



ACT Matching Events

Summary report:

**Matching Event on Gender dimension –
in conjunction with research educational activities at Karolinska
Institutet**

20th and 22nd of October 2020

15:00-17:00 (Brussels time)

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Gender dimension Matching Event – Agenda:

Tuesday, 20th of October 2020

15:00-17:00 (Brussels time)

15:00-15:10	Introduction and Welcome Karolina Kublickiene (Karolinska Institutet)
15:10-15:50	Introduction on the Gender Dimension (EU perspective) Professor Sabine Oertelt-Prigione (Radboud UMC, Netherlands) Followed by a Q&A
15:50-16:00	Break
16:00-16:50	Sex and Gender with Reflections from the Italian Society of International Medicine Valeria Raparelli (Sapienza University, Italy) Followed by a Q&A
16:50-17:00	Wrap-up and summary

Thursday, 22nd of October 2020

15:00-17:00 (Brussels time)

15:00-15:50	Sex Differences in Alzheimer`s Disease: what we know and what we do Ivan Nalvarte (Karolinska Institutet) Followed by: KI Centre for Gender Medicine Video and a Q&A
15:50-16:00	Break
16:00-16:15	Responsible AI: Free from (human) bias, unfairness and discrimination Via YouTube Natalia Criado Pacheco (King`s College London)
16:15-16:50	Group work in different breakout sessions
16:50-17:00	Wrap-up and summary

Day 1 of the Gender Dimension Matching Event

Introduction

(Karolina Kublickiene)

After quickly introducing some organisational points, Karolina Kublickiene gave a short introduction on the topic of the Matching Event. What is important in regard to gender dimension is to boost the mindset, to boost curiosity in order to find new discoveries and work together for a better world. The three main focuses of this event are (1) Why gender dimension adds value to research and education in the field of STEM, (2) Meet an expert, get inspired: from one size fits all to an individualised approach and (3) When and how: hands on with practical work. Becoming a gender champion to boost your science and education towards innovation.

As this event was planned to take place in Stockholm face-to-face, a short presentation of Karolinska Institutet has been given and some pictures have been shown.

Introduction on the Gender Dimension (EU perspective) – The gender dimension in research - content and context - (Sabine Oertelt-Prigione, Radboud University)

Even though working closely with the commission (but not representing it), Sabine Oertelt-Prigione's roots are those of a practitioner. The topics of this session were:

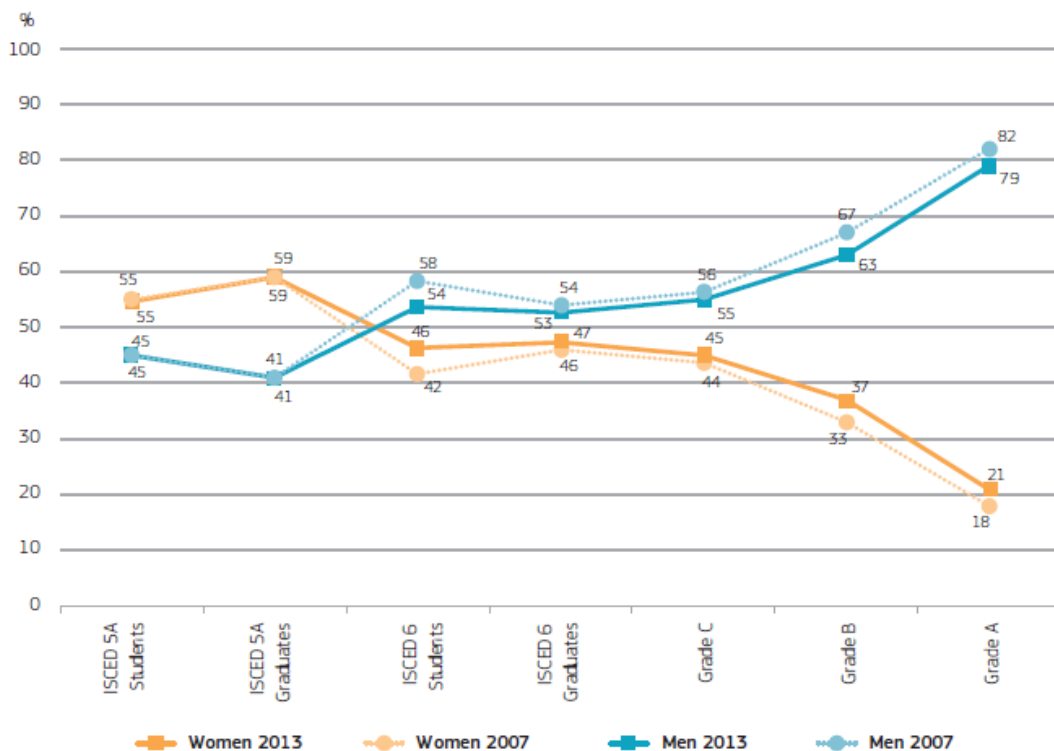
- (1) Why do we need gender dimension in research?
- (2) What is the gender dimension?
- (3) Gender balance in research teams
- (4) Gender balance in decision-making
- (5) Sex and gender analysis in research and innovation

(1) Why do we need gender dimension in research? When answering this question, it is important to look at different dimensions: Ideology (social justice, remove health inequalities, tackle discrimination etc.), Outcomes (better life quality, health promotion for both sexes), Practice (transdisciplinarity approach and intersectionality concept), Empowerment (support informed choice, accepting people's lifestyle choices etc.), Economy (effectiveness and cost reduction by improving measures) and Policy (setting reasonable goals, maintaining the status quo). Different regions have different priorities in how to address gender dimension and, of course, different definitions. Gender dimension is the term that the EU introduced. When looking at why we need the gender dimension (i.e. implementation of sex and gender perspectives in the research content), the different institutions agree on basically three aspects, which are reproducibility, excellence and societal value.

(2) When looking at how the gender dimension is being defined in Horizon 2020, there are three different levels: (1) Fostering gender balance in research teams, (2) Ensuring gender balance in decision-making and (3) integrating sex/gender analysis in R&I. When breaking that down to the organisational structural level, we're basically talking about two different levels. One level is the contextual level (who is doing research, in which environment; gender balance in research teams and in decision-making). The other one is the level of content (gender and sex analysis in R&I). The EU is asking to include both levels.

(3) This figure from the SheFigures 2015 report, shows, that at the beginning of an academic career women and men are represented more or less equally. When looking at Grade B and Grade A positions the numbers move significantly apart, with women being underrepresented. This phenomenon might be not as distinct in social sciences and humanities as it is in natural sciences, but there still is a big difference between women and men. The more you proceed in a career, the bigger the divergence between women and men becomes ending with men making 79% of the senior researchers with decision making power and women leaving with approximately 21% (in 2015). In terms of recruitment, these numbers challenge setting up a balanced team: If the number of women is that low, then it becomes more difficult to recruit women for your team (especially Grade B and Grade A).

Figure 6.1. Proportion of women and men in a typical academic career, students and academic staff, EU-28, 2007–2013



Notes: Reference years Eurostat data: 2007–2012, Reference years for Women in Science (WIS) data: 2007–2013, Exceptions to the reference years (WIS): AT: 2007–2011; BE (FR), LV, RO: 2010–2013; CY, PT: 2007–2012; DK, LU (Grade A and B, C not available): 2009–2013; ES, IE: 2008–2012; BE (FL), NL, FI: 2011–2013; PL, SK: 2012–2013; FR: 2012; HR: 2014; MT: 2015; EE: 2004 (She Figures 2012); LT: 2007 (She Figures 2012); UK: 2006 (She Figures 2012); Data unavailable for: (Eurostat) ISCED 5A Students: LU (2007); ISCED 5A Graduates: FR (2012), LU (2007); ISCED 6 Students: DE (2007), LU (2007); ISCED 6 Graduates: FR (2012), LU (2007).

Source: Women in Science database, DG Research and Innovation and Eurostat – Education Statistics (online data code: educ_grad5)

Source: SheFigures 2015. Available under:
https://ec.europa.eu/research/swafs/pdf/pub_gender_equality/she_figures_2015-final.pdf

When looking at these numbers, the term “Leaky pipeline” comes to mind. There are different aspects, that play a role, starting with who is more likely to be employed in more advanced research groups, who gets more excellent recommendation letters, who gets initial funding or renewal grants up to who is more likely to be awarded. In addition, the social family factors and the country policy regulations on the maternal leave and social support might also play a role in addition to the fact that women even more in addition to their research duties are also involved in the teaching. All of these aspects lead to losing women in the academic process and/or developing adverse prerequisites for females to stay in academia.

(4) When talking about gender balance in decision-making, we basically talk about power. When addressing gender and power the most prominent example is sexual harassment, which is defined as “unwelcome sexual advances, requests for sexual favours, and other verbal or physical conduct of a sexual nature [...] when this conduct explicitly or implicitly affects an individual’s employment, unreasonably interferes with an individual’s work performance, or creates an intimidating, hostile, or offensive work environment” (US Equal Employment Opportunity Commission). The project “Watch Protect Prevent” looked further into this and conducted qualitative and quantitative research, asking employees. When looking at the different forms of misconduct, we can see that both women and men are affected, although women are more affected which would be important, as well as in regard to gender diverse

people. When looking at who the perpetrators are, it became clear, that colleagues are the most reported perpetrators. When it comes to women, they are significantly more often harassed by superiors. What is really interesting here is, that when looking at structural factors, the one that correlated with harassment in women and men, was working in an environment with strong hierarchies. Sexual harassment as one form of gender discrimination, shifts the discourse from a professional to a personal level and by that tries to silence the discussion at a professional level. It is therefore important to not only have a balance in women and men in numbers, but also to have a balance in power.

(5) In regard to the terminology of sex and gender: Sex refers to everything that is biological, hormonal, genetic or physiological. Gender refers to the identity (do you feel as a woman, man, non-binary etc.), role (what does society expect from me), relationships and institutional. If sex differences are being ignored, different consequences could result from that. One consequence could be a reduced reproducibility, taking into account, that the researcher always has an impact on the research, even if it is done with cells or animals. Furthermore, ignoring sex differences can lead to delayed diagnosis e.g., in regard to bladder cancer or asthma. The last possible consequence of ignoring sex differences is a higher mortality rate due to side effects of drugs, with a lot of drugs having a higher mortality rate in women. In simple words, including sex and gender in research content, would endorse explanatory power, would assess risk of harm when accounting for sex and assuming that the results not apply to everyone, will reduce the risk with reproducibility issues and validation of the results, and it finally will open gates for missed opportunities when e.g., you would develop tailored intervention or treatment.

When looking who is doing research on sex and gender sensitive healthcare? A study showed that if the first author of an article was a woman, the likelihood of a gender sensitive analysis in article was higher. If last authors are women, it is more likely as well as if the whole group consisted of women it was also more likely. We, as researchers also need to appreciate our biases, as we could reduce our objectivity and indirectly influence the content and interpretation of our research.

Q&A:

-How can we convince the current and future generation of researchers to be passionate about topics such as the gender dimension?

Response by Sabine Oertelt-Prigione: Always a good idea is a "Sandwich-approach", which means to apply pressure from different stakeholders at the same time. It is important to have the leadership on board in order to be able to change something. If leadership is not on board, all the grassroots movements do not matter. This applies especially to healthcare as it is rather conservative. It is important to look for allies on the leadership level although it is important to build a critical mass (students, colleagues, researchers etc.) at the same time, to build pressure. So, it is necessary to work at different levels at the same time: build the knowledge, make sure you have a critical mass, work at the structural level, engage leadership and put pressure on the organisation from outside.

-Why does the FDA (or other similar agencies) does not require that drugs are tested in both sex? What does it need to convince them?

Response by Sabine Oertelt-Prigione: It is generally more difficult to do trials including only women or men. Right now, you need to have good reasons to only include women or men. It

is true though, that the FDA and the EMA ask for reasonable numbers. These numbers are not sufficiently meaningful as there is no clear definition or clear cut-offs. The collaboration between academics and the pharma industry is not the easiest, because both actors might hold back a bit. The demand is growing towards including women and men in trials, so maybe, in the future there will be better collaborations and to lobby more actively. If the laws would change, then the pharma industry would need to comply. This might lead to them being more interested in being part of discourse. What needs to be done? It is necessary, to focus on this, to apply pressure (from society) etc. Even though a lot of drugs have worse side effect in women, in scientific papers, this is not as often a topic as it should be.

Further literature:

- Maas AH, Oertelt-Prigione S. [The Coronavirus Disease 2019 Outbreak Highlights the Importance of Sex-sensitive Medicine.](#) Eur Cardiol. 2020 Aug 24;15:e62.
- Oertelt-Prigione S, Mariman E. [The impact of sex differences on genomic research.](#) Int J Biochem Cell Biol. 2020 Jul;124:105774.
- Oertelt-Prigione S, Dalibert L, Verdonk P, Stutz EZ, Klinge I. [Implementation Strategies for Gender-Sensitive Public Health Practice: A European Workshop.](#) J Womens Health (Larchmt). 2017 Nov;26(11):1255-1261.

Reflections on sex and gender in clinical practice and research: towards precision medicine

(Valeria Raparelli, Sapienza University Italy)

In this presentation, Valeria Raparelli, shared experiences as a physician (internist) and a clinical scientist working towards bringing forward the integration of sex and gender in clinical research.

The World Health Organization has defined health as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity”. This definition is similar to the attitude of an internist having a holistic approach of care. In the last decades big changes took place in medicine (paradigm shift of medicine) coming from interpreting signs and symptoms (intuition medicine), via clinical trials (evidence-based medicine) to date and using algorithms (precision medicine) now and in the future.

What is precision medicine? Precision medicine can be thought of as an extension to existing medical care aiming at building a knowledge-based guide for better individualised patient care. New tools are now available that can be relied on, such as data, analytics, technology and information and by using them, the outcome of the patients will be improved (main goal). The traditional approach of “one size fits all” is not valid anymore and we need to take into account the individual characteristics of the patients, so the treatment provided is as specific and good as possible and to reach a benefit across all patients. The premise is to reach equity in the medical care.

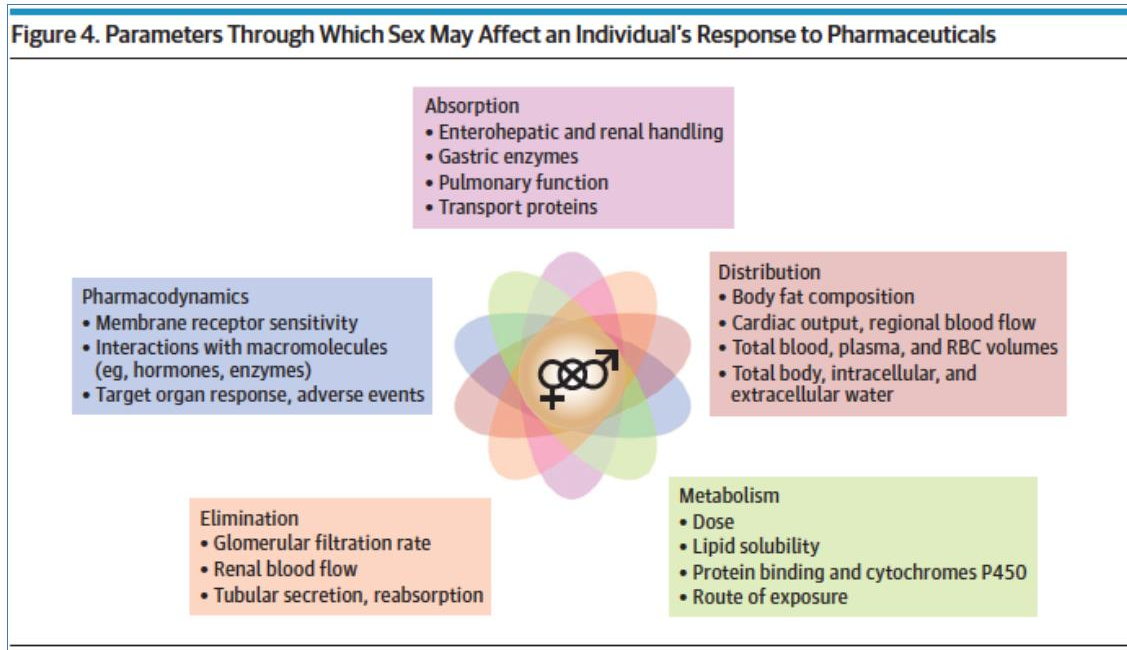
Sex and gender – Who are our patients? The two key features of a person need to be considered, which are not only biological attributes but we also need to account for gender. It is important to use this term probably, given the different definitions of it. The aspects of sex and gender need to be not only included in the design of trials and research questions but to acknowledge that gender attributes may be equally important as biological attributes.

How sex modifies the response to drugs: This correlation has been explained on this graphic from a JAMA Internal Medicine journal please see the figure 4 below.

When doing randomised controlled trials for cardiovascular drugs, how are women represented in those? In 36 drug trials for FDA approval from 2005-2015 the percentage of women who participated in those trials was 36. There has been some progress in the last years, but still, it is not enough. For further information on this, please also see [this paper by Louisa Pilote and Valeria Raparelli](#).

Gender: Defining gender is a complex undertaking and not everyone agrees on what it entails. If trying to measure the influence of gender, it is necessary to have one definition to work with.

Sex and Gender in precision medicine – beyond sex, gender may predict clinical outcomes better: How are clinical scientists dealing with these issues? A study showed that when looking at masculine and feminine characteristics in women and men, there is a big spectrum between women only having feminine characteristics and men only having masculine ones. This can also affect the outcome of a disease: The study shows that younger adults with Acute Coronary syndrome with feminine gender are at an increased risk of recurrent cardiovascular event over 12 months, independent of female sex.



Bartz et al. 2020. Clinical Advances in Sex- and Gender-Informed Medicine to Improve the Health of All - A Review. JAMA Internal Medicine, April 1; 180; pp. 574-583.

How to implement sex and gender in precision medicine? The essential part is structural change. The introduction and implementation of the gender dimension in practice and research has become a priority, but implementation is really challenging. The change needs to happen not only in the research community but also funding agencies, universities and in (peer-reviewed) journals. The GOING-FWD project aimed at finding out was the impact of and interaction between sex and gender and how they affect cost-sensitive outcomes and patient-reported outcomes of a disease. In order to do so, the project needs first of all to develop a standard methodology consisting of five steps, when working with data, that has already been collected. Step 1 is to identify gender-related variables, step 2 is defining the outcomes, step 3 to build a feasible final variable list followed by step 4, which is doing a retrospective data harmonisation and step 5 a definition of data structure.

Further literature:

- Pelletier, Roxanne et al. 2016. [Sex Versus Gender-Related Characteristics: Which Predicts Outcome After Acute Coronary Syndrome in the Young?](#) Journal of the American College of Cardiology 67(2):127–35.
- Pelletier, Roxanne et. Al. 2015. [A composite Measure of Gender and Its Association with Risk Factors in Patients with Premature Acute Coronary Syndrome.](#) Psychosomatic Medicine: Volume 77, Issue 5 p 517-526
- Tadir CP, Raparelli V, Abrahamowicz M, Kautzy-Willer A, Kublickiene K, Herrero MT, Norris CM, Pilote L; GOINGFWD Consortium. Methods for Prospectively Incorporating

Gender into Health Sciences Research. *J Clin Epidemiol*. 2020 Sep 24:S0895-4356(20)31104-5.

- Raparelli V, Romiti GF, Spugnardi V, Borgi M, Cangemi R, Basili S, Proietti M; The Eva Collaborative Group. Gender-Related Determinants of Adherence to the Mediterranean Diet in Adults with Ischemic Heart Disease. *Nutrients*. 2020 Mar 13;12(3):759.
- Raparelli V, Proietti M, Lenzi A, Basili S; EVA Collaborators. Sex and Gender Differences in Ischemic Heart Disease: Endocrine Vascular Disease Approach (EVA) Study Design. *J Cardiovasc Transl Res*. 2020 Feb;13(1):14-25.

Group work on Drivers & Barriers of th Gender Dimension; Action needed!

On day one, we had a plenary discussion on the above topic. The discussion went very well given the diverse composition of participants. In the end, we summarised what we discussed and came up with a couple of points for each aspect.

Drivers/ facilitators of the gender dimension:

- (1) Boost education
- (2) Positive political environment, gender equality issues are on agenda
- (3) Peer-reviewed journals
- (4) Knowledge
- (5) Use of e-tools which translate theory into practice
- (6) Ambassadors

Barriers of the gender dimension:

- (1) Finding a 'standard way' to measure gender
- (2) Slower in the implementation of gender domains in research
- (3) Resistance of leadership
- (4) Relatively conservative nature of academia and health care
- (5) Lack of knowledge and awareness
- (6) Slow change in the mindset

Action-points that could be implemented to help overcome these barriers:

- (1) Bottom-up approach – start with the students – with support at higher levels
- (2) Funding agencies! Requirements for Sex/Gender to be addressed, with auditing, education of evaluators
- (3) Diversity adds value

Day 2 of the Gender dimension Matching Event

Sex differences in Alzheimer's disease: what we know and what we do

(Ivan Nalvarte, Karolinska Institutet)

As an introduction, Ivan Nalvarte shortly talked about sex differences (biological) and Gender differences (societal), which interact with each other and form our behaviour. There is male and female typical behaviour, but are there male typical and female typical diseases as well? In fact, there are many diseases that affect men and women in a different way, as sex is a biological factor when it comes to health and disease. One of the most prominent examples are cardiovascular diseases, with clear differences in disease risk between men and women. This ranges from different symptoms to different responses to the treatment. All in all, there is not a lot of knowledge regarding these sex differences. Why is that and why is it not studied more? The sex differences influence the disease risk, the aetiology and disease progression. These different aspects need to be studied to help development of sex stratified treatments.

Sex and gender differences are understudied: One of the main reasons is that it adds cost and time to the research project. Some might ask why there even is a need to study sex differences if mostly males or females are affected. Treatments and trials would need the double effort and time, which costs money. All studies (epidemiological and clinical) would need to be stratified by sex, which would mean either reducing the sample size by half or to need more volunteers. This might result in inconclusive results. Furthermore, it needs to be taken into account that chromosomal aberration genotypes exist as well as transgenders. So, how can we researchers help to introduce sex and gender aspects be incorporated in a research project? An approach based on own scientific projects is following below.

Sex as a biological factor in health and disease: When looking at the data related to cardiovascular diseases, it is striking that the differences between women and men are getting smaller and smaller after the menopause, which leads to suggest that sex hormones are likely to be involved and may explain different mortality rates for women and men.

What about sex differences in neurological diseases? We know that there are clear sex and gender differences in behaviour. The question occurs, if this is because male and female brains are different? If we want to understand this, we also need to learn about sex hormones (estrogen and testosterone). The development of the hormone levels beginning with the implantation changes over the course of time. Pre-birth, the SRY gene responsible for the production of testosterone is being activated, which leads to an increase of testosterone. This results in the masculinisation or feminisation of the brain around the time of birth. There are a lot of differences between the sexes. Males for example are more affected by Autism, Tourette's syndrome, ADHD whereas females are of a higher risk of getting Alzheimer's disease, Depression, Anxiety or Multiple sclerosis among others.

Alzheimer's disease (AD): AD is the most common type of dementia and is affecting women more than men. 50 million people have AD, which are around 60-70% of all dementia. The cause for AD is still far from clear, and some studies suggest involvement of genetic mutations. The cause of AD is a complex interaction between genes, disease history and the environment. There is no cure for AD (yet) but there are some medications that may retard the progression of AD.

Risk factors in AD: There are a lot of different factors that influence the probability of getting AD, such as limited physical activity, obesity, smoking, high blood pressure, lack of mental activity, genes and gender. When looking at genes (and one gene specifically), it is striking, that the gene Apo-E4, which is the most common genetic risk factor for sporadic AD, has a 4-fold higher risk of developing AD in females heterozygous than in males.

Epidemiological data: Being female is a risk factor for AD. But what are other reasons for women being affected by AD more often? Women are getting older than men, women (at least born before 1950) have lower education than men and the Apo-E4 gene plays a role, which are assumably correlated to estrogen.

If hormones play a role, is menopause a factor for AD? When looking at extreme cases (surgical menopause, oophorectomy), it is striking, that oophorectomy is a risk factor for dementia, especially if it is performed at a younger age. Knowing this, could hormone replacement therapy at menopause lower the risk of AD and dementia? There are a lot of things that need to be taken into consideration, e.g., timing, duration as well as the interaction with other sex-biased and gender-biased risk factors. Also, hormone replacement has different side effects such as an increased risk for endometrial and a small increased risk of breast cancer or thromboembolism. Even though menopause occurs around 20-30 years before the first signs of cognitive impairment, it has been found that for example, functional and structural features are changing prior the first symptoms of cognitive dysfunction may occur.

After learning about the different aspects regarding AD, and sex and gender aspects that need to be considered, the question is if AD is being treated differently depending on the patient being a man or a woman today. There are no differences in the treatments, the preventive recommendation and in how dementia is diagnosed between men and women. But why is that? It is because most of the animal experiments are performed on male mice, because of species differences and because the AD aetiology has a complex interaction with different factors (biological, environmental) which affects one sex more than the other. What we take away from that is that more integrative research is needed where the expanded experiments at least using experimental disease animal models could implement gender dimension in their experimental protocols.

Questions:

-What about the potential genetic differences in the X-chromosome complement, whether the expression for Apo-E4 is related to the X-chromosome complement?

Response by Ivan Nalvarte: There are a lot of genes that code immune factors that are on the X-chromosome and that there are other genes on the Y-chromosome and the differences between them have not really been studied yet, but yes there might be a chromosomal difference from the beginning.

Further literature:

- Nalvarte I. [Sex Stratified Treatment of Neurological Disorders: Challenges and Perspectives](#). Brain Sci. 2020 Feb 14;10(2):103.
- Varshney M, Nalvarte I. [Genes, Gender, Environment, and Novel Functions of Estrogen Receptor Beta in the Susceptibility to Neurodevelopmental Disorders](#). Brain Sci. 2017 Feb 23;7(3):24.

Following this talk, a [video](#) from Karolinska Institutet (previously developed under leadership of Karolina Kublickiene at the Centre for Gender Medicine) have been shared, discussing Men's health. It is very easy to concentrate when talking about gender dimension and that this is particularly relevant for women, however, the implementation of sex and gender perspective in the content of research brings benefits to all women, men and gender diverse people.

We also address issues about certain disease relevant for men's health, such as mental health, breast cancer, osteoporosis etc, or eating disorders where both sex and gender aspect should be appreciated.

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Responsible AI: Free from (human) bias, unfairness and discrimination

Via YouTube

Natalia Criado Pacheco (King's College London)

When talking about responsible AI and bias free algorithms, one important aspect is gender. We have to admit, that gender discrimination exists and persists, which can be seen in different data, e.g., related to the gender pay gap, that women are mostly responsible for childcare or that women make up only 25% of decision-making positions in companies. A newer development is, that more and more decisions are delegated to or at least informed by algorithms. The job we apply for, the person we date, the products we buy – all these decisions are made based on an algorithm. Algorithms learn through experience. So, they receive some data and based on that, they try to make better decisions. Of course, algorithms have a lot of benefits, such as being cheap solutions and they are faultless (don't get tired). People also tend to think, that algorithms are free from bias and don't have personal prejudices. Most people don't understand algorithms, even computer sciences might understand the code, but they don't know what is going on. Whereas people can be scrutinised for their actions, it is very difficult to do the same with algorithms.

Algorithms are not free from discrimination because they need to learn from some data. That is why they might inherit prejudices of the people who programme it, previous decisions, users and therefore the society. Furthermore, they might even have the potential to discriminate more consistently and systematically as well as at a larger scale and perpetuate this discrimination. This happens for example, when looking online for pictures of doctors (doctor and men or doctor and woman) you can see that they are not equally depicted (women look less professional than men).

Another study has looked at how Wikipedia represents men and women. They found that when introducing a woman, the biographies contain more topics that are family-, gender-, and relationship related. Furthermore, the language used is more positive in the biographies of men than in women. Also, they found that in terms of meta-data and hyperlinks (which have consequences for searching activities) show structural differences. When looking at the total number, there was no underrepresentation of women. Discrimination by algorithms is not limited to gender, but also includes race and other variables.

What are the causes for Digital Discrimination? Three different aspects play a big role in causing digital discrimination: (1) Modelling, which refers to algorithms predict/ work based on provided data, (2) Training Data, Algorithms build a prediction model on the training data set, which might reflect existing prejudices or social biases and (3) Usage, even an algorithm free of bias can lead to discrimination when it is used in the wrong context. The technology offers ways to stop Digital Discrimination via Detection or Prevention. Detection Metrics: E.g., direct discrimination (influence protected attributes and decisions) or disparate impact, applying an 80% rule stating that the selection rate of a protected group should be at least 80% of the selection rate of the non-protected group. Prevention: Modify the problem modelling, data processing or modification of the algorithm.

Breakout sessions:

The second day finished with group works in breakout sessions. The different groups discussed (1) which gender dimension topics should be prioritised, and which methods would be the best to promote their understanding and implementation (e.g. sex and gender per se), (2) how gender bias free data generation and knowledge dissemination can be ensured and (3) from the perspective of using the CoP approach what the most important action-points are to boost the implementation of the gender dimension when applying a top-down approach.

- (1) Which gender dimension topics should be prioritised and which methods would be best to promote their understandings?

Besides needing clear definitions of sex and gender terms and them being clearly understandable, this group suggested having as a compulsory module of gender dimension to education as well as gender identity. Using an intersectional approach could also be helpful and add complexity to the topic.

- (2) How can gender bias free data generation and knowledge be ensured?

This group has been discussing a lot about different examples of how to make diagnostic methods etc. ethically justifiable and safe. One participant for example works in biomedical research and talked about mice as model organisms. Another group member shared experiences from medical informatics developing a predictive system for osteoporosis. The group has identified three action points on how to achieve gender bias free data generation. They suggested to provide guidelines on how to use existing data and to identify potential biases; when working with validation studies, to include the sex and gender perspective; to make predictions sex and gender sensitive as well as to consider sex directly when setting up an experiment.

- (3) The last was talking about how to boost the Gender Dimension to be implemented in HE and R&I. They have been identified three action points: There needs to be a clear understanding of what the gender dimension means. This includes the leadership level, which need to set up certain obligation to do so. In doing that, the gender dimension can be implement in the different research fields (if there is an understanding for the value of it on the leadership levels). They also discussed about a possible implementation by law, which is not that easy to implement. Furthermore, they talked about journals also including the gender dimension. The most important aspect of the discussion was to bring the leadership on board and to include the gender dimension in the institution's structure.

Recommended Reading:

Sabine Oertelt-Prigione - PubMed

- Maas AH, Oertelt-Prigione S. The Coronavirus Disease 2019 Outbreak Highlights the Importance of Sex-sensitive Medicine. *Eur Cardiol.* 2020 Aug 24;15:e62.

- Oertelt-Prigione S, Mariman E. The impact of sex differences on genomic research. *Int J Biochem Cell Biol.* 2020 Jul;124:105774.

- Oertelt-Prigione S, Dalibert L, Verdonk P, Stutz EZ, Klinge I. Implementation Strategies for Gender-Sensitive Public Health Practice: A European Workshop. *J Womens Health (Larchmt).* 2017 Nov;26(11):1255-1261.

Valeria Raparelli – PubMed

- Tadiri CP, Raparelli V, Abrahamowicz M, Kautzy-Willer A, Kublickiene K, Herrero MT, Norris CM, Pilote L; GOINGFWD Consortium. Methods for Prospectively Incorporating

Gender into Health Sciences Research. J Clin Epidemiol. 2020 Sep 24:S0895-4356(20)31104-5.

- Raparelli V, Romiti GF, Spugnardi V, Borgi M, Cangemi R, Basili S, Proietti M; The Eva Collaborative Group. Gender-Related Determinants of Adherence to the Mediterranean Diet in Adults with Ischemic Heart Disease. Nutrients. 2020 Mar 13;12(3):759.

- Raparelli V, Proietti M, Lenzi A, Basili S; EVA Collaborators. Sex and Gender Differences in Ischemic Heart Disease: Endocrine Vascular Disease Approach (EVA) Study Design. J Cardiovasc Transl Res. 2020 Feb;13(1):14-25.

Ivan Nalvarte - PubMed

- Nalvarte I. Sex Stratified Treatment of Neurological Disorders: Challenges and Perspectives. Brain Sci. 2020 Feb 14;10(2):103.

- Varshney M, Nalvarte I. Genes, Gender, Environment, and Novel Functions of Estrogen Receptor Beta in the Susceptibility to Neurodevelopmental Disorders. Brain Sci. 2017 Feb 23;7(3):24.

Londa Schiebinger (PubMed) & Cara Tannenbaum (PubMed)

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Associate Links of importance and interest

<https://gh.bmj.com/content/5/10/e003848>

www.gendro.org

KI – Gendered Innovation Alliance

ACT

GOING-FWD Consortium