

The Arab Uprising: Indicators of Female Health, Development and Empowerment

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Citation: R. Deonandan , C. Stanley, T. El-Hindi: The Arab Uprising: Indicators of Female Health, Development and Empowerment. *The Internet Journal of World Health and Societal Politics*. 2012 Volume 7 Issue 2

Keywords: Gender Indicators Middle East Arab Women Health

Abstract

Objectives: Our objective was to explore whether traditional measurements of female empowerment used in population health and development studies could detect a role played by women in the 2011 Arab Spring revolutions. **Methods:** Twenty-one state-level indicators of health, development and female empowerment were extracted from public databases maintained by the World Bank, UNDP and CIA World Factbook and compared between the six so-called Arab Spring nations, as well as eleven Middle Eastern nations deemed to be at risk for revolution. **Results:** Population sex ratio parity and the percentage of women completing primary education was significantly greater ($p < 0.05$) in nations having successfully revolted, compared to all other examined Arab nations. **Conclusions:** The extent to which education and sex ratio parity are truly predictive of social engagement and change need to be more deeply investigated. While traditional health and development indicators ostensibly showing female social, legal and economic engagement failed to show an association between women's empowerment and Arab Spring revolution, given the documented role of women in the Egyptian uprising, this may be an indication of the insufficiency of existing indicators to detect the subtle and multifactorial role of women in dramatic political change.

Background

Beginning in December 2010, the Arab world was rocked by a cascade of grassroots-led popular uprisings among nations under autocratic rule. The media has dubbed this series of revolts "The Arab Spring". At the time of this paper's conception, six nations had either experienced full regime change or were experiencing ongoing uprisings, and, in some cases, armed revolt, with strong indications of impending regime change. Neighbouring countries were growing nervous about the revolutionary spirit spreading across borders.

In the wake of more heavy-handed interventionist strategies to compel regime change by external powers, most notably the American invasion of Iraq, theories abound over which are the most pertinent factors that have led to the more organic and popular uprisings of the Arab uprisings. Fundamental causes have been identified as systemic issues, such as widespread youth unemployment and a lack of political voice among the working classes [1]. Much attention has been paid to the rise of telecommunications and social media and the role of such technology in both informing and organizing the populace. Lesser note has been given to the innate characteristics of the revolting populations themselves.

Such characteristics can include education levels and the assumed extent to which formal education can create a leader class; the demographic profile of each population, testament to the populist power of youth; rates of unemployment or under-employment; the extent of the population's exposure to Western values, again presumably through formal education, especially among those who went abroad to study, but also via access to American and European media; the extent of the population's access to reasonably unbiased news and analysis that may show the ruling regime's actions in very harsh light; degrees of

wealth, and indeed of the gap between the poor and wealthy; and lastly female empowerment.

It is on the latter that this paper's analysis focuses. The rise of feminism has been considered the product of a so-called free society. But it is possible that some extent of female liberation may also play a role in encouraging revolt against autocracy, as per Astrid-Margrete Johannessen's belief that women play a strong societal role in combating social injustice [2]. Additionally, it has long been held that women's empowerment and development are also innately linked to their health and to measurements of a society's investment in women's health. Thus, if female empowerment is indeed a factor contributing to the Arab uprisings, markers of women's health and development may indeed be somewhat associated with an oppressed society's decision to rise up against its autocratic ruler.

The mechanism by which such an effect might operate is open to speculation. Our intent is to firstly correlatively explore the relationship between revolution and indicators of women's health and development status, using publicly available state-level data. We do this for three reasons: first, to introduce the possibility that population-level systemic women-based policies and processes may contribute to the opposition to autocracy; second, to explore the usefulness of existing indicator data in measuring politically relevant female empowerment, and to consider whether traditional health and development indicators are indeed sufficient to the task; and third, as a first step toward developing a multifactorial sociodemographic model for understanding the events of the Arab Spring.

Methods

At the time of this study's conduct, Egypt, Tunisia and Libya had successfully experienced regime change as a result of the 2011 uprisings, while Yemen, Bahrain and Syria were undergoing vociferous revolt. Eleven neighboring jurisdictions, though not part of the current swath of nations under transition, were also selected for analysis, due to their similarity in demographics, history, culture and political situation: Morocco, Algeria, Jordan, Palestine, Lebanon, Oman, UAE, Saudi Arabia, Qatar, Kuwait and Iraq.

Publicly available data from the World Bank online databases, the United Nations (most notably the UNDP's Human Development Report [3], whose last complete report was published in 2010) and the CIA World Factbook were extracted to compile a list of 21 standard indicators traditionally used to measure female health, development and social engagement at the population level

Most of the indicators are well established in the global health and development literature as intended measurements of overall women's empowerment, health and social status or (in the case of the human development index, the multidimensional poverty index, the inequality-adjusted human development index and life expectancy at birth) of their societies' wealth, health and development in general. With respect to gender issues, education, employment and health are considered measures of empowerment [4].

The widespread existence of genital mutilation can be considered an indicator of gender-based systemic oppression, as can polygamy. Personal status laws or codes are unique to Islamic nations and attempt to codify women's rights with respect to such things as marriage, divorce and inheritance. . The role of personal status laws in a discussion of female empowerment is debatable. Some see them as an effort to advance women's rights, while others see in some such laws limitations on the freedoms of women [5].

Of particular note is the Gender Inequality Index (GII), which has replaced the Gender-related Development Index (GDI) and the Gender Empowerment Measure (GEM) in the UNDP's Human Development Reports. The GII reflects general health, reproductive health, empowerment and labor market participation relative to those of men. Most importantly, the GII does not include individual income, which was a controversial component of both the GDI and GEM.

These indicators were stratified into three categories and compared qualitatively: (1) nations that have revolted; (2) nations undergoing revolution, as identified by prevailing opinion in news media; and (3) neighboring nations that are presently not under revolt. One-way ANOVA was conducted to determine whether there are differences between the means of indicators in the three categories of countries. In addition, two-sample t-tests were performed to compare nations who have successfully revolted with all

others.

Results

In some cases, data were only sporadically available. This is especially true for data regarding the number of women in the workforce (for Bahrain, Libya, Jordan, Lebanon, Oman, Saudi Arabia, Kuwait and Iraq). Data for Palestine was particularly problematic due to some data providers' omission of occupied territories. Indicator means and standard errors for the three categories of nations are summarized in table 1.

Data on the prevalence of female genital mutilation was poor. Additionally, both Egypt and Tunisia have an official personal code, while among nations currently undergoing a degree of revolution, only Yemen has an official code. For nations at risk for revolution, the authors were unable to identify official personal codes for Jordan, Palestine, Lebanon and Saudi Arabia. Thus personal status code and genital mutilation were removed from further analyses and do not appear in table 1.

The indicator most closely associated with female empowerment, the GII, showed no pattern with respect to the nations' revolution statuses. Indeed, for the most part, analyses of the selected variables failed to show appreciable differences between the three a priori defined categories of revolutionary progress. However, when comparing nations who had successfully revolted with all others, both the ratio of women to men in the population and the percentage of women completing primary school showed statistically significant differences ($p < 0.05$). The means of these two indicators are shown graphically in figures 1 and 2.

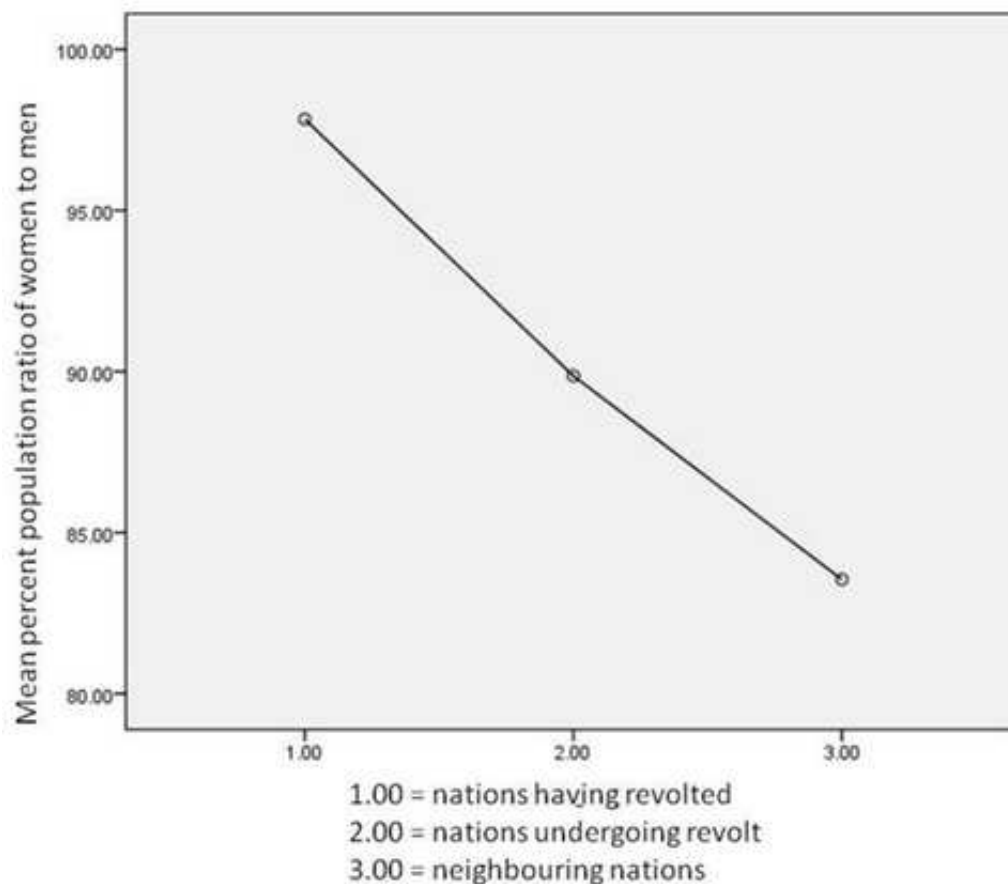


FIGURE 1 – The mean population ratio of women to men in three categories of Arab nations.

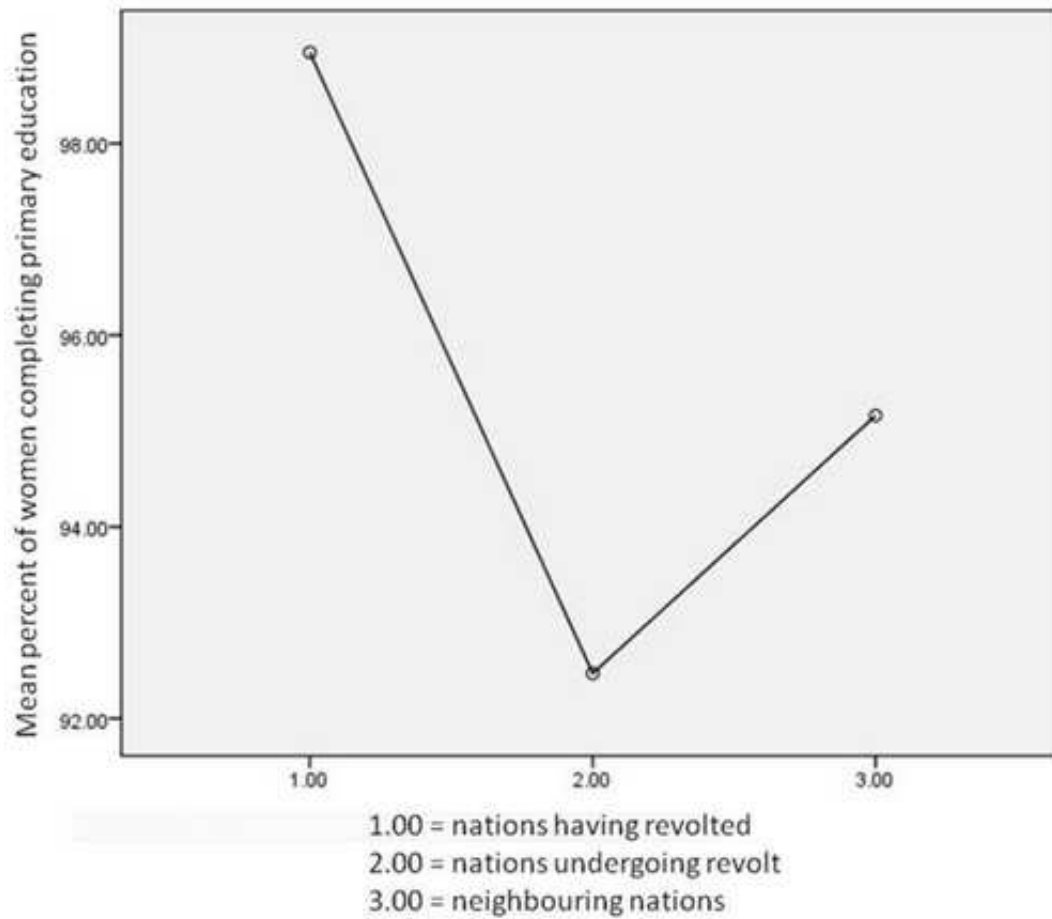


FIGURE 2 – Mean percent of women completing primary education in three categories of Arab nations

Indicator	Nations that have revolted		Nations under revolution		Neighboring nations	
	Mean	95% CI	Mean	95% CI	Mean	95% CI
* Rate of women to men in the population (%)	91.8	91.6, 92.7	89.9	89.6, 92.2	91.9	91.1, 92.6
* Percentage of women completing primary school (%)	93.0	91.9, 93.0	88.1	87.4, 88.9	92.7	91.9, 93.1
Female literacy rate (%)	75.1	66.1, 100.2	71.0	33.1, 128.9	76.9	68.8, 80.9
Maternal mortality ratio (deaths of women per 100,000 live births)	88.7	86.8, 92.6	91.7	89.1, 94.3	88.1	83.1, 93.1
Adolescent fertility rate (births per 1,000 women aged 15-19)	34.4	32.1, 36.3	38.7	36.4, 41.0	33.4	31.1, 35.3
Average number of live births per woman	2.1	2.0, 2.1	2.0	1.9, 2.1	2.1	2.0, 2.1
Share in parliament (observed vs expected (observed/expected))	0.1	0.0, 0.1	0.1	0.0, 0.2	0.1	0.0, 0.1
Percentage of parliamentarians that is female (%)	17.4	15.1, 19.9	8.4	5.1, 11.7	8.3	5.9, 11.8
Age at first marriage	24.1	23.6, 24.7	23.2	22.9, 23.5	23.1	22.6, 23.6
Percentage of women in workforce (%)	28.9	15.1, 42.7	38.0	14.8, 61.2	31.8	11.1, 52.4
Life expectancy at birth (years)	75.1	67.1, 83.1	71.3	61.1, 81.5	74.6	70.9, 78.1
Human development index	0.7	0.5, 0.9	0.6	0.2, 1.1	0.7	0.6, 0.8
Computers equipped (index)	0.1	0.1, 0.2	0.1	0.0, 0.2	0.1	0.0, 0.1
Number of demands of refugees	0.1	0.0, 0.1	0.1	0.0, 0.2	0.1	0.0, 0.2
Subsistence poverty index	0.02	0.00, 0.02	0.01	0.0, 0.0	0.01	0.00, 0.01
Gender equality index	0.6	0.5, 0.6	0.7	0.5, 1.1	0.6	0.5, 0.7
Rate of percentage of women in total population's primary school completing rates	93.0	91.6, 93.1	88.1	87.1, 89.1	92.7	91.1, 93.9
Women's labor expectancy of months of years in school	24.3	23.1, 25.4	23.7	22.1, 25.4	22.7	21.6, 23.7
Rate of women's to total population's labor expectancy of months of years of school	2.0	1.8, 2.2	1.8	1.6, 2.1	2.0	1.8, 2.1

TABLE 1 – Means and 95% confidence intervals for 19 selected indicators of female empowerment, for three categories of nations involved in the Arab Spring. There were no significant differences across all three categories, but (*) indicates those that showed significant differences between “nations that have revolted” and other two categories combined ($p < 0.05$).

Discussion

On one hand, the failure to find differences across the three categories of nations may be demonstrative of a lack of sensitivity on the part of extant indicators of female empowerment. On the other hand, the interesting finding that both population sex ratio and the percentage of women completing primary education are significantly higher in nations who have successfully revolted suggests at least two things. First, it suggests that there are meaningful, population-level avenues for cultivating the effect of women on social change. And second, it lends credence to the idea that population-level indicators can indeed be established for monitoring female empowerment in both health & development and political domains.

Our findings suggest that the closer that men and women approach numerical parity, the more likely their society is to seek more open political expression. Additionally, they suggest that greater investments in the basic education of women may lead to a similar outcome. More meaningfully, they point toward a need for a deeper investigation of the roles of both population pressure and public education in both the open social expression of women, and in the likely avenues through which such expression may manifest as social and political change.

Our ancillary intent with this study's approach was to open a discussion into the sufficiency of prevalent population indicators to detect elements of political change that may arise from the health and development experiences of the populace. It has become somewhat fashionable in recent months to propose new indices of prediction, with respect to the Arab uprisings. For instance, in February of 2011, an article in *The Economist* introduced the "Shoe-Thrower's Index" [6], which is based on the following population characteristics: the share of the population under 25 years of age, the number of years that the government has been in power, the degree of corruption and/or democracy, gross domestic product, and a measure of the society's degree of censorship. Notably, a sense of female liberty does not appear in this index.

The influence of woman's empowerment upon the events of the Arab Spring may have been effected in coordination with other factors, such as age distribution, the types of education and media that the population is exposed to, immeasurable values or social sentiments, the political histories and cultures of each state, and indeed the degree of discontent experienced within each population. In other words, the influence of women may be more subtle and multifactorial and therefore not captured in the gross state-level indicators identified for this study.

Anecdotal evidence suggests that women's movements have played a vocal and visible role in contributing to the dissent in several of the examined nations. Protests led by women-based labor unions played a role in catalyzing unrest in Egypt [7], for example. But, as demonstrated in our analyses, traditional population-based indicators, ostensibly meant to measure a degree of women's liberation and social engagement, are, for the most part, insufficient to properly measure either the readiness or capability of women to lead or partake in political revolution.

With the exception perhaps of the HDI and GII, the selected indicators were not originally intended to be used for political analysis purposes, but rather largely for the assessment of population health states. However, in recent decades these indicators have been employed widely in program analyses, often serving as proxy measurements for social progress. In the wake of Millennium Development Goal #3 (to promote gender equality and empower women), the need to apply such indicators to evaluate state-level gender-based interventions has accelerated.

The disconnection between general health and development indicators and gender empowerment realities has been observed before. A 2011 study of gender-sensitive policies in South Asia failed to show an impact of such policies on traditional development indicators [8]. The authors in that study concluded that the policies had in fact failed, while we would like to suggest that the indicators themselves are either insufficient or inappropriate for measuring nuanced multifactorial effects like gender empowerment.

Indeed, the quest to develop a more meaningful and robust indicator for gender empowerment continues, as in a Mexican attempt to create a compound measure based on life expectancy at birth and household decision-making powers, as well as the traditional development indicators explored in the present paper [9].

The Canadian International Development Agency's 1997 publication, "The Why and How of Gender-Sensitive Indicators: A Project Level Handbook" [10] suggests that functional measures of gender-based project-level indicators should embrace two domains simultaneously: first, levels of social participation, and second, levels empowerment (legal, political, economic and social). While the GII attempts to incorporate both domains into a single state-level indicator, it may nonetheless lack the resolution to sufficiently detect degrees of empowerment. In the context of analyzing factors associated with social and political revolution, all four levels of empowerment may play a significant role.

Conclusions

Existing publicly-available, state-level indicators of health, development and gender inequality are largely insufficient to the task of measuring the role of women's empowerment in the events of the so-called Arab Spring. However, increasing population sex ratio parity and increasing percentage of women completing primary education are significantly associated with Arab nations who have successfully experienced regime change. But most existing indicators may be inadequate to detect the empowerment factors at play in women's contribution to these uprisings. Multivariable methods, which would include both quantitative and qualitative measures of social, political and economic engagement, would be well applied to determining a more accurate picture of women's roles in the Arab Spring.

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