

Gender Impact Assessment for sex and gender inclusion in health outcomes

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Despite the recognition of the importance of sex and gender in improving the effectiveness of healthcare policies,¹ these factors are overlooked in the research design and data analyses, as well as in general science communication. Knowledge gaps persist in health research, however international funding mechanisms increasingly more often require the integration of sex and gender in research proposals;^{2,3} so far, the policies of scientific journals also recommended considering sex and gender in research design and reporting.⁴ Sex and gender-based analyses are not performed because gender-specific data are rarely collected by relevant indicators, and the gender assessment tools are not commonly used.⁵

The Gender Impact Assessment (GIA) method is an *ex-ante* or *ex-post* assessment of law, policy, social or public health issues aimed at analyzing the influence of gender and planning policies suitable to prevent a negative effect on gender equality and improve gender equality through gender-oriented strategies.⁶ The assessment covers the current gender position concerning the policy under consideration, as well as the expected impact on women and men once the policy has been implemented. Data disaggregation is the prerequisite for identifying gender relevance, since the GIA allows for a structured (i.e., systematic, analytical and documented) assessment of all these aspects; in fact, the analysis was performed in particular through the following macro-steps:

1. defining the context, the objectives and the indicators used to track and monitor inequalities;
2. explaining the importance of introducing the gender determinant, identifying the gender dynamics and the related direct (i.e., access to resources, payment methods/costs, etc.) and/or indirect (intermediate access to resources, services, institutions, structures, etc.) impact;
3. identifying gender stereotypes influencing behavior (i.e., hierarchical positioning that generates social, cultural, and economic privileges; unequal use and access to resources; unfair and unbalanced representation);
4. assessing the harmful implications of gender bias, which aspects reinforce or reduce inequalities, and which factors promote equality over the *statu quo*;

5. suggesting a way to reduce disparities and promote gender equality, to revisit predicted negative impacts and to develop strategies to transform them into positive effects.

The GIA tool has been recently assessed for healthcare practice. First of all, the impact of sex and gender on the vaccination coverage has been investigated in a study conducted on a large cohort of healthcare workers enrolled in the Italian vaccination campaign against SARS-CoV-2.⁷ According to a gender-sensitive approach, in order to effectively and fairly address COVID-19 vaccination campaigns, the stereotypes and gender relationships need to be considered. The already applied strategies address the concern about the effectiveness of vaccines and the increase in vaccine accessibility.⁸ In particular, the GIA highlighted the inequalities of access to the vaccination campaign for informal caregivers and healthcare workers outside hospitals *vs* hospital-based healthcare professionals. Indeed, sex-disaggregated data showed that, in the studied population, 64.4% of healthcare workers are women. To positively transform the professional risks, female healthcare professionals could be included in initiatives and strategies adopted to strengthen prevention strategies and vaccination campaigns, taking into account the knowledge and experience they have gained. Overall, considering the disaggregated data, the analysis of the antibody titers highlighted differences between males and females and between different age groups, with a significantly higher response and more frequently reported side effects in females than in males. Disaggregated data alone cannot provide a single answer with regard to the best strategy to adopt for the rollout of COVID-19 vaccination strategies; still, they are essential in order to identify priority groups for efficiently re-evaluating the prevention policies and the vaccination campaign.

The other area where the GIA was recently successfully applied is couple infertility, since procreation involves sex and gender factors.⁹ Indeed, although the term "gender gap" has mistakenly been used for women, the benefit that gender analysis provides in understanding men's health should also be noted. The study showed that a gender-sensitive approach is mandatory in order to optimize the diagnostic-therapeutic pathways of in-

fertility and promote gender equality within the planning of the diagnostic-therapeutic pathway. In fact, although it is thought to play a role in 50% of infertile couples,¹⁰ male infertility is currently less considered than the female factor,¹¹ probably due to the psychological distress generated by infertility among women.¹² Understanding the impact of gender in the development and management of reproductive health and infertility can benefit the couple in terms of interventions and outcomes, and provide researchers and clinicians with a better understanding.

In conclusion, by reporting the impact of gender in a “real world” setting, the aforementioned scientific articles emphasize that the introduction of sex and gender determinants can favorably contribute to improve the effectiveness of healthcare interventions and to promote gender and health equity goals, since the physiological aspect and the pathological course of the diseases are influenced by these factors. Hence, the need to increase the efforts to promote the integration of sex and gender as standard practice in health policies, in order to shape the decision-making processes at the planning level. Data disaggregated by sex and gender are essential elements for advancing the quality and usefulness of the evidence from health research. In the healthcare sector, the GIA is a tool that allows to improve the design and planning of the health interventions, in order to prevent a negative impact on gender equality, while strengthening the latter. The primary objective is to plan health interventions to ensure that any discriminatory effects are removed or mitigated. So, in addition to avoiding negative effects, a gender impact assessment can also be used proactively, to define gender equality goals. Therefore, researchers would benefit from assessment tools like the GIA, to promote the adoption of sex and gender in health research in support of better evidence.

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