



# Autoimmunity and WoMen

Kaveri Gurav

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# Few Facts and Figures!

Autoimmune disorders ( ADs)are more prevalent in women than men

- Affects 8% of population in U.S. and 78% of whom are women

Autoimmune disorders strike women 3 times more than men

Autoimmune disorders is one of the top 10 leading causes of all deaths among U.S. women age 65 and younger.

Autoimmune disorders are the second leading cause of chronic illness in the United States

Autoimmune disorders are the fourth largest cause of disability among women in the United States.

Around 50-60% of unexplained miscarriages and infertility among women in U.S. are attributed autoimmune disorders

## Sex Discrepancies With Related to Different Autoimmune Diseases

Disease	Female: male
Hashimoto's disease/ hypothyroiditis	50:1
Systemic lupus erythematosus	9:1
Sjoögren's syndrome	9:1
Antiphospholipid syndrome	9:1
Primary biliary cirrhosis	9:1
Mixed connective tissue disease	8:1
Chronic active hepatitis	8:1
Graves' disease/ hyperthyroiditis	7:1
<b>Rheumatoid arthritis</b>	<b>4:1</b>
Scleroderma	3:1
Type 1 diabetes mellitus	2:1
Myasthenia gravis	2:1
Multiple sclerosis	2:1
Chronic idiopathic thrombocytopenic purpura	2:1



# Why Autoimmune Disorders are More Prevalent Among Women?

- Don't know!
- female prevalence in autoimmune diseases is an old fact. It has been recognized for over 100 years!
- Political attention and research interest to understand the biology of sex and gender difference with respect to autoimmunity is a recent( 1996) development!



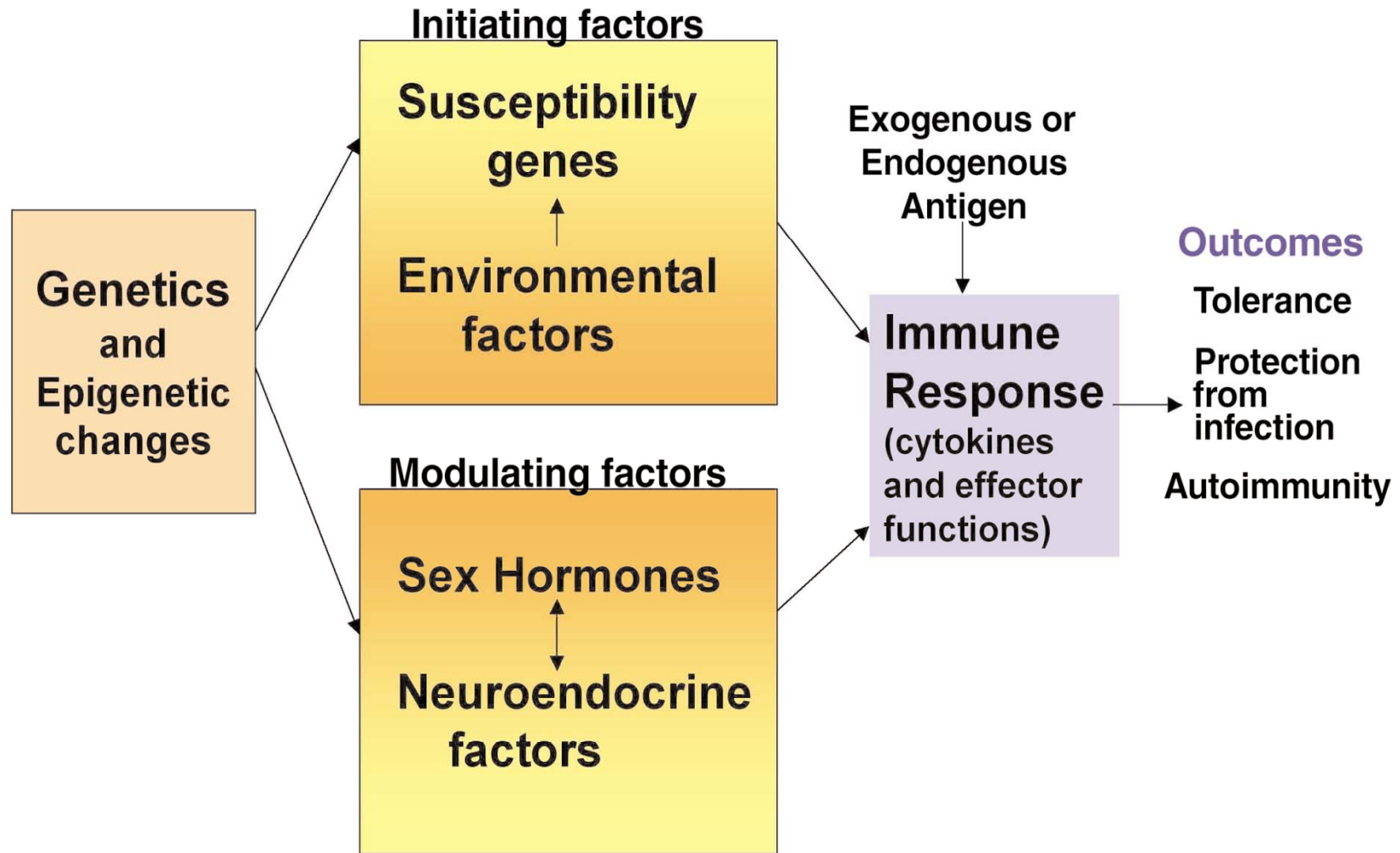


## **Biology Has Some Explanation!**

Sex differences in autoimmune disease are related to differences between the female and male immune systems. It has been recognized that females have increased immunoreactivity compared to males, suggesting that this leads to increased autoimmune disease in females

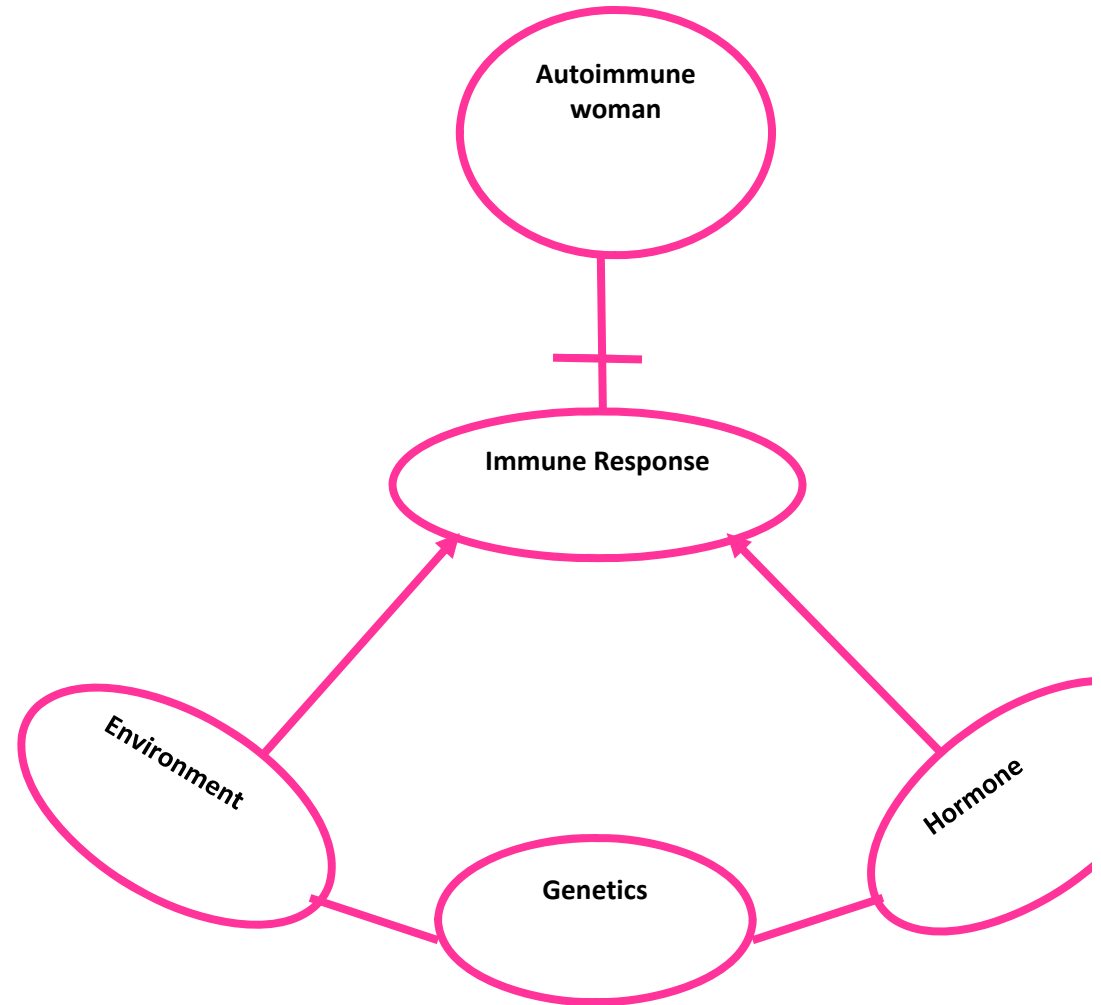


# A Model for the Multifactorial Nature of Autoimmune Disease



# Why Women? Still a Mystery!

Unless we know why biologically more women are susceptible for Autoimmune disorders than men, we will not be able to address this gender disparities biomedically



# Rumetoid Arthritis Among Women- A Case Study





# Rumetoid Arthritis Among Women- A Case Study

- Rheumatoid arthritis (RA) is an autoimmune disease that causes chronic inflammation of the joints. Rheumatoid arthritis can also cause inflammation of the tissue around the joints, as well as in other organs of the body
- Rumetoid Arthities( RA) as a disease that predominantly affects women, RA bears on a number of sex-related issues, including reproductive physiology, childbearing and childrearing, social behavior, and quality of life.



# Rheumatoid Arthritis

- The disease is more prevalent in the United States than in some other countries, prevalence is 4 times greater in women than men.

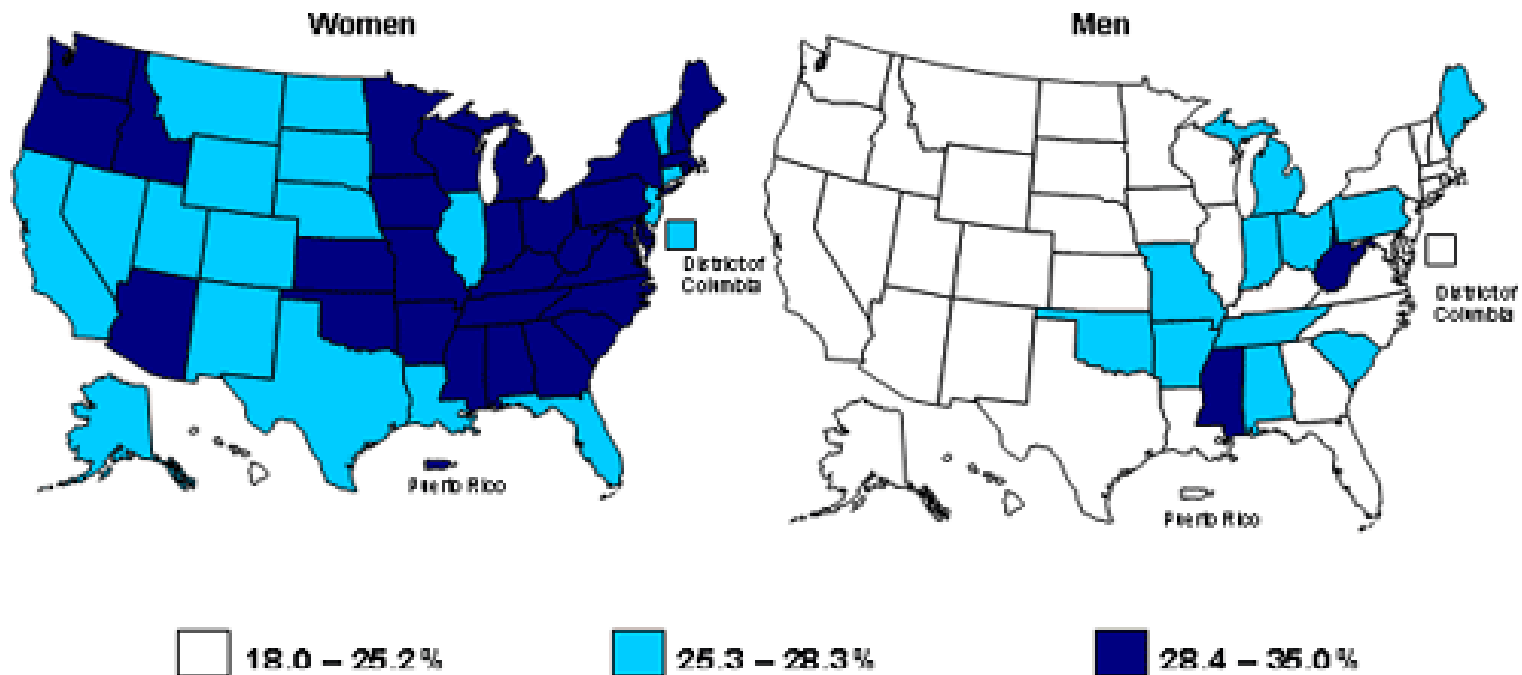
Deaths of Women by Age (in years): United States 1995

	1-4	5-14	15-24	25-44	45-64	>65	All ages
RA	0	0	1	14	183	1244	1442

Source: Stephen J. Walsh, et.al. (Am J Public Health. 2000;90:1463–1466)

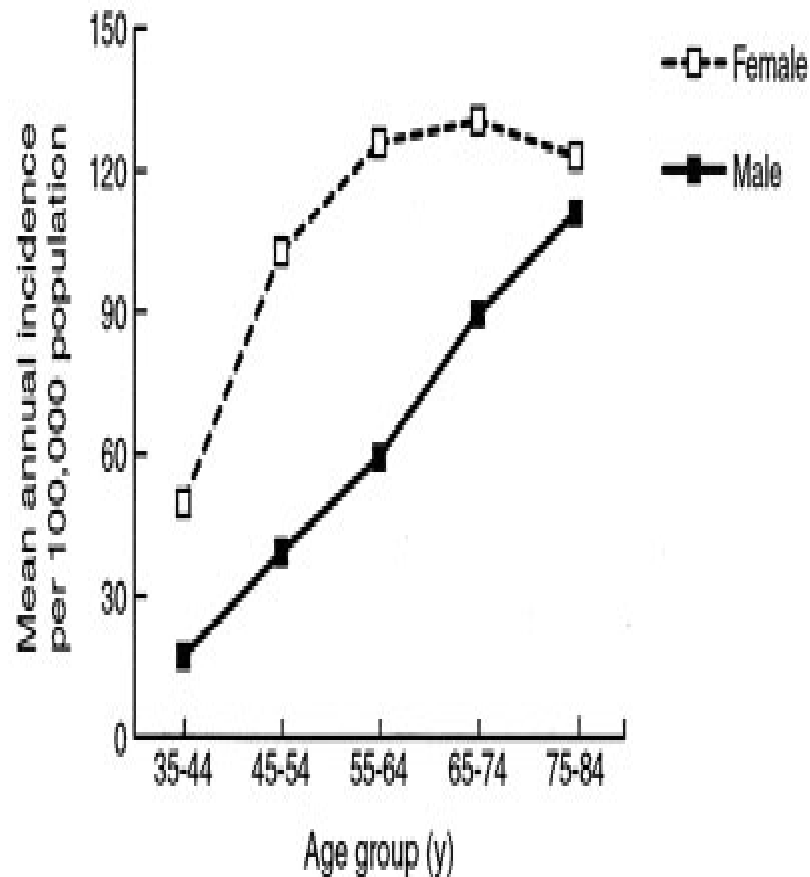


Arthritis is very common in every state, and women are affected more often than men.



Age-adjusted population prevalence of doctor-diagnosed arthritis, by sex, 50 U.S. states, Washington, D.C., and Puerto Rico, Behavioral Risk Factor Surveillance System, 2005

## Age-related Annual Incidence of Rheumatoid Arthritis in a US Population (Rochester, MN) Over the Age of 35



RA affect women during the most important period( child bearing and child rearing) of their life!

Rate of age of onset of RA increases with age, which is more among women than men

Age of onset in women appeared to be bimodal, with one peak between the ages of 31 and 35 and another after age 46 and for men it is over 35 years of age. (Weyand et al)





## Clinical Manifestations of Rheumatoid Arthritis in Women Versus Men

Clinical manifestation	Female patients,% (n =110)	Male patients,% (n =55)	<i>P</i>
Rheumatoid synovitis involving proximal or axial joints	66	78	Not reported
Extraarticular involvement Rheumatoid nodules	20	46	0.0001
Rheumatoid lung disease	4	26	< 0.001
Sicca syndrome	18	5	0.05
Frequency of joint surgery	50	27	0.01

# Disability, Pain, and Health-related Quality of Life

## WoMen

- Women scored high on the HAQ( Health assessment questionnaire) indicating greater functional impairment, perhaps due to greater disease severity in women

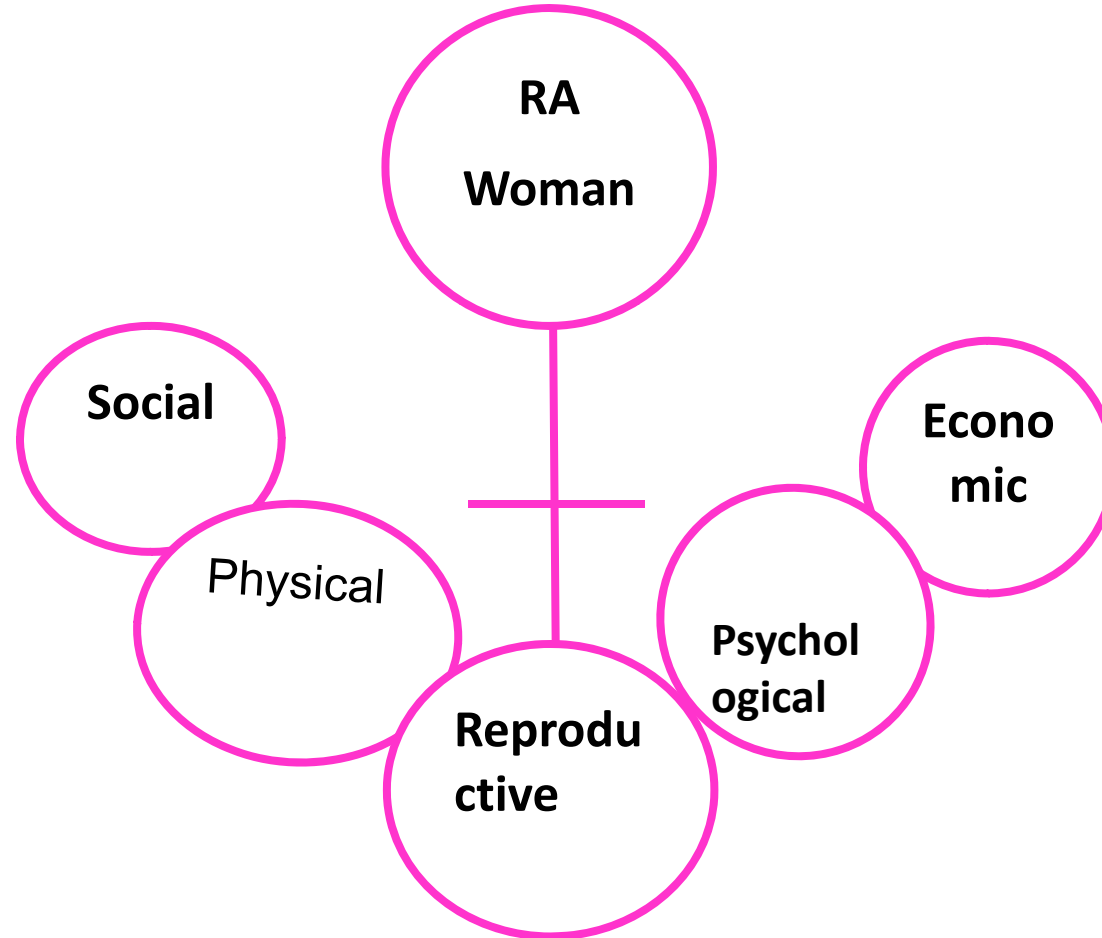


# Psychological Issues and Ability to Work

- The prevalence of depression has been shown to range from 15% to 42% of patients with RA and depressive symptoms affect more women than men(*Berkanovic E, et.al, Dowdy SW, et. al*)
- Inability to work outside the home increase social passivity and depression in women with RA, negatively affecting their psychological and physical health (*Reisine S, et al, Fyrand L,et al , Fifield J,et al* )
- Accordingly, a recent study has shown that women with RA were dissatisfied with those areas of their lives that threatened their independence(*Archenholtz B, et al*)



# RA Impact on Women- Multiple Spheres of Life!





# Current Policies and Programme for Women With RA in US

There are no policies( explicit) to address the gender disparity!

## Women In Government Launches New Rheumatoid Arthritis Policy Resource Center

Mary Brooks Beatty, President of Women In Government.  
*“Through the RA Policy Resource Center we hope to encourage state legislators to promote policy aimed at increasing awareness and promoting the early diagnosis and treatment of RA.”*

What is missing in the specific policies to address the psychosocial consequences of RA on women



# Current policies and programme for women with RA in US

CDC arthritis programme to improve the quality of life of people with arthritis:

- Self management
- Physical Activity
- Communications, campaigns

**Programmes remain underused!**

**Studies highlight the need for gender specific programmes ([Theis KA](#). Et al)**





# Conclusion

Gender disparity in the prevalence of autoimmune diseases is well documented, there is knowledge gap to address it through biomedically .Likewise, Rumetoid Arthritis continues to burden women in US and affect the quality of life. Unfortunately the gender disparities are not reflected in their current policies or programmes, which makes it a case to advocate for gender specific policies and programmes to mitigate the impact of disease on women!

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Thank y  u