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What is the Role of Greater Gender Equity in Improving Health and Education in Developing Countries?

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Abstract: Nowadays, since health and education are essential to both individual happiness & countries' growth and at the same time, gender equity is not only a fundamental human right but also an essential part of realizing human potential, promoting sustainable development, and achieving peaceful societies, this paper is about the role of more significant gender equity in improving health and education in developing countries. Data is collected from Global Gender Gap Report and the World Bank dataset website in a period of 14 years until 2020. We choose 2 of 4 dimensions from the Global Gender Gap Index to become the new index as the X variable and two indicators literacy rate, adult total(%of people ages 15 and above) and mortality rate, infant(per 1000 lives birth)as the Y variable. We expect to have correlations between X and Y indicators by making a regression. The findings are aimed at raising the awareness of improving gender equity.

Keywords: gender equity, education, health, global gender gap index

1. Introduction

We live in a world where the gap in gender equity still exists even in developed countries such as Sweden, whose Gender Equality Index is 83.9_1, the highest among other countries.

The status of and role of gender equity are essential determinants of progress in improving health and education, not only because women constitute almost half of the human resources but also because the level of woman's characteristics such as extraversion, agreeableness, and conscientiousness is higher than men across most nations [1]. In particular, achieving more significant gender equity in developing countries will have more effect on improvement than in developed countries [2].

We focus on health and education because those two are vital for individual happiness and a country's growth. In addition, better health and education indicate that the potential economic growth will be maximized in terms of labor, which is one of four decisive factors for economic development and indicates that crime will decrease, resulting in higher social stability.

This paper uses data from the Global Gender Gap Report to create a new index and data from World Bank to make a regression. Due to simultaneity bias, we select two dimensions instead of four. The conclusion is that greater gender equality will improve health and education if there have a positive correlation.

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The paper is organized as follows. Section 2 reviews some of the former papers. Section 3 describes our data. Section 4 describes the method we used. The last section concludes.

2. Literature Review

2.1. Gender Equity and Health

Jahan studies the role that gender equity advocates play in the health sector reform of Bangladesh. One result of these advocates' participation in improvements to the health system is a shift from projects divided according to gender to a gender mainstreaming approach. However, though the advocates successfully engage in the process of reform design, their place in it is tenuous, so the government and international agencies do not prioritize their opinions. Therefore, to reinforce the position of gender equity in the health system, the capacity of those autonomous civil society advocates needs to be strengthened [3].

Another research study studies the relationship between gender equity and sexual and reproductive health in Eastern and Southern Africa (ESA). It finds that in ESA countries where the prevalence of maternal mortality and diseases such as HIV remains continuously high, it is of vital importance to audit gender equality within the health system, to encourage projects to conduct such evaluations, to implement gendered assessments, and to inquire and obtain feedback from both genders in the community to improve gender equity in sexual and reproductive health [4].

2.2. Gender Equity and Education

A study focusing on gender equity in education in Jammu and Kashmir, a state of India, found that with a series of measures imposed by the state government aiming at improving gender equity in education, such as pre-matriculation scholarship for girls, the rate of increase in the literacy ratio among both genders is better in this particular state than the entire country [5].

In both Bangladesh and Malawi, a dramatic rise in girls' elementary school enrollment rate has created the opportunity for many girls to enter school and potentially gain basic literacy and numeracy skills [6].

2.3. Global Gender Gap Report 2022

Global Gender Gap Report, published by World Economic Forum, provides an index called the Global Gender Gap Index, which takes account of four dimensions to measure the gender gap in all countries in the world: economic participation and opportunity, educational attainment, health, and survival, and political empowerment. Nevertheless, there can be some loopholes in health and education indicators. For example, indicators such as sex ratio can be biased. Therefore, Global Gender Gap Index will be improved, and a new index with only economic participation and opportunity, and political empowerment will be constructed in this study.

3. Data

Our data is excerpted from the Global Gender Gap Report and the World Bank dataset website, from 2006 to 2020 of the developing countries in all major parts of the world: Arab world, Africa East, Africa West, China, East Asia, and Pacific, India, Latin America, and Carrebian, Middle East, and Iran&Islamic republics.

4. Methodology

Our group decides to do quantitative research as it has many advantages, as follows:

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(1) A larger sample is needed since we decided to collect a large sample from many different countries worldwide.

(2) Data can be collected quickly.

(3) Systematic statistical tools are available to analyze data accurately.

Since we want to mainly discuss the topic of "What is the role of greater gender equity in improving health and education?" The X variable can be the specific form of gender equity, and the Y variable will also be the specific form of health and education. So in order to operationalize the research, we first decide to use the global gender gap index to measure gender equity. It is not necessarily true that highly developed countries should have higher scores. The index represents the extent of gender equity by measuring four key dimensions (Economic Participation and Opportunity, Educational Attainment, Health and Survival, and Political Empowerment) and 14 indicators that compose them [7]. We choose these dimensions and indicators because gender equality means that people of all genders have equal rights, responsibilities, and opportunities. However, women lack equal opportunities in these dimensions.

Table 1: original dimensions of the Gender Gap Index.

	dimensions
1	economic participation and opportunity
2	educational attainment
3	health and survival
4	public empowerment

However, as shown in Table 1, we can see two of the four dimensions: Educational Attainment and Health and Survival are the Y variable. Therefore, to reduce simultaneity bias, as mentioned before, we exclude these two dimensions and only consider the two dimensions left.

Therefore, our group creates a new index that measures gender equity. The revised gender gap index only contains two dimensions: Economic Participation and Opportunity, Political Empowerment. [8]. According to the Global Gender Gap Report, each dimension, it contains some indicators, as shown in Table 2.

Table 2: all the indicators and their explanations within the two dimensions.

Economic Participation and Opportunity	
Ratio	Explanation
Rate of labour-force participation,%	The proportion of the female population aged equals to or more than 15 years who are participating in the labor market by working or actively seeking for a job.
Estimated earned income, PPP,int.$	Female labor income is a measure of the extent to which women have economic resources at their disposal in the country. For each country, it is calculated as the ratio of females to males in the economically active population, the ratio of female to male wages, gross domestic product in constant international dollars in 2017, and the ratio of female to the male population.
Wage equality for similar work(survey), 1-7 scale	The question is, "To what extent do women have the same pay as men in your country?"(1 means not at all; 7 means fully).

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Table 2: (continued).

Legislators, senior officials, and managers, %	According to the International Labor Organization, the ratio of men to women in senior positions are the women who plan, direct, coordinate, and evaluate the overall activities of a business, government, and other organizations or organizational units and develop and review their policies, laws, rules, and regulations.
Professional and technical workers, %	According to the International Labour Organization, the ratio of men to women in professional and technical positions is the ratio of men to women who update existing knowledge, apply theories of science and art, or participate in advanced technical tasks.
Political Empowerment	
Ratio	
Women in parliament,%	Percentage of total parliamentary seats held by women. In the case of a bicameral parliamentary system, the numbers used are those of the House of Commons.
Women in ministerial positions,%	Percentage of women in ministerial positions in each government out of the total number of ministerial positions.
Years with women head of state (last 50)	A number of years that women have held the position of elected head of state or government in the last fifty years.

However, as the way of calculating the indicator 'wage equality for similar work' is too subjective, as shown in Table 2, it can lead to many biases. What's more, since the indicator 'estimated earned income' has already included the meaning of wage equality, we eliminated this indicator.

The basic construction of the overall index is shown below:

The score of each indicator is calculated based on the ratio of women to men. For example, a country with 25% of women in parliament is equivalent to a ratio of 25 women to 75 men, so the value is 0.333. And since women have less economic participation and political empowerment in current situations, if women-to-men ratios are more than 1, which means 3women are more advantageous than men in the certain indicator, the final score of this certain indicator will still be one as it means complete gender equity to some extent. Next, we are going to calculate the subindex score. If each subindex score is calculated only by averaging the indicators within it, it would indirectly give more weight to the measure that shows the largest standard deviation. Therefore, we first normalize the indicators by making the standard deviations of all the indicators equal. For example, the standard deviations of the three indicators are calculated in the Political Empowerment subindex. Then for each indicator, we divide 0.01 by the standard deviation to calculate the weighted average of the three indicators, as shown in Table 3. Therefore, each indicator can have the same influence on the subindex. For all subindexes, 1 is the highest possible score which means gender parity which, 0 is the lowest. Finally, the overall Global Gender Gap Index is calculated by simply averaging each subindex score [9].

Table 3: Standard deviations and weights of all the indicators within 2 dimensions.

Economic Participation and Opportunity			
Ratio	Standard deviation	Standard deviation per 1% point change	Weight
Labor-force participation rate,%	0.160	0.063	0.236
Estimated earned income, PPP,int.$	0.103	0.097	0.363

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Table 3: (continued).

Legislators, senior officials and managers,%	0.214	0.069	0.258
Professional and technical workers,%	0.262	0.038	0.142
Political Empowerment			
Ratio	Standard deviation	Standard deviation per 1% point change	Weight
Women in parliament,%	0.166	0.06	0.31
Women in ministerial positions,%	0.208	0.048	0.247
Years with female head of state	0.116	0.086	0.043

In terms of Y variable, we took indexes respectively for health and education. For education, we selected the joint primary school enrollment rate, youth literacy rate, and adult literacy rate. We chose primary school enrollment instead of high school or university enrollment as an indicator because primary education is the most essential factor of one's educational level. Therefore, primary school enrollment straightforwardly represents how well people in a country get an education. Both youth literacy rate and adult literacy rate are included as indicators of education because while youth literacy rate measures a short-term as well as more apparent impact, adult literacy rate measures the long-term effects. Therefore, we can see the effect of the improvement of gender equality on education in both dimensions and thus work out a more comprehensive conclusion. As for health, we have the infant mortality rate, the number of nurses and midwives (per 1,000 people), and the proportion of people using safely managed sanitation services (% of the population) as health indicators. Infant mortality rate can show the general health condition in a country since infants are vulnerable to change in the external environment. At the same time, they are also too weak to fight against diseases. In other words, changes in the natural or societal environment can have their most direct effect on infants. Therefore, infant mortality rate is a sound indicator of the socioeconomic and sanitary conditions.

In contrast to the crude death rate, the infant mortality rate is not affected by population composition and is directly comparable between countries. However, it does not fully reflect the death situation, including infant deaths, not other age groups. But eventually, in order to reduce the workload, we only choose literacy rate, adult total(%of people ages 15 and above) as the measurement of education and mortality rate, and infant(per 1000 lives birth)as the measurement of health [10].

After deciding on X and Y variables, we would like to use Excel regression analysis as a quantitative research tool. Table 4 shows all the combinations of X and Y. For each unit of the form, we will use Excel regression analysis to see the correlation between X and Y.

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Table 4: Standard deviations and weights of all the indicators within 2 dimensions.

Y \ X	Overall index	Labour-force participation rate,%	Estimated earned income,PPP,int.$	Legislators, senior officials and managers, %	Professional and technical workers,%	Women in ministerial positions, %	Years with female head of state(last 50)
literacy rate, adult total(% of people ages 15 and above)							
mortality rate, infant(per 1000 lives birth)							

After getting the result, we will first look at R^2, which is the value between 0 and 1. The smaller the value, the weaker the ability of the independent variable to explain the dependent variable. For example, if there is 0.110, which means that changes in the literacy rate explain only 11 percent of the change in the labor force. The rest of the problem with changes in the labor force cannot be explained by changes in literacy rate. The second step is to analyze the significance of X by checking the P value. If the P-value is less than 0.05, it indicates that X has a significant influence on Y. If not, it means there is no strong correlation between X and Y. Finally, we will determine the direction and degree of influence of X on Y by combining with the regression coefficient B value. If B is positive, it means X has a positive effect on Y, if B is negative, there is a negative effect.

5. Conclusion

We collect data from the World Bank dataset website in a period of 14 years until 2020. Indexes for health and education are included. In order to reduce simultaneity bias, as mentioned before, we decided to exclude these two dimensions and only consider the two dimensions left—economic participation and opportunity and political empowerment. Therefore, our group creates a new index that measures gender equity. Using quantitative research, we will see the effects of X indicators on Y indicators and use Excel regression analysis to determine the correlation between X and Y. Our proposed research has a potential impact as gender equity hugely influences developing countries in many aspects. Also, gender equity has been a constant focus all around the world. As the United Nations mentions, gender equality is not only a fundamental human right but also an essential part of realizing human potential, promoting sustainable development, and achieving peaceful societies.

We expect to have some positive correlations—for example, if the legislators, senior officials, and managers, % (females-to-males ratio) increases, then the literacy rate of adults increases.

We expect to have some negative correlations as well—for example, if the rate of women in parliament, % (females-to-males ratio) increases. The mortality rate of infants per 1000 lives birth will fall.

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Therefore, an increase in the index GEI may result in different correlations with indicators of health and education; greater gender equity improves health and education in developing countries.

References

[1] *Schmitt, D. P., Realo, A., Voracek, M., & Allik, J. (2008). Why can't a man be more like a woman? Sex differences in Big Five personality traits across 55 cultures. _Journal of Personality and Social Psychology, 94_(1), 168–182*

[2] *Susan S. Klein Achieving Gender Equity Through Education, Part V - Gender equity strategies for diverse populations*

[3] *Jahan, R. (2003). Restructuring the health system: experiences of advocates for gender equity in Bangladesh. Reproductive Health Matters, 11(21), 183–191.*

[4] *MacPherson, E. E., Richards, E., Namakhoma, I., & Theobald, S. (2014). Gender equity and sexual and reproductive health in Eastern and Southern Africa: a critical overview of the literature. Global Health Action, 7(1), 23717.*

[5] *Gul, S. B. A., & Khan, Z. N. (2014). ASSESSMENT AND UNDERSTANDING OF GENDER EQUITY IN EDUCATION IN JAMMU AND KASHMIR.*

[6] *Chisamya, G., Dejaeghere, J., Kendall, N., & Khan, M. A. (2012). Gender and Education for All: Progress and problems in achieving gender equity. International Journal of Educational Development, 32, 743–755.*

[7] *World Economic Forum. (2021) Global Gender Gap Report 2021. https://www.weforum.org/reports/global-gender-gap-report-2021.*

[8] *World Economic Forum. (2020) Global Gender Gap Report 2022. https://www.weforum.org/reports/global-gender-gap-report-2020.*

[9] *World Economic Forum. (2022) Global Gender Gap Report 2020. https://www.weforum.org/reports/global-gender-gap-report-2022.*

[10] *Databank.worldbank.org. (2022) Education Statistics - All Indicators | DataBank.https://databank.worldbank.org/source/education-statistics-%5e-all-indicators.*