Salute e Medicina di Genere

Valeria Raparelli, MD, PhD

Medicina di Genere:
dal piano Nazionale alla clinica,
la salute delle differenze

UNIVERSITY OF ALBERTA
FACULTY OF NURSING

Università degli Studi di Ferrara
Dipartimento di Medicina Traslazionale e per la Romagna

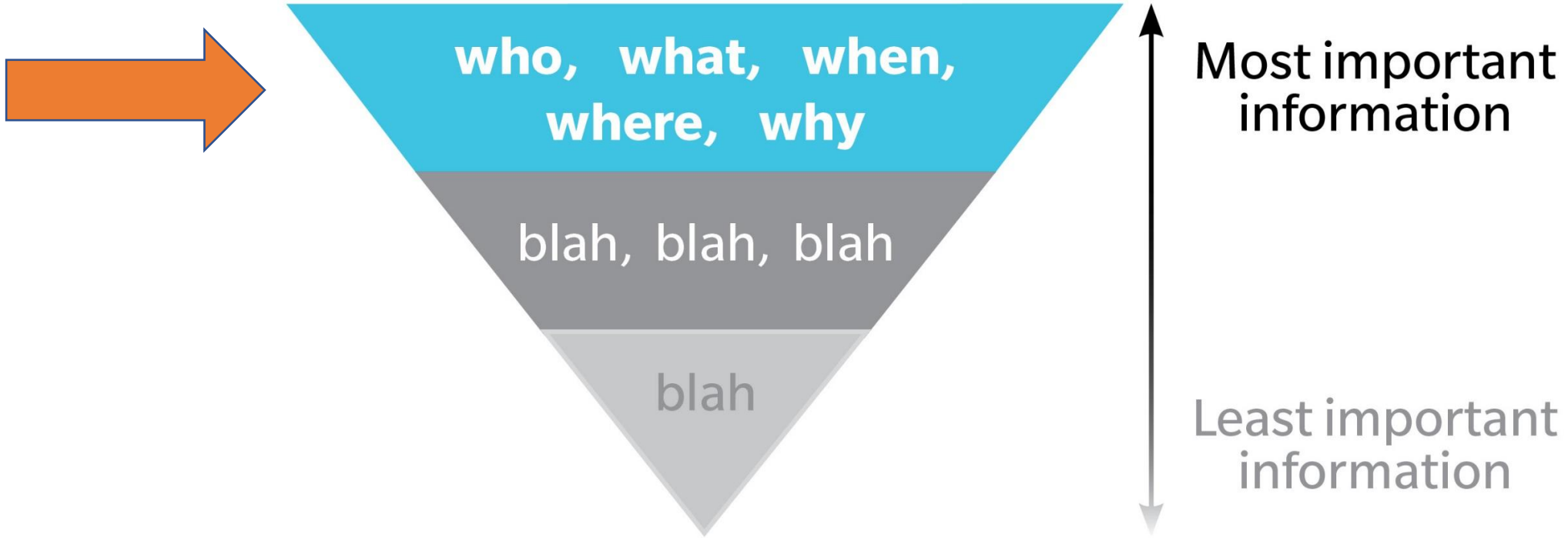
Centro Universitario di Studi sulla Medicina di Genere
University Center for Studies on Gender Medicine

GOING+FWD
GENDER OUTCOMES INTERNATIONAL GROUP: TO FURTHER WELL-BEING DEVELOPMENT

Conflict of Interest Statement: Nothing to disclose

Agenda

Gender and Health: what I have learned



JAMA Network Open

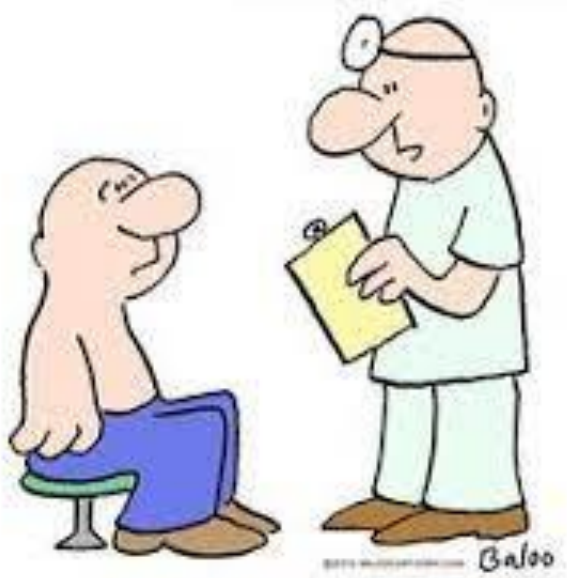
Original Investigation | Public Health

Accuracy in Patient Understanding of Common Medical Phrases

Rachael Gotlieb, MD; Corinne Praska, MD; Marissa A. Hendrickson, MD; Jordan Marmet, MD; Victoria Charpentier, MD; Emily Hause, MD; Katherine A. Allen, MD; Scott Lunos, MS; Michael B. Pitt, MD

Table 4. Statistically Significant Demographic Associations With Correct Understanding of Jargon Phrases on Multivariable Logistic Regression[a]

Phrase	Demographic association with correct understanding	Adjusted odds ratio (95% CI)	*P* value[b]
Your blood culture was negative	Older age (each year) associated with increased understanding	1.03 (1.00-1.06)	.03
The findings on the x-ray were quite impressive	Younger age (each year) associated with increased understanding	0.96 (0.94-0.99)	.002
You are to have nothing by mouth after 4 PM	Older age (each year) associated with increased understanding	1.03 (1.01-1.06)	.002
	Graduate degree associated with increased understanding compared with associate's degree or lower	3.33 (1.39-7.99)	.007
	Bachelor's degree associated with increased understanding compared with associate's degree or lower	2.23 (1.00-4.95)	.049
Your chest x-ray was unremarkable	Graduate degree associated with increased understanding compared with associate's degree or lower	3.45 (1.35-8.87)	.01
You will need to be NPO at 8 AM	Female gender associated with increased understanding	5.65 (1.59-20.13)	.008
Have you been febrile?	Female gender associated with increased understanding	5.90 (1.31-26.71)	.02



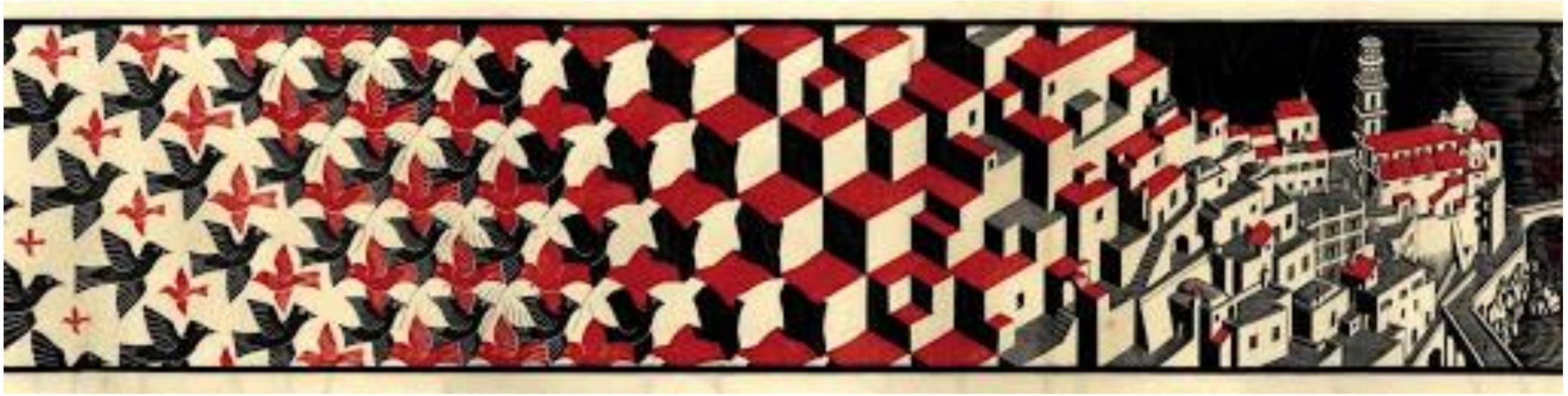
8 Billion people

15/11/2022 the United Nation's World Population Prospects 2022 report.

PAST	PRESENT	FUTURE
Intuition Medicine	Evidence-based Medicine	Precision Medicine
Signs and Symptoms	Clinical Trials	Algorithms

The RIGHT therapeutic strategy
FOR the RIGHT person
AT the RIGHT time

Embrace the complexity that a person holds…
when it comes to health

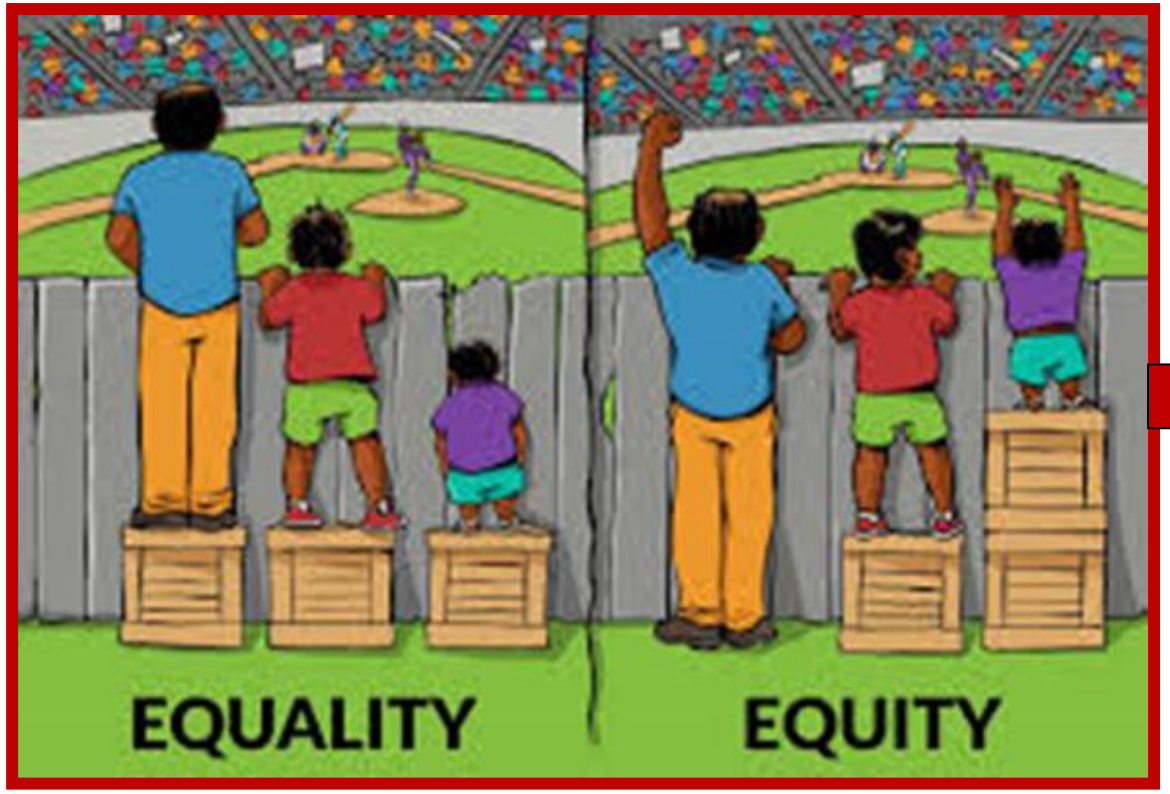


Escher - Metamorfosi

Consider changes over time and across countries

Look over the hedge…

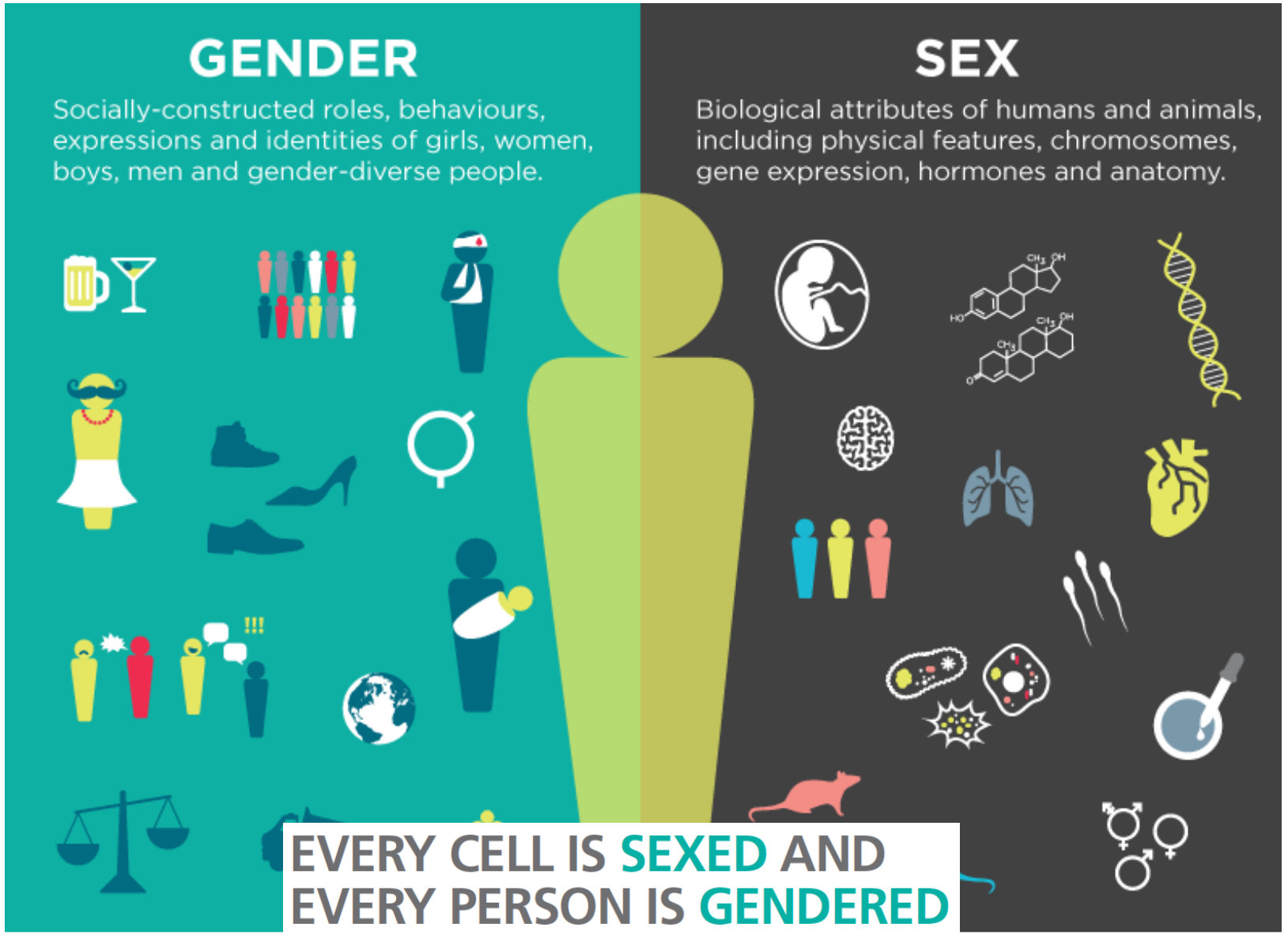
Sex-/Gender- Specific Approach -> Precision Medicine -> Equity



Multidimensional
Global (holistic)
Approach to Health

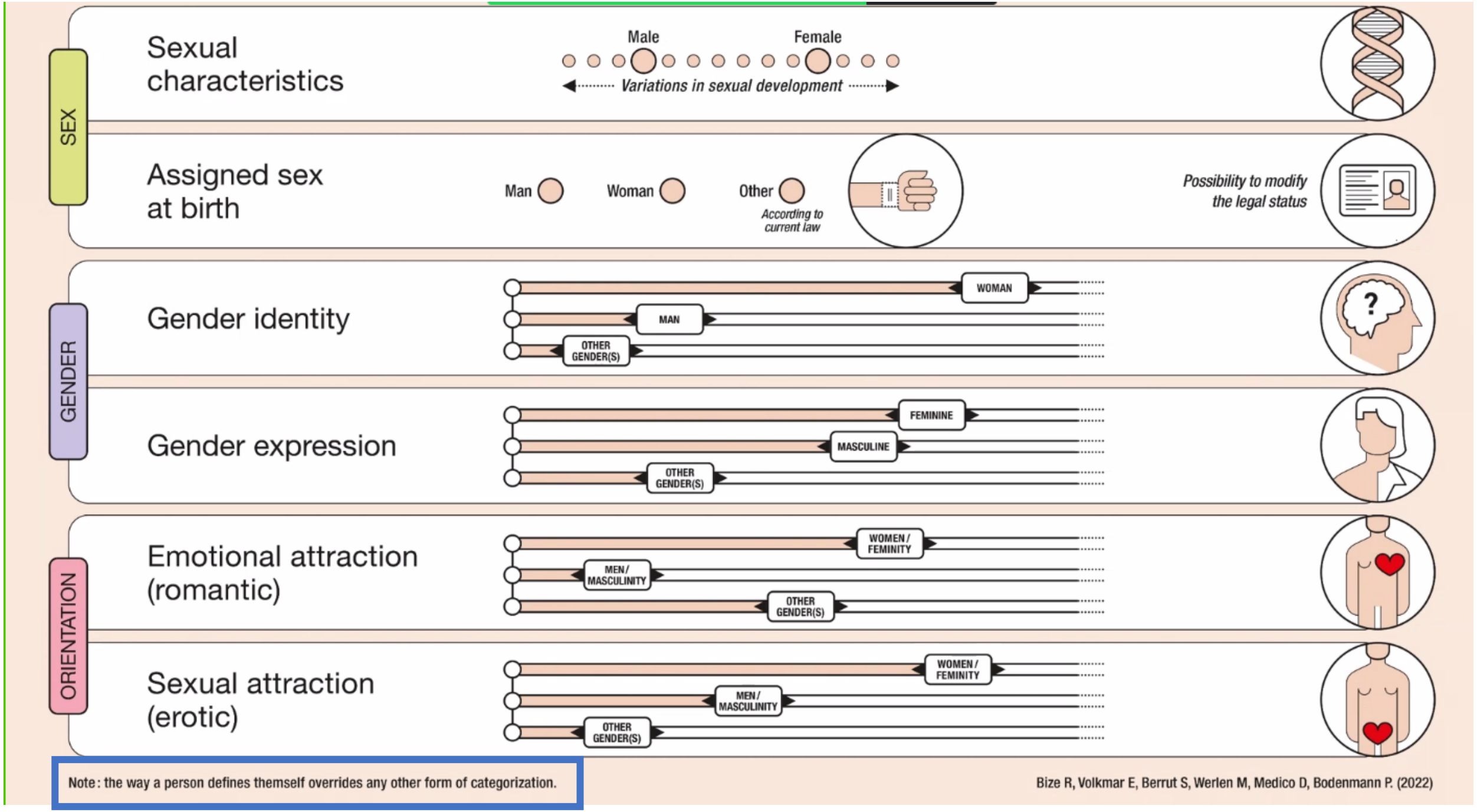
….take into account INDIVIDUAL VARIABILITY in genes, environment, and lifestyle for each person… provides strategies that will work in which groups of people

WHAT



SEX AND GENDER ARE NOT SYNONIMOUS

CIHR IRSC
Canadian Institutes of Health Research
Instituts de recherche en santé du Canada



Note : the way a person defines themself overrides any other form of categorization.

Bize R, Volkmar E, Berrut S, Werlen M, Medico D, Bodenmann P. (2022)

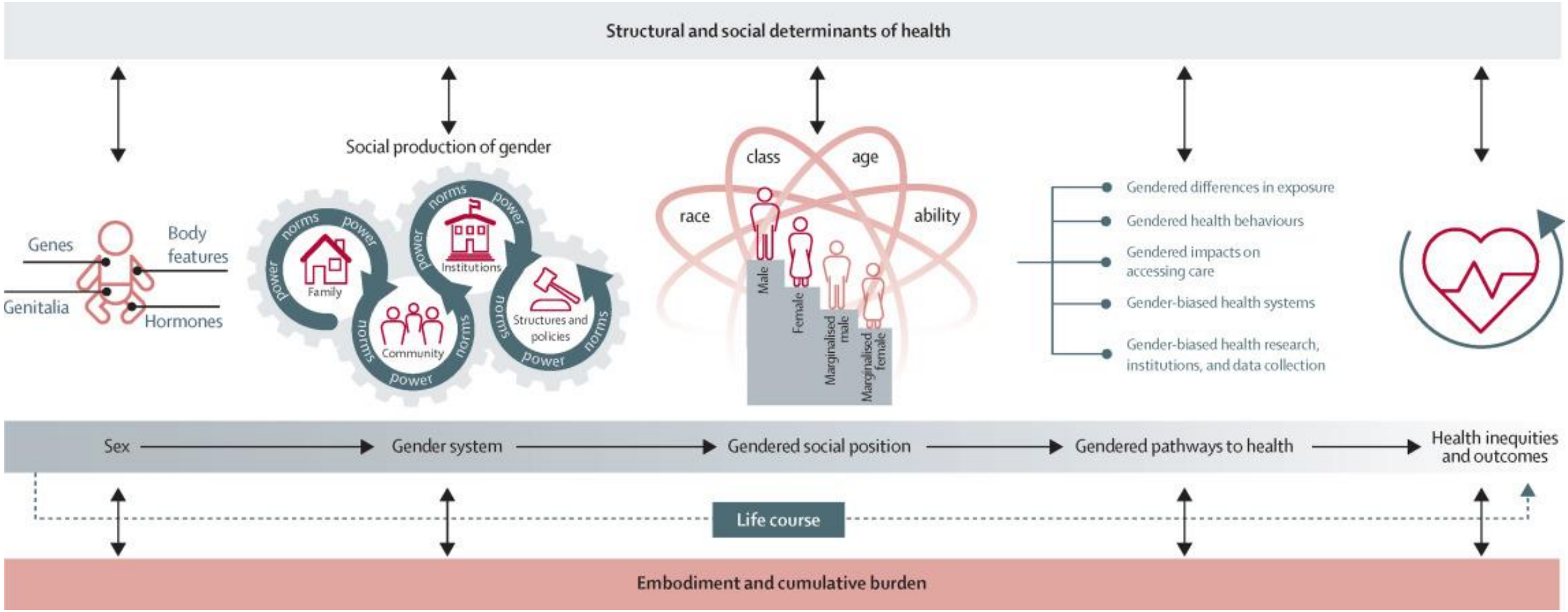
WHAT is (sociocultural) gender …

Da dove veniamo? Chi siamo? Dove andiamo? (1897)

P Gauguin

WHAT

The intersection of sex and gender



Heise L, et al. Lancet. 2019;393:2440-2454.

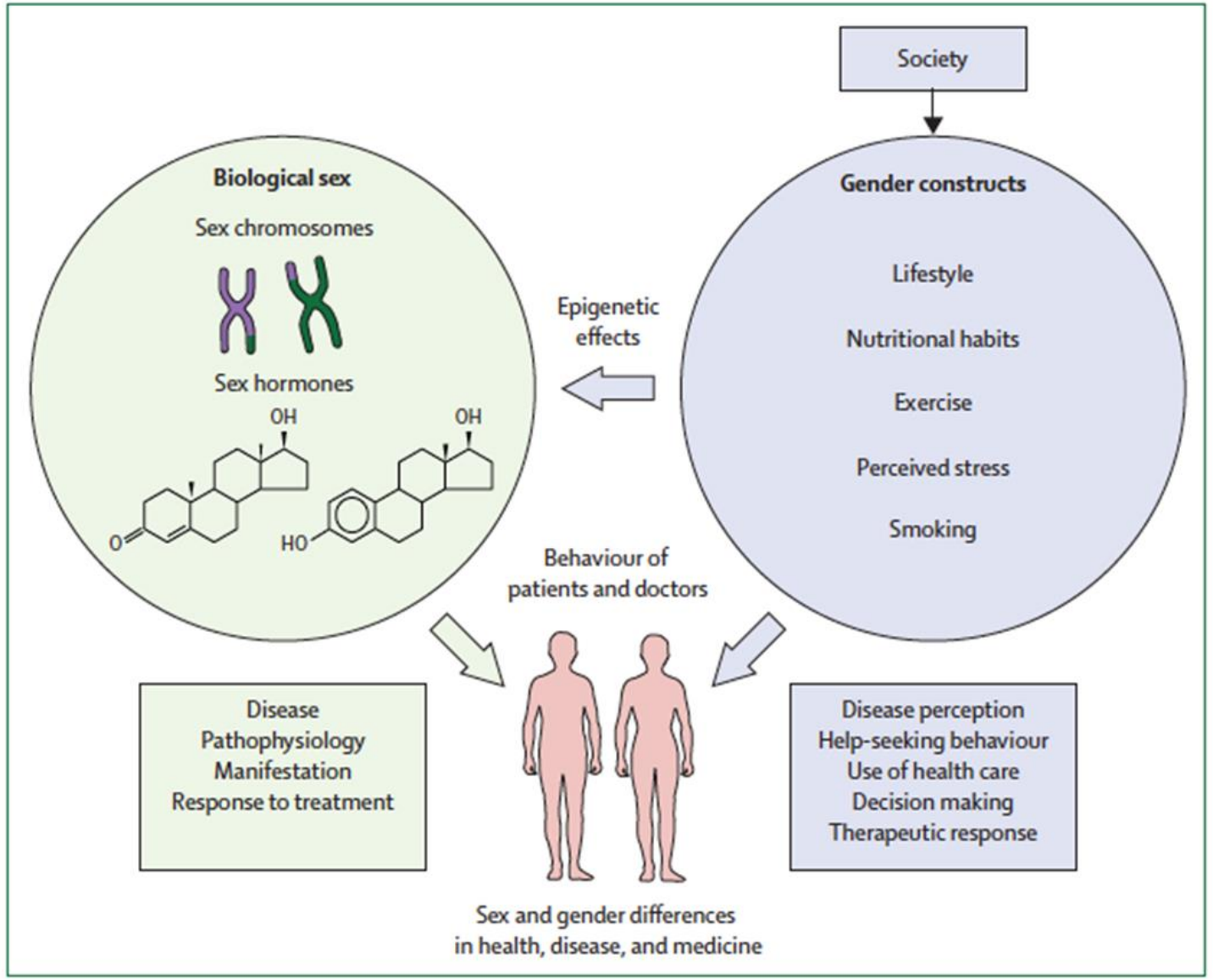
WHY Why gender and diversity in public health interventions?

Dimensions	Values/Goals
Ideology	• (Health) Equity • Remove health inequalities • Social justice • Fight discrimination • Support fundamental rights
Outcomes	• Health promotion for women and men • Better quality of life
Practice	• Transdisciplinary teams working on intersectional issues
Empowerment	• Support informed choice • Offer tools for behavioural change • Acceptance of people's lifestyle choices
Economy	• Achieve effectiveness • Reduce costs through improvement of measures
Policy	• Set reasonable goals for health based on differentiated analysis • Maintenance of current state can be a target

Oertelt-Prigione S et al J Womens Health 2017

WHY Sex and gender: modifiers of health, disease and medicine

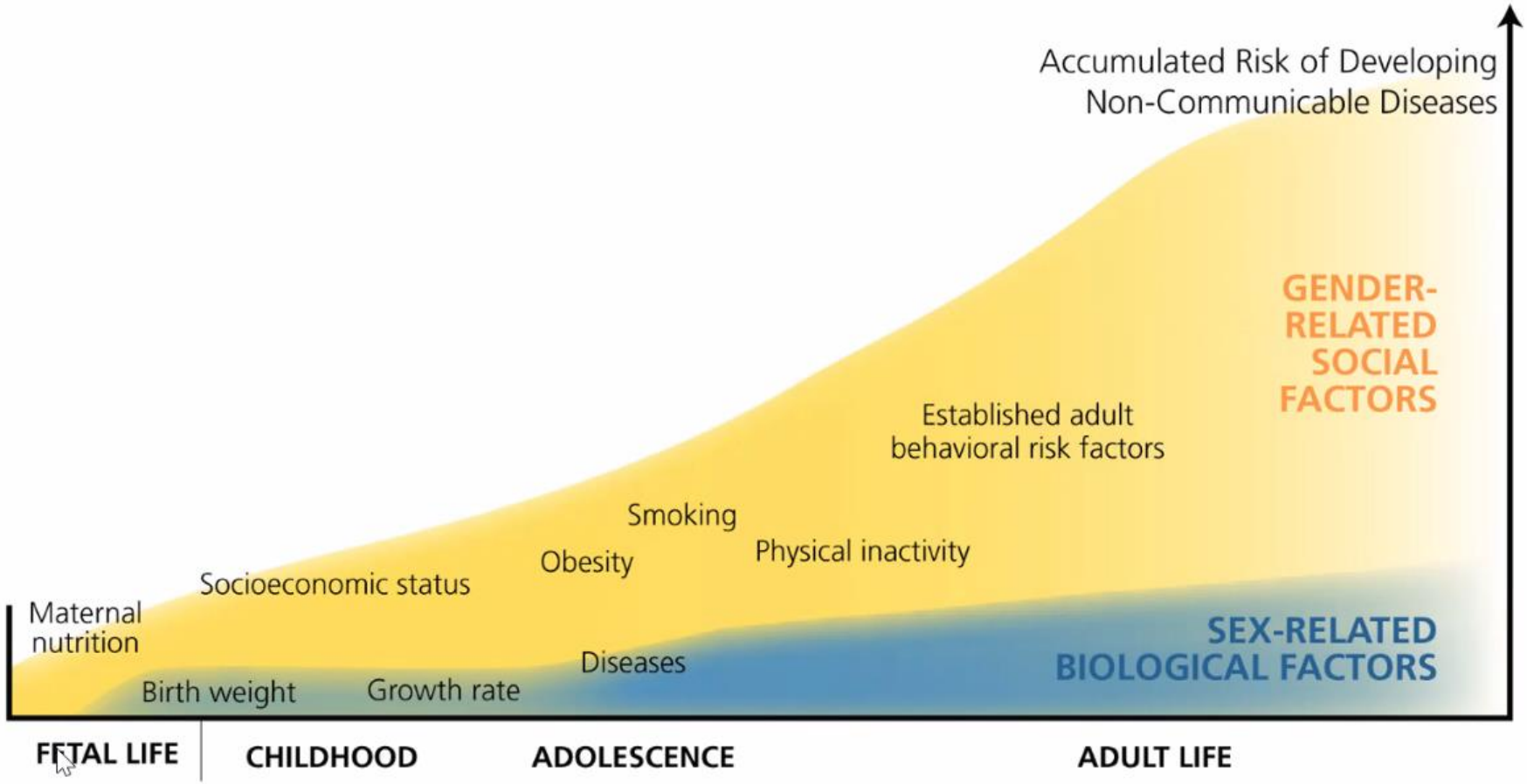
EQUALLY RELEVANT FOR HEALTH!



Mauvais-Jarvis et al. Lancet 2020; 396: 565–82

Gender and the life-course perspective

Cumulative Life Course Risk Factors for Non-Communicable Disease (NCD)
Highlighting the influence of sex and gender-related factors



Adapted from Darton-Hill et al., 2004

Internal and Emergency Medicine
https://doi.org/10.1007/s11739-022-02951-9

IM - ORIGINAL

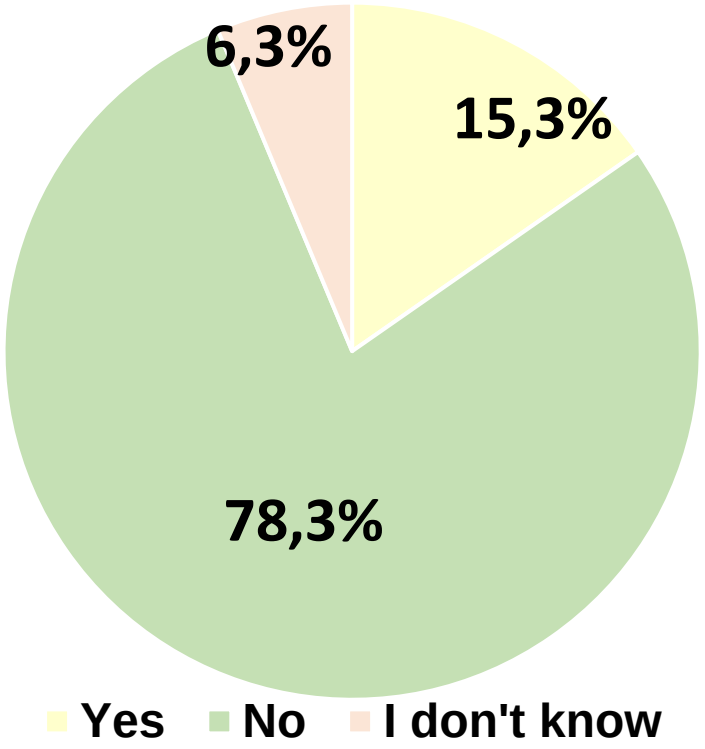
Awareness of sex and gender dimensions among physicians: the European federation of internal medicine assessment of gender differences in Europe (EFIM-IMAGINE) survey

Ewelina Biskup[1,26] · Alberto M. Marra[2,27] · Immacolata Ambrosino[3] · Elena Barbagelata[4] · Stefania Basili[5] · Jacqueline de Graaf[6] · Asunción Gonzalvez-Gasch[7] · Risto Kaaja[8] · Eleni Karlafti[9] · Dor Lotan[10] · Alexandra Kautzky-Willer[11,29] · Maria Perticone[12] · Cecilia Politi[13] · Karin Schenck-Gustafsson[14] · Andreia Vilas-Boas[15] · Jeanine Roeters van Lennep[16] · Emma A. Gans[17] · Vera Regitz-Zagrosek[18,28] · Louise Pilote[19] · Marco Proietti[20,21,22] · Valeria Raparelli[23,24,25] · Internal Medicine Assessment of Gender differences IN Europe (IMAGINE) Working group within the European Federation of Internal Medicine (EFIM)

Received: 26 October 2021 / Accepted: 15 February 2022

EFIM IMAGINE
Internal Medicine and Assessment of Gender differences In Europe

Question 1 - Do you think that the terms "SEX" and "GENDER" are synonymous?



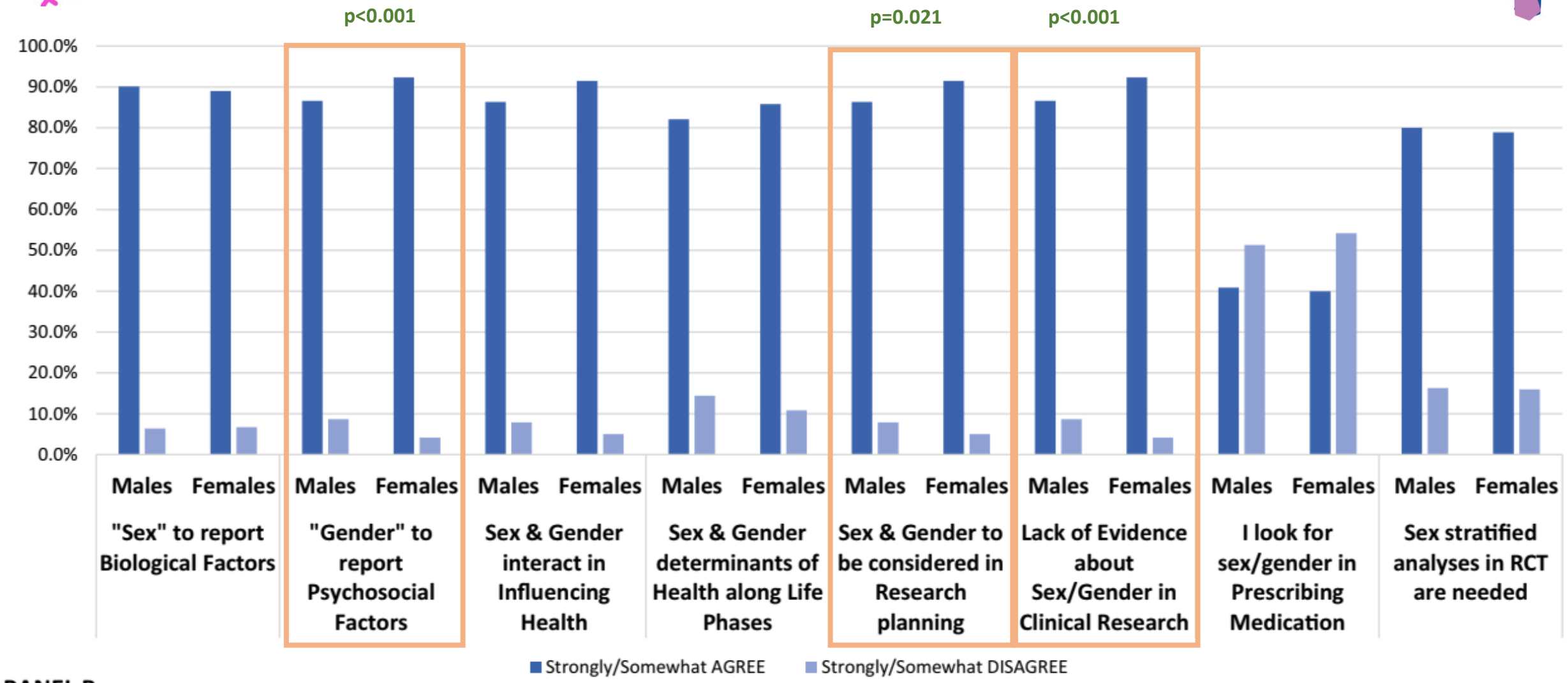

Please for the following variables select the most appropriate condition (tick the ones you think are sex-related, gender-related or both or not?) *

	Sex Related	Gender Related	No sex and gender related	I don't know
Age				
Genetics				
Sex Hormones				
Reproductive status				
Marital Status				
Ethnicity				
Personality Traits				
Body Composition				
Religion				
Diet				
Smoking Habit				
Alcohol				
Sexual Orientation				
Environment				
Working Status				
Body size				
Geographic Location				
Disability				
Co-Morbidities				
Socioeconomic Status				

Biskup E, et al Intern Emerg Med. 2022

	Sex Related	Gender Related	Sex & Gender Related	No Sex & Gender Related	Don't Know
Body Size	49.9%	15.0%	14.6%	17.9%	2.6%
Genetics	66.4%	11.5%	12.8%	6.0%	3.4%
Sex Hormones	66.1%	11.7%	18.7%	1.5%	1.9%
Reproductive Status	64.0%	12.9%	16.9%	3.5%	2.7%
Body Composition	54.0%	18.8%	20.2%	4.8%	2.2%
Diet	8.3%	32.9%	14.2%	40.1%	4.5%
Marital Status	10.6%	41.6%	12.9%	27.6%	7.3%
Personality Traits	6.8%	44.7%	21.1%	20.6%	6.8%
Socio-Economic Status	6.9%	35.4%	17.6%	35.4%	4.7%
Working Status	8.9%	38.8%	17.2%	31.6%	3.6%
Alcohol	9.9%	34.8%	12.2%	39.6%	3.4%
Smoking Habit	8.0%	34.0%	11.3%	42.2%	4.5%
Ethnicity/Race	8.2%	20.6%	5.1%	59.9%	6.2%
Religion	2.2%	22.3%	4.2%	64.9%	6.4%
Age	22.4%	10.4%	8.2%	54.9%	4.2%
Comorbidities	33.1%	18.9%	21.8%	22.1%	4.1%
Disability	7.1%	13.5%	6.3%	63.7%	9.3%
Geographic Location	4.1%	16.0%	3.9%	66.6%	9.4%
Environment	4.3%	30.7%	8.8%	45.7%	10.5%

Biskup E, Marra AM et al Intern Emerg Med. 2022



PANEL B

Biskup E, et al Intern Emerg Med. 2022

WHY – Do not harm!

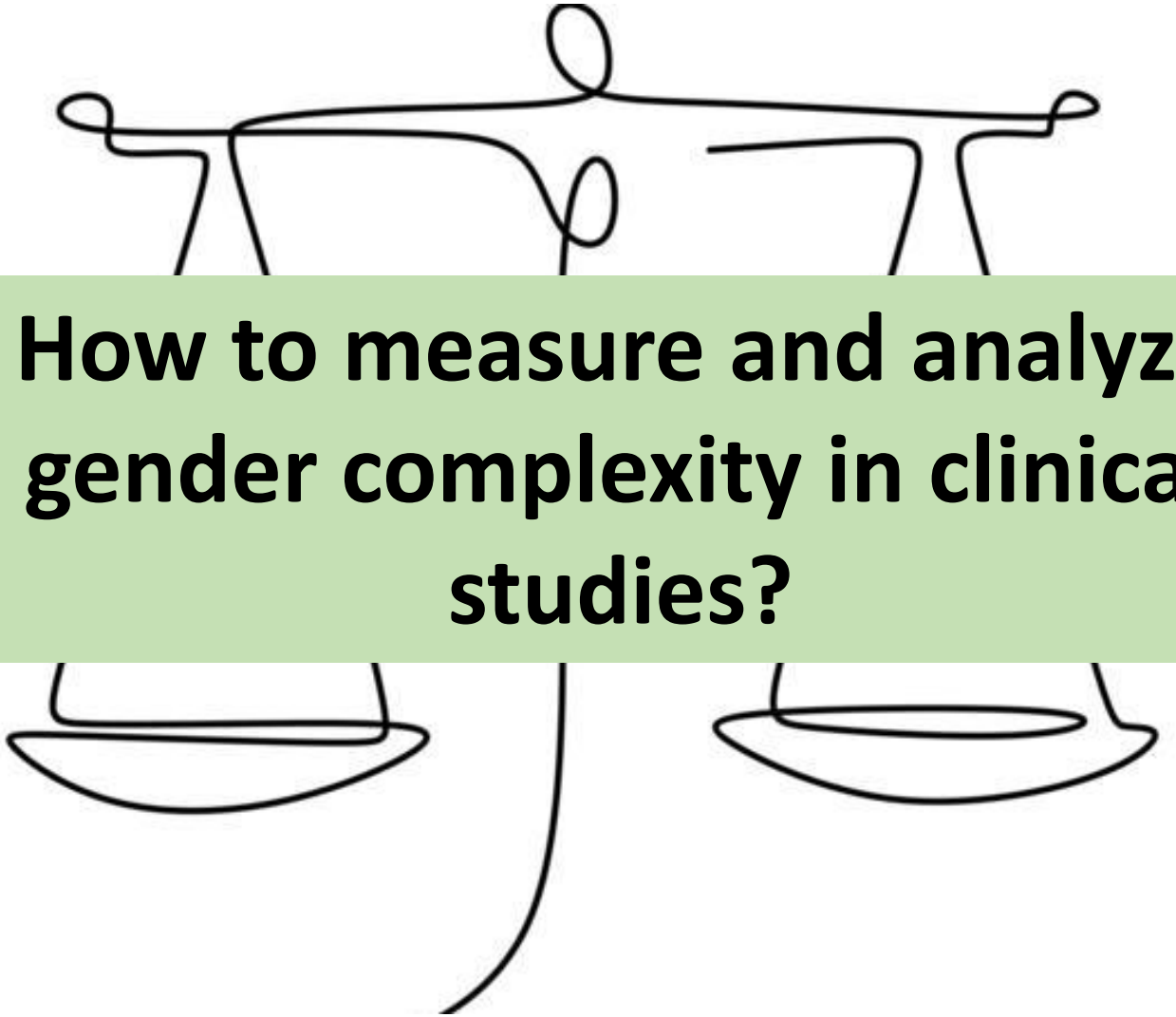
56 yrs, smoker, left arm pain associated with sweating lasting more than 1 hour…

#deathbychatbot

HOW CAN I ACCOUNT FOR GENDER IN CLINICAL RESEARCH?
Data Collection – the first obstacle

1. ARE GENDER-RELATED VARIABLES COLLECTED IN CLINICAL STUDIES?

- ✓ **MAINLY NO!**
- ✓ **YET WE CAN IMPROVE…How?**



How to measure and analyze gender complexity in clinical studies?

The GOING-FWD Team: Diversity, Gender Expertise and Gender Equality Measures

Co-Principal Investigators

Louise Pilote — Centre universitaire de santé McGill / McGill University Health Centre; McGill

Colleen Norris — University of Alberta

Valeria Raparelli — Università degli Studi di Ferrara; Dipartimento di Medicina Traslazionale e per la Romagna

Monica Parry — Bloomberg Lawrence S. Bloomberg Faculty of Nursing, University of Toronto

Site Principal Investigators

Alexandra Kautzky-Willer — Medical University of Vienna

Karolina Kublickiene — Karolinska Institutet

Maria Trinidad Herrero — Universidad de Murcia

Co-Investigators

Canada

Karin Humphries
Ruth Sapir-Pichhadze
Michal Abrahamowicz
Khaled El Emam
Simon Bacon

Austria

Peter Klimek

GOING-FWD

GENDER OUTCOMES INTERNATIONAL GROUP: TO FURTHER WELL-BEING DEVELOPMENT

GENDER·NET Plus
Promoting gender equality in H2020 and the ERA

Early Career Investigators (8)

Canada:
Z. Azizi, R. Dev, C. Tadiri
Austria:
S. Linder, T Gisinger, J Harreiter
Sweden:
L. Ward
Spain:
A.M. Lucas

Other trainees (15)

Canada (3)
Austria (2)
Rome (3)
Sweden (2)
Spain (5)

Scientific Advisory Committee

Vera Regitz-Zagrosek
Londa Schiebinger
Carole Claire
Rachel Dryer

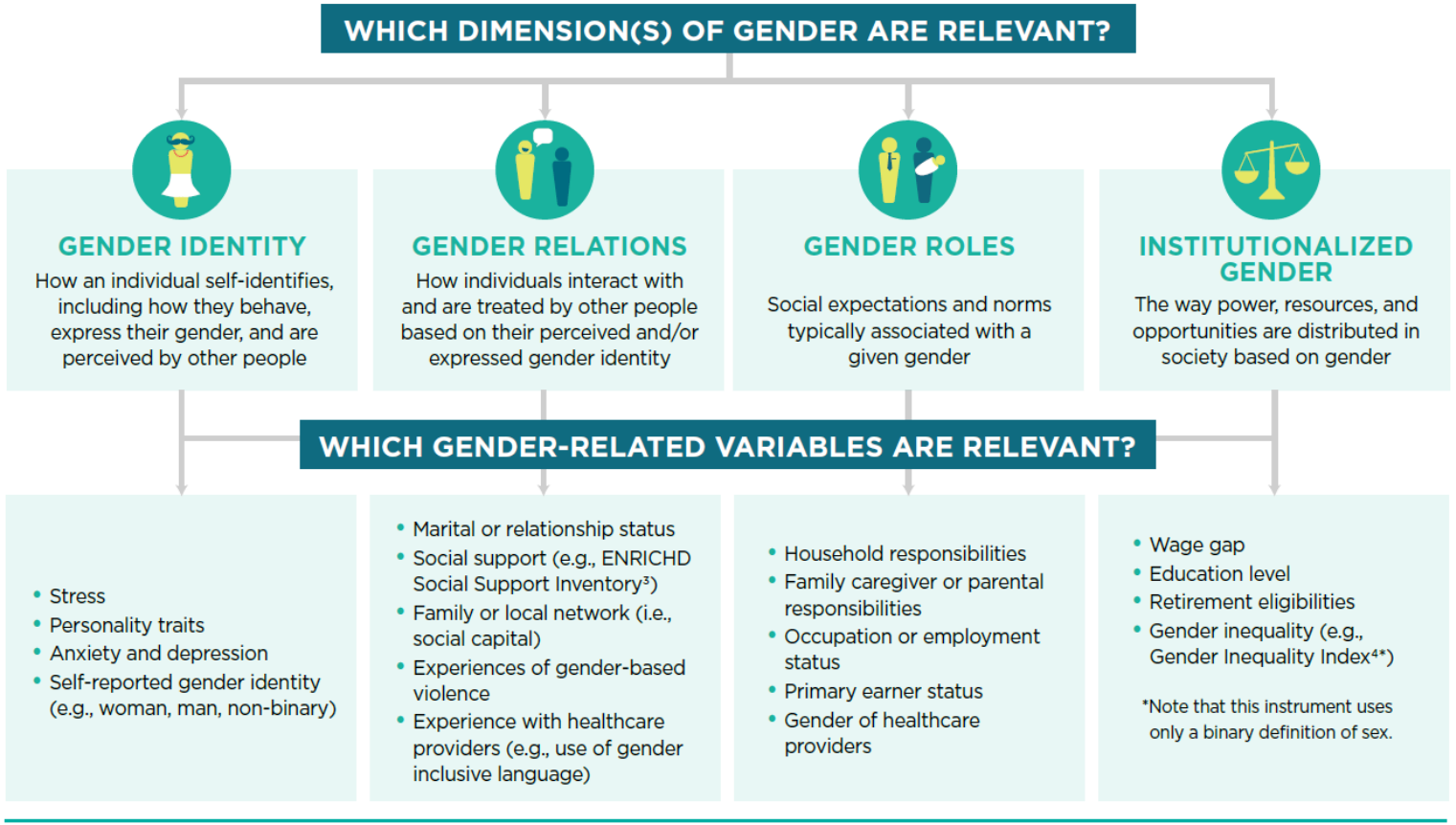
Patient Partners (7)

GENDER = MULTIDIMENSIONAL PSYCHO-SOCIO-CULTURAL CONCEPT

What is a gender-related variable?

A gender-related variable is a **non-biological variable** which differs in terms of magnitude, prevalence, and/or impact between people of different genders (men, women, gender-diverse people).

Gender can be broken down into 4 dimensions

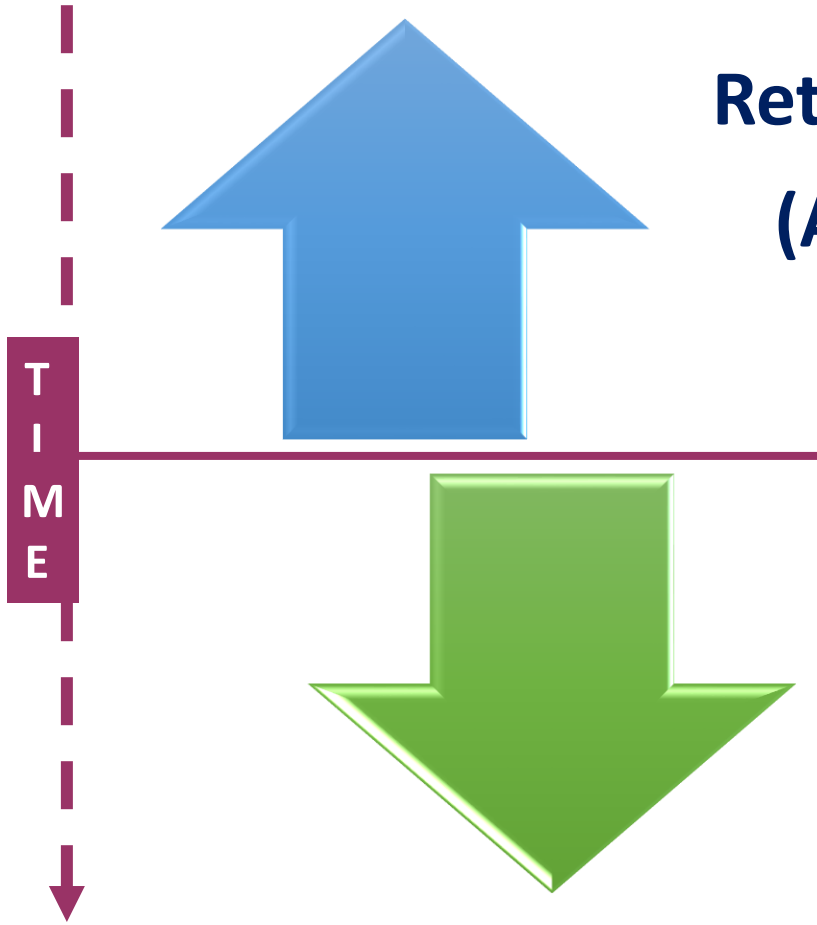


Pilote L, Norris CM and Raparelli V. Methods for Prospectively and Retrospectively Incorporating Gender-Related Variables in Clinical Research - https://cihr-irsc.gc.ca/e/52608.html

WHEN AND WHERE

Clinical Scientists – which data to use for answering a research question

2 Scenarios



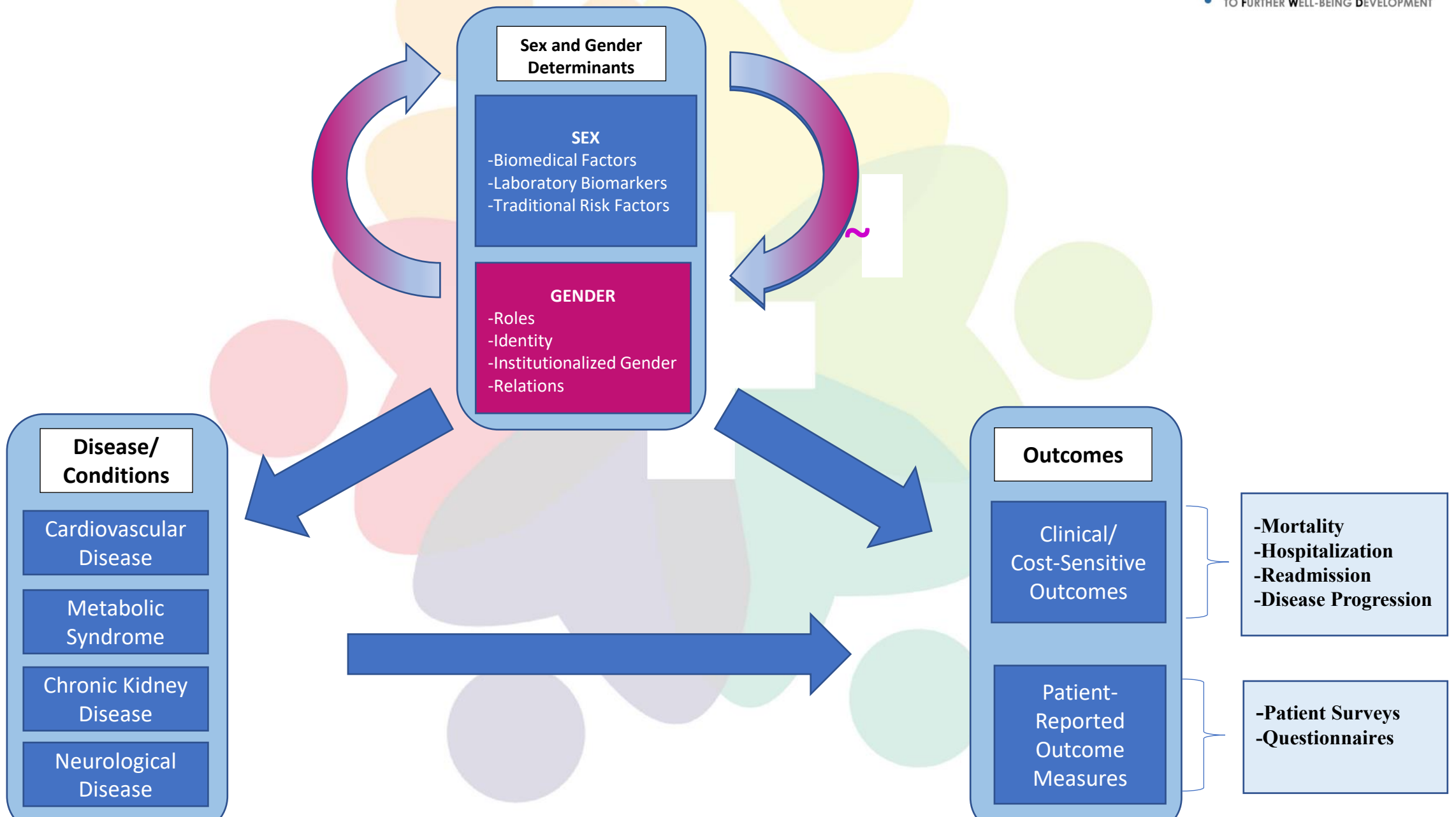
Retrospective Cohorts

(Already Collected Data)

Prospective Cohorts

(New Collection)

Conceptual framework



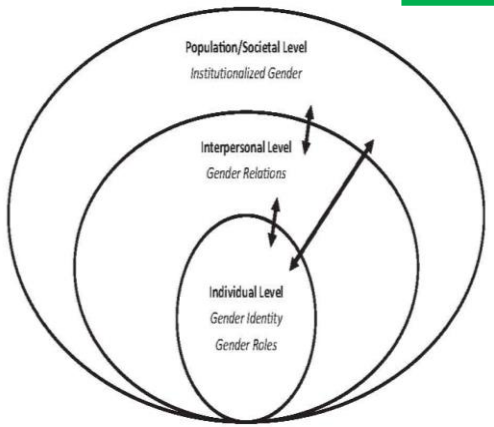
Gender Measurement (Prospective)

1 Research Question Development - Is gender relevant?

- Yes, study involves humans
- No, study involves animals or cells

2 Which gender domains/scales may influence relationship of interest (may be one or many)?

- Gender Identity (identifying as a man, woman or gender-diverse person)
- Gender Roles (behaviours and roles fulfilled)
- Gender relations (interpersonal relationships and gender)
- Institutionalized Gedner (unequal distribution of power, resources or opportunites in society based on gender)



3 Which specific variables may influence the relationship of interest and can be collected (one or many from one or many domains)?

- consider specific gender-related variables relevant to population and/or outcomes studied
- consider whether any specific gender-relted variable may indirectly affect the independent variables of interest
- consider conceptual framework/pathways through which these variables may act

4 Do collected variables need to be reduced?

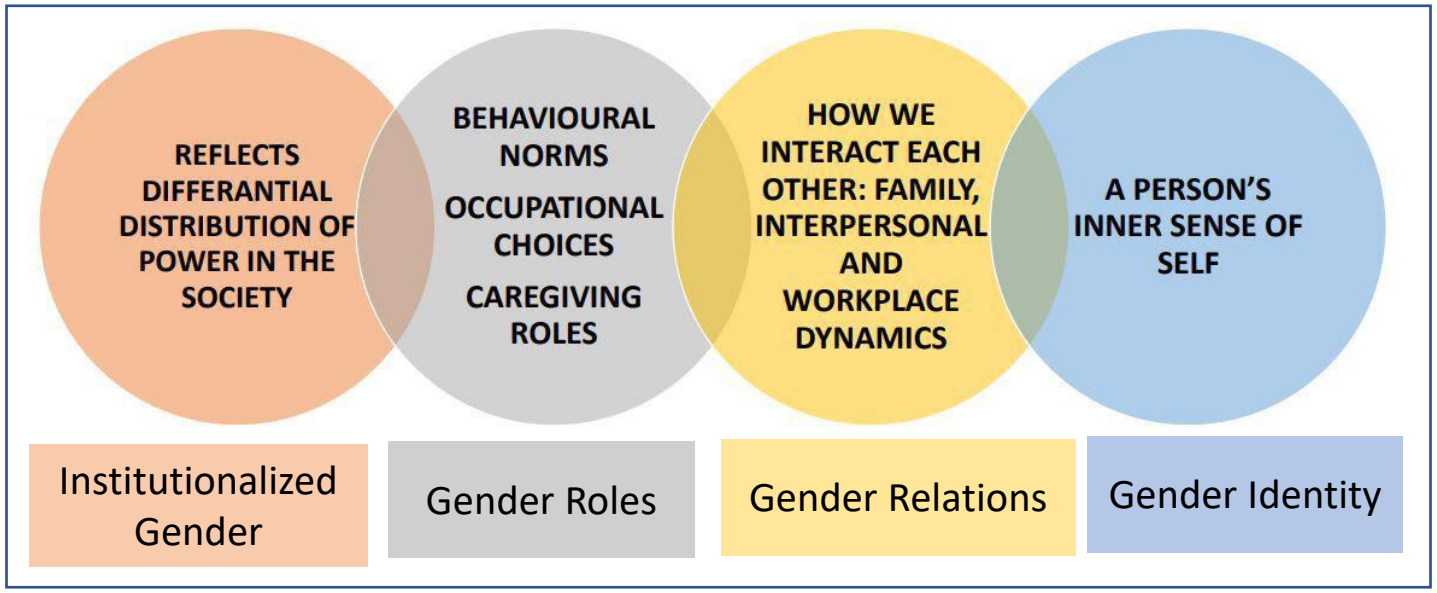
- many collected (particularly within same domain/scale)
- variables highly correlated

5 Incorporate collected variables into statistical analysis

- gender variables may directly independently affect ourcome of interest (treat as main effect)
- gender variables may modify or mediate outcome of interest (treat as mediating/modifying factors)
  - explore correlations among main independent variables, gender-related variables and outcomes
  - explore interaction terms, particularly among scales and among main independent variable, gender-related variables and outcomes

Tadiri CP, Raparelli V, Abrahamowicz M, Kautzky-Willer A, Kublickiene K, Herrero MT, Norris CM, Pilote L. Methods for prospectively incorporating gender into health sciences research. Journal of Clinical Epidemiology. 2021 January 1; 129:191-197

Gender Measurement (Retrospective)



Practice

BMJ Global Health

Identification and inclusion of gender factors in retrospective cohort studies: the GOING-FWD framework

Valeria Raparelli,[1,2] Colleen M. Norris,[2] Uri Bender,[3] Maria Trinidad Herrero,[4] Alexandra Kautzky-Willer,[5] Karolina Kublickiene,[6,7] Khaled El Emam,[8,9,10] Louise Pilote,[3,11] GOING-FWD Collaborators

STEP 1 - **IDENTIFICATION OF GENDER-RELATED VARIABLES**

STEP 2 - **DEFINITION OF OUTCOMES**

STEP 3 – **BUILDING OF FEASIBLE FINAL VARIABLES LIST**

STEP 4 - **RETROSPECTIVE DATA HARMONIZATION**

STEP 5 - **DEFINITION OF DATA STRUCTURE**

Raparelli V, Norris CM, Bender U, Herrero MT, A Kautzky-Willer A, Kublickiene K, El Emam K, Pilote L and the GOING-FWD Collaborators. Identification and inclusion of gender factors in retrospective cohort studies: the GOING-FWD framework. BMJ Global Health 2021;6:e005413.

Developing a Methodology for Data Harmonization

GOING+FWD
GENDER OUTCOMES INTERNATIONAL GROUP: TO FURTHER WELL-BEING DEVELOPMENT

Data Harmonization

Cohorts

- GENESIS PRAXY
- APPROACH
- EVA
- VIRGO
- ALBERTA HEALTH SERVICES
- REWARD
- DECADE
- MOSMI
- CPCSSN
- MAIN ASSOCIATION OF AUSTRIAN SOCIAL SECURITY INSTITUTIONS
- AT-HIS
- E-HIS
- IMPROVED
- HEALTH MURCIA SERVICE (SMS)
- HEALTH RIOJA SERVICE (HRS)
- DAC
- DAC2
- DALI
- MIA
- NJURBIOPSIPROJEKTET
- KOPIA
- HEARTIS
- MBDS
- OEDTR
- MS DATASET
- CCHS
- BIOBANK
- STEPS

Variables

Demographics

Age
Date of Birth (DOB)
Sex
Ethnicity
Language
Country of residence
Country of Origin
Province/Region
Ethnic background of parents
Rural/Urban Status
Country of Birth/ Birth place
Current living situation (with partner, parents, etc.)
Postal code
Address

Gender Roles

Primary earner status
Employment Status
Occupation
Work hours per week
Level of responsibility for disciplining children
Number of hours per week spent on housework
Status of household's primary responsibility
Number of children
Social status

Gender Relations

Marital/Relationship Status

Social support

ENRICHD social support instrument
Availability of Caregiver
Medical Outcomes Study (MOS)
Social Support Survey

Institutionalized gender

Educational Level
Number of years of schooling

SES/Income

Monthly finances
Household income
Investments (stocks, bonds etc.)
Perceived Social Standing
GII (Gender inequality index)
Type of maternity care

Gender Identity

Stress

14-Item Perceived stress scale (PSS)
Stress level at work
Stress level at home
Stress management
Wellness

Personality traits

Emotional intelligence
BEMS (instrument)
Marlowe-crowne question (assesses personality, temperament, and demeanor)

Depression/Anxiety

Patient Health Questionnaire-9
HAD Scale - Hospital Anxiety and Depression Scale
Anxiety/Depression
Anxiety sensitivity question
Beck depression inventory question
Pill question (?)
Tas questions (?)
State-Trait Anxiety Inventory (STAI) (quantifies adult anxiety)
Beck anxiety inventory question

Other psychiatric questionnaires

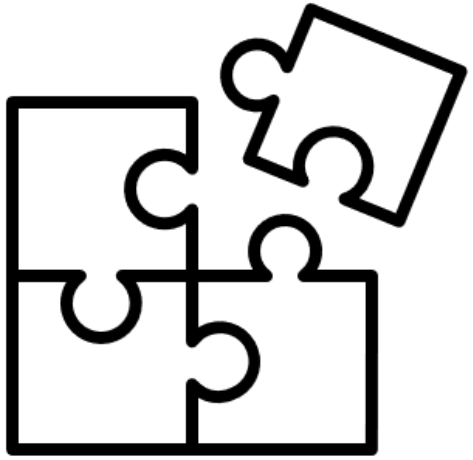
Whiteley index questions (assesses hypochondria)

Discrimination

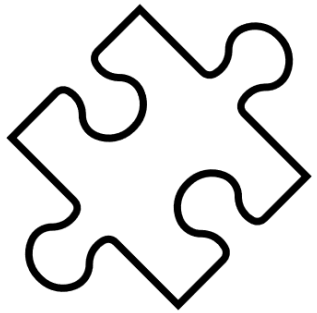
Day-to-day experiences

HOW…. CAN I ACCOUNT FOR GENDER IN MY ANALYSIS PLAN?

Clinical Scientists – Options on how to deal with data



COMPOSITE MEASURE OF GENDER



INDIVIDUAL GENDER-RELATED FACTORS

It depends on the richness of your database and on the research question!

Raparelli V et al. BMJ Glob Health. 2021 Apr;6(4):e005413

SEX AND GENDER IN PRECISION MEDICINE

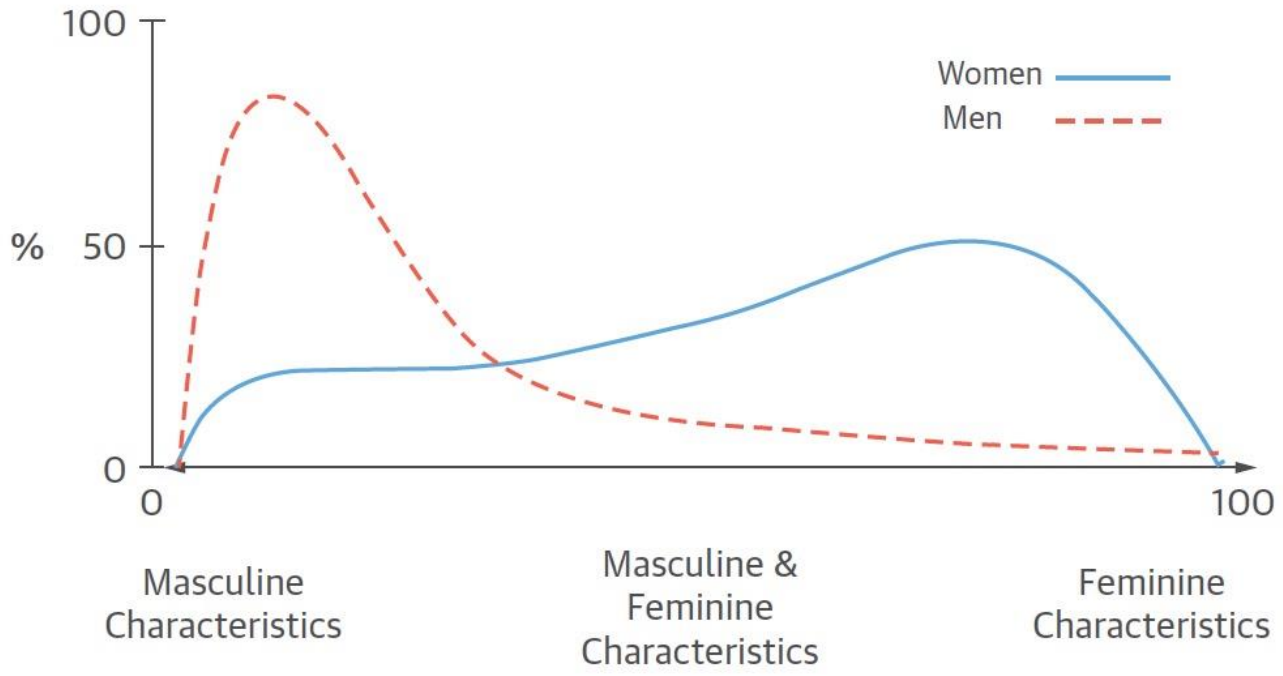
Beyond sex, gender predicts better clinical outcomes

GENDER SCORE

GENESIS PRA

1. Primary household earner status
2. Personal income
3. Number of hours per week doing housework
4. Primary responsibility for doing housework
5. Level of stress at home
6. Bem Sex Role Inventory masculinity score
7. Bem Sex Role Inventory femininity score

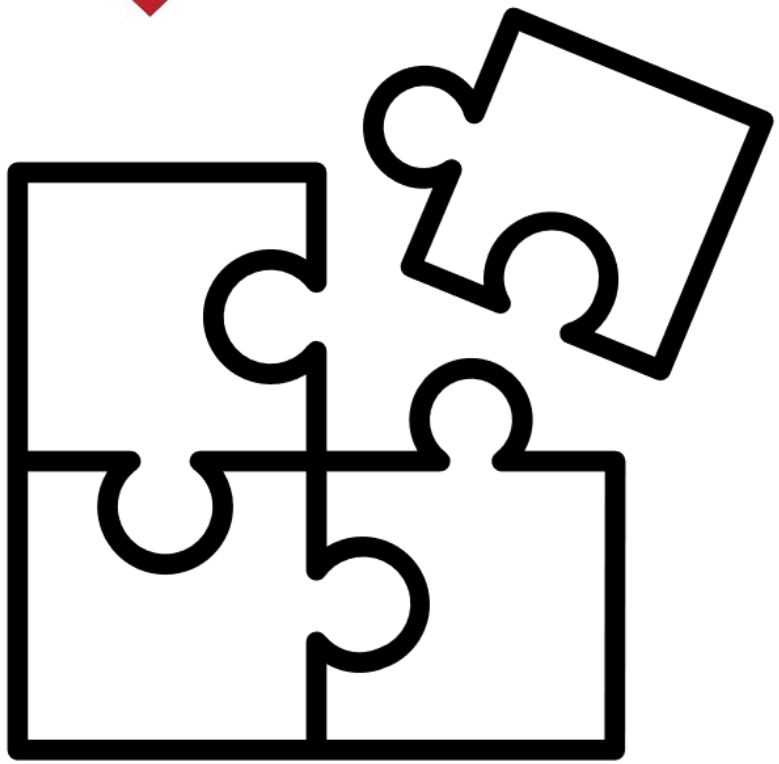
FIGURE 1 Gender Score Distribution in Men and Women With Premature Acute Coronary Syndrome



Adapted with permission from Pelletier et al. (22).

Pelletier, R. et al. *J Am Coll Cardiol*. 2016; 67(2):127–35.
Pelletier R et al. *Psychosom Med* 2015; 77:517-26

GENESIS PRA



Gender Score

Dr. Louise Pilote J Am Coll Cardiol. 2016

AIM: We explored the **ASSOCIATION BETWEEN SEX, GENDER, AND CARDIOVASCULAR HEALTH (CVH)** amongst Canadian (CAN) and Austrian (AT) populations.
Study Populations: Canadian Community Health Survey (CCHS-2014) (n=63,522, 55% Females, 42.3% younger than 50 years) vs Austrian Health Interview Survey (AT-HIS-2014) (n=15,771, 56% Females, 53.86% younger than 50 years).

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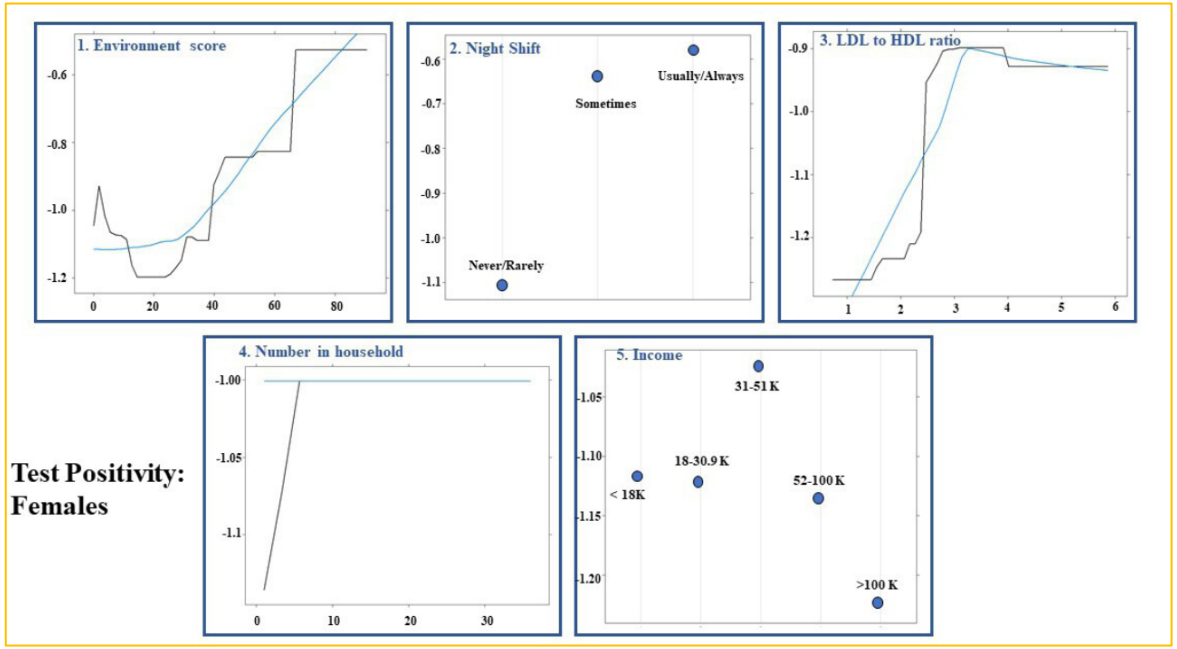
GENDER OUTCOMES INTERNATIONAL GROUP: TO FURTHER WELL-BEING DEVELOPMENT

	Canadians			Austrians		
PREDICTORS OF HEART DISEASE	**Odds Ratio (OR)**	**95% CI**	**P-value**	**Odds Ratio (OR)**	**95% CI**	**P-value**
CANHEART score (Canadians) ATHEART score (Austrians)	0.73	0.71, 0.75	<0.001	0.77	0.69, 0.86	<0.001
Gender score	3.87	2.71, 5.52	<0.001	22.14	7.28, 68.17	<0.001
Sex (Female)	0.58	0.54, 0.62	<0.001	0.61	0.46, 0.82	0.002
Age groups						
<20 (reference)	-	-	-	-	-	-
20-29	0.95	0.62, 1.48	0.96	0.94	0.2, 4.42	0.70
30-39	0.70	0.45, 1.1	0.12	0.32	0.07,1.67	0.08
40-49	1.82	1.26, 2.68	0.001	0.53	0.16, 2.38	0.21
50-59	4.62	3.34, 6.60	<0.001	2.14	0.77, 8.91	0.34
60-69	8.78	6.38, 12.47	<0.001	3.95	1.44, 16.36	0.04
>=70	19.45	14.16, 27.59	<0.001	7.28	2.32, 26.00	0.001

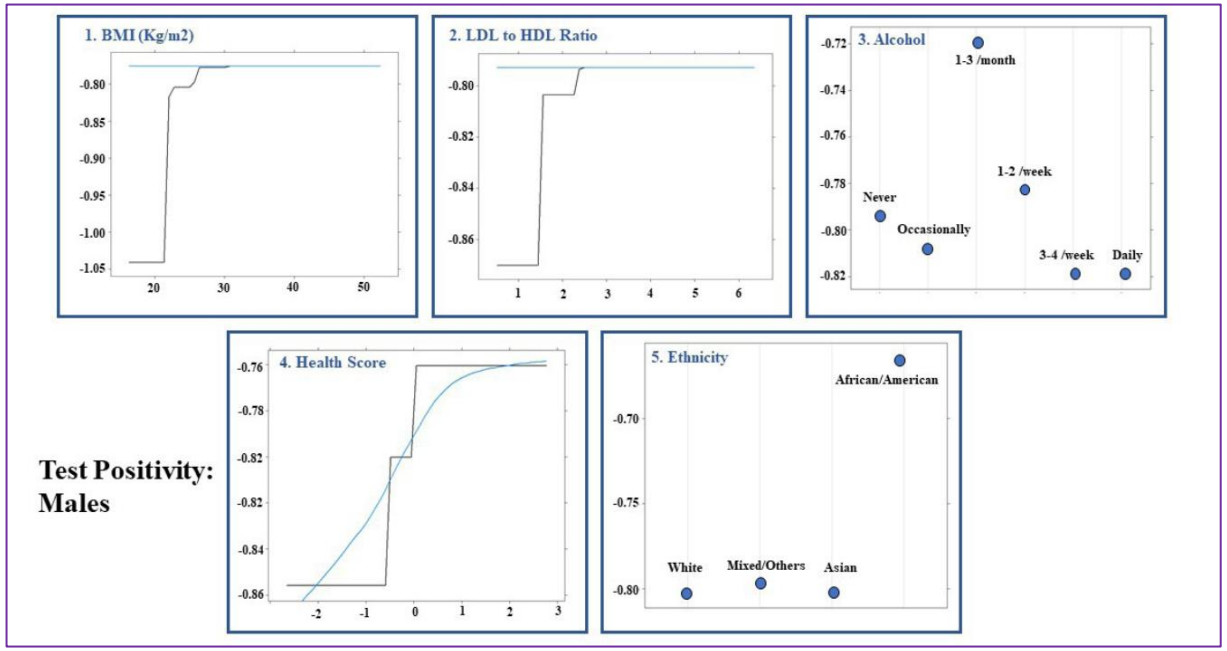
Azizi Z, Raparelli V. et al. Can J Cardiol. 2021 Mar 27:S0828-282X(21)00171-9

Machine learning-based prediction models for SARS-CoV-2 positive test

Of **4510** patients (51.2% females, and **68.5±8.88** years) who were tested in the UK-Biobank, **29.4% were positive**.
Females were less likely to be positive (males: 31.6% vs females: 27.3%, p=0.001).



Females who lived in **more deprived areas** (increased environment score), had increased LDL/ HDL, **worked night shifts and had a greater number of family members in their household, those with lower income** were more likely to test positive.

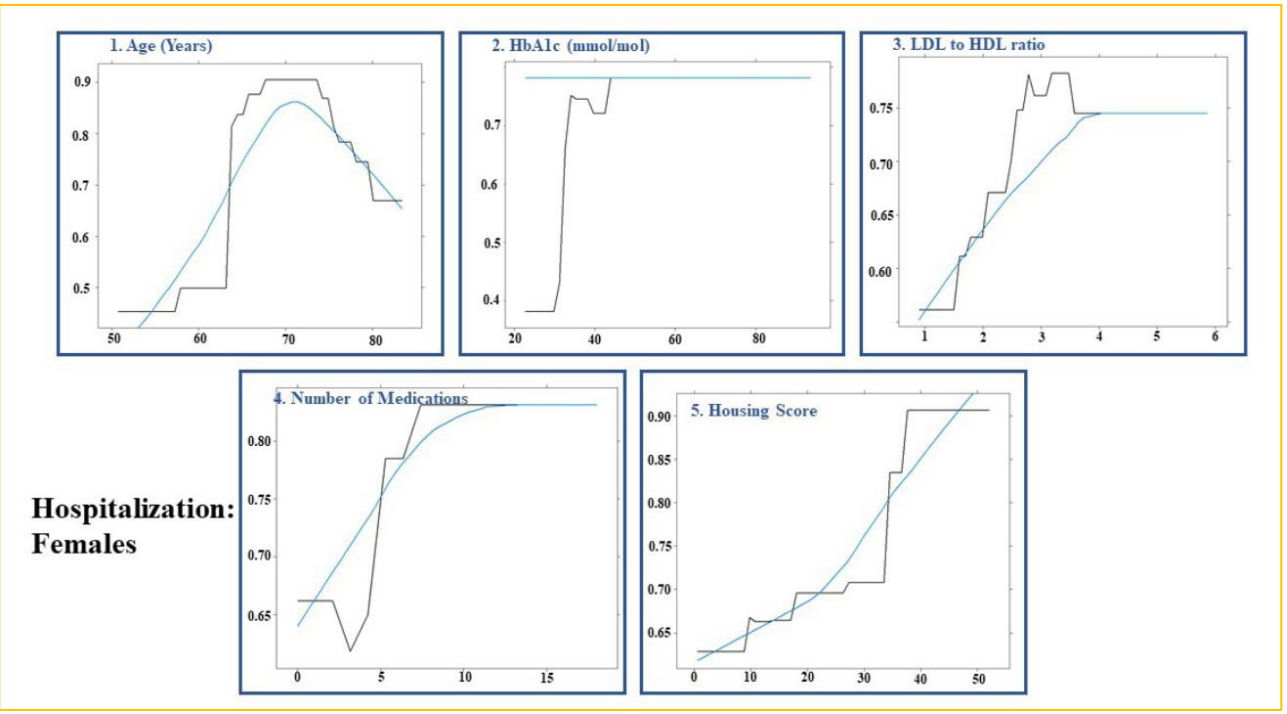


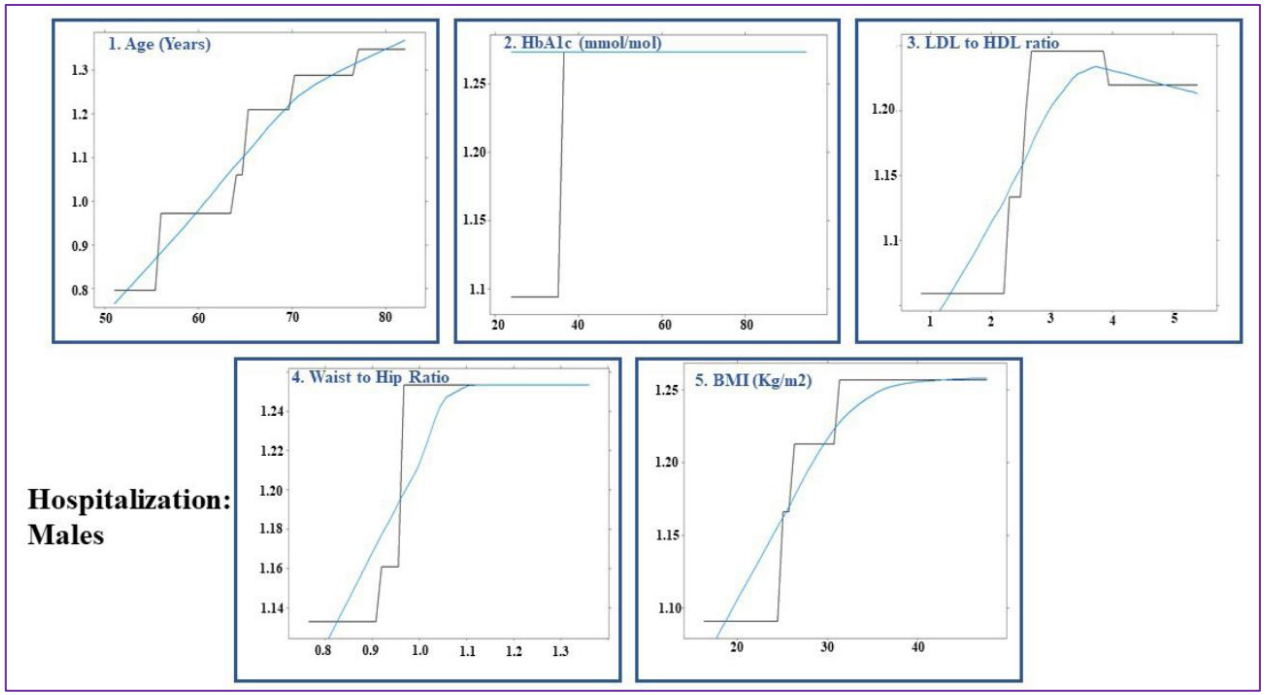
Males with **greater BMI and LDL to HDL ratio, more deprived area (greater score) and black British ethnicity** were more likely to test positive

Azizi Z, Shiba Y, Alipour P, Maleki F, Raparelli V, Norris C, Forghani R, Pilote L, El Emam K; GOING-FWD investigators; GOING FWD Investigators. Importance of sex and gender factors for COVID-19 infection and hospitalisation: a sex-stratified analysis using machine learning in UK Biobank data. BMJ Open. 2022 May 18;12(5):e050450.

Machine learning-based prediction models for COVID-19 related hospitalisation

Among the **1326 test-positive** patients, 932 (**70.3%) were hospitalised** (females: 44.3%).





Older age, a higher level of HbA1c, LDL to HDL ratio, a greater number of medications and higher housing score (showing more deprived areas) were most influential in females

Older age, an increased HbA1c level, WHR, LDL to HDL ratio and BMI were the most influential variables in males

Azizi Z, Shiba Y, Alipour P, Maleki F, Raparelli V, Norris C, Forghani R, Pilote L, El Emam K; GOING-FWD investigators; GOING FWD Investigators. Importance of sex and gender factors for COVID-19 infection and hospitalisation: a sex-stratified analysis using machine learning in UK Biobank data. BMJ Open. 2022 May 18;12(5):e050450.

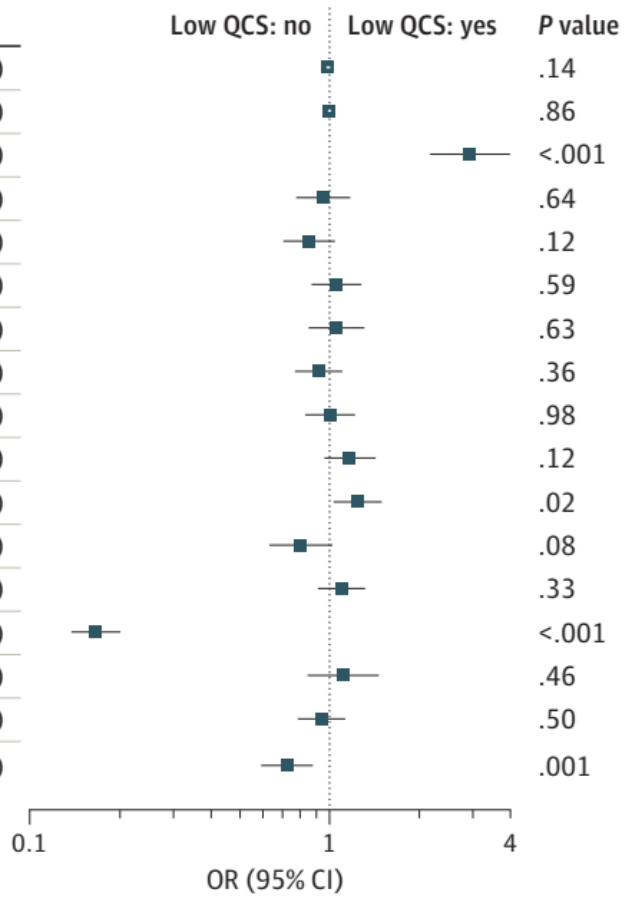
Original Investigation | Cardiology

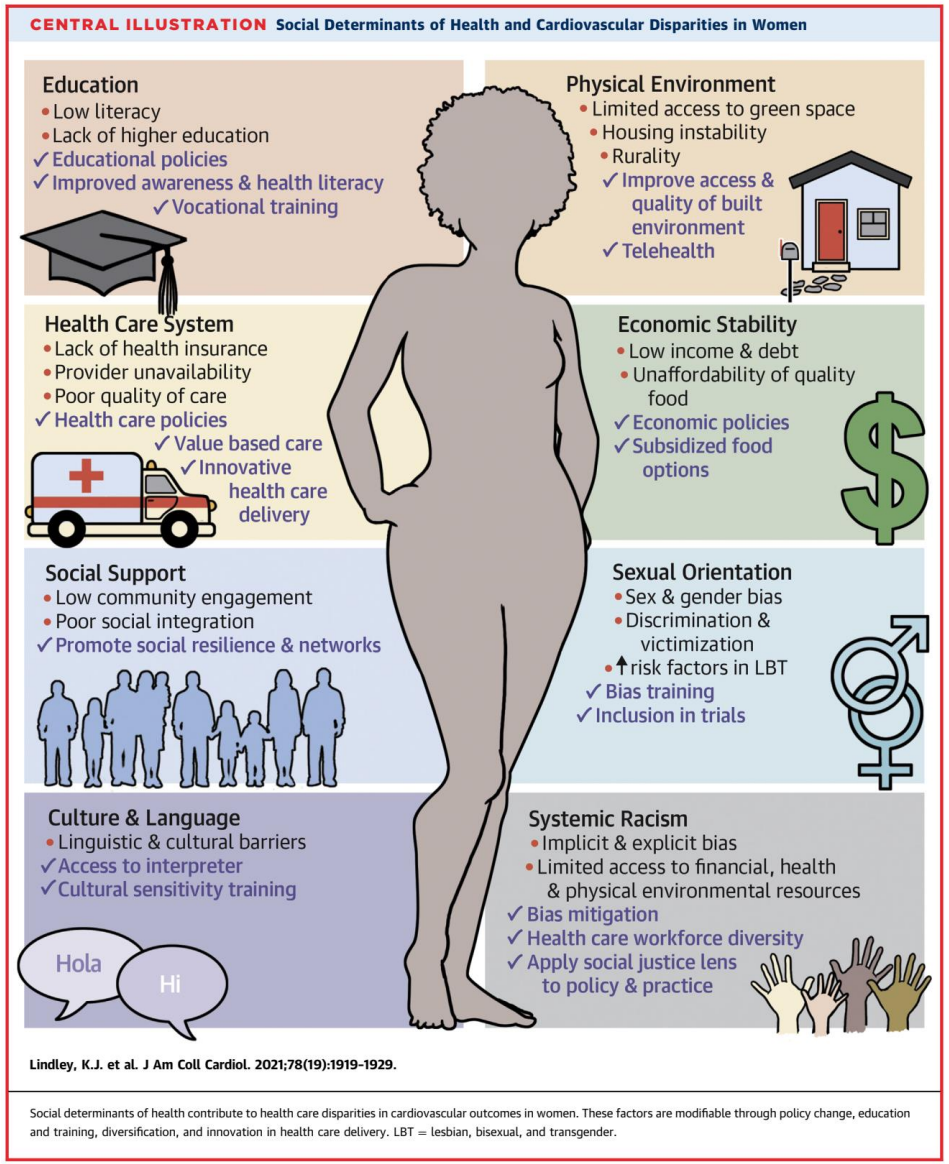
Variations in Quality of Care by Sex and Social Determinants of Health Among Younger Adults With Acute Myocardial Infarction in the US and Canada

Valeria Raparelli, MD, PhD; Louise Pilote, MD, MPH, PhD; Brian Dang, MDCM; Hassan Behlouli, PhD; James D. Dziura, PhD, MPH; Hector Bueno, MD, PhD; Gail D'Onofrio, MD; Harlan M. Krumholz, MD, SM; Rachel P. Dreyer, PhD

A In-hospital QCS

Baseline characteristics	OR (95% CI)	P value
Age, y	0.99 (0.98-1.00)	.14
BMI	1.00 (0.99-1.01)	.86
US (vs Canada)	2.93 (2.16-3.99)	<.001
White race	0.95 (0.77-1.17)	.64
Low SES	0.85 (0.70-1.04)	.12
Female sex	1.05 (0.87-1.28)	.59
Prior MI	1.05 (0.85-1.31)	.63
Family history of CVD	0.92 (0.77-1.10)	.36
Diabetes	1.00 (0.83-1.22)	.98
Hypertension	1.17 (0.96-1.42)	.12
Smoking	1.24 (1.03-1.49)	.02
Dyslipidemia	0.80 (0.63-1.02)	.08
Depression	1.10 (0.91-1.31)	.33
STEMI (vs NSTEMI)	0.17 (0.14-0.20)	<.001
History of renal disease	1.11 (0.84-1.46)	.46
Being physically active	0.94 (0.78-1.13)	.50
Currently employed	0.72 (0.59-0.88)	.001





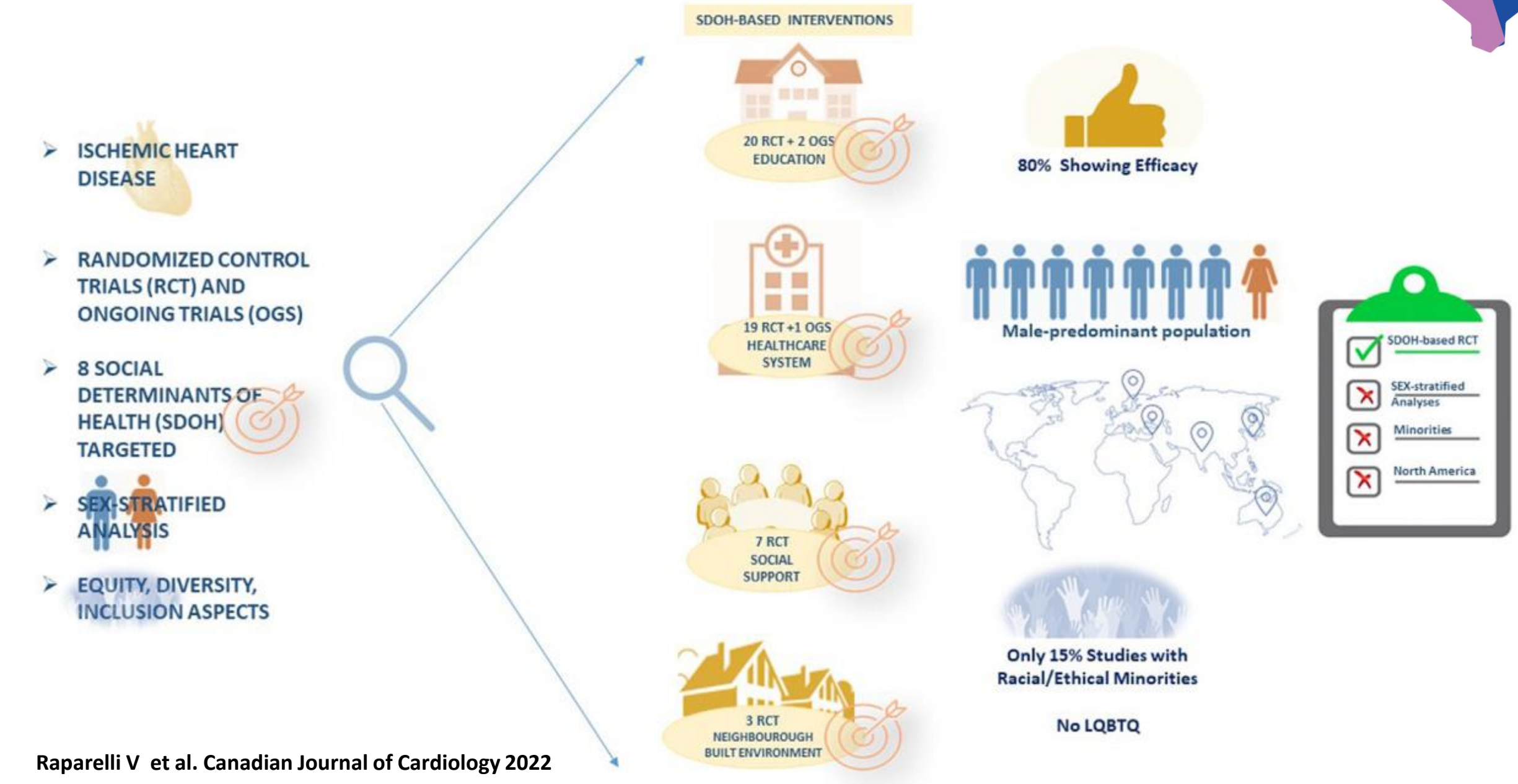
Lindley, K.J. et al. J Am Coll Cardiol. 2021;78(19):1919-1929.

Social determinants of health contribute to health care disparities in cardiovascular outcomes in women. These factors are modifiable through policy change, education and training, diversification, and innovation in health care delivery. LBT = lesbian, bisexual, and transgender.

HIGHLIGHTS

- In addition to biological differences, socioeconomic factors contribute to disparities in cardiovascular health outcomes in women, and many are potentially modifiable.
- Key factors to contributing to health care disparities include poverty, racism, geography, education and access to health care insurance.
- Overcoming disparities that affect the cardiovascular health of women include policy changes, education and training, innovations in health care delivery, and diversification of the cardiology workforce.

Interventions Targeted to Address Social Determinants of Health in Ischemic Heart Disease: A Sex- and Gender-Oriented Scoping Review

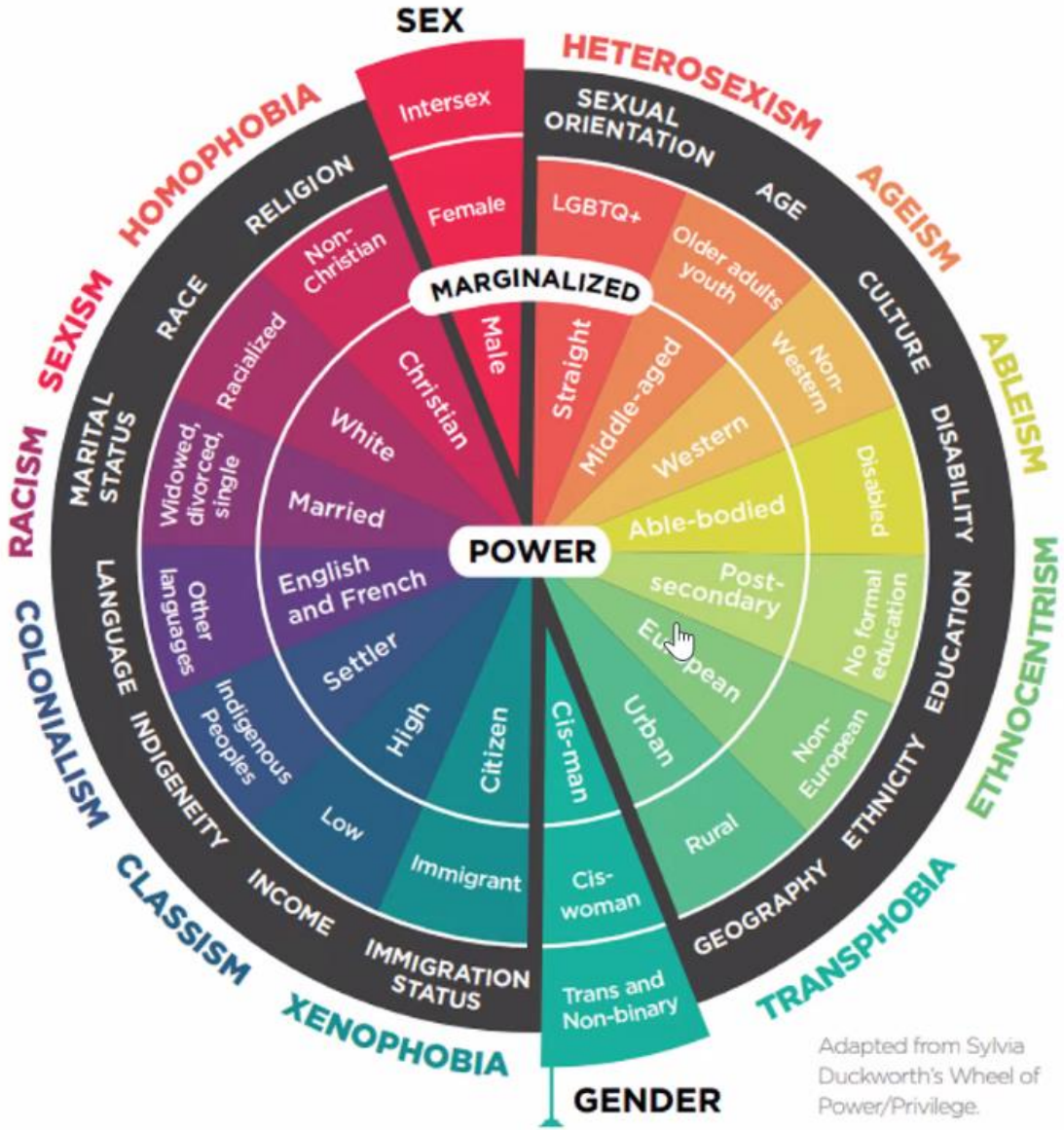


Raparelli V et al. Canadian Journal of Cardiology 2022


WHAT'S
NEXT

Intersectionality

Intersectionality is a theoretical framework rooted in the premise that human experience is jointly shaped by multiple social positions (e.g. race, gender), and cannot be adequately understood by considering social positions independently.



Bauer Greta, Quantitative intersectional study deisgn and primary data collection. Meet the methods series, Canadian Institutes of Health Research, 2021.

1. **INDIVIDUAL OBSERVATIONS AND SELF-REFLECTION BASED ON AN ENCOUNTERED CLINICAL CASE**

Briefly describe a clinical case encountered during the internship: …

Anamnesis: Would the anamnesis have been different if the patient had been of the opposite gender?

☐ *Yes* ☐ *No*

Clinical exam: would the clinical exam have been different if the patient had been of the opposite gender?

☐ *Yes* ☐ *No*

Differential diagnosis: Would the differential diagnosis assumptions have been different if the patient had been of the opposite gender?

☐ *Yes* ☐ *No*

Management: Would the proposed diagnostic and/or therapeutic measures have been different if the patient had been of the opposite gender?

☐ *Yes* ☐ *No*

Using your previous answers, describe for each step related to the clinical consultation (anamnesis, etc.) the elements that support an identical or different approach depending on the gender of the patient: …..

2. **COLLECTIVE REFLECTION**

Following the group session, are there any important points (agreement or disagreement) that were raised from your presented clinical case?

3. **PERSONAL SYNTHESIS AND SELF-REFLECTION**

What are the most important elements I have learned?

What aspects have been most difficult for me?

What will I integrate into my medical practice?

Gender Reflexivity in clinical practice

Medical neutral positionality does not exist

-> Medical Practice as a social relation with actors that are situated in a social context

To minimize the detrimental effects of stereotypes and bias

->Identify, Acknowledge, Discuss, Control them with reflexivity in medical clinical reasoning

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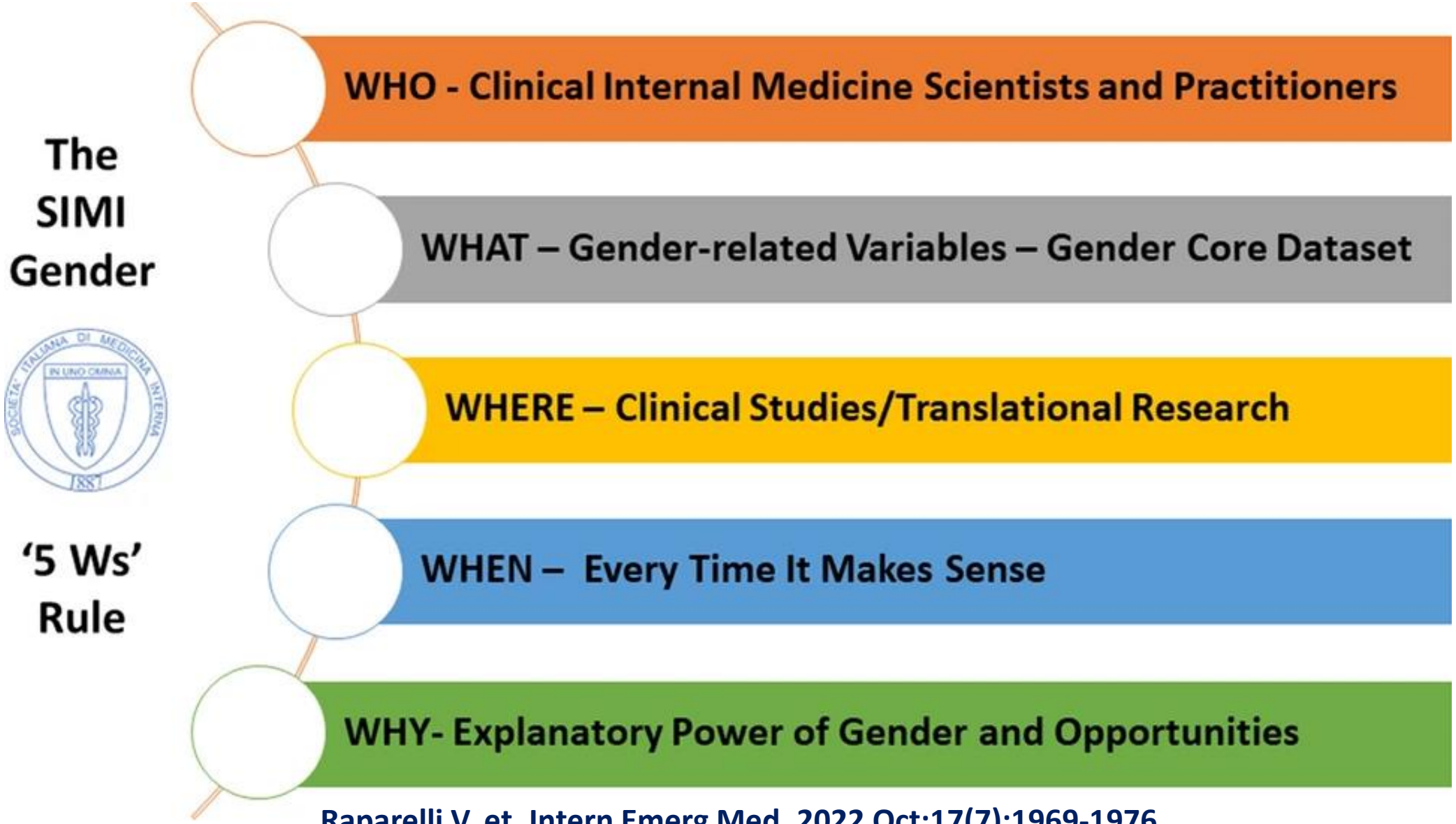
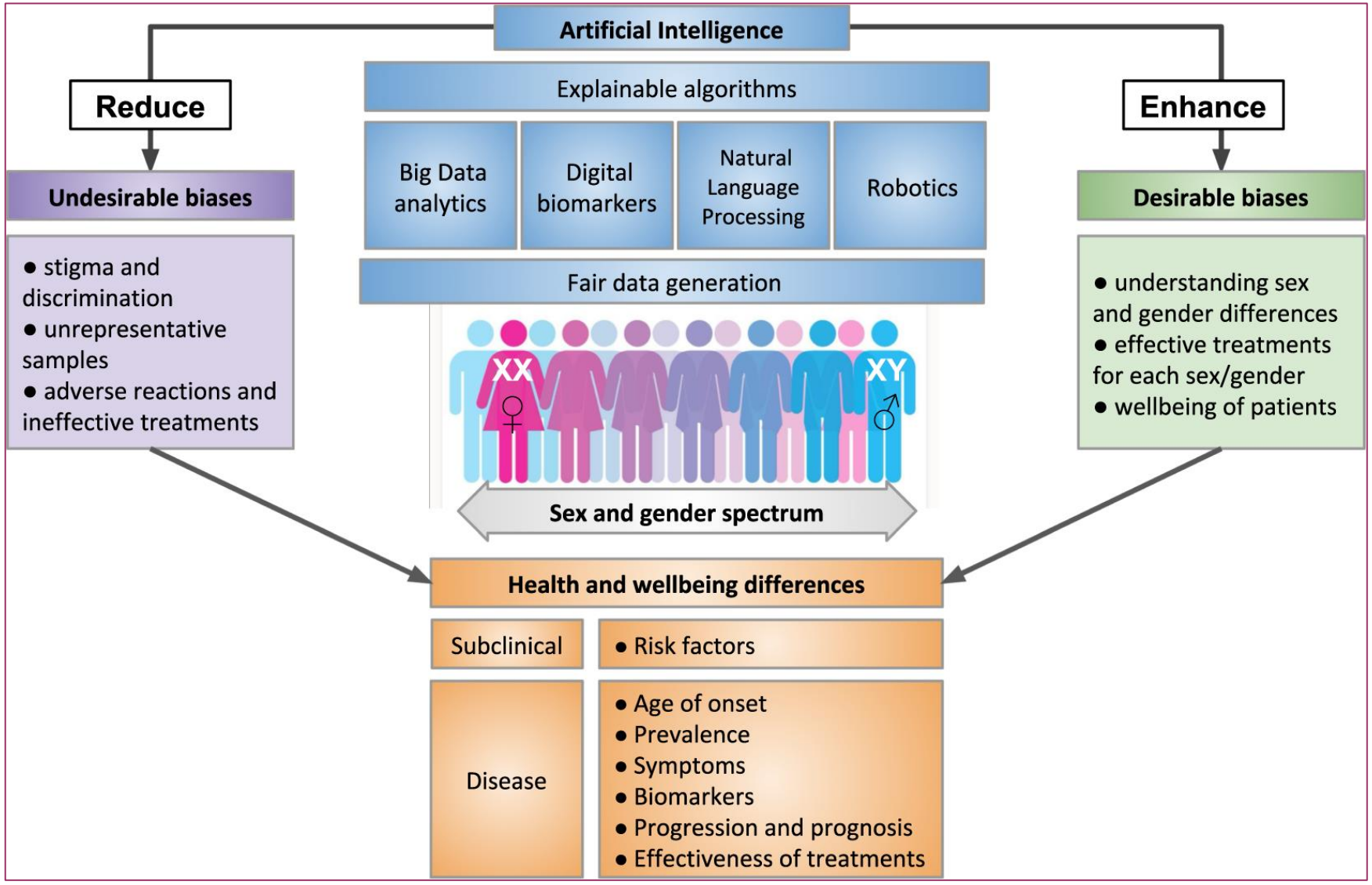
Geiser E, Schilter LV, Carrier JM, Clair C, Schwarz J. Reflexivity as a tool for medical students to identify and address gender bias in clinical practice: A qualitative study. Patient Educ Couns. 2022 Dec;105(12):3521-3528.

The SIMI Gender '5 Ws' Rule for the integration of sex and gender-related variables in clinical studies towards internal medicine equitable research



Raparelli V, et. Intern Emerg Med. 2022 Oct;17(7):1969-1976.



Fair data generation and explainable algorithms are fundamental requirements for the design and application of artificial intelligence to optimize for health and wellbeing across the sex and gender spectrum. This will facilitate the reduction of undesirable biases that propagate inequity and discrimination,and will **promote desirable differentiations that help develop Precision Medicine.**