars and extremism (e.g., large scale armed conflicts that involves state and non-state actors which have produced large numbers of displaced women in the Middle East who lost their jobs and isolated elsewhere, many young displaced females and refugees and who have no access to formal education and who face health risks in conflict and displacement settings, and new forms of gender discrimination produced by religious extremism).

The challenges produced by Syria's armed conflict began in 2011 and its resultant displacement

problems given specific attention in the context of the paper. Prior to the war, "the primary school enrollment rate in Syria was 99 percent and lower secondary school enrollment was 82 percent, with high gender parity" [2] Due to the war and displacement, the school enrollment rate of Syrian children is lower, particularly those who are outside the refugee camps. In the case of Turkey, 90 percent of school-aged Syrian children in the 25 government-run refugee camps, who represent only 13 percent of the Syrian refugee school-aged population, regularly attend school; but outside the refugee camps in towns and cities where the larger majority of Syrian children live, the school enrolment is much lower (only 25 percent of them attended school in 2014-2015 [3], due to economic hardship, war traumas and social integration problems).

The major aim of the paper is twofold: to identify the social and political challenges, including those created by war situations, in empowering women in science; and to formulate key policy recommendations and to urge governments and people everywhere to fulfill their political and moral responsibilities for empowering women in science.

Beijing Declaration and Platform for Action (BPfA 1995 [4].) and the Post-2015 Development Agenda Empowerment of women in education and the sciences is the major issue addressed in the Beijing Declaration and Platform for Action (BPfA) , which

constitutes a global framework for gender equality and the empowerment of women and girls. Improving women's access to vocational training, science and technology, and continuing education are the objectives of the Beijing Declaration and Platform for Action (BPfA). The year 2015 marks the 20th anniversary of the BPfA and the review of its implementation.

The Post-2015 Development agenda aims at ending gender inequality by identifying the main challenges facing countries for empowering women. In the talks on the "Post-2015 Development Agenda", there is strong emphasis on the need for a transformative agenda that is both universal and adaptable to the conditions of each country, and that aims to move the world onto a sustainable path, gender equality and human dignity.

Despite international efforts to advance the goals of gender equality and sustainable development, the global data on the progress and remaining challenges in implementing the Beijing Declaration and Platform for Action shows that the promise of empowering women and girls has fallen far short of expectations. Women suffer discrimination in education, unemployment, underemployment, and lack of job safety and security; they are also under-represented in most government structures, corporations, and in the UN and its agencies. The under-representation of women in science and education also prevails. [5] The fact that the desired level of progress has not been achieved, yet the overall percentage of women receiving degrees in science, technology, engineering and mathematics has increased dramatically over the last two decades. [6] Gender parity in primary school enrolment and access to child and maternal health care and the level of women's political participation have steadily improved, thanks to international efforts under the Beijing Declaration and Platform for Action (BPfA) and The Millennium Declaration and the Millennium Development Goals (articulated in the year 2000).

In discussing and designing the policies for empowering women in science, one should know that social and political challenges that hinder women's advancement in science cannot be considered in isolation from their social and political context, and they cannot be separated from other aspects of development and empowerment, such as education, employment, human rights capacity building, and conflict prevention and management. The following are the major challenges in empowering women in science and education.

1. Structural and cultural discrimination against women

Some of the structural factors that prevent the empowerment of women in science are income disparity between men and women, women's lower access to education and health services, and the asymmetrical power relationships between men and women. Cultural factors include social norms, negative traditions (such as child marriage), and an exclusive focus on women's reproductive roles that all decrease education opportunities for women. New forms of extremism reinforce the negative traditions holding women back. Displaced women are more vulnerable to the subjugating and discriminatory impact of the extremist developments as seen in the cases of Iraq and Syria crises.

2. Bias against women

Biases against women's abilities and aptitudes for scientific work prevail and these biases often operate at an unconscious (implicit) level, despite explicit commitments to equality in many parts of the world. [7] Eradication of such biases requires a transformative and diverse approach and interdisciplinary insight.

3. Lack of role models, networking and encouragement

In many scientific fields, compared with men, the number of the role models is smaller for women, and their professional networks are less diverse and smaller. Women often obtain less overt encouragement from their significant others to advance in science or technology or to pursue an academic career [8].

4. Various forms of discrimination at the work place

Studies show that women are often the target of explicit discrimination, which include withholding a professional position [9], benefit or advantage based on gender, race, sexual preference, marital status, or age. They could be also victims of sexual harassment, an act of gender-based violence.

5. Inconveniency of balancing career and family life

Compared to men, women feel more pressure to balance career and family life. Often enduring hardship in this struggle, women tend to exit the academic path. This is why many more women than

men leave science soon after they begin academic employment, despite outperforming men academically.

6. Wars, conflicts and displaced population

Added to the disadvantages listed above, there are many other challenges that hinder advancement of women and girls in science and technology. One of them is the irregular migration of women, a process that includes a large number of women refugees displaced by wars, and civil wars. Massive displacement of the female population negatively affects women's education and employment and women's contribution to development and science. Many women in academia in Syria and Iraq or other countries are forced to leave their countries as refugees and lose their careers. Many displaced young women and girls are out of school and they face several social and mental health risks. In the case of Turkey, the educational barriers are harder for the displaced Syrian girls because of the economic discrepancies, who could be married as second wives to Turkish men and suffer the complications of multiple marriages. [10].

To protect them against all these risks, "the Secretary-General's synthesis report's commitment to gender equality, eradicating violence and abolishing child marriage" [11] is very important and it should guide us in formulating new policies.

Effort in Turkey to Empower Syrian Women in Science and Education. [12]

Based on the demographic data collected by the Disaster and Emergency Management Authority of Turkey (AFAD), private and public institutions are designing education programs [13] that target the refugee adults for their advancement in professional development. Protecting refugee women and children against social and mental health risks is another objective of this program that offers art education and several cultural and sporting activities, developed jointly in cooperation with the related stake holders, including universities, NGOS, local governments and government agencies. Added to institutional efforts of the Turkish government, there are several formal education [14] and adult education programs that seek to help the Turkish authorities in integrating the school-aged Syrian refugee children and youth into the Turkish public school system.

There is a need to increase the school enrolment of the Syrian children living outside the camps and to empower refugee women by providing adult education and skills for income generation.

Conclusion and Key Recommendations to Empower Women and Girls in Science

Given the fact that gender-based discrimination produces economically and socially inefficient outcomes, strong comprehensive goals to overcome structural impediments to gender equality are a precondition for a successful post-2015 outcome. This requires ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all while achieving gender equality and empowerment for all women and girls. [15].

The paper presents the following policy recommendations:

- Provide girls and women with skills and quality education and lifelong learning, from early childhood development to post-primary schooling, including life skills and vocational education and training, as well as science, sports and culture [16].
- Adopt a policy to encourage girls and young women to undertake scientific careers, and retain them in the careers
- Mainstream gender in all other policies, specifically research in order to mainstream the gender dimension in research content, including special tools [17].
- Reform universities and other research institutions through making their top decision-makers and human resource systems more gender-aware
- Provide special assistance and funding to the educational advancement of the displaced women whose talent could be lost in crisis conditions.
- Adopt a policy to sustain professional advancement of displaced female scientists

In order to achieve this all governments need to fully commit to empowering women and girls in science and education; and they must to have a strong policy and the political will for the execution of their policy as well as for the implementation of the post-2015 agenda objectives.

The Way Forward

- More women in science would foster discovery, excellence and innovation
- More women in science is a key to achieving a road to dignity in 2030

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- School-age children from five to 18 years old made up 32% of the refugee population in the camps in 2013. See AFAD (2013), *Syrian Refugees in Turkey, 2013 Field Survey Results*, Republic of Turkey Prime Ministry Disaster and Emergency Management Presidency, p.24. ¹The Syrian refugee population has high proportions of both the young and the working age population but a very small proportion of the older age group. AFAD (2013), *Syrian Refugees in Turkey, 2013 Field Survey Results*, Republic of Turkey Prime Ministry Disaster and Emergency Management Presidency, pp.24-25.
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