Report on the Webinar

"Gender dimension in research and innovation"

This webinar was organized within the framework of

the **APPROACH** Project

by

TSNUK Taras Shevchenko National University of Kyiv (Kyiv, Ukraine)

and

FORTH Foundation for Research and Technology – Hellas (Heraklion, Greece).

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WORKSHOP AGENDA

"Gender dimension in research and innovation"

2nd Edition

28-29 April 2025

Venue: Virtual. Zoom.

Organiser: **Taras Shevchenko National University of Kyiv - TSNUK**

(Day 1)

10-30 CEST || The gender gap in research and innovation – how to identify, measure and reduce it (TSNUK, Oksana Chukova)

11-15 CEST || One great example that shows how to eliminate the gender gap in the research environment and management (BSPU, Yana Sychykova)

Break 12 -13 CEST

Session is combined with Workshop "Cultivating gender equality in a research environment" (1 p.m. – 3 p.m. CEST)

13-00 CEST || Cultivating gender equality in a research environment that supports increased creativity and innovation (BSPU, Artem Polulyakhov)

14 – 00 CEST || Roundtable with exercises for talents: we will invite them to conduct a brainstorming session to find ways to assess (scales to measure) and to propose how reduce the gender gaps in targeted groups.

(Day 2)

10-30 CEST || Mental health in academia in times of polycrisis: the gender gap against circumstances (BSPU, Natalia Tsybuliak, Anastasia Popova)

11-15 CEST || Structure of the gender gap in STEM Science, Technology, Engineering and Mathematics (TSNUK, Yuriy Hizhnyi)

3. Roundtable discussion asking talents to share their experiences on gender issues, memories of events that have happened in their work environment, and related to any kinds of gender gap.

Link to Zoom Conference:

https://us04web.zoom.us/j/9059059459?pwd=VTRIck1mNElPQU9KbzIKMjV0ejZ4Zz09

Meeting ID: 905 905 9459
Passcode: inorganic

Day 1

48 on-line participants were registered at the beginning of the meeting

THE GENDER GAP IN RESEARCH AND INNOVATION – HOW TO IDENTIFY, MEASURE AND REDUCE IT.

Presented by Oksana Chukova

The gender gap in research and innovation – how to identify, measure and reduce

Definition for research and innovation. There is a gap in any area between women and men in terms of their levels of participation, access, rights, rewards or benefits.

Definition in general. The gender gap is the **difference between women and men** as reflected in social, political, intellectual, cultural, or economic attainments or attitudes.

Definition from economics point of view. The gender pay gap is defined as the **difference between the average gross hourly earnings of men and women** expressed as a percentage of the average gross in total.

Gender inequality has deep historical roots, shaped by cultural norms, religious beliefs, legal systems, and economic structures. Many traditions have contributed to the systematic disadvantage of women and marginalized genders in different societies.

Gender Gap at

APPROACH KICK-OFF MEETING

Traditional Gender Roles

Societies have long assigned distinct roles to men and women, with men seen as providers and women as caregivers.

Women were expected to focus on household duties and child-rearing, limiting their access to education and employment.

Men were traditionally associated with leadership, decision-making, and public life, reinforcing male dominance in politics and business.

Restrictions on Education and Employment

In the past, many societies denied formal education to women, believing that their primary role was in the home.

Women were traditionally excluded from certain professions, particularly in science, politics, and leadership roles.

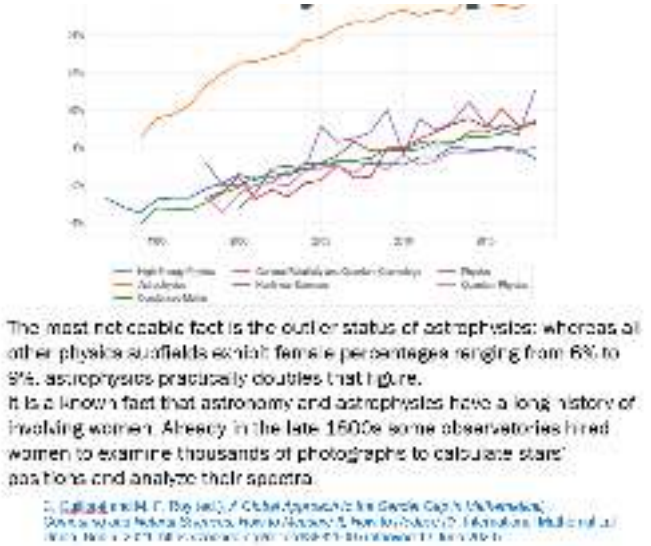
Even in modern times, occupational segregation persists, with women concentrated in lower-paying, care-oriented jobs.

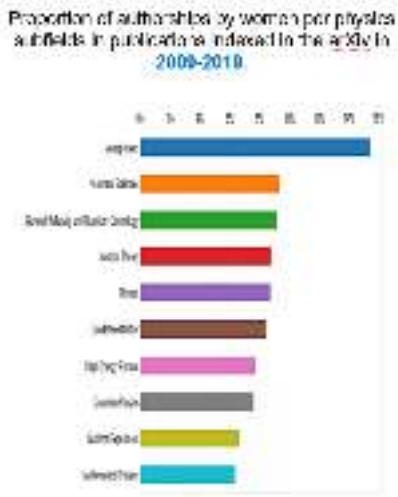
Legal Discrimination and Lack of Rights

Political and Leadership Exclusion

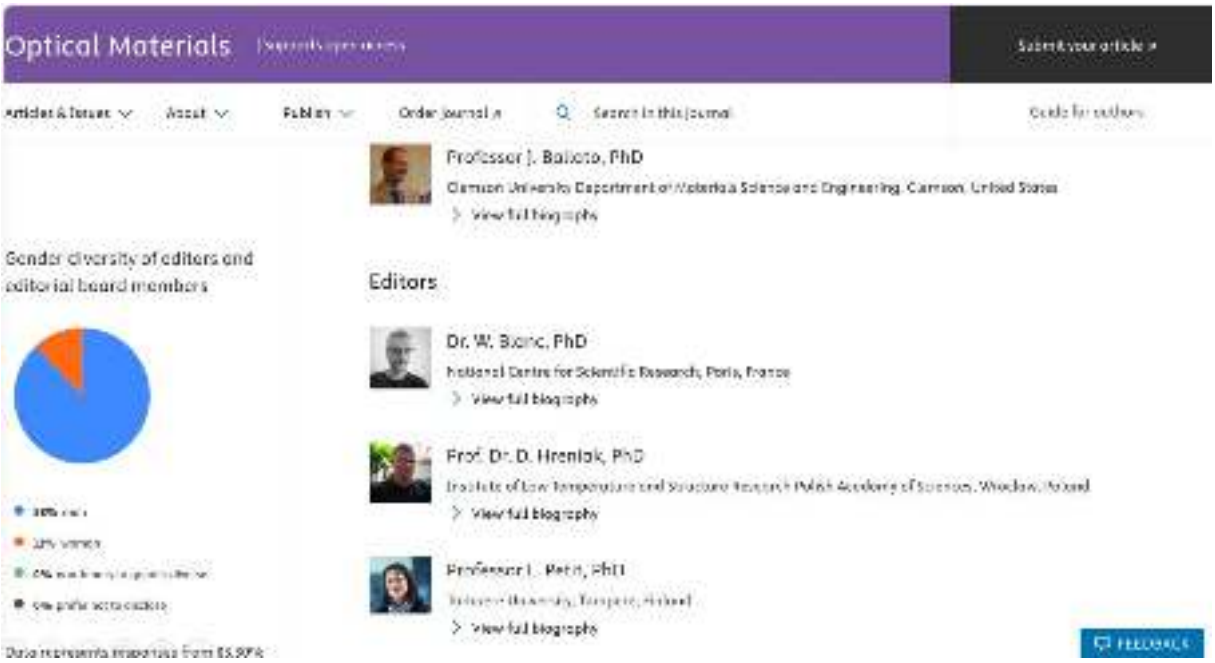
Proportion of authorships by women per physics subfields and year in publications indexed in the arXiv

The most noticeable fact is the outlier status of astrophysics: whereas all other physics subfields exhibit female percentages ranging from 6% to 9%, astrophysics practically doubles that figure.





It is a known fact that astronomy and astrophysics have a long history of involving women. Already in the late 1800s some observatories hired women to examine thousands of photographs to calculate stars' positions and analyze their spectra.



Solutions and Interventions

Promoting Equal Funding Opportunities: Implementing gender-balanced grant evaluation processes.

Encouraging Mentorship and Networking: Supporting women in research through mentorship programs.

Ensuring Fair Hiring and Promotion Practices: Addressing biases in recruitment and career advancement.

Recognizing Women's Contributions: Increasing visibility of female researchers through awards, keynote invitations, and leadership positions.

ONE GREAT EXAMPLE THAT SHOWS HOW TO ELIMINATE THE GENDER GAP IN THE RESEARCH ENVIRONMENT AND MANAGEMENT.

Presented by Yana Sychykova

From Lab Coats to Leadership

A Story of Breaking Stereotypes (Not Just Crystal Lattices)

Today, it's not about formulas — it's about formation. About women in science, and how not to lose yourself when the system has no idea what to do with you.

Not Just a Title: The Many Hats Yana Wears:

Professor of Physics, Berdyansk State Pedagogical University (BSPU);

PhD in Physics and Mathematics (Physics of Semiconductors and Dielectrics);

Doctor of Technical Sciences (Standardization, Certification, and Metrology) ;

Vice-Rector for Research, Berdyansk State Pedagogical University

Secretary of the Presidium, Council of Vice-Rectors for Research (Ministry of Education and Science of Ukraine);

Expert evaluator for state-funded research competitions;

Member of working groups and management committees of COST Actions;

Editor-in-Chief of three journals indexed in Scopus /Web of Science;

Member of the Ukrainian Reproducibility Network;

Member of the NGO "Ukrainian Synchrotron and Neutron Society"

Yana is the author of over 400 scientific publications, with ~150 indexed in Scopus

- Holder of 42 patents and utility models
- Leader and participant in 10+ national and international research grants
- Fellow of: American Councils, House of Europe,
- Cabinet of Ministers of Ukraine, and the Named
- Scholarship of the Heavenly Hundred Heroes
- Expert in open science, peer review, and science communication
- National Awards: "Excellence in Education of Ukraine", "For Scientific Achievements"

Yana's research interest: Physics of Semiconductors and Dielectrics, Nanotechnology, STEM Education, Science Communication, Impact of War on Preserving Academic Potential, Mental Health of University Faculty, Scholarly Publishing Practices, Artificial Intelligence in Science, Academic Migration, The Third Mission of Universities

Expertise & Integrity

Be an expert in your field — If you truly master your discipline, no slander can touch you.

Academic integrity isn't just a value — it's your shield. — When all else fails, truth will defend you. No matter what happens, you'll sleep well at night — and walk tall in the morning.

They tried to cancel me. But I had peer-reviewed publications.

Turns out, being honest is not just ethical. It’s strategic.

From Researcher to Spreadsheet Warrior

Right after Yana defended her PhD, I was appointed Deputy Dean. I didn’t want it. Administrative work eats up your research time — completely.

Her son was just starting first grade. She had planned to focus on him and his education.

The Dean promised her a flexible schedule. Time for research. Time for my child.

Reality? He assigned her every possible role: Deputy Dean for Student Affairs; for Research; for International Affairs and Secretary of the Faculty Council.

Each role came with one demand: Show measurable growth. She had no time left. For anything. He promised flexibility. What he meant was… “flex” your time across 5 jobs.

Real academic freedom starts after the doctoral degree. No more dissertations. No more dependence on supervisors. You can lead your own lab, win grants, supervise PhD students, and actually change the system.

On the morning of **February 24, 2022** Ukraine woke up to explosion.

On the third day, tanks entered the city. Berdyansk was occupied. No food. No light. No phone signal or internet.

We met in public parks — the university building was too dangerous. The occupying forces had already abducted our Rector — with a bag over his head and a gun to his back.

Our main task became this: Find food. Feed our students in the dormitory.

Later, after a Russian ship exploded in the port, troops raided the dorm.

Our students were tortured. Occupation Begins. Survival Mode Engaged.

At the start of the war, a colleague called Yana: Boss, let's write a scientific paper about how we survived. About occupation. Relocation. Resilience. Let the world know.

Let them be inspired. Yana had already been thinking the same.

That's how it began. We started studying the war — and its impact on academia.

Work expanded:

— They studied mental health in academia: burnout and anxiety.

— They researched strategies to bring youth back to Ukraine — and to Berdyansk — after de-occupation.

— They explored the third mission of universities: service to community, beyond education and research.

We published a commentary in Nature sharing this experience with the world.

Berdyansk State Pedagogical University is now a recognized leader in war-related higher education research

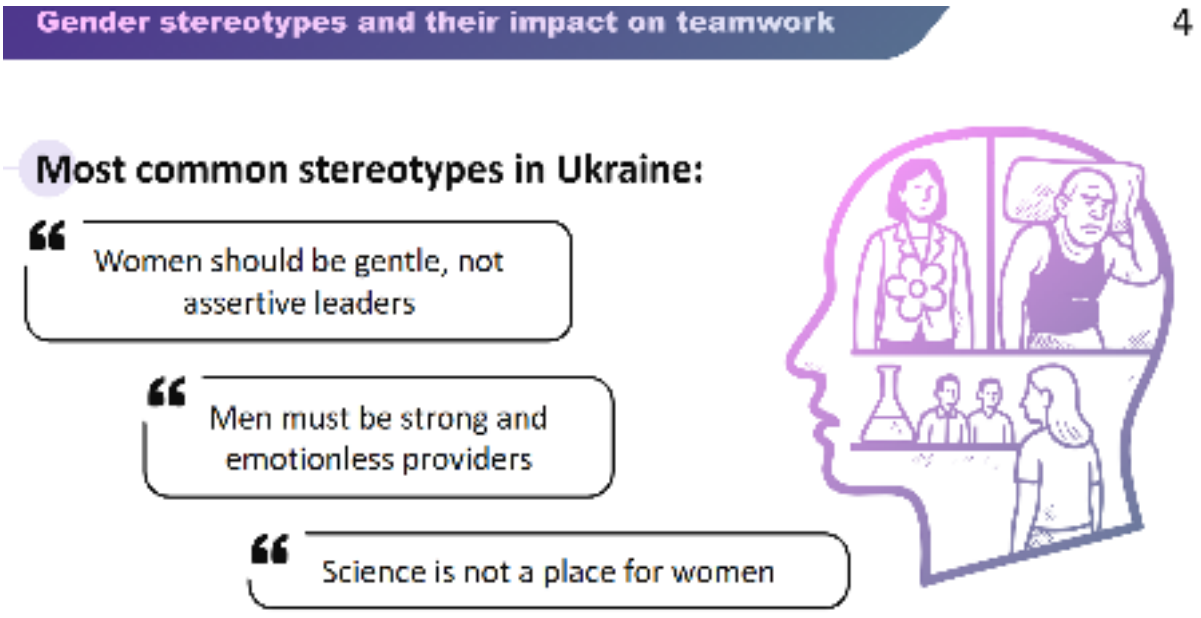
On the first anniversary of the full- scale war, Science published Yana's story. She was sitting in a rented apartment, 1,000 kilometers away from home. It was 4 a.m. There was no power. No heat. Just some phone battery left — and hot tea. She was writing a paper. She had no office. Just this kitchen. But she had her hair done, makeup on, even perfume.

Because Yana is Ukrainian**. And after every darkness — comes light.**

The designer at Science forgot one thing: we will be carrying Ukrainian science through the fire — in high heels. Because we, Ukrainian scientists, are unbreakable.

CULTIVATING GENDER EQUALITY IN A RESEARCH ENVIRONMENT THAT SUPPORTS INCREASED CREATIVITY AND INNOVATION.

Presented by Artem Polulyakhov



Consequences in teamwork:

Fewer women in leadership roles or strategic projects.

Men feel pressure to suppress emotions

and “perform masculinity.”

Leads to miscommunication, tension, and reduced productivity.

Characterized by strong competition, often over status, ideas, or achievements.

Tendency to prove dominance or superiority:

Who knows more?

Men prefer direct conflict resolution: Less tolerance for vague hints or unspoken tension.

Arguments may be intense but short-lived — after resolution,

team continues functioning.

Who acts faster? Who gets recognition?

Competition exists, but often in social or emotional form:

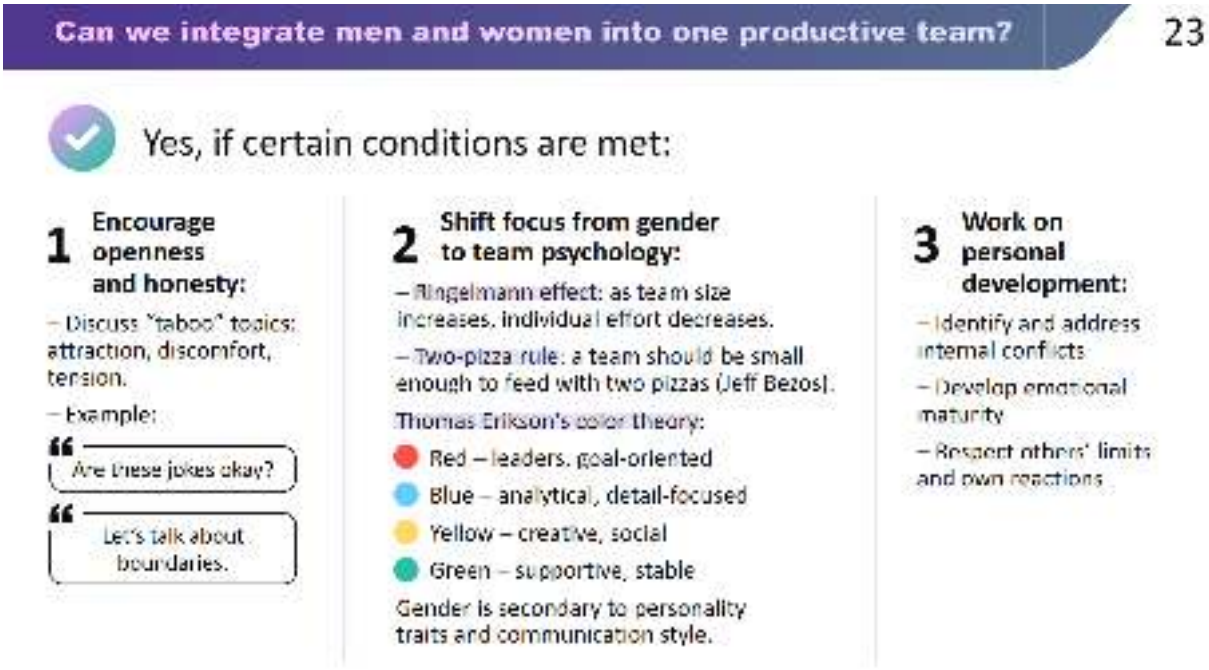
Who is more liked, more attractive, more favored by leadership?

Emotional intelligence is high, but direct communication may be lacking.

Tendency toward indirect expression — hints, passive-aggressive behavior.

Hypocrisy may appear as a coping mechanism — maintaining surface friendliness.

Conflicts may linger, often unresolved for long periods



Gender equality is not about being the same. It's about creating an environment where differences don't divide us, but empower us to innovate, collaborate, and grow together.

Roundtable with exercises for talents: we will invite them to conduct a brainstorming session to find ways to assess (scales to measure) and to propose how reduce the gender gaps in targeted groups.

Tasks for Talents

Task 1

There is a successful IT company that develops and sells software for the banking and trade sectors. This company has a vacancy for a department head who works with customer feedback and software optimization. All IT specialists working in the department (5 men and 1 woman) apply for the position of head. In an open competition, the management of the company selects the only female candidate for this position, because she has demonstrated the best skills in communicating with customers. Men are unaware of this motivation and believe that management supports female candidate because of her gender.

Please assess the gender issues in this department and offer the new department head recommendations on how to create a healthy work environment from the first days in the new position.

Task 2

With the beginning of the new academic year, two Ph.D. students have appeared in your scientific group: a young man and a girl. The scientific supervisor of these graduate students is the head of the department, a professor. The professor's special attitude towards the young girl is quite noticeable to the entire team. He more often invites her to discuss scientific plans, takes a detailed interest in the implementation of minor tasks, resorts to explanations of well-known things, pays for her business trips to conferences, trainings, etc. At the same time, he never crosses the line into business communication. He simply distributes his supervising efforts very unevenly between two Ph.D. students, those both dislike the situation. Everyone in the team is observing this problem, discussing it among themselves, sometimes laughing, somebodies are not agreeing, but the situation does not change.

Please evaluate gender gap in this situation. If you are member of this team, what your actions would be to regulate working environment and to prevent further problems for the both sides and for the team as a whole.

Task 3

In some model research group, there is one man who is raising children alone without a wife. He often skips work, is often late. He takes sick leave much more often than other employees. And one day he failed his part of the joint work. The other team

members did his work. The group leader of this group believes that he should exclude this guy from co-authorship in the next application and in the next project that is currently being planned. But from a humanistic point of view, the group leader has many doubts about such a decision and would not like to decide on his own. So now the team has to make a joint decision. And the team has divided into two subgroups according to their vision of the situation. The men suggest excluding this single father from everything, while the women sympathize with him, and considering the circumstances, they suggest keeping him not only in the project, but even as a co-author of the article in which he did not do his part of the work.

What are your recommendations regarding this single father? Please also reveal gender gap and other gender issues at the described model situation.

(Day 2)

MENTAL HEALTH IN ACADEMIA IN TIMES OF POLYCRISIS: THE GENDER GAP AGAINST CIRCUMSTANCES (BSPU, Natalia Tsybuliak, Anastasia Popova)

Mental health is a state of mental well-being that enables people to cope with the stresses of life, realize their abilities, learn well and work well, and contribute to their community. It is an integral component of health and well-being that underpins our individual and collective abilities to make decisions, build relationships and shape the world we live in.

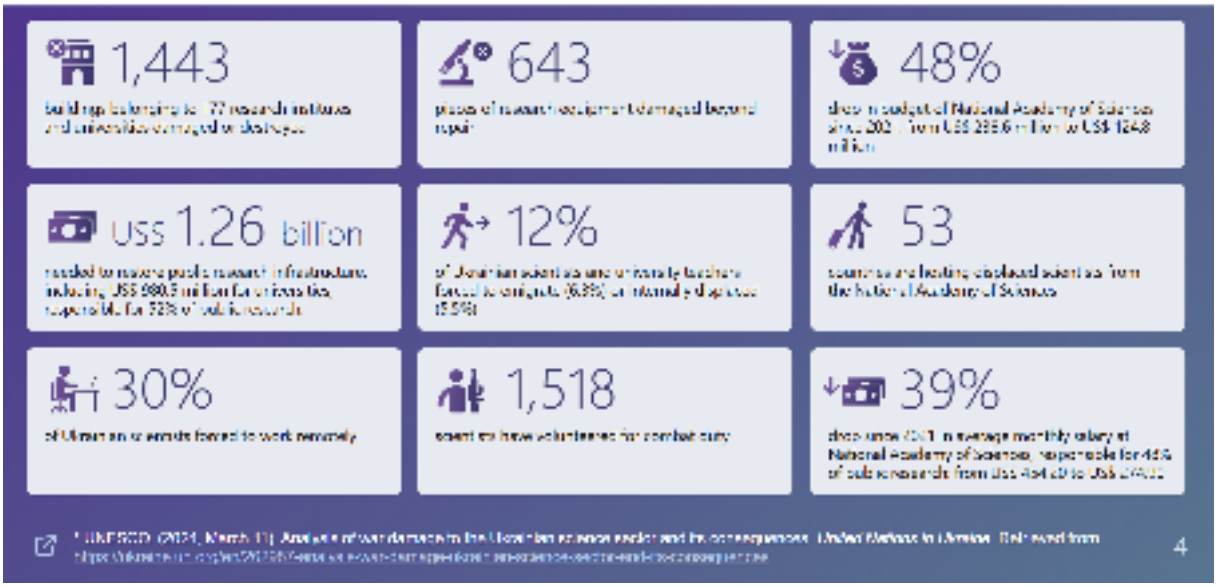
Determinants of mental health *

Multiple individual, social and structural determinants may combine to protect or

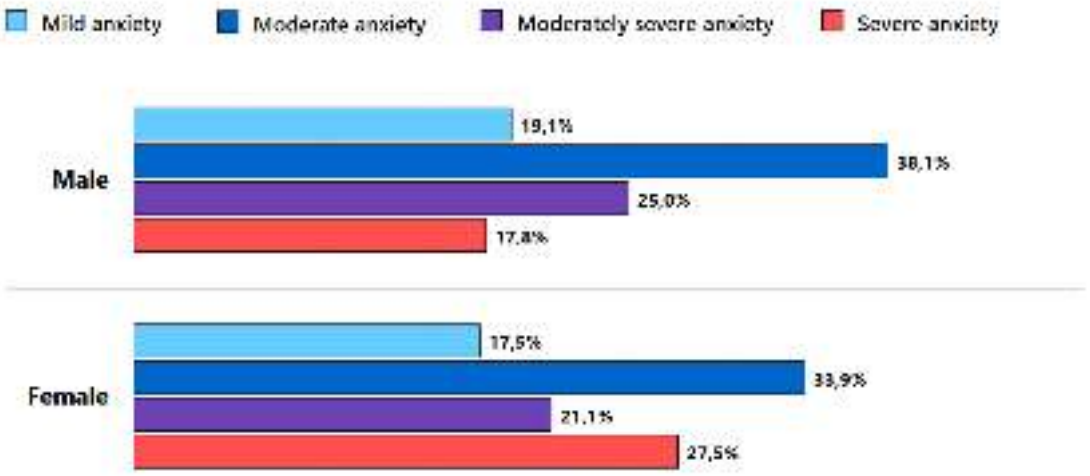
undermine our mental health and shift our position on the mental health continuum.

Exposure to unfavorable social, economic, geopolitical and environmental circumstances also increases people’s risk of experiencing mental health conditions.

Ukraine's reality: some data*



Anxiety: gender differences



Institutional mental health support

During a polycrisis, academic staff face multiple intersecting stressors:

— war, displacement, digital overload, economic hardship, social isolation.

Without institutional support, these stressors do not just add up —

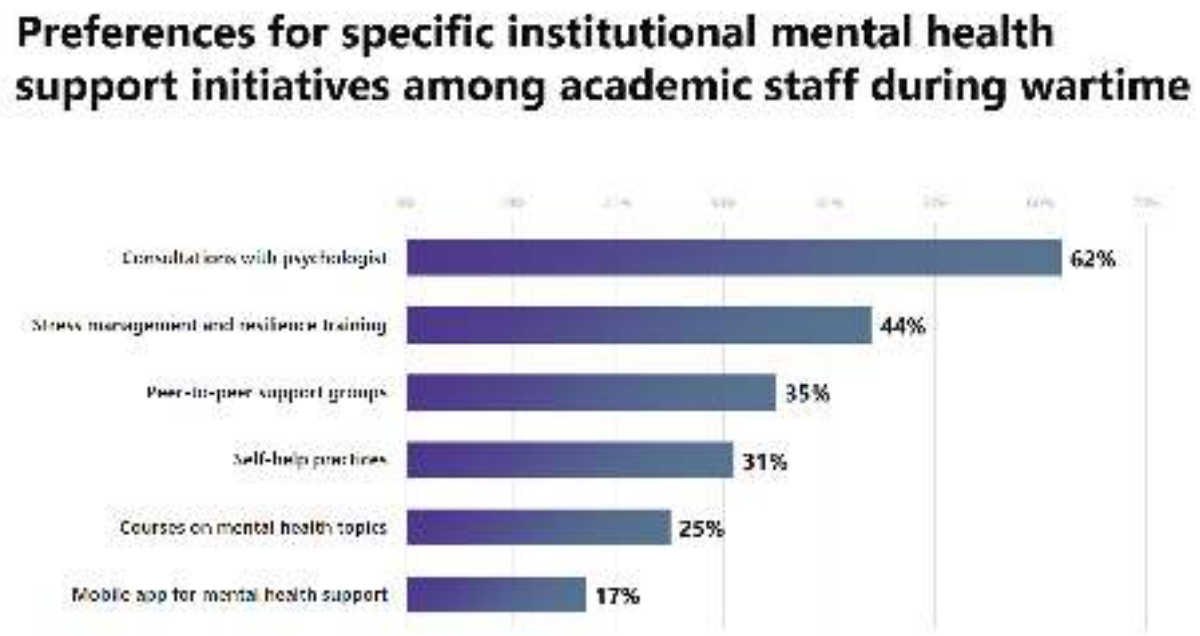
they amplify each other, leading to:

— burnout, anxiety, depression, and a growing desire to leave academia.

Institutional mental health support can serve as a protective factor,

— buffering the psychological impact of war and uncertainty,

— helping preserve Ukraine's scientific and educational capacity.



The polycrisis has fundamentally reshaped mental health in Ukrainian academia.
Gendered experiences of war, caregiving, and role expectations remain distinct and profound.
Institutional mental health support is not a privilege – it is a necessary buffer that can reduce anxiety, burnout, and professional attrition.
Ukrainian universities must move beyond reactive support and build sustainable, inclusive, and gender-responsive mental health ecosystems.
The future of Ukrainian education and science depends not only on resilience but on our ability to care – for others and for ourselves.

STRUCTURE OF THE GENDER GAP IN STEM SCIENCE, TECHNOLOGY, ENGINEERING AND MATHEMATICS (TSNUK, Yuriy Hizhnyi)

Gender bias – not performance – prevents women from entering and progressing in STEM careers.

According to the Gender Scan survey (2021), 40% of women studying STEM reported they were the target of sexist behaviour, and nearly half of women working in STEM reported having experienced sexism at work.

Women's pay was less than 85% of men's pay in STEM occupations in 8 of the 10 G20 countries with data.

Among researchers, women are less likely than men to obtain grants and receive smaller amounts when they do.

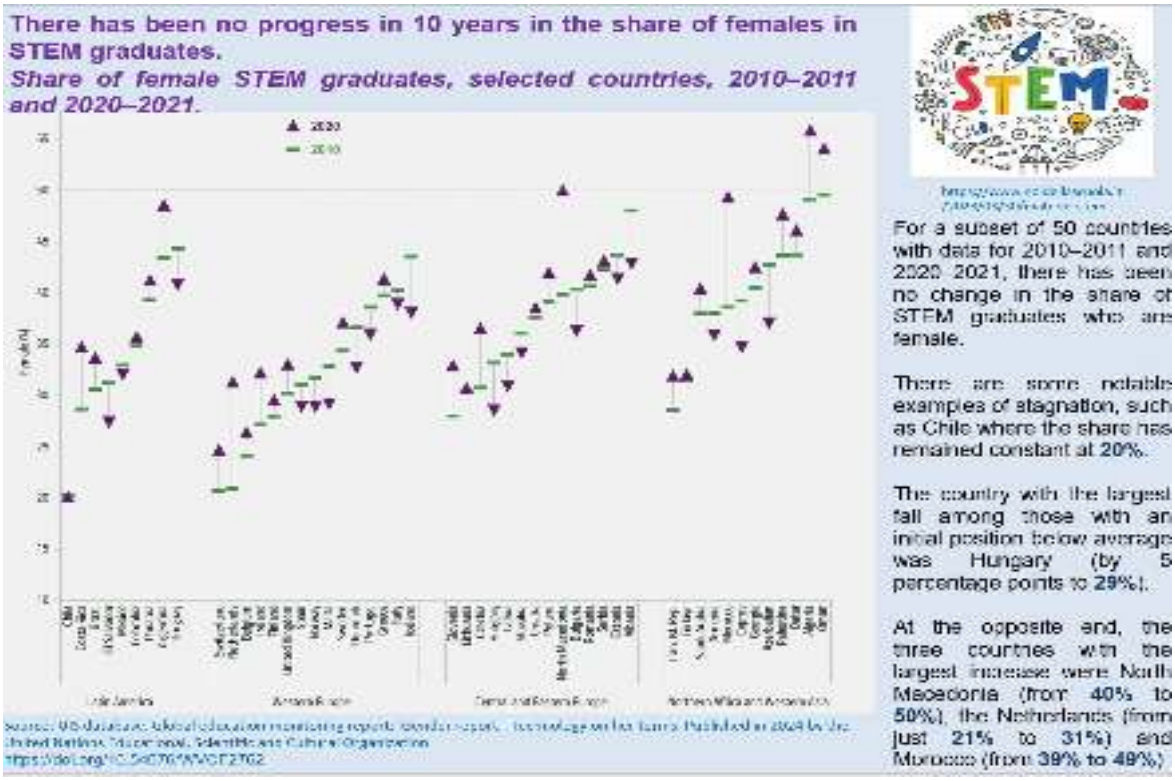
Gender disparity in programming skills is large, especially in rich countries.

Countries with large disparity at the expense of young women tend to be high-income European countries. For instance, for every 100 young men with programming skills, there are only 21 young women in Ireland, 24 in Hungary and 28 in Austria with such skills.

For a subset of 50 countries with data for 2010–2011 and 2020–2021, there has been no change in the share of STEM graduates who are female.

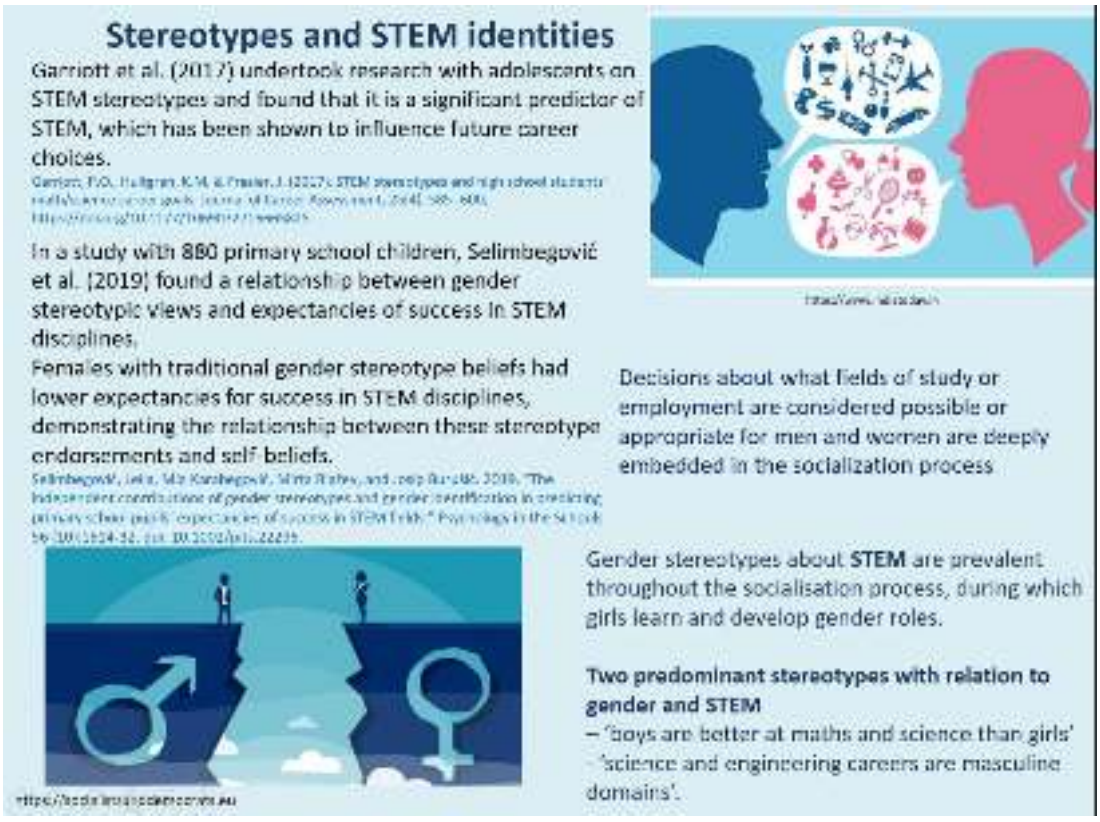
There are some notable examples of stagnation, such as Chile where the share has remained constant at **20%**.

The country with the largest fall among those with an initial position below average was Hungary (by 5 percentage points to **29%**).



There are two-fold fewer women in STEM occupations than in the overall workforce, with no significant improvement in balance over the past decades in G20 countries.

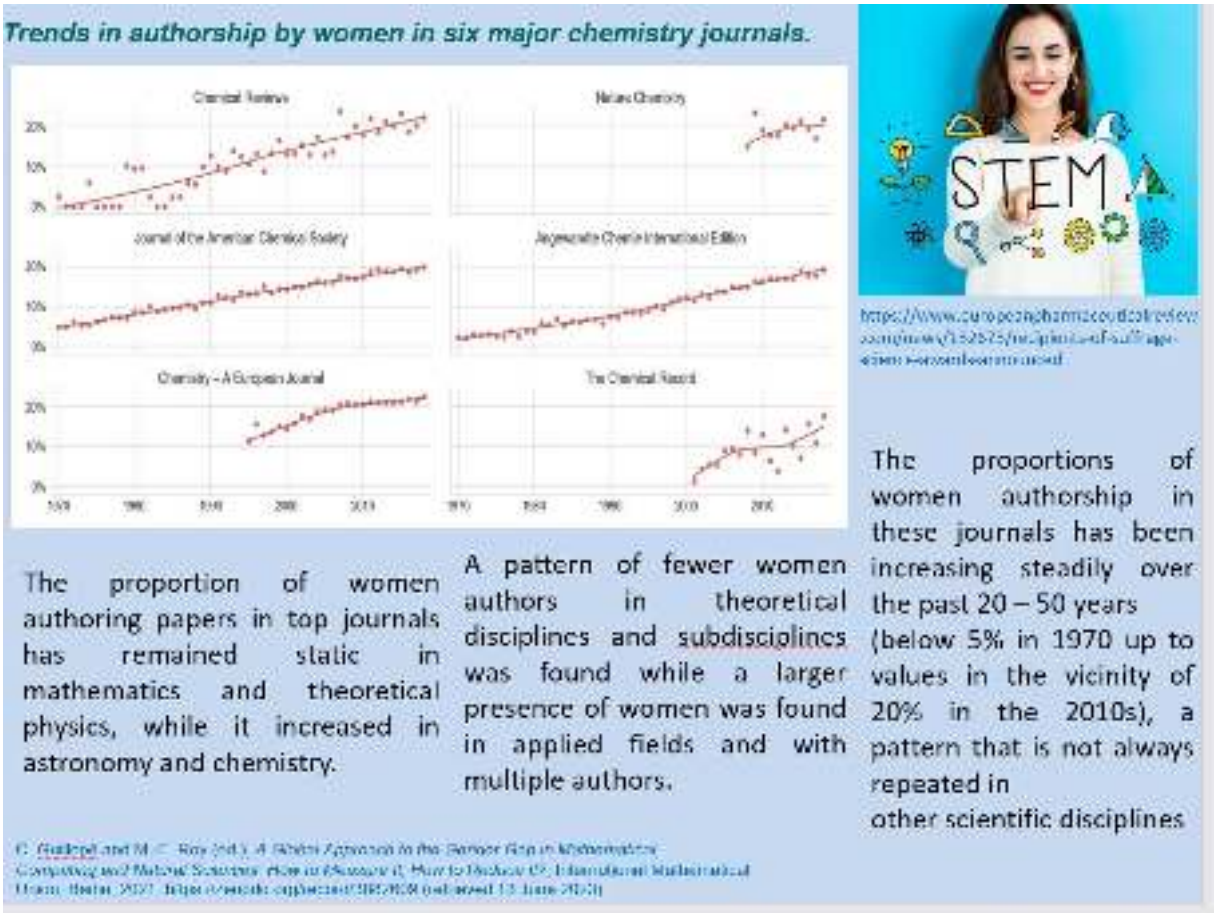
Women formed 42% of the workforce in 2021 but held only 22% of STEM occupations, almost unchanged from 19% in 2005.



Framework of factors influencing girls' and women's participation, achievement and progression in STEM :

Individual level: biological factors that may influence individuals' abilities, skills, and behaviour such as brain structure and function, hormones, genetics, and cognitive traits like spatial and linguistic skills. It also considers psychological factors, including self-efficacy, interest and motivation.
Family and peer level: parental beliefs and expectations, parental education and socioeconomic status, and other household factors, as well as peer influences.
School level: factors within the learning environment, including teachers' profile, experience, beliefs and expectations, curricula, learning materials and resources, teaching strategies and studentteacher interactions, assessment practices and the overall school environment.

The proportion of women authoring papers in top journals has remained static in mathematics and theoretical physics, while it increased in astronomy and chemistry.



A recent review by UNESCO of over 110 national curriculum frameworks in primary and secondary education in 78 countries found that many mathematics and science textbooks and learning materials conveyed gender bias. In Indonesia science textbook only shows boys engaging in science, while in Cambodia, an illustration of the central nervous system textbook attributes more active and creative brain functions, such as

thinking and exercising, to men, and more passive ones, such as smelling a flower or tasting food, to women.

The UNESCO 2016 GEM report found that girls do better in introductory mathematics and science courses and are more likely to follow STEM careers when taught by female teachers.

The stereotype of technology as a male domain is pervasive in many contexts and appears to affect girls' confidence in their digital skills from a young age.

Across OECD countries, for example, 0.5 per cent of girls aspire towards ICT-related careers at age 15, versus 5 per cent of boys.

At the advent of electronic computing following the Second World War, software programming in industrialized countries was largely considered 'women's work'.

Managers of early technology firms deemed women well-suited for programming because of stereotypes characterizing them as meticulous and good at following step-by-step directions. Women flocked to jobs in the nascent computer industry because it was seen as more meritocratic than other fields.