




European  
Commission

# CORDIS Results Pack on gender equality in research

A thematic collection of innovative EU-funded research results

March 2022



**Tackling inequalities  
for an inclusive  
European Research Area**

*Research and  
Innovation*

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# Editorial

## Tackling inequalities for an inclusive European Research Area

Despite significant progress over the last decades, gender inequality still remains a prominent issue in the EU. Published to mark International Women's Day 2022, this Results Pack seeks to raise awareness of the importance of a gender perspective in research and innovation.

Promoting gender equality and women's better representation in our European society is a longstanding commitment of the European Commission. Yet structural and individual barriers remain that significantly impact on the health, wealth and happiness of both women and men in Europe.

EU-funded research is helping to provide a deeper understanding of gender aspects and how these barriers emerge and persist. Under the Horizon 2020 SwafS work programme, close to EUR 83 million has been allocated to projects on gender equality in research and innovation and related actions.

Gender balance is also an essential step towards getting women to participate in the decision-making process, and have equal opportunities to pursue their careers. Notably, women are still under-represented within research roles. Despite making up almost half of PhD graduates in the EU, women hold only a quarter of top positions such as full professorships, and only 11 % of patent applications are filed by women.

The 2021 Ljubljana Declaration, endorsed by 36 countries, including 25 Member States, as well as by the European Commission, highlights the need to be proactive in mainstreaming gender equality across research and innovation. It emphasises that gender equality contributes to the integrity and societal responsibility of research, leveraging scientific and technological quality to higher standards, namely through integrating a gender dimension in research and innovation content.

The Commission has reaffirmed its commitment to gender equality by making the possession of a Gender Equality Plan an eligibility criterion for higher education and research organisations applying to the Horizon Europe framework programme. Integrating a gender dimension into research designs is an inseparable part of the excellence criterion in proposal evaluations and it is paramount for the quality and usefulness of research results in the short or long term.

A further objective of Horizon Europe is increasing gender balance throughout the programme, with a target of 50% women in related boards, expert groups and evaluation committees. Only 38% of the experts assessing EU research project proposals are women, so to bridge this gap, women from all areas of expertise are invited to register as evaluators in the European Commission database of experts.

To keep track of EU progress, the Gender Equality Strategy Monitoring Portal brings together data aligned with the three main strands of the Gender Equality Strategy 2020-2025: ending gender-based violence, closing gender gaps in the labour market, and achieving gender balance in decision-making. It will help make sure that the Commission delivers on its commitment to achieve a Union of Equality.

This Pack highlights six ERC-funded frontier research projects on gender equality in addition to three successful EU-supported actions to further gender equality in research. Projects in this Pack cover a wide array of gender aspects in research, including a gendered understanding of law, individual and structural drivers of gender disparity, gender biases in education, employment and healthcare, and tools to support the development and deployment of Gender Equality Plans, as well as national-level policy coordination on gender equality in the European Research Area.

2022 marks the European Year of Youth, featuring activities focused on drawing more young women into research fields. These further the aims of International Women's Day, to foster a world that is diverse, equitable and inclusive, and free of bias, stereotypes and discrimination. Cutting-edge research, shaped and delivered with a strong gender dimension, will help bring those ambitions one step closer to reality.

# Overcoming the constraints that shape women's career choices

Recent explanations of workplace gender inequality suggest that the glass ceiling is broken, with remaining inequality due to women's choices. By revealing how these choices are themselves shaped and constrained, CIC offers ways to develop evidence-based workplace strategies.



According to Eurostat, in 2019 11.7% more men of working age (20-64) were in employment than women. Additionally, women's gross hourly earnings in 2018 were on average 14.4% less than men.

For many years, explanations for workplace gender inequality focused on structural social inequalities, related to sexism, stereotypes and norms. Despite more women entering the workforce, striking inequalities remain, shifting focus to career choices.



*Our results highlight the importance of the availability of role models, feelings of fitting in and belonging, expectations of success, as well as working in an inclusive culture with fair and supportive colleagues.*

(Context, Identity and Choice: Understanding the constraints on women's career decisions) project, funded by the European Research Council (ERC).

The continued gender pay gap can be framed as reflecting a societal view that women's work is inherently worth less (a structural explanation), or the result of women choosing to work in lower paid roles and professions.

"The first explanation acknowledges the systemic nature of gender inequality, while the second acknowledges women's agency. But one risks presenting seemingly insurmountable barriers, while the other burdens women with overcoming internal obstacles by 'leaning in'," says Michelle Ryan, director of the Global Institute for Women's Leadership, and principal investigator of the CIC

Ryan's previous research found that women were often placed in senior positions that had a high risk of failure, a concept she christened the "glass cliff". CIC further investigates the challenges women face in work, to investigate how structural barriers shape choice, with implications for practical policies to achieve workplace gender equality.

The project identified a number of enabling factors, such as perceptions of belonging and fitting in, the availability of role models, expectations of success, a supportive organisational culture and fair treatment by others.

## Ambition, work-life balance and career risk-taking

CIC integrates insights from the academic literature, organisational policy and practice, social commentary and the media, alongside women's own testimony.

"Clearly understanding about women's career choices is fragmented and often only partial. We wanted to offer a more in-depth picture useful for interventions," adds Ryan.

The team have used a variety of methodologies to explore three interrelated work streams focusing on different career choices, namely: ambition, work-life balance, and risk-taking.

The team conducted four surveys with 1 830 women to look at the influence of identity on career choices. Prioritising work-life

balance is often cited as central to women's career choices, yet the team found this related to balancing not only time but also identities between work and non-work, and that attainable female leadership roles were key to enabling this.

Another study investigated the claim that women's lower career advancement, compared to men, is related to women's unwillingness to make the same sacrifices. Two surveys were undertaken with 2 465 women in traditionally male-dominated fields: surgery and veterinary medicine. The team found differences in willingness to make sacrifices were explained by women's experiences of gender discrimination and lower identification with more senior staff. As these reduced expectations of success, they rendered sacrifices potentially pointless.

"Our results highlight the importance of the availability of role models, feelings of fitting in and belonging, expectations of success, as well as working in an inclusive culture with fair and supportive colleagues," remarks Ryan.

## Increasing inclusivity

The team is developing proposals for more enabling workplaces, including the provision of role models for women, alongside practical steps to build cultures that foster feelings of belonging and of being valued.

"These measures will help ensure that women's risks and sacrifices are rewarded in workplaces where individuals feel

authentic. They will also increase individual well-being and job satisfaction, in turn helping organisations retain and engage staff," says Ryan.

The research also has clear implications for wider workplace policies, such as those concerned with race and ethnicity, sexuality, age and disability.

"Our work benefits a broad range of employees, as many will not fit neatly within one group but more often straddle a few," concludes Ryan.

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### PROJECT

**CIC – Context, Identity and Choice:  
Understanding the constraints on women's  
career decisions**

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### HOSTED BY

University of Exeter in the United Kingdom

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### FUNDED UNDER

Horizon 2020-ERC

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### CORDIS FACTSHEET

[cordis.europa.eu/project/id/725128](https://cordis.europa.eu/project/id/725128)

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### PROJECT WEBSITE

[psychology.exeter.ac.uk/cic](https://psychology.exeter.ac.uk/cic)



# How fatherhood changes men biologically

Despite forming half of the potential parenting workforce, research into fatherhood and early paternal caregiving is scant. Studying the hormones and brains of first-time fathers, FATHER TRIALS reveals how prenatal or early postnatal interaction with their child makes fathers more attentive.



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By 2010, fathers were found to be 3-6 times more engaged in their children's upbringing than their own fathers had been. Yet, research into paternal parenting remains an emerging field.

While it is well-documented that pregnant women undergo significant changes to both hormone levels and brain activity, little is known about whether fathers experience similar impacts.

FATHER TRIALS (Hormonal and Behavioral Experiments on Prenatal and Postnatal Parenting), funded by the ERC, studied

the interaction between hormones and the neural system, and links to parenting. It also investigated how stimulating contact between fathers and infants might affect fathers' physiology and behaviour.

Some studies had previously suggested a connection between oxytocin levels and parenting behaviour, while others showed that fathers tended to have lower testosterone levels than non-fathers.

"Prior to our work, studies investigating hormonal changes in fathers had used small samples and none had studied the effects of parenting interventions on fathers' brains and hormone levels," says principal investigator Marian Bakermans-Kranenburg.

## Testing positive parenting interventions

The team conducted three randomised control experiments focusing on the prenatal period, when fathers are often overlooked, and the early postnatal period when parents adapt to family life.

In the prenatal experiment, half the fathers accessed ultrasound images of their developing child and were videorecorded interacting with their infants. The recordings were reviewed



*In mothers' brains, the most active regions are those associated with emotional processing, whereas in fathers it is those related to cognitive processing, the so-called mentalising network.*

with a specialist who highlighted positive parenting behaviour, while the control group received phone calls relaying information about fetal development. After their child's birth, intervention group fathers showed more attentiveness to their infants' signals and needs.

In the second experiment, 2 months after the baby's birth, fathers were assigned to a soft baby carrier group or a baby seat group, which

they used for 3 weeks, at least 6 hours per week. Afterwards the brains of fathers in the first group responded differently, with increased amygdala reactivity to infant crying, suggesting increased alertness.

Lastly, oxytocin, vasopressin and placebo nasal sprays were given to fathers of infants aged 2-11 months. Both oxytocin and vasopressin led to decreased amygdala activation, indicating heightened tolerance to infant crying, compared to placebo.

"If amygdala activation is too low it may not alert parents to the infant's needs; if too high it may overwhelm parents, leading to withdrawal or irritation. The optimal is probably in the middle," adds Bakermans-Kranenburg.

The team also investigated 'protection' as a feature of male parenting. For example, using functional magnetic resonance scanning, fathers' brains were monitored as they were shown video clips of situations threatening to infants. During one part

of the task, participants were asked to imagine that the child was theirs, and during another, that it wasn't.

"Prenatally, fathers' brain responses were much stronger when imagining it was their own child, but this difference disappeared after birth, suggesting an increased alertness to babies in peril generally," she explains.

Meta-analysis was also undertaken of brain responses to infant crying, finding that parents display much more brain activity when compared to non-parents.

"In mothers' brains, the most active regions are those associated with emotional processing, whereas in fathers it is those related to cognitive processing, the so-called mentalising network," notes Bakermans-Kranenburg.

## Implications for infant care

FATHER TRIALS highlights the importance of fathers being more actively involved in both pregnancy and later infant care. This could be supported with standardised paid paternity leave, which currently differs widely between EU Member States. In Belgium, fathers receive 3 days of paid leave, while in Sweden parents can share 480 days.

The team is currently assessing the long-term effectiveness of their interventions; if findings are replicated, they could be integrated into parenting practices and paediatric care.

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### PROJECT

**FATHER TRIALS – Hormonal and Behavioral Experiments on Prenatal and Postnatal Parenting**

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### HOSTED BY

VU Amsterdam in the Netherlands

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### FUNDED UNDER

Horizon 2020-ERC

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### CORDIS FACTSHEET

[cordis.europa.eu/project/id/669249](https://cordis.europa.eu/project/id/669249)

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### PROJECT WEBSITE

[vadersinbeeld.nl](https://vadersinbeeld.nl)



# Improved tools for tackling gender inequality in academia, research and innovation

Addressing gender inequality within higher education, research and innovation organisations remains a challenge, in part because of a lack of available training. The EU-funded GE Academy project successfully implemented tailor-made courses and capacity-building activities that address gender equality in research and innovation, and its legacy lives on through an online portal.

Gender and feminist scholarship has built up a significant body of research over the past few decades about gender issues – and gender inequalities – in the workplace. Despite such advances however, knowledge and acceptance of certain gender issues have struggled to penetrate many mainstream academic disciplines.

Furthermore, although an increase in gender capacity building and training in research has been seen over the past decade, some regions, such as central and eastern Europe, have not been as well served by training programmes.

With tight budgets and an array of other priorities, many research organisations continue to struggle to invest their own resources into gender equality training. There is also the risk that research and innovation organisations make one-off 'token' gender equality training commitments, instead of aiming to achieve structural change.

## Building capacity on gender equality in R&I

To address these challenges, the GE Academy (Gender Equality Academy) project developed and implemented a capacity-building programme on gender equality in research, innovation and higher education.

"The project aimed to increase the skills of those implementing gender equality measures in their institutions, such as management, administrators, HR managers and academic staff," explains GE Academy project coordinator Vicky Mouttzi, chief operating officer at ViLabs, Greece. "It also sought to deepen the expertise of researchers interested in the gender dimension of their work."





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This was achieved through the design, pilot testing and implementation of a broad set of training materials on gender equality in research and institutional change. Training topics included: gender bias in recruitment, promotion, and career management; integration of the gender dimension in curricula and teaching content in different sciences and technology fields; and developing and implementing Gender Equality Plans. The latter is of particular relevance given the introduction of an eligibility criterion in Horizon Europe that requires all applying higher education institutions, research organisations and public bodies from Member States and associated countries have in place a Gender Equality Plan.

*The project aimed to increase the skills of those implementing gender equality measures in their institutions.*

The programme, which ran until December 2021, included in-person training, summer schools, interactive workshops, webinars and train-the-trainer sessions, both online and offline. A summer school on Gender

Equality Plans and the challenge of intersectionality was hosted by Technological University Dublin in Ireland in the summer of 2021. Materials and courses were made freely available to institutions and researchers through the website.

“Our programme addressed the broad spectrum of topics concerned with the ‘mainstreaming’ of gender expertise in different disciplinary areas and scientific fields,” adds Moutzi. “We also took intersectionality into account. This refers to the interlocking, complex system of inequalities and differences in which individuals are embedded.”

## Valuable training resource

A key legacy of the project is the GE Academy website, which, since project completion, continues to provide a single entry point for accessing all project resources. "All past training activities and materials, as well as more up-to-date resources that can feed into the training design process, are accessible through the website," says Moutzi. "We are also looking into the possibility of hosting training session workshops via the GE Academy platform. Several partner organisations are also interested in delivering demand-driven trainings."

In addition, the trainers' database, which includes all the gender experts who were engaged throughout the GE Academy's implementation phase, is available. There is also a distributed open collaborative platform, accessible via the website, where users can free-browse courses on gender equality relevant to research and higher education.

The GE Academy produced two policy briefs, which draw on the experiences and lessons learned during the project. The first focuses on the capacity-building challenges ahead, and aims to support efforts towards harmonising Gender Equality Plans

in the new European Research Area framework. The second contains guidance for consistent national frameworks on gender equality in R&I. Both papers are now available through the project website.

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### PROJECT

**GE Academy – Gender Equality Academy**

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### COORDINATED BY

ViLabs in Greece

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### FUNDED UNDER

Horizon 2020-Science with and for Society

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### CORDIS FACTSHEET

[cordis.europa.eu/project/id/824585](https://cordis.europa.eu/project/id/824585)

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### PROJECT WEBSITE

[ge-academy.eu](https://ge-academy.eu)



# Overcoming institutional resistance to gender equality

Entrenched biases continue to hamper gender equality in research and innovation. EU researchers are targeting these obstacles through Gender Equality Plans and new communication tools, such as a humour initiative and a board game.

Women continue to be under-represented in technical fields such as ICT and STEM, despite making up almost half of doctoral graduates. They also make up only a third of researchers in the EU, and their working conditions tend to be more precarious than those of their male counterparts.

“Women are under-represented at the highest level in academia and in decision-making positions,” says Maria Silvestre, from the Social and Human Sciences Faculty at the University of Deusto, Spain.



“They are less successful than men in accessing research funding, and are significantly under-represented among inventors. In short, gender inequality continues to exist today in research and innovation in higher education.”

To address such entrenched inequalities, and in line with the European Commission’s commitment towards gender equality in R&I, institutions have introduced Gender Equality Plans (GEPs). These plans detail the need for specific actions, dedicated budgets or better coordination to ensure that concrete steps are taken to achieve necessary changes. While a positive step forward, there are still barriers to overcome.

“This resistance might be explicit or hidden, and might come from individuals, groups, or might be at institutional level,” adds Silvestre. “This can take the form of denial, disavowal of responsibility, inaction and repression.”

## Effectively implementing GEPs

GEARING ROLES (Gender Equality Actions in Research Institutions to traNsform Gender ROLES) was launched in 2019 with the aim of removing barriers to female recruitment and career progression. At the heart of the project is the design and implementation of six tailored GEPs for the research and innovation institutions that form part of the consortium. Pairing events have been organised, to encourage these institutions to exchange their knowledge and experiences.

More broadly, the project, which runs until the end of 2022, also seeks to promote female leadership in research organisations, strengthen the gender dimension in research programmes and build a sustainable network of

organisations dedicated to advancing gender equality. These aims are being achieved through a number of actions, such as the Humorarium initiative.

“Project partners are currently developing an action that uses humour as a means to counter resistance,” explains Silvestre, the project coordinator. “Why not counteract sexist ‘jokes’ with feminist humour?” Still under progress, the Humorarium initiative will show how feminist art and humour can be a powerful means to reach different groups of people and promote equality in a light and effective way.

GEARING ROLES has also launched a Twitter campaign with the hashtag #COUNTERIT, and the project team has made extensive

use of social media networks to both raise awareness of gender issues in research and innovation and exchange experiences and knowledge. Other innovative initiatives have included a board game called Nobel Run where players compete to manage a research team and win a Nobel prize, and a mentoring scheme called the FELISE programme.

## Achieving sustainable change

“Gender equality in higher education still has a long way to go,” says Silvestre. “Yet, GEARING ROLES has already achieved a great deal, and will continue to do so over the next year.”

For example, the six GEPs developed have been approved. “This means that six higher education institutions have understood and embraced the importance of and the need for working towards gender equality,” she notes. “Progress in key areas such as career progression, pay gap, female representation, sexual harassment, and mainstreaming gender in research and teaching, among others, will now be achieved, thanks to the implementation of these GEPs.”

A number of training courses on leadership in research have been delivered. Through the FELISE mentoring programme, and also through specific workshops to design career development plans, the project team hopes to directly involve over 100 female researchers.

“Our hope is that this project will help transform gender roles, and therefore contribute to the quest for gender equality in higher education in Europe,” says Silvestre. “We hope this provides a model for other institutions to follow, and therefore contribute to structural change in R&I institutions.”



*This project will help transform gender roles, and therefore contribute to the quest for gender equality in higher education.*

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### PROJECT

**GEARING ROLES – Gender Equality Actions in Research Institutions to traNsform Gender ROLES**

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### COORDINATED BY

University of Deusto in Spain

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### FUNDED UNDER

Horizon 2020–Science with and for Society

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### CORDIS FACTSHEET

[cordis.europa.eu/project/id/824536](https://cordis.europa.eu/project/id/824536)

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### PROJECT WEBSITE

[gearingroles.eu](https://gearingroles.eu)

# Supporting EU policies to deliver on gender equality in research and innovation

A series of policy support activities and policy recommendations to address gender inequality issues in research and innovation at national and EU level has been developed by the EU-funded GENDERACTION project.

While nearly half of doctoral graduates in the EU are women, disparities persist across certain disciplines. Critically, too few female graduates go on to follow careers in research and innovation.

"The percentage of women among researchers in the EU is just under 33%," notes GENDERACTION (GENDER equality in the ERA Community To Innovate policy implementation) project coordinator Marcela Linkova, head of the Centre for Gender and



Science at the Institute of Sociology of the Czech Academy of Sciences.

“Men are also twice as likely to hold full professorships than women. In terms of leadership positions, women make up less than 24% of heads of higher education institutions. We see positive developments, but change is slow.”

Academia tends to be hierarchical, and many biases are deeply entrenched, which can compromise meritocracy. Also, when the gender dimension in research and innovation content is not properly taken into account, it can produce skewed and less than robust research that does not answer the needs of all.

## Importance of policy

The GENDERACTION project was launched in recognition of the importance of policymaking in achieving gender equality progress. “Policy sets the framework,” says Linkova. “Our objective was to create a European network of policymakers in order to coordinate policy, advocate gender equality and exchange good practices. One of the benefits was that in doing this we have also built a community of colleagues with whom to share challenges, because working to advance gender equality can be challenging.”

The project team worked to support structural change in Member States through Gender Equality Plans. The team studied national action plans and strategies defined by Member States in the context of the European Research Area priorities, and reviewed the types of indicators used to measure progress towards gender equality.



*Our objective was to create a European network of policymakers in order to coordinate policy, advocate gender equality and exchange good practices.*

This enabled the team to demonstrate that careful attention needs to be paid to indicator selection. Using a specific indicator, such as the proportion of women among professors, is not sufficient on its own to capture the reality of gender equality in research.

Another major task for the project team was to develop policy advice. Much of this advice focused primarily on Horizon Europe, the EU's key funding programme for research and innovation (R&I). Recommendations include fostering intersectional approaches to gender equality and addressing sex and gender analysis in research.

“We published a series of policy briefs, and this was recognised by the European Commission as a key contribution to gender

equality in the European Research Area,” says Linkova. “This makes us very proud. We also opened up new areas, such as gender equality in international cooperation in science, technology and innovation. All this advice is now available on our website.”

## Prioritising gender equality

The GENDERACTION project has already helped to reshape how gender inequality in research is addressed. The project team's work contributed to the early drafting of the Ljubljana Declaration, an acknowledgement of gender mainstreaming and gender equality that has been endorsed by 36 countries, including 25 Member States, as well as by the European Commission.

“The Declaration is a great achievement of the Slovenian Presidency of the Council of the EU, and sets the priorities for gender equality in R&I for the coming years,” remarks Linkova. “Our policy advice has also been used in the negotiation of Horizon Europe, as well as the new European Research Area policy agenda that has just been adopted.”

In the meantime, the policy network established by the project will continue to discuss and make use of the project's recommendations at national level. “We made it clear that having a policy network in Europe to advance gender equality in R&I can be a very efficient way to achieve progress,” says Linkova. “The only thing now is to make sure that we continue moving forward.”

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### PROJECT

**GENDERACTION – GENDER equality in the ERA Community To Innovate policy implementation**

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### COORDINATED BY

Institute of Sociology of the Czech Academy of Sciences in Czechia

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### FUNDED UNDER

Horizon 2020-Science with and for Society

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### CORDIS FACTSHEET

[cordis.europa.eu/project/id/741466](https://cordis.europa.eu/project/id/741466)

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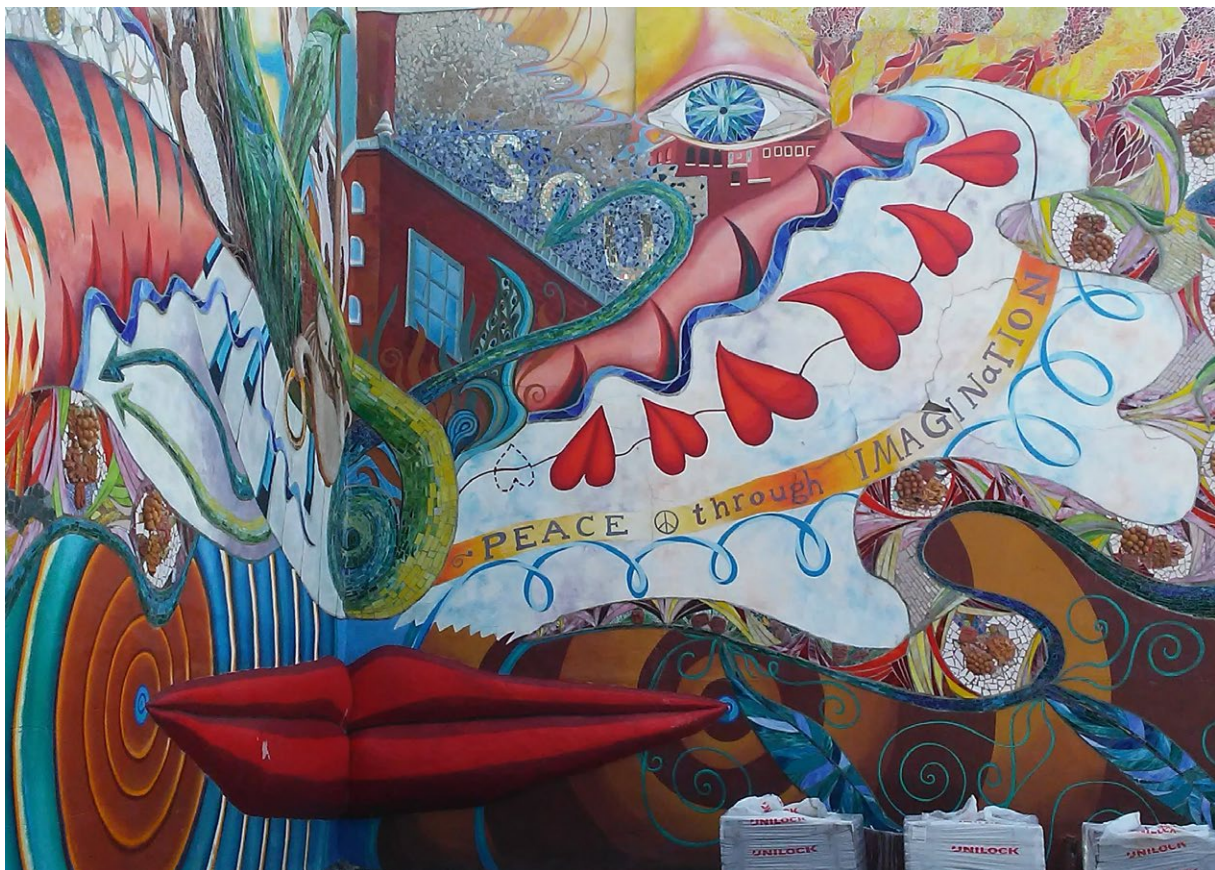
### PROJECT WEBSITE

[genderaction.eu](https://genderaction.eu)



# Towards a gendered peace and security

Peace and security for all must take account of those marginalised, including women. GenderedPeace offers decision makers a gendered analysis which enriches understanding of the structural causes of conflict and a firmer basis for formulating solutions and policies.



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The UN Security Council's Women, Peace and Security (WPS) agenda was established to integrate women's experiences of conflict into international law and decision-making. Core to its remit is the promotion of peace and security in ways relevant to women, as well as men.

This in part means challenging traditional approaches to conflict, which prioritise military solutions and the interests of the most militarily invested states. Yet five of these powerful states sit as permanent members of the Security Council.

“Many countries seem unwilling to make real political and financial commitments to the agenda,” according to Christine Chinkin from the London School of Economics and Political Science, principal investigator of the GenderedPeace (A Gendered International Law of Peace) project. “Also, the focus on counterterrorism and extremism tends to co-opt women into those agendas, rather than ensuring women’s security and rights as a goal in itself.”

The GenderedPeace project works with female activists and researchers from conflict-affected states such as Colombia and the Balkans and with feminist NGOs, including the Women’s International Peace Centre, Peace Track Initiative and Women’s International League for Peace and Freedom.

“Alongside stakeholders’ enthusiasm to engage with the issues raised, there is consensus for new ways of making policy and law that deliver more equality and enriched notions of peace,” remarks Chinkin.

## A diverse methodology

The project, funded by the ERC, is structured around three work streams: Women and Peace/Women and Security, Gender and Contemporary Forms of Violence, and Gender and Peacebuilding. Each engages a range of feminist research methodologies to deconstruct ambiguities in the WPS Resolutions, as well as more broadly within international law, then adopts diverse dissemination methods.



*We need a complete mindset change, from militarism, profit-seeking, resource extraction and little accountability, to one centred on individuals, responsibility and the planet.*

For example, a documentary examines the legacy of the 2000 Tokyo Women’s International War Crimes Tribunal on Japan’s Military Sexual Slavery. Through interviews, it describes how women across Asia took action to seek gender justice, after the failure of formal legal processes.

The project has also submitted amicus briefs – detailed legal arguments – in support of cases fighting gender-based violence and for women’s rights.

For instance, in a recent submission to the International Criminal Court, the Court was urged to adopt a gendered and intersectional analysis, to ensure its jurisprudence achieves gender justice.

The team also co-hosted a series of public conversations with the LSE library, exploring how women’s peace activism has often

been silenced, with one bringing together activists from Iran, Iraq and Syria.

“While COVID has prevented us from organising in-person events and undertaking planned archival research, advances in digital technologies have enabled us to reach a wider audience and to benefit from accessing digitally available material. It has also proved to be a leveller, with hierarchies harder to sustain when everyone appears in the same little box on a screen,” says Louise Arimatsu, who works as a researcher in the project.

## Peace and security for all

While much of the project’s gender discrimination focus is informed by activities outside Europe, its findings are relevant to EU law and policy. The team’s work on human trafficking urges policymakers to reframe the debate through a gendered human rights perspective, rather than the currently dominant criminal justice model.

“We need a complete mindset change, from militarism, profit-seeking, resource extraction and little accountability, to one centred on individuals, responsibility and the planet,” concludes Chinkin.

The team are currently writing a book encapsulating many of the project’s themes.

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### PROJECT

**GenderedPeace – A Gendered International Law of Peace**

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### HOSTED BY

London School of Economics and Political Science in the United Kingdom

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### FUNDED UNDER

Horizon 2020-ERC

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### CORDIS FACTSHEET

[cordis.europa.eu/project/id/786494](https://cordis.europa.eu/project/id/786494)

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### PROJECT WEBSITE

[lse.ac.uk/women-peace-security/research/Gendered-Peace](https://lse.ac.uk/women-peace-security/research/Gendered-Peace)





# Boys have talent, girls work hard: how parents and teachers perpetuate gender biases

Parents, teachers and textbook editors willing to challenge career and educational gender stereotypes will soon have new tools to do so, thanks to the EU-funded **GirlsInScience** project.

Two of the most important factors affecting our career path are our parents and teachers. Combine that with the fact that women tend to be under-represented in STEM (science, technology, engineering and maths) just like men are in HEED (healthcare, early education and domestic work), and you've got yourself a sensible question: Do our parents and teachers

unintentionally contribute to perpetuating these imbalanced gender distributions?

"There has been evidence that teachers' gender and gendered language can influence children's evaluation of specific professions. Same-gender role models who challenge stereotypes



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*Same-gender role models who challenge stereotypes – like a female maths teacher or a male preschool teacher – can contribute to students' interest in a career they would not have chosen otherwise.*

– like a female maths teacher or a male preschool teacher – can contribute to students' interest in a career they would not have chosen otherwise. Likewise, parents' gendered messages shape their children's flexibility or rigidity as they consider educational or professional choices," says principal investigator Judi Mesman, dean of Leiden University College The Hague and professor of the interdisciplinary study of societal challenges.

Whilst some studies on this topic do exist, very few are longitudinal. Mesman's GirlsInScience (Building an Evidence-Base for Reducing Gender Bias in Educational Pathways) project, funded by the ERC, closes this gap with a study specifically focused on the Dutch context. With her team, she began by studying gender representation and stereotypes in textbooks, the impact of student gender on marking, how teacher-student gender matches influence students' achievements, as well as gendered evaluations in report cards.

## Textbook stereotypes

"Our work on textbooks examined gender representation and stereotyping in maths and Dutch language education for the first grade of primary education and the first grade of secondary education. This analysis spanning over 20 000 textbook characters shows a systematic female under-representation, specifically among characters with a profession, scientists, athletes and those performing technical activities," Mesman adds. "Meanwhile, female characters are over-represented in household tasks and parental roles, while females of colour are even more under-represented overall."

To evaluate gender marking, the team presented teachers with exams to mark from gendered student names. Teachers were found to favour girls over boys, but also to view girls' achievements as being mostly due to hard work. Boys', on the other hand, were due to talent. This is in line with the societal discourse that sees boys as unmotivated and lazy (yet

intellectually capable), whereas girls would be conscientious and hardworking although less talented. According to Mesman, "both findings are examples of implicit and subtle gendered messages to which students are exposed throughout their school careers. These are part of a larger pattern of mechanisms that may explain gender gaps in educational and professional pathways."

These studies have yet to be finalised, just like the analysis of family data on boys' and girls' respective interest in STEM and HEED. "The COVID-19 pandemic forced us to reconsider several parts of the project, delay them, redesign them and come up with innovative methods never used before in this line of research. We have now collected a very rich data set, and our first priority is to do it justice by finalising our analyses and reports," notes Mesman.

Once the research is complete, the team intends to develop awareness-raising materials for the general public and specific professional groups. A practical instrument for educational publishers has already been published: they can use it to remedy issues of gender and ethnicity in their textbooks, and both Dutch and international organisations have expressed interest in implementing this instrument in future textbook editions. Similar instruments are also in the pipeline for families and schools. These will challenge and motivate both parents and teachers to reflect on their own roles.

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### PROJECT

**GirlsInScience – Building an Evidence-Base for Reducing Gender Bias in Educational Pathways**

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### HOSTED BY

Leiden University in the Netherlands

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### FUNDED UNDER

Horizon 2020-ERC

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### CORDIS FACTSHEET

[cordis.europa.eu/project/id/726141](https://cordis.europa.eu/project/id/726141)



# How women's risk of heart disease goes undetected

Improved software to predict a patient's risk of atrial fibrillation has demonstrated key differences in how the condition presents in men and women, opening the door to more accurate diagnostics.



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Atrial fibrillation (AF) is an abnormal heart rhythm characterised by a rapid, irregular heartbeat, and is associated with an increased risk of heart failure, stroke and dementia. Experts predict that due to population ageing in Europe, the prevalence of AF will double by 2050. The incidence and morbidity of AF vary between men and women, and this picture is complicated by the fact that many patients are asymptomatic.

A few years ago, cardiologist Renate Schnabel at University Heart and Vascular Center Hamburg in Germany and her team

developed an innovative prediction algorithm to help identify those patients most at risk of AF. Drawing on a combination of sex, age, hypertension, body mass index, prior cardiac accidents and other factors, this algorithm was validated in patient cohorts, but its accuracy was found to be suboptimal.

“Our latest project, MMAF, aimed to solve this problem by identifying additional risk predictors,” Schnabel explains. The team benefited from newly available information, including data on the pathogenesis of AF.

MMAF, which is funded by the ERC, specifically focused on the atria, the chambers of the heart that receive blood. The team considered electrical and structural differences related to sex and age, and combined all available information in more modern, machine learning algorithms.

“We had electrocardiogram raw data available which reflect early electrical changes of the cardiac atria. We also had access to non-invasive imaging information from echocardiography and MRI data to better characterise subclinical changes of the atria. Finally, we used blood and tissue omics covering genetics, gene expression, proteomics, metabolomics of heart tissue and circulating biomarkers to identify new pathways,” says Schnabel.

## Varying outcomes

The project has identified key differences in the incidence and impact of AF between men and women. “We could demonstrate that women generally have lower age-adjusted incidence and prevalence of AF compared to men,” adds Schnabel. “However, given the greater longevity of women, the absolute numbers are similar.”



*Women are more likely to present atypical symptoms of atrial fibrillation, such as weakness and fatigue, have a longer duration of symptoms compared to men, and report worse quality of life.*

Women have a longer duration of symptoms compared to men. Women also report worse quality of life, more frequent depression, and more risk of AF-related stroke, myocardial infarction and mortality. “This is why all

risk prediction models needed to incorporate sex as a central variable,” says Schnabel.

The project is now wrapped up, but the results are further validated in the EU-funded AFFECT-EU project. A consortium of 26 partners is currently developing a risk-based AF screening strategy using digital applications for rhythm monitoring to reduce the burden of stroke and other AF-related comorbidities in an ageing Europe.

Schnabel and her team also plan to submit an ERC proof of concept grant application to assess the implementation and uptake of their new risk prediction algorithm and guide screening efforts. The algorithm, with an accuracy superior to the one previously available, has already been implemented in routine physician software used by general practitioners, internists and neurologists.

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### PROJECT

**MMAF – Novel multimodal approach to atrial fibrillation risk assessment and identification of targets for prevention by interdisciplinary exploitation of omics, advanced electrocardiography, and imaging**

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### HOSTED BY

University Heart and Vascular Center Hamburg in Germany

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### FUNDED UNDER

Horizon 2020-ERC

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### CORDIS FACTSHEET

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# How structural inequalities within society hold women back

Despite progressive policies, gender inequality persists in the labour market and at home. The Struct. vs. Individ. project showed how structural mechanisms have overtaken individual ones in creating deep-set issues.

Many barriers to women's advancement in society have been dismantled in recent decades. Women now benefit from higher education and can access prestigious jobs once claimed by men. But a gender revolution slowdown since the 1990s has led scholars to identify a new phenomenon hindering progress, which forms part of the structural barriers to gender equity.

As principal investigator Hadas Mandel, head of the Department of Sociology and Anthropology at Tel Aviv University, explains: "Discrimination against women as individuals has been outlawed

and lost social legitimacy. However, these individual-level mechanisms are being replaced by structural ones."

Structural mechanisms refer to the criteria determining economic rewards in the labour market. These criteria are unintentionally and unconsciously affected by gender beliefs regarding the lower value of women's skills, competence and abilities. This, in turn, legitimises lower economic rewards for 'women's jobs', and perpetuates differences in the amount of time men and women respectively spend on tasks such as child-rearing and housework.



Although these mechanisms have been acknowledged by gender scholars, empirical research comparing their changing impact on gender gaps over time is desperately lacking. With support from the ERC, the Struct. vs. Individ. project aimed to fill this gap.

“My goal is to assess the changing mechanisms underpinning gender inequality in post-industrial labour markets,” says Mandel. These mechanisms include the lower value and wages of what is considered as female work, the effect of gender ideology, and the effect of the steep rise of top earnings. Her team used various data sets from different countries and periods to estimate the effect these mechanisms had on gender inequality over the past decades.

## Better jobs with higher wage gaps

Project findings on the devaluation of female occupations are particularly interesting. Through her research, Mandel uncovered two different, opposing mechanisms at work in the United States since the 1960s.

The first mechanism relates to women's progressive entry into highly rewarded jobs, an individual mechanism that narrows the gender gap. However, while more women do reach top-level jobs, the economic rewards of these occupations have suffered from a wage penalty – a structural mechanism that widens the gender gap.

The team also found out that the growth of earning inequality in the United States, greatly affected by the expansion of top earnings, is associated with a growing gender gap in wage and in education premiums. “We showed that men have a higher monetary return on investment in themselves, notably through education, than women do – a structural mechanism – and this plays a bigger role in the existing gender gap than differences in educational attainment itself – an individual mechanism,” adds Mandel.



*We showed that men have a higher monetary return on investment in themselves, notably through education, than women do.*

The project is due for completion in June 2022. Mandel and her team will study as many structural mechanisms as possible to identify their net effect on gender inequality. “Our research can help both scholars and policymakers gain a better grasp of the importance, impact and ways in which structural mechanisms shape gender inequality in the labour market and beyond,” she notes.

This could serve as a foothold for policies aiming to eradicate the structural aspects of gender inequality, starting with the acknowledgement that structural mechanisms related to gendered biases are concealed and mostly unintended. “It’s really a matter of changing cultural perceptions and social priorities,” concludes Mandel. “Because these changes are demanding challenges, empirical evidence supporting their negative implications can be a good start.”

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### PROJECT

**Struct. vs. Individ. – The ‘Declining Significance of Gender’ Reexamined: Cross-Country Comparison of Individual and Structural Aspects of Gender Inequality**

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### HOSTED BY

Tel Aviv University in Israel

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## The objects around us tell stories about who we are: what we can build, what we can afford, and what we desire

In Episode #09 of CORDIScovery, a trio of leading female researchers examine glass, cloth and stone: three materials in which our history is recorded. Nadine Schibille, principal investigator of the GlassRoutes project, discusses the geopolitical, sociocultural and artistic dimensions of glass in the first millennium. Maria Mossakowska-Gaubert principal investigator of the MONTEX project, reveals the culture surrounding textile use and production in Egypt from the Ptolemaic to the early Arab period. And Saša Čaval of the SOLMUS project, decodes the social features of *stećci*, medieval burial stones found scattered across the Western Balkans.

Tune in and enjoy: [bit.ly/CORDIScovery\\_Episode\\_9](https://bit.ly/CORDIScovery_Episode_9)



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