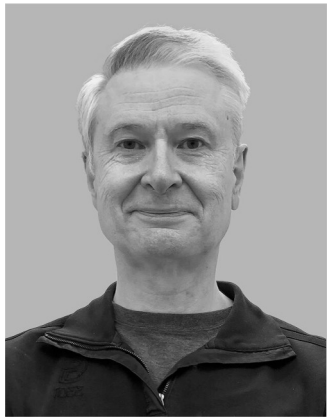
Sex & Gender in Medicine

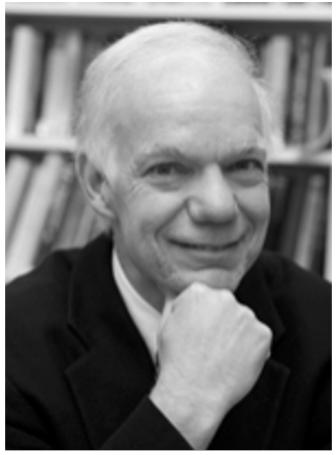
Gertraud (Turu) Stadler
SPARK
5.7.2023

CHARITÉ
UNIVERSITÄTSMEDIZIN BERLIN

UNIVERSITY OF ABERDEEN

Thanks to Team Gender in Medicine





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DFG Deutsche Forschungsgemeinschaft

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BERLIN
Berlin.de Startseite

Bezirksamt Mitte

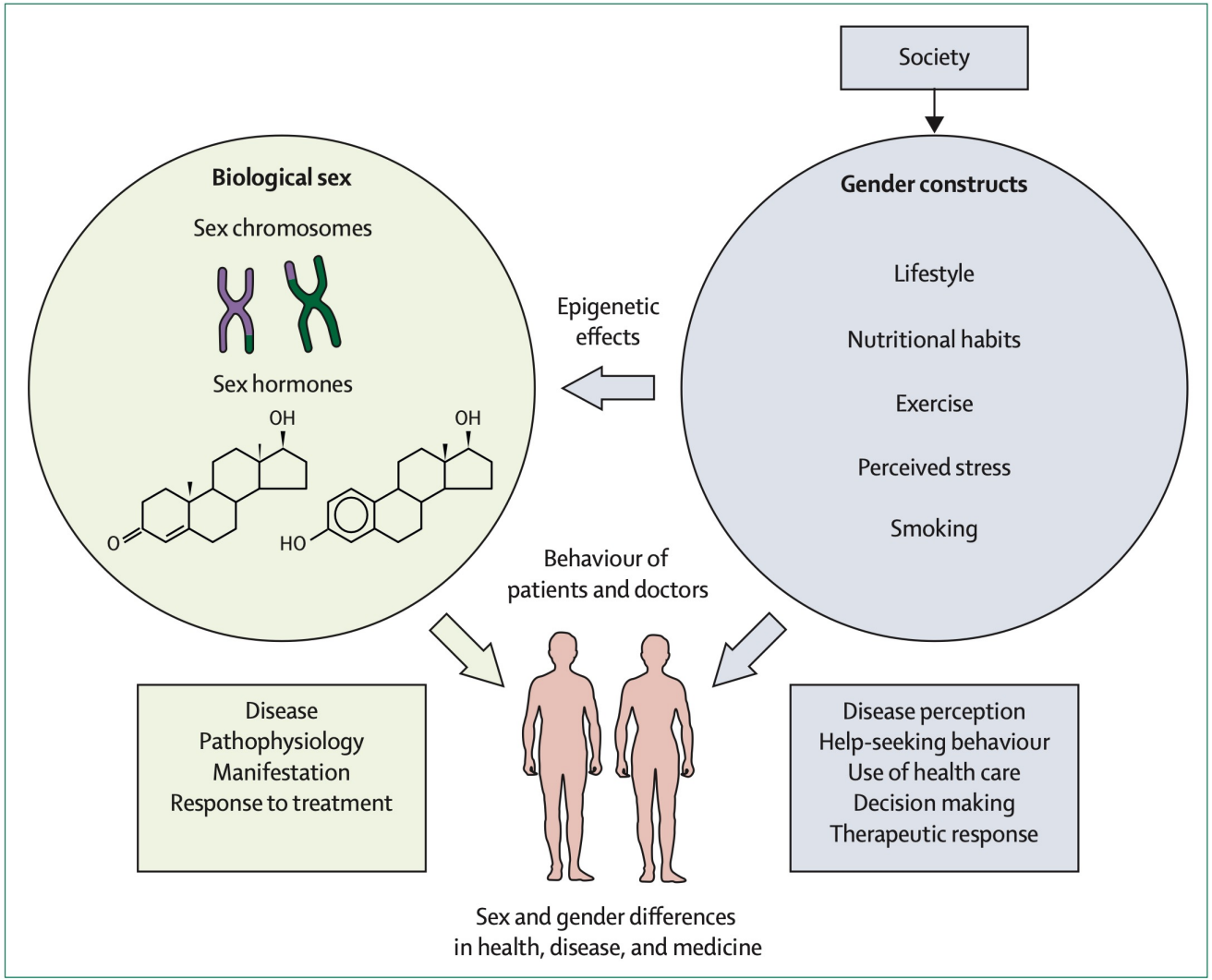
Bundesministerium für Gesundheit

Gemeinsamer Bundesausschuss Innovationsausschuss

NIHR | National Institute for Health and Care Research

NIH National Institute on Alcohol Abuse and Alcoholism

Gender in Medicine



nach Mauvais-Jarvis et al. (2020). Sex and gender: modifiers of health, disease, and medicine. *Lancet 396*(10250), 565–582.

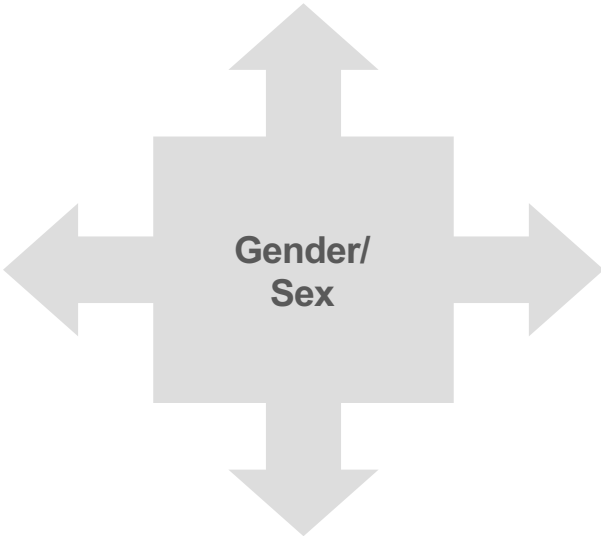
Gender/Sex

I think of myself as
Female/Male/Inter/Non-Binary/Questioning/Trans/…

Gender Identity

Gendered behavior

I behave in (stereotypically) masculine/feminine/nonbinary/… ways.

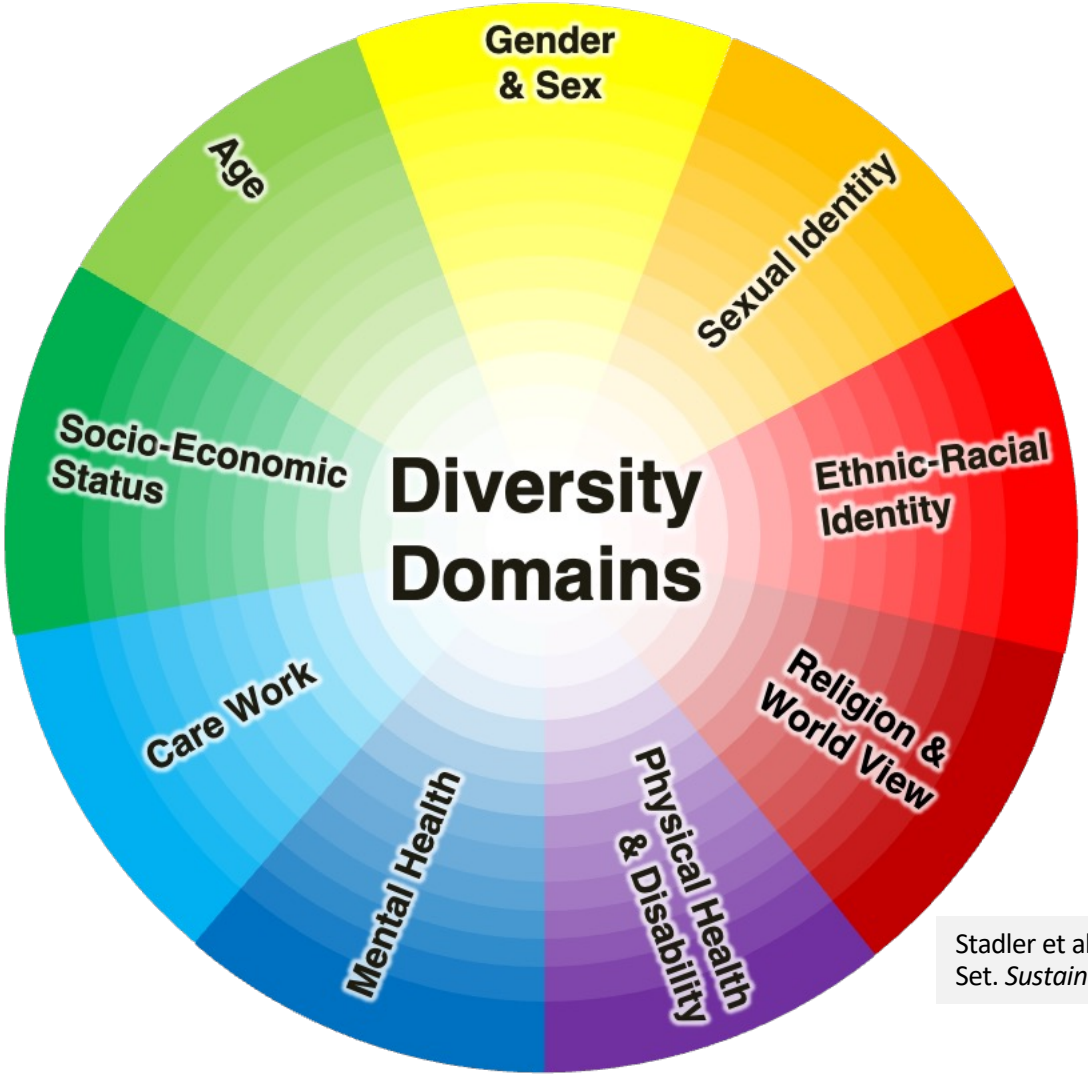


Sex

Sex assigned at birth „ Female/Male/Inter/…

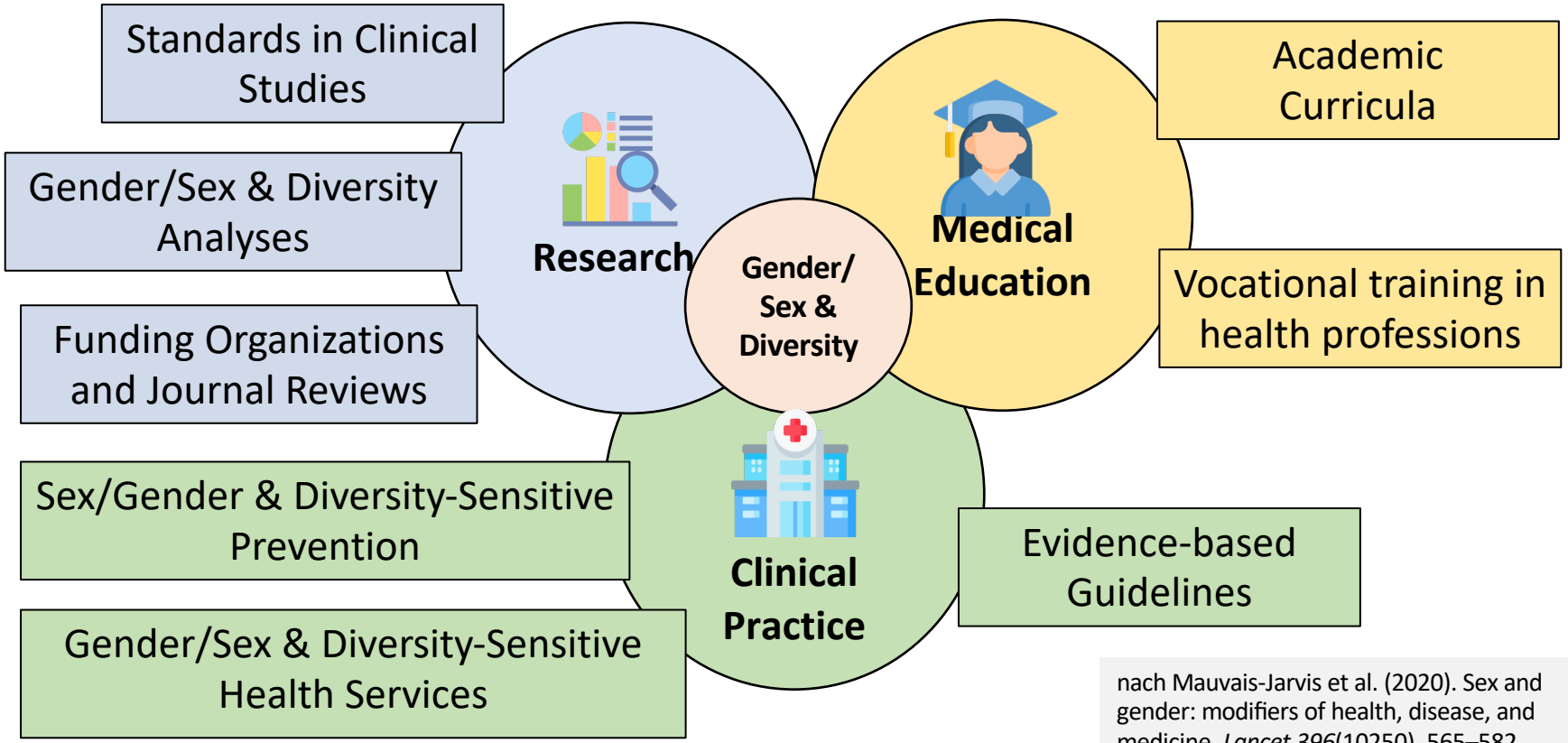
Gender expression

„I present as male/female/nonbinary/….“



Stadler et al. (2023). Diversity Minimal Item Set. *Sustainable Chemistry & Pharmacy*.

Integration of Sex/Gender & Diversity in Medicine



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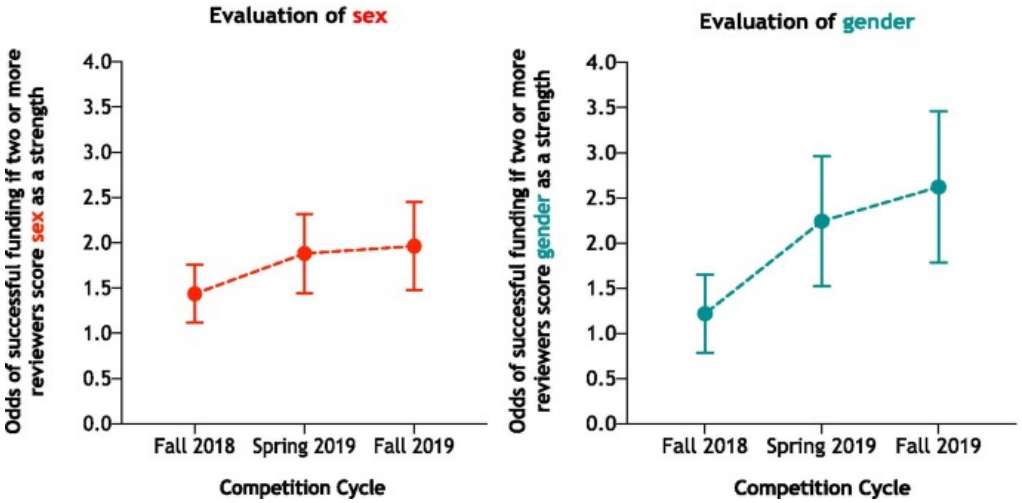
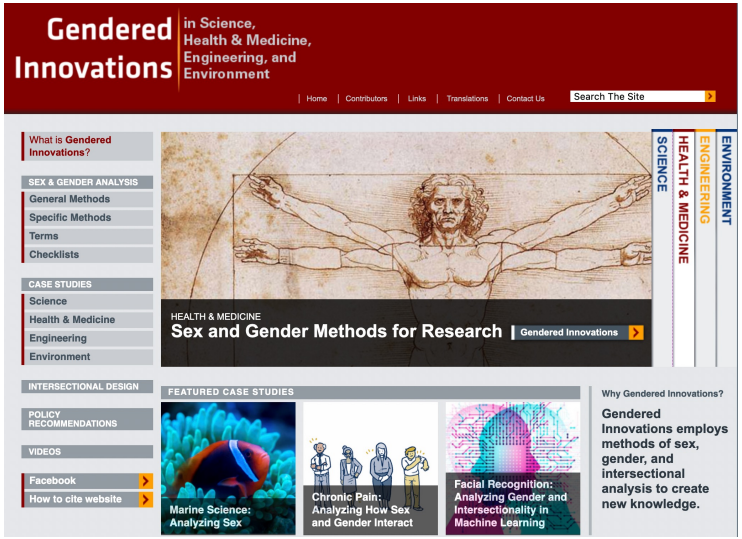
Integration of Sex & Gender in Medicine



Haverfield & Tannenbaum (2021). A 10-year longitudinal evaluation of science policy interventions to promote sex and gender in health research. *Health Res Policy Sys* **19,** 94

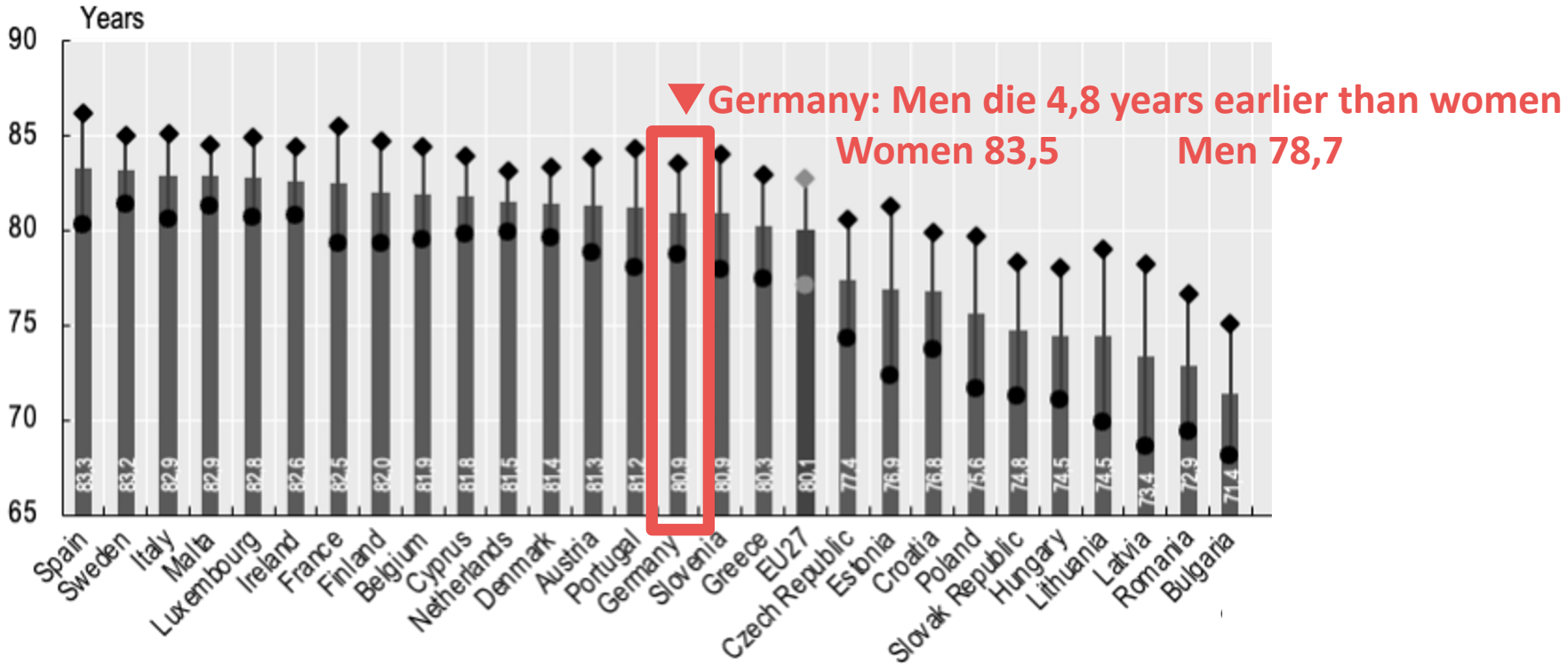


DFG Deutsche Forschungsgemeinschaft

HORIZON 2020

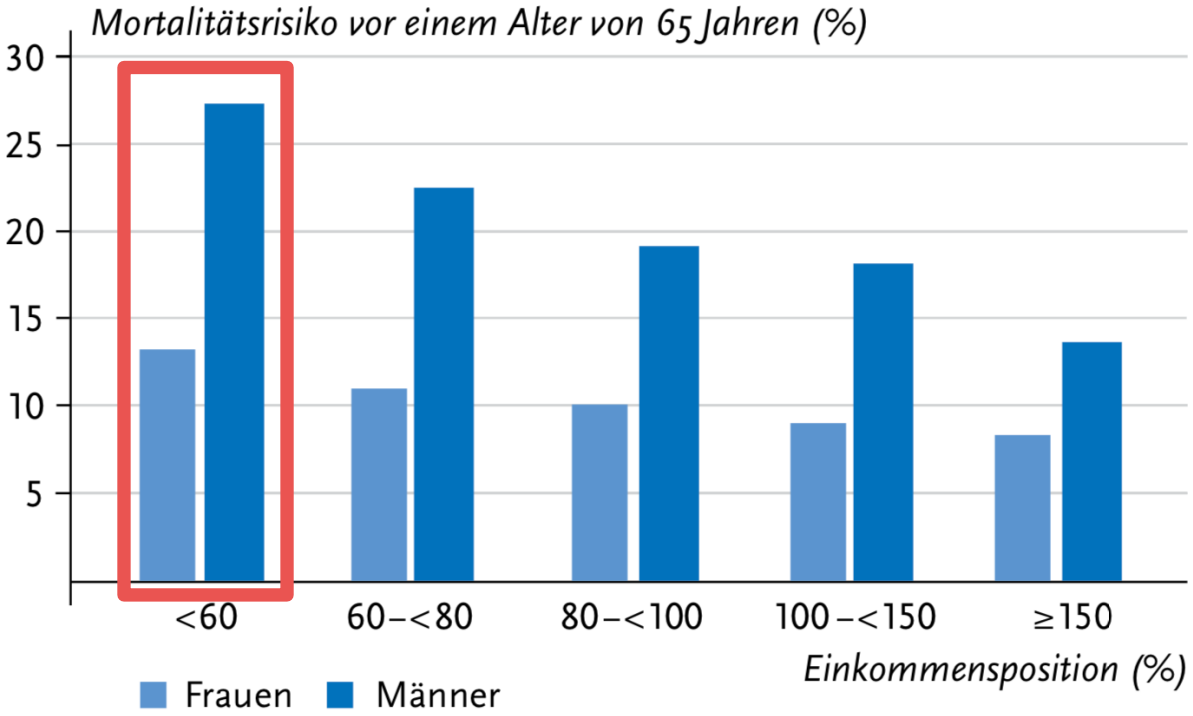
Gender Medicine

Differences in Life Expectancy



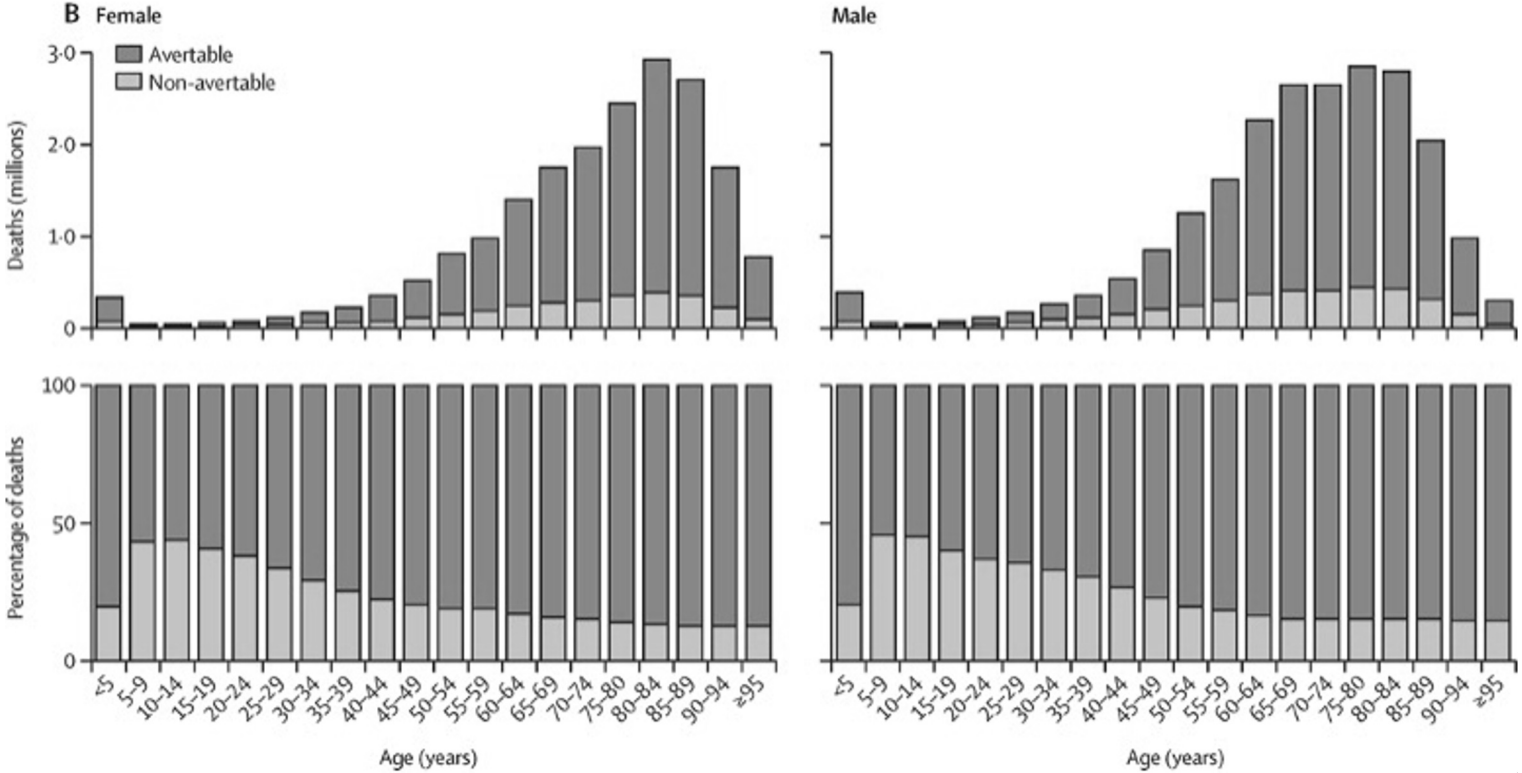
OECD/European Union (2022), Life expectancy at birth, by gender, 2021 (or nearest year)

People with lower SES die earlier, stronger link in men



Lampert, Hoebel & Kroll, 2019, Journal of Health Monitoring doi:10.25646/5868

Avertable Mortality



→Large part of mortality from non-communicable diseases preventable

Martinez et al. (2020) Lancet Global Health

12

Risk Factors, Cardio Risk

Risk factors for cardiovascular disease, ranking by healthy life years lost, for both sexes.

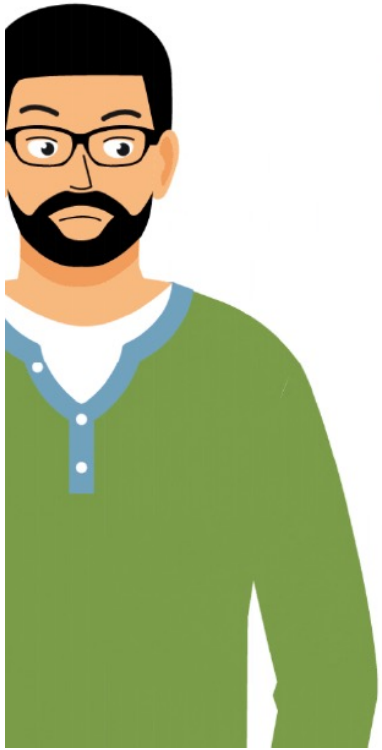
	Global	Asia Pacific, High Income	Asia, Central	Asia, East	Asia, Southeast	Australasia	Europe, Central	Europe, Eastern	Europe, Western
Dietary risks	1	1	1	1	1	1	2	1	1
High blood pressure	2	2	2	2	2	2	1	2	2
Tobacco smoking	3	3	4	3	3	6	4	4	5
Ambient particulate matter pollution	4	5	6	4	5	9	7	9	7
High body mass index	5	7	3	9	8	3	3	3	3
Physical inactivity and low physical activity	6	4	5	6	6	4	5	7	6
Household air pollution from solid fuels	7	10	9	5	4	N/A	8	11	N/A
High total cholesterol	8	6	8	8	7	5	6	6	4
High fasting plasma glucose	9	8	7	7	9	7	9	8	8
Alcohol use	10	11	11	10	11	10	11	5	10
Lead exposure	11	9	10	11	10	8	10	10	9

Benziger, Roth, & Moran (2016)

Gender Medicine

- Example Cardiovascular Health:
  - Women have double the risk to die from myocardial infarction, compared to men
  - Symptoms?

Meta-Analysis Symptoms



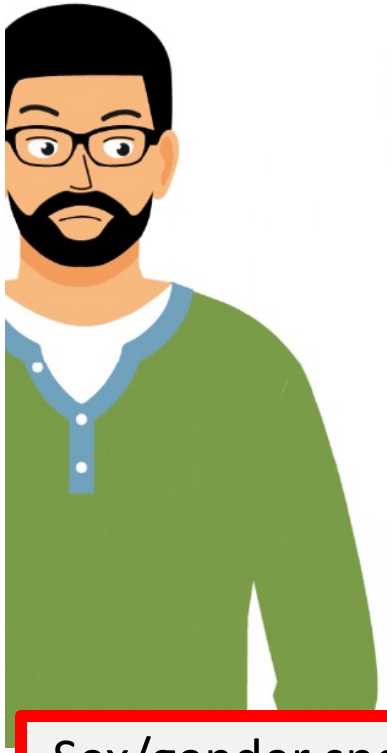
MAJOR HEART ATTACK

signs and symptoms in women and men

- Chest pain or discomfort
- Shortness of breath
- Pain or discomfort in the jaw, neck, back, arm, or shoulder
- Feeling nauseous, light-headed, or unusually tired

van Oosterhout, Roos EM, et al. "Sex differences in symptom presentation in acute coronary syndromes: a systematic review and meta-analysis." Journal of the American Heart Association 9.9 (2020): e014733.

Meta-Analyse Symptome



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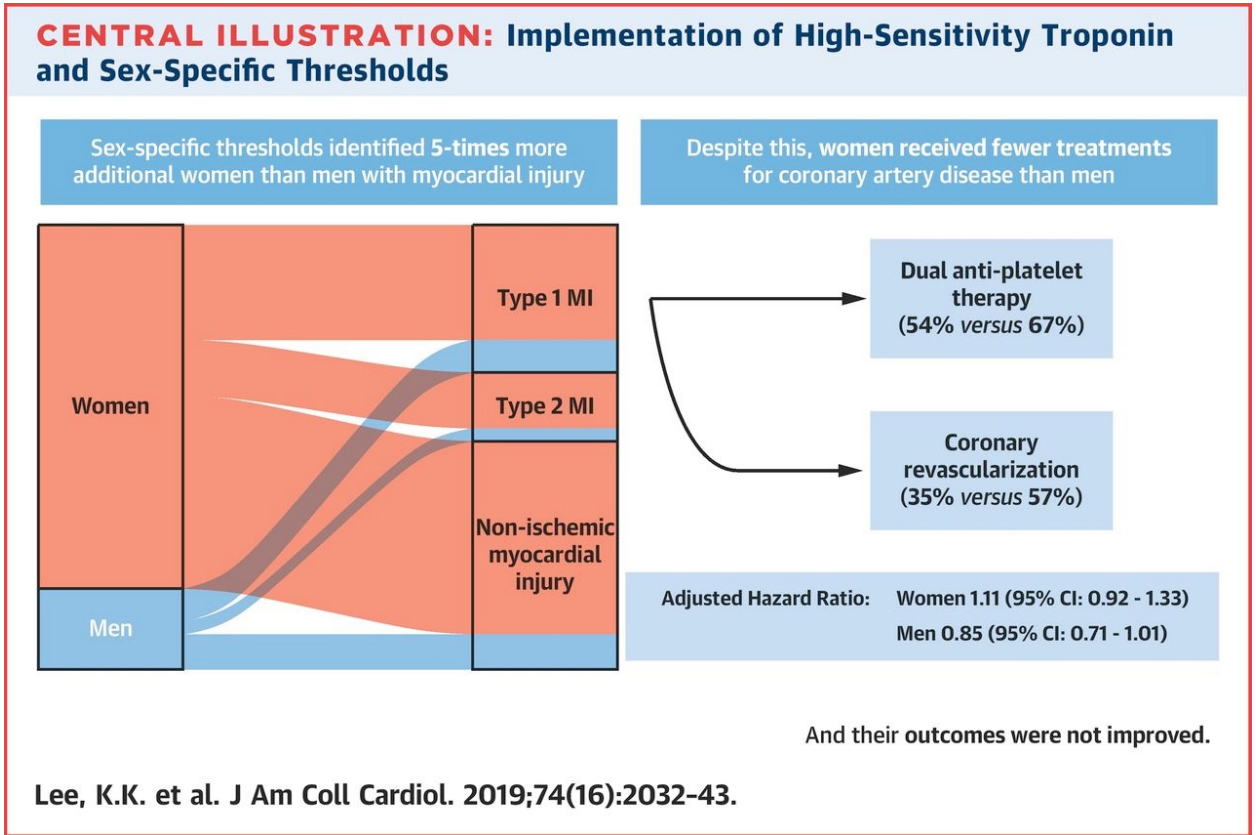
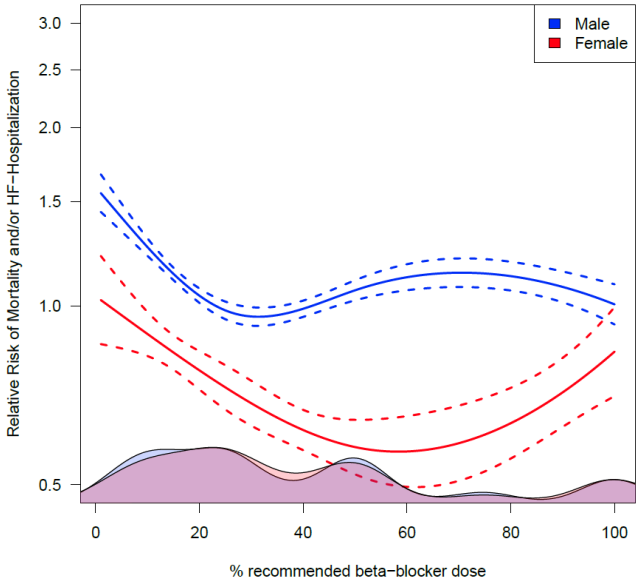
Sex/gender specific recommendations in guidelines?
RCTs and register data could inform these

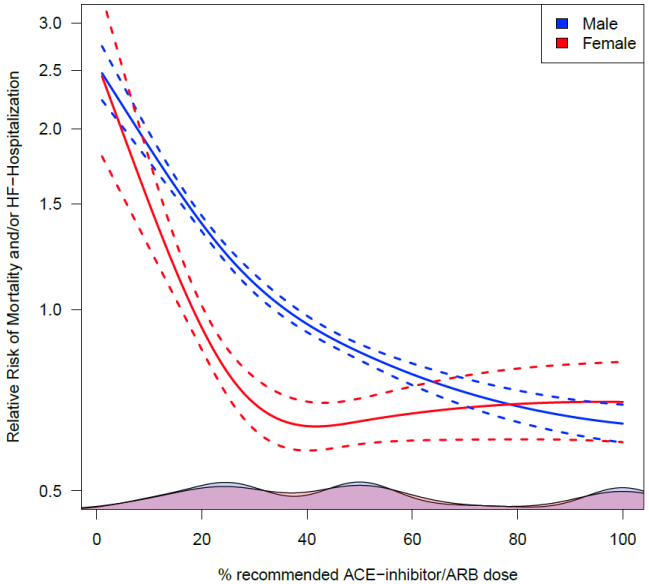
Sex/gender-adapted diagnostic threshold: More women correctly diagnosed with MI but not receiving sufficient treatment, no survival benefits so far



Optimal Medication Dosing Can Differ in Women and Men

BIOSTAT-CHF, 11 Europ. countries, ca 4000 pts with HFrEF (EF<40%),





Men had the lowest risk at 100% of recommended doses. Women had 30% lower risk at 50% of recommended doses, no further benefit at higher doses

Santema B et al, Lancet 2019

Sex/Gender & Medications

=> Higher side effects especially

- in women
- at higher age
- at lower weight

Highest in older leight-weight women

Already 3 personalization factors: sex/gender x age x weight.

Requires extremely large studies!

Personalized Digital Interventions

Problem: High alcohol intake

Intervention: Personalized text messages

Control: weekly assessment

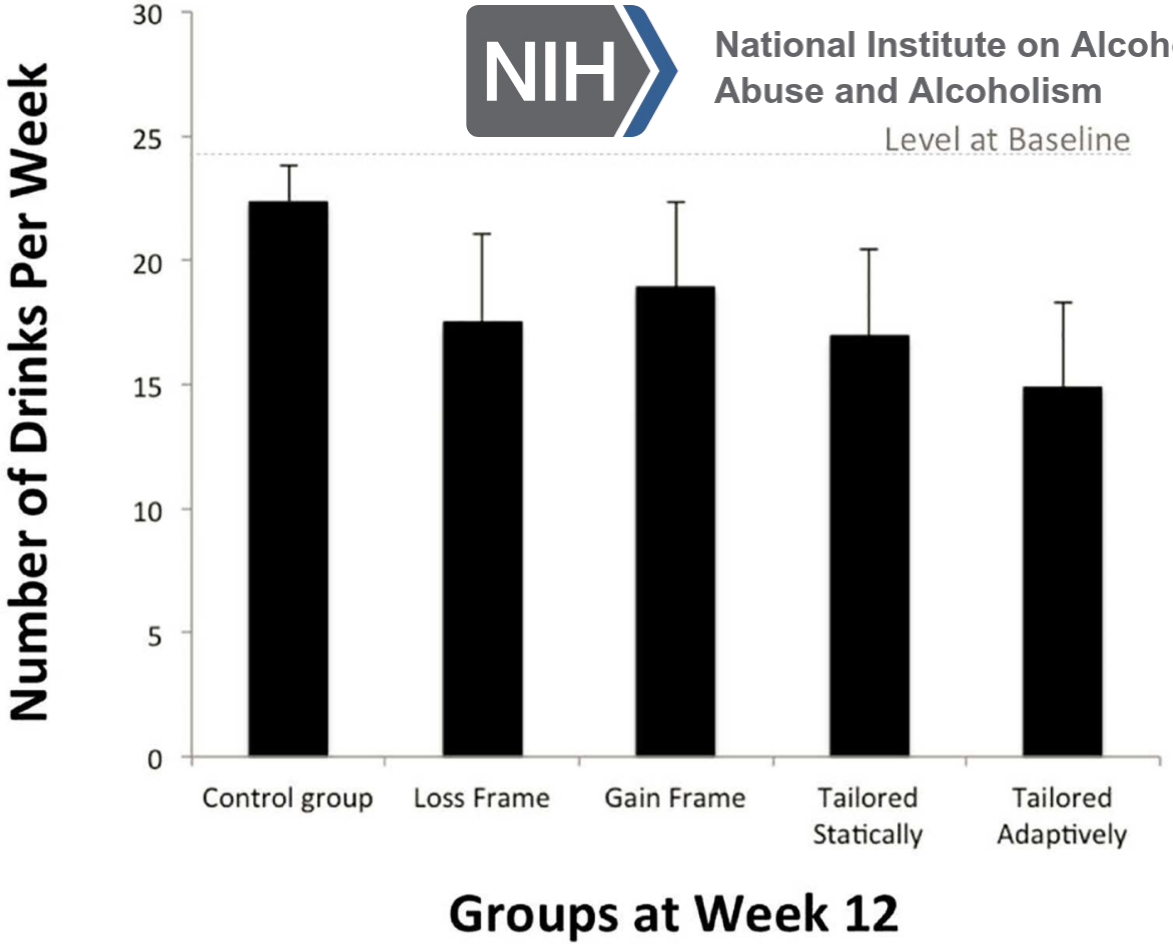


Fig 3. Estimated means and standard deviations of number of drinks per week. $N = 152$

Muench et al. (2017). PloS One, 12(2), e0167900.

Gendered Barriers to Care

Contents lists available at ScienceDirect

Social Science & Medicine

journal homepage: www.elsevier.com/locate/socscimed

Review article

Barriers and facilitators to health screening in men: A systematic review

Chin Hai Teo [a], Chirk Jenn Ng [a, *], Andrew Booth [b], Alan White [c]

Obesity Research & Clinical Practice

Volume 10, Issue 1, January–February 2016, Pages 70-84

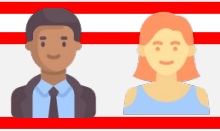
Original Article

Should weight loss and maintenance programmes be designed differently for men? A systematic review of long-term randomised controlled trials presenting data for men and

- → Programs perceived as unattractive, tailored to women
- → Higher weight more likely perceived as normal
- → Lower perception of risk
- → Appointments difficult to fit in daily routin

- → Care commitments can present hurdles
- → Lack of exercise more common in women

- → Sex/gender-homogenous groups preferred

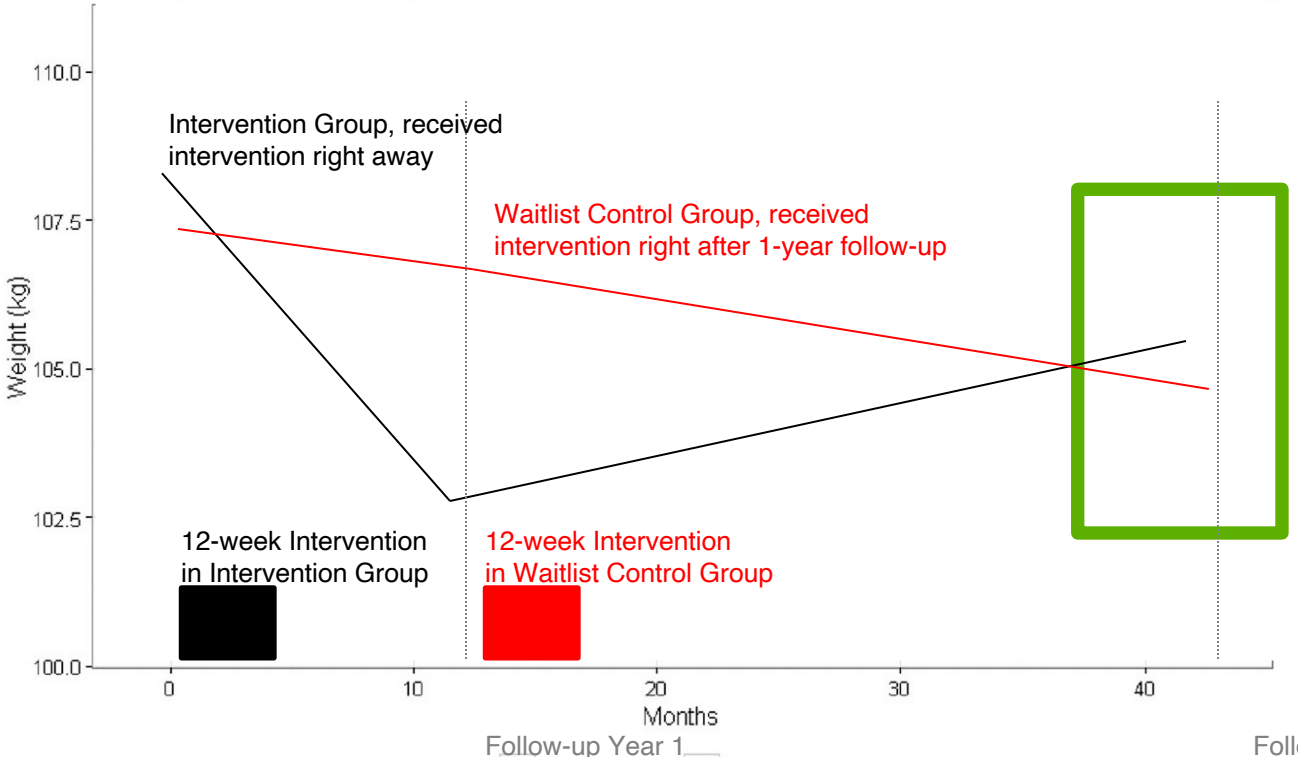


Football Fans in Training (FFIT)

- *N* = 747 soccer fans: male, 35 - 65 years; BMI > 28
- 12-week free program at a professional soccer club
- Combination of nutritional counseling and physical activity
- Typically "male-friendly" setting
- RCT design with waiting list control group

Gray et al. (2018). Long-term weight loss trajectories following participation in a randomised controlled trial of a weight management programme for men delivered through professional football clubs: a longitudinal cohort study and economic evaluation. The international journal of behavioral nutrition and physical activity, 15(1), 60.

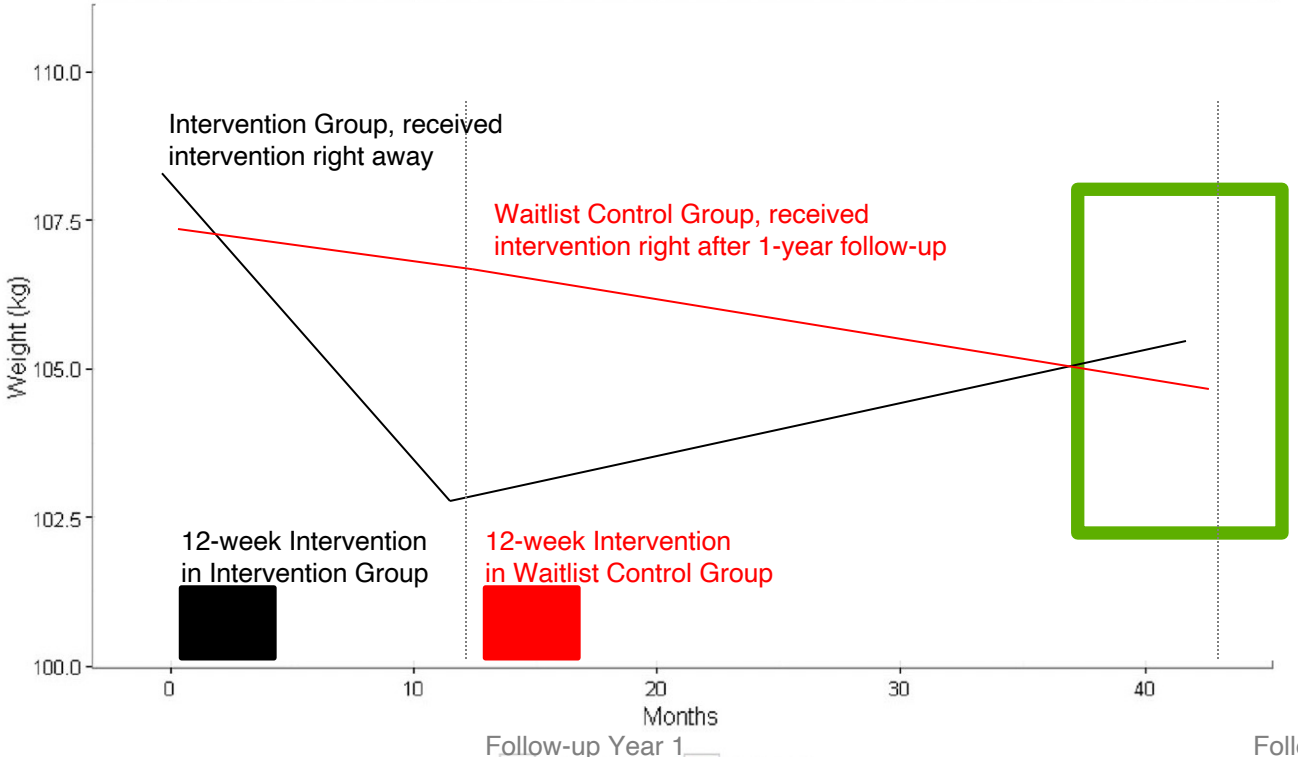
FFIT: weight reduction over 3,5 years



Effects of FFIT intervention on weight over 3.5 years in intervention group and waitlist control group

Gray et al. (2018).

FFIT: weight reduction over 3,5 years

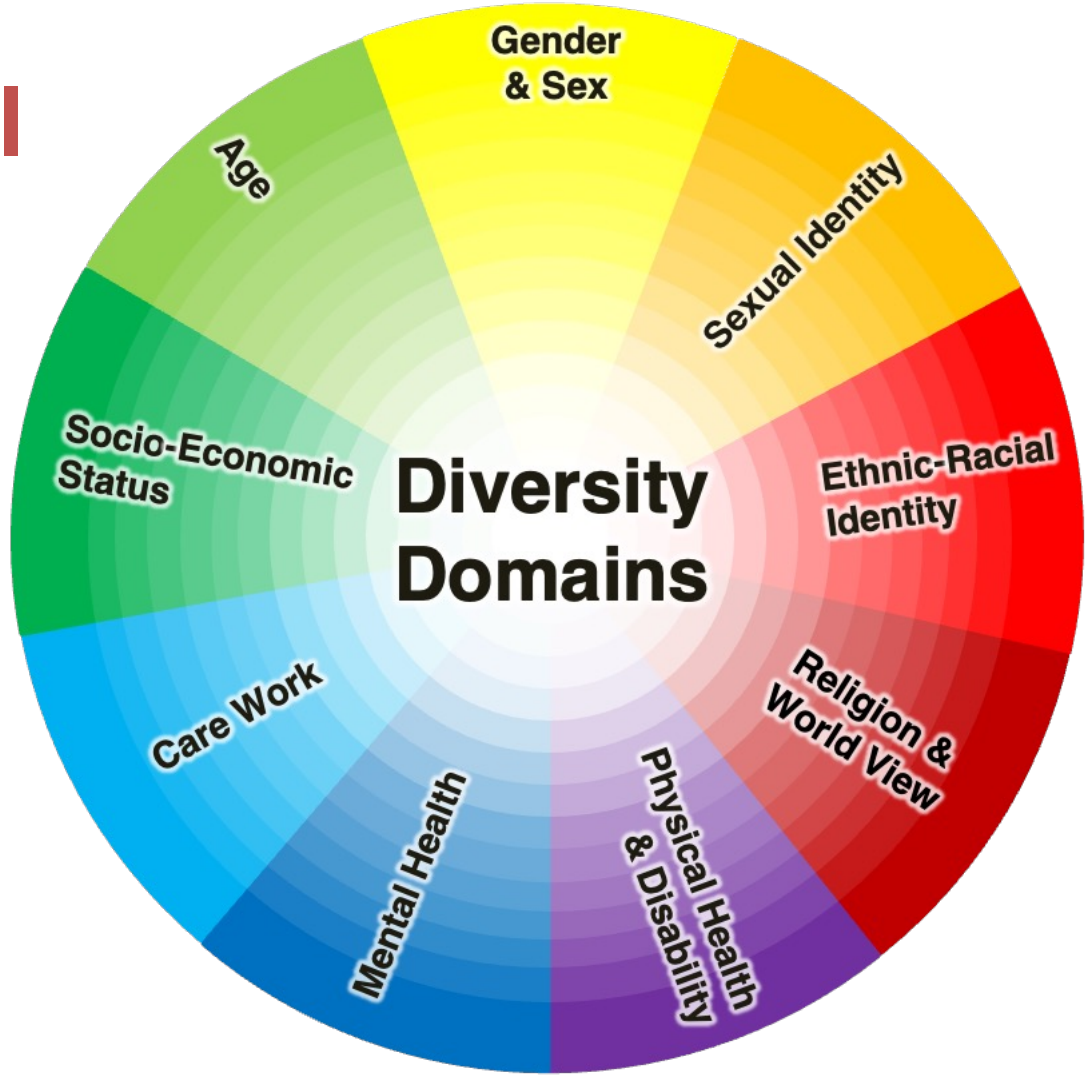


Effects of FFIT intervention on weight over 3.5 years in intervention group and waitlist control group

Gray et al. (2018).

Diversity Minimal Item Set (DiMIS)

Current Project
PI Stadler:
Systematic Gender/Sex & Diversity Analysis



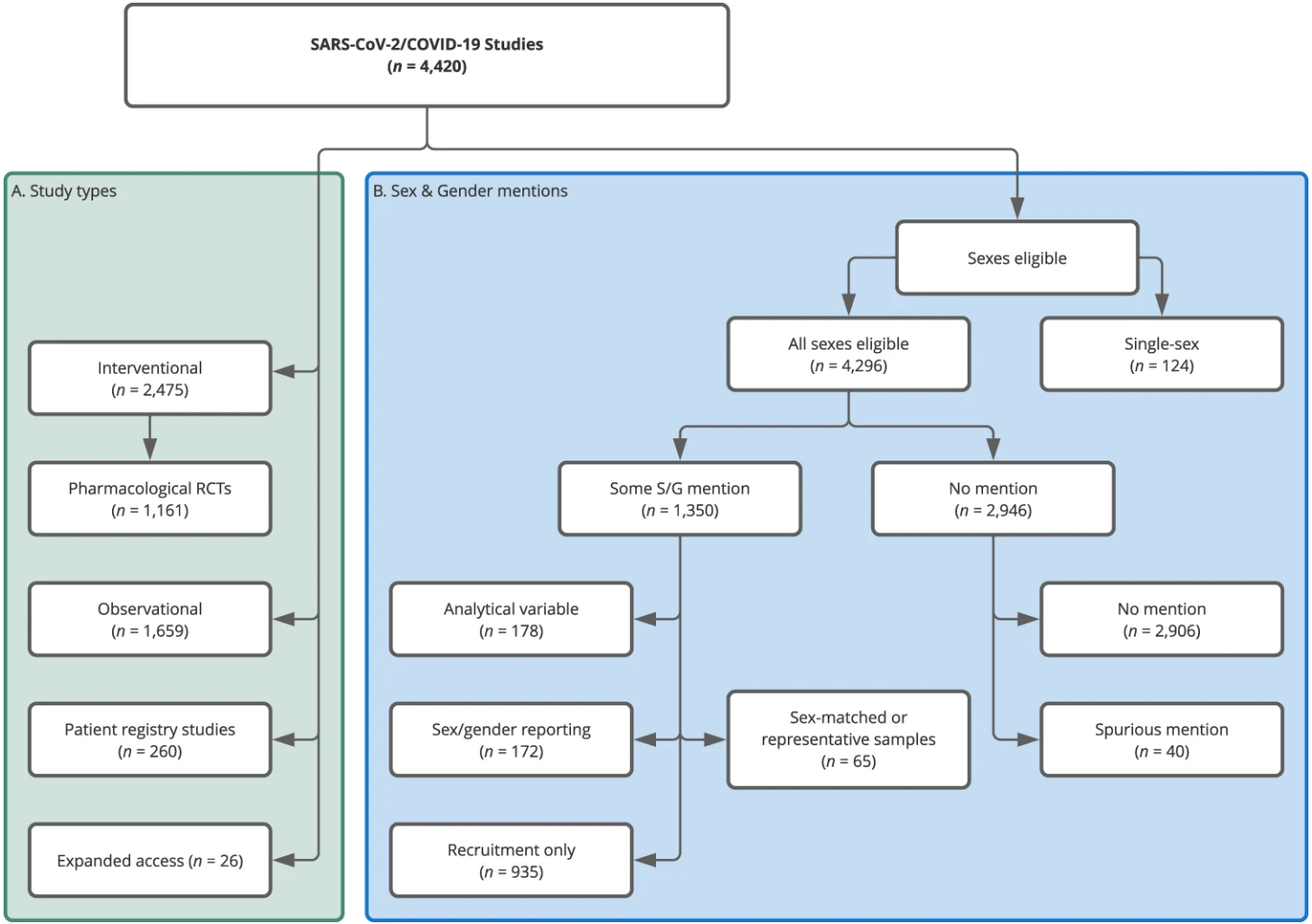
Berlin University Alliance

COVID 19

- Gender, age, prior chronic conditions as important risk factors
  - Men: higher risk for morbidity and mortality, particularly in older men and with relevant chronic conditions
  - Women: higher psychosocial burden, particularly those with care responsibilities
    Higher risk of Long COVID, particularly at younger age

Gender Data Gap

Example Covid 19 Studies



Brady et al., 2021
Nature Communications

Sex/Gender & Diversity Data Gaps

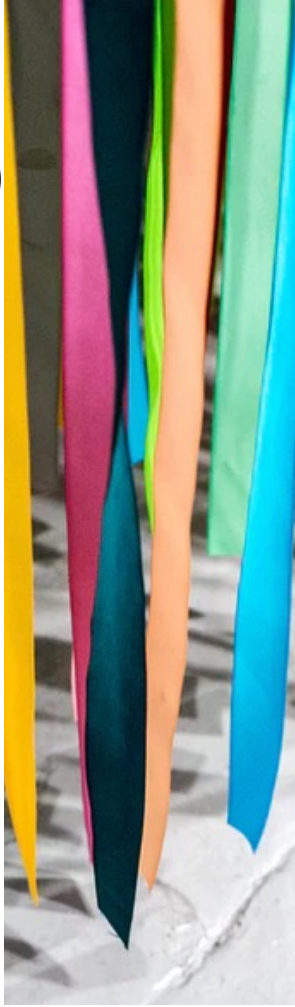
- Sex/gender & diversity related to morbidity,QoL, mortality,
- Large data gaps for most diversity domains
- Example: Underrepresentation of ethnic minorities and older people
  - In oncology clinical trials
  - Clinical trials with vaccines

Intersectionality & Health

- In addition to sex/gender, **age, socioeconomic status, migration history and other diversity domains** can also determine health
- Intersectionality describes the **overlap** and **interaction** of different social determinants of health.
- Example Sweden: older men (70-79 years) with migration history 32-fold increased risk of diabetes compared to middle-aged women (40-49 years) without migration background (Wemrell et al. 2019)
- **Cross-cutting theme**: gender and diversity research affects all areas of medicine
- Overall, still large data gaps and many "blind spots" in medicine

Diversity Minimal Item Set (DiMIS)

- Overall Aim:
  - Close data gaps
- Objectives in creating the DiMIS:
  - Briefly
  - Inclusive
  - Usable for all



Diversity Minimal Item Set (DiMIS)

Aim of the DiMIS is to facilitate measurement of gender, other diversity domains and their intersections in order to better address the inequity in available data.

→ Close diversity domains within countries/regions; but also enable more diverse data collection regionally

→ Diversity items must be translated (and adapted) within their cultural context

→ Input from local stakeholders is necessary and indispensible

General Recommendations

CONSIDER ORDER

- Think about your population and which terms they are familiar with when deciding on answer option order.
- Consider presenting answer options in alphabetical or random order to avoid listing socially dominant options first.
- Maximize useable data collection while minimizing the replication of dominant power structures.

PREFER NOT TO ANSWER

- Add "prefer not to answer" option to allow for more flexibility in responding and to acknowledge participants' privacy

AVOID THE TERM "OTHER"

- Using the term "other" is seen as othering--avoid it and use alternative wording.

ALLOW FOR SELF-IDENTIFICATION

- Where applicable, add a free-response option for self-identity, which recognizes participants' personal self-definitions (e.g. not applicable for age).

CLEARLY EXPLAIN WHY DATA IS BEING COLLECTED

- If asking for sensitive information, clearly explain why this data is being collected to maintain participant trust.

ALWAYS ANONYMIZE

- It is particularly important to follow stringent data protection measures when working with diverse populations. Make sure participants understand their data will be fully anonymized.

Diversity Minimal Item Set (DiMIS)

1 Regarding gender identity, which of the following options best describes how you think of yourself? (check as many as apply)

□ Female □ Male □ Cis □ Dyadic □ Inter □ Non-Binary □ Questioning
□ Trans □ Prefer to self-identify: _____ □ Prefer not to answer

If it is important to the research question to include information on participants' sex, consider adding Question 1b along with an explanation of why it is important that participants disclose sex, gender, and/or trans status.

1b What sex were you assigned at birth? (For example, on your birth certificate.)

□ Female □ Male □ Intersex □ Don't Know □ Prefer not to answer

Diversity Minimal Item Set (DiMIS)

4 Do you have any of the following care responsibilities? (check as many as apply)

This does not include caregiving, nursing services or support you provide in connection with your profession.

□ No

□ Yes, for a child or children (under 18 years old)

with disabilities □ Yes □ No

with chronic health condition □ Yes □ No

□ Yes, for one or more adults (age 18 years and above)

with challenges of old age or frailty □ Yes □ No

with disabilities □ Yes □ No

with chronic health condition □ Yes □ No

□ Prefer not to answer

Diversity Minimal Item Set (DiMIS)

6a In which country were you born?

▼ [Drop down menu with country list]

□ Another country, please specify:_____ □ Prefer not to answer

6b In which country/countries were your parents born?

Parent 1/Mother: ▼ [Drop down menu with country list]

□ Another country, please specify:_____ □ Prefer not to answer

Parent 2/Father: ▼ [Drop down menu with country list]

□ Another country, please specify:_____ □ Prefer not to answer

6c-1 How well do you speak…

English [official language] **:**

□ Native speaker □ Very well □ Well □ Not Well □ Not at all □ Prefer not to answer

Diversity Minimal Item Set (DiMIS)

6d Do you identify as…?

(Note: UK example; adapt to local research context)

□ Asian or Asian British

□ Black, Black British, Caribbean or African

□ Multiple ethnic groups

□ White

□ Prefer to self-identify: _____

□ Prefer not to answer

(Note: In contexts, where a more nuanced assessment of ethnicity and/or race is not possible, consider asking the following question as a marker of racism- or discrimination related exposures.)

6e Do you identify as a member of an ethnic minority or racialized group?

A racialized group is a societal group which is affected by racism or discrimination. The racialization may be based on skin colour, origin, religion, language, etc.

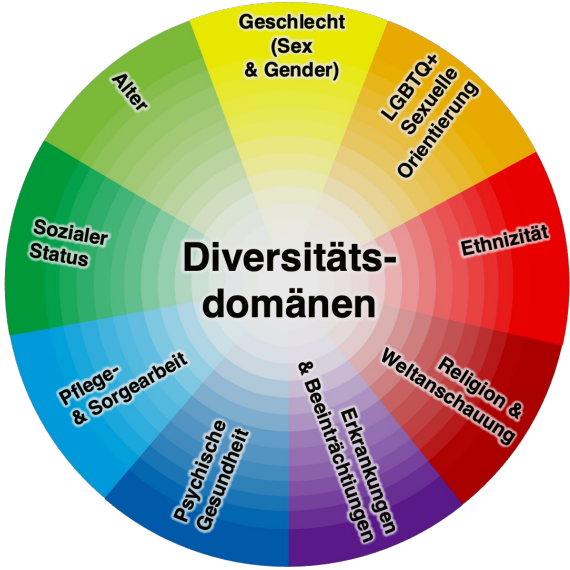
□ Yes □ No □ Prefer not to answer

Diversity Minimal Item Set (DiMIS)

Preprint verfügbar

Preprint DOI:
10.31234/osf.io/bjyms

Stadler, G., Chesaniuk, M., Haering, S., Roseman, J., Strassburger, V. M., Diversity Assessment Working Group & Schraudner, M. (2023). Diversified Innovations in the Health Sciences-Proposal for a Diversity Minimal Item Set. *Sustainable Chemistry & Pharmacy, 33,* 101072. https://doi.org/10.1016/j.scp.2023.101072

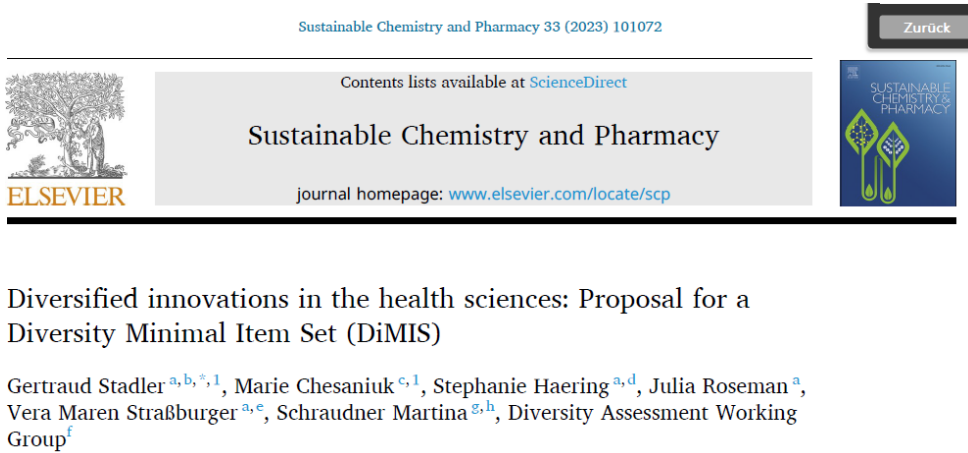


Thanks to the Diversity Assessment Working Group

Aisha Ahmad, Berlin University Alliance; Maisha Auma, University for Applied Sciences, Magdeburg-Stendal; Kasia Banas, University of Edinburgh; Pichit Buspavanich, Charité; Marie Chesaniuk, University of Illinois at Chicago; Anna Henschel, Charité; Sally Di Maio, Freie Universität Berlin; Charlotte Krumbolz, Charité; Tomasz Moschko, University of Tübingen & Charité; Theda Borde, Alice Salomon Hochschule; Marc Dewey, Charité; Ruth Ditlmann, Hertie; Paul Gellert, Charité; Denis Gerstorf, HU; Ulrike Grittner, Charite; Stephanie Häring, Charité; Carolin Hagelskamp, HWR Berlin; Wolfram Herrmann, Charité; Caren Hilger, Charité; Lena Keller, Uni Potsdam; Matthias Licha, Charité; Friederike Kendel, Charité; Felicia Boma Lazaridou, Charité & DEZIM; Kimberly Mason, Charité; Steffen Mau, HU; Ursula Müller-Werdan, Charité; Julie O'Sullivan, Charité; Jonas Radl, WZB; Christian Rathmann, HU; Vera Regitz-Zagrosek, Charité; Nina Rieckmann, Charité; Alexander Rommel, RKI; Julia Roseman, Charité; Zerrin Salikutluk, HU; Patrick E. Shrout, NYU; Jamie Smith, Charité; Jule Specht, HU; Gertraud Stadler, Charité; Petra Stephan, Charité; Christiane Stock, Charité; Vera Straßburger, Charité; Mine Wenzel, Andersraum e.V. Hannover.

Potential uses of the DiMIS

- Research:
  - Sample description for main effects of diversity domains and meta-analyses
  - Data pooling to reach critical sample size for small minority groups
- Teams
  - Description of teams and organizations domains covered
- Clinical Practice:
  - Tool to allow patients to self-identify
- Policy impact analysis
  - Systematic analysis of impacts on diverse population subgroups



Sustainable Chemistry and Pharmacy 33 (2023) 101072

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ELSEVIER

Diversified innovations in the health sciences: Proposal for a Diversity Minimal Item Set (DiMIS)

Gertraud Stadler [a,b,*,1], Marie Chesaniuk [c,1], Stephanie Haering [a,d], Julia Roseman [a], Vera Maren Straßburger [a,e], Schraudner Martina [g,h], Diversity Assessment Working Group [f]

Limitations

- 9 diversity domains
- No comprehensive examination of the individual diversity domains
- Local adaptations necessary
- Challenges with data protection and storage

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NEWS FEATURE | 05 April 2023

Diversity in German science: researchers push for missing ethnicity data

The European country is one of several reassessing its cultural unease with collecting information on scientists' race and ethnicity.

Hristio Boytchev

https://www.nature.com/articles/d41586-023-00955-9

Hristio Boytchev
@hristio

Why is there so little data on racial and ethnic diversity in German academia? My feature for @Nature tries to give and answers and portrays people advocating for better data.

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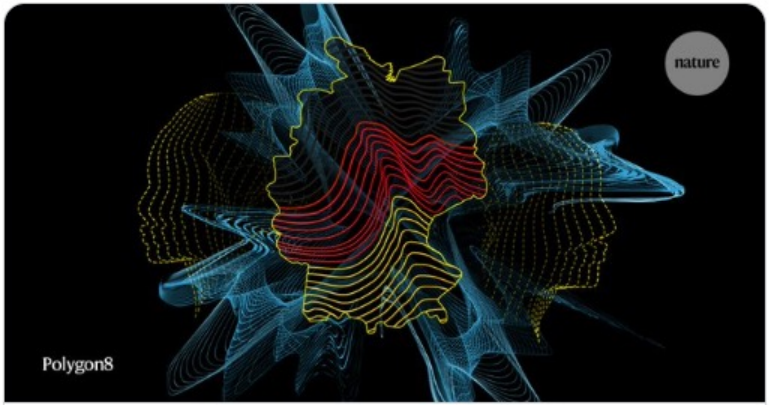

nature.com
Diversity in German science: researchers push for missing ethnicity data
Nature - The European country is one of several reassessing its cultural unease with collecting information on scientists' race and ethnicity.

11:31 vorm. · 5. Apr. 2023 · **20.617** Mal angezeigt

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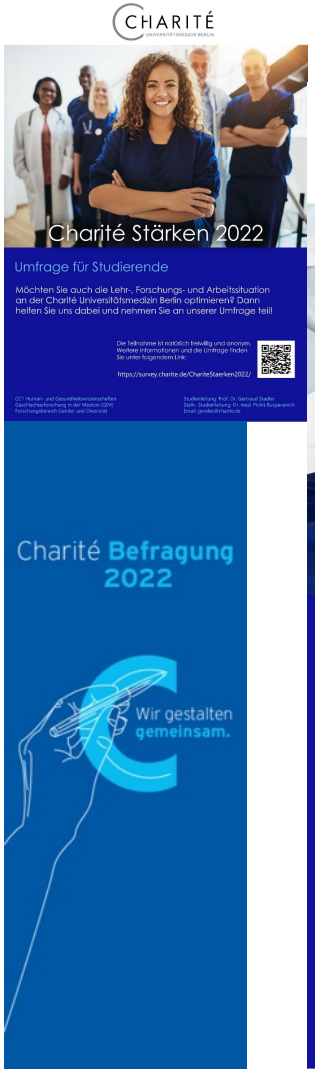
Does the Charité represent the diverse and multifaceted Berlin?



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Charité Stärken
Bedarfsermittlung

Interventionsentwicklung
mit den Nachwuchsgruppen

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CHARITÉ
UNIVERSITÄTSMEDIZIN BERLIN

Charité Stärken 2022

Umfrage für Studierende

Möchten Sie auch die Lehr-, Forschungs- und Arbeitssituation an der Charité Universitätsmedizin Berlin optimieren? Dann helfen Sie uns dabei und nehmen Sie an unserer Umfrage teil!

Die Teilnahme ist natürlich freiwillig und anonym. Weitere Informationen und die Umfrage finden Sie unter folgendem Link:

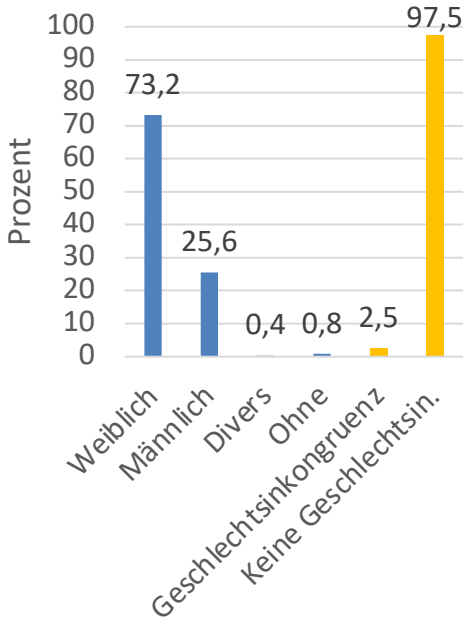
https://survey.charite.de/ChariteStaerken2022/

CC1 Human- und Gesundheitswissenschaften
Geschlechterforschung in der Medizin (GIM)
Forschungsbereich Gender und Diversität

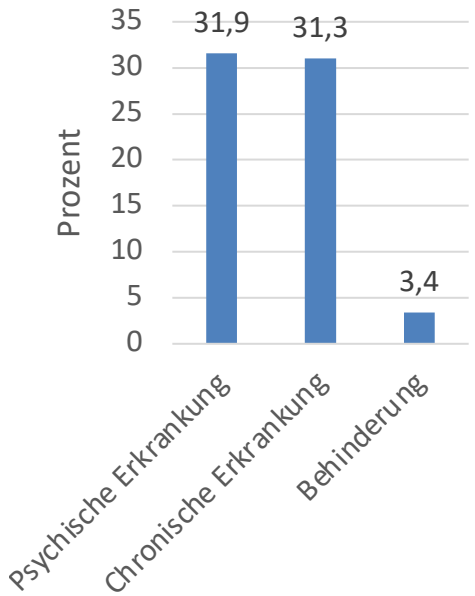
Studienleitung: Prof. Dr. Gertraud Stadler
Stellv. Studienleitung: Dr. med. Pichit Buspavanich
Email: gender@charite.de

Diversitätsverteilung Studierende

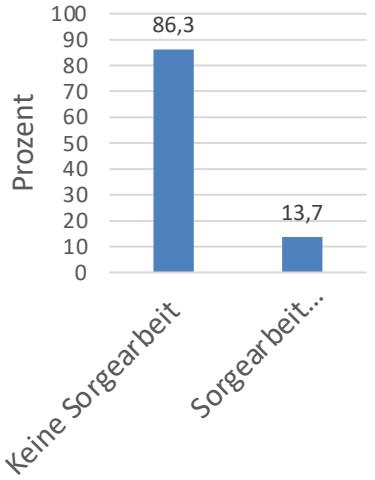
N = 716



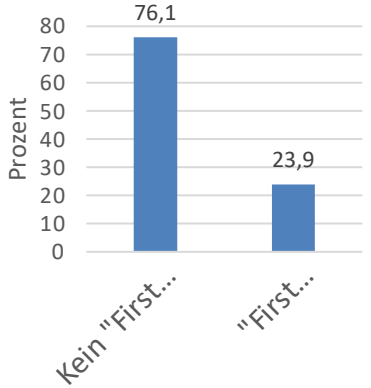
Geschlecht



Gesundheit

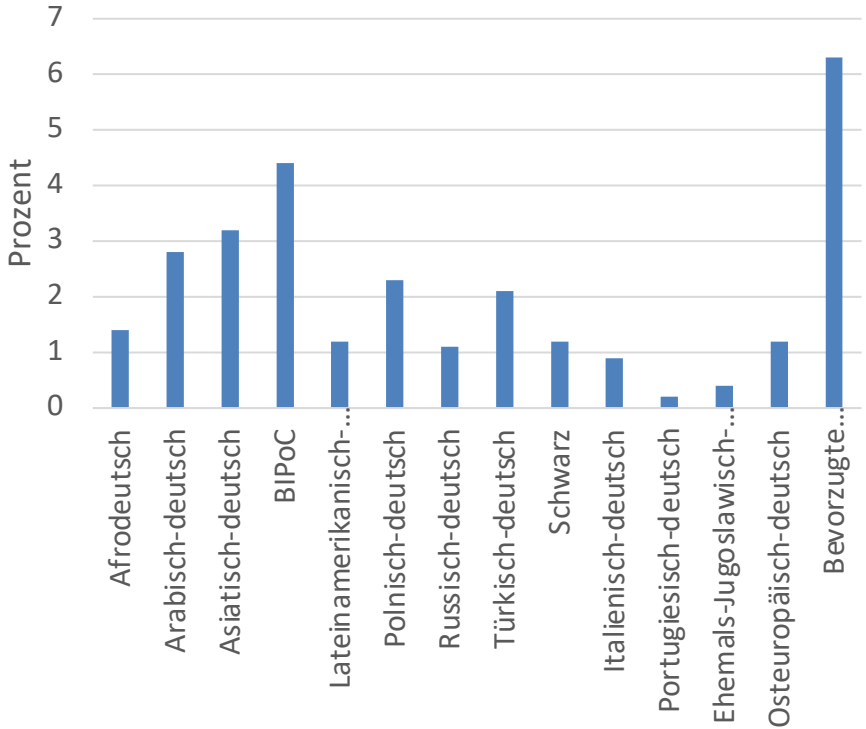


Sorgearbeit

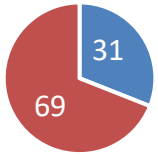


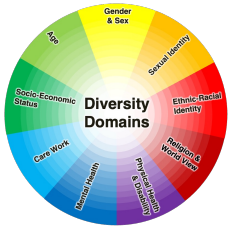
First Generation Academics

Ethnizität und Migration



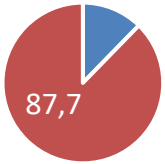
Migrationsgeschichte Gesamt





Vorhanden Nicht vorhanden

Migrations-geschichte Eigene



Vorhanden Nicht Vorhanden

Migrations-geschichte Eltern

Vorhanden Nicht vorhanden

DiMIS International

- Adapt Diversity Minimal Item Set for different countries
- Workshop Sept 4 for European versions in Bremen, hybrid participation possible.
- Please contact us if you would like to contribute your expertise gertraud.stadler@charite.de

Sex & Gender in Medicine

Gertraud (Turu) Stadler
SPARK
5.7.2023

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