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Geriatrics, Pharmacy, Psychology, Epidemiology, Orthopedics

Overview

The present project on prescribing cascades addresses an important and under-researched aspect of this potentially iatrogenic medication harm. Prescribing cascades occur when a health care provider treats the side-effect of a drug as a new medical condition and prescribes a second, potentially unnecessary drug to treat the side-effect. Prescribing cascades were first described by Rochon (Project Coordinator) and Gurwitz (Associate Partner). Since women live longer than men, are more likely to be prescribed potentially inappropriate drug therapies, and experience more drug-related adverse events, it is hypothesized that prescribing cascades have different effects according to sex and gender.

The objectives of the present project are to use the expertise of our international consortium and international prescribing cascade data to:

- 1) Create a comprehensive inventory of prescribing cascades;
- 2) Examine and compare the frequency of prescribing cascades by sex and country in three key settings of care (community, hospital and, long-term care home, and community) using clinical and administrative data; and
- 3) Explore how sex and gender are associated with the development and impact of prescribing cascades using qualitative data.

Project Outcomes

The Team has completed the Delphi process, resulting in an inventory of prescribing cascades affecting older women and men selected by experts in the field as clinically important. The resulting peer-reviewed paper "ThinkCascades: a tool for identifying clinically important prescribing cascades affecting older people" was one of the top 5 most accessed articles on SpringerLink in Drugs and Aging. This list will help inform which prescribing cascades to focus on for the creation of country-specific clinical and health administrative data tables. These tables will allow us to evaluate the frequency of prescribing cascades by sex internationally, in the hospital, long-term care and community settings. The countries have worked together, drawing on data sources from their own respective country, and completed prototypic data tables using cholinesterase inhibitors leading to urinary incontinence medication as an example of a prescribing cascade. Currently, a manuscript is being prepared on lessons learned about identifying gender-related variables in international, diverse secondary data sources, using the calcium channel blocker and diuretic as the example prescribing cascade. Gender-related variables included identity (man/woman), marital status, socio-economic status, and level of education attainment. Measures of chronic conditions and polypharmacy were also included.

All Project Partners (Canada, Ireland, Israel, Italy) have completed their country-specific portraits of gender. This information will be used to generate hypotheses regarding how gender roles, relations (i.e., gender equity), and power relations may contribute to observed trends and differences in prescribing cascades across countries.

The team developed a short, realistic vignette that incorporated a prescribing cascade identified from the modified Delphi process in order to explore potential gender bias among prescribers. We conducted a total of 30 interviews where physicians were randomized to identical male or female versions of the case vignette, and were instructed to use the "think-aloud" method to describe their thought process and arrived at a final course of action. Interview transcripts were analyzed thematically using a multi-site analysis framework to uncover potential differences in decision-making by patient or provider sex and gender, and by country. Results from both the quantitative and qualitative approaches will be integrated to develop an enriched understanding of the sex and gender dimensions in the development of prescribing cascades.

Team members

| | Woman | Man | Other |
|--|----------|---------|--------|
| Gender balance in the whole consortium | 11 (55%) | 9 (45%) | 0 (0%) |
| Presence of women as lead researchers/PIs | 8 (75%) | 3 (25%) | 0 (0%) |
| Gender Experts in the team | 2 (66%) | 1 (33%) | 0 (0%) |
| Subsequent team members trained (Gender equality) | 10 (66%) | 5 (33%) | 0 (0%) |

Contribution to the achievement of UN Sustainable Development Goals (SDGs)

SDG 5 Gender Equality: specific gender analysis questions were developed to capture health systems factors that may influence drug prescribing and the experience of older adults navigating the healthcare system. The gendered impacts of partner countries' health system's organization and governance, financing (including pharmaceuticals), physical and human resources, provision of services, and principal health reforms, as well as overall assessment of functionality were assessed drawing on the Observatory's HiT Reports and secondary website search.

SDG 3: Good health and well-being: the country portraits of partnering countries aims to improve understanding of the complex and context-specific power relations that characterize gender relations within each health system. Comparison of sex-disaggregated data and gender analysis of prescribing cascades of the partnering countries will facilitate the identification of cross-national inequities within health systems.

Differences/inequalities between women and men highlighted by the project

At present the project has documented already known differences between women and men in each partner country in four domains: (i) access to assets (socioeconomic status); (ii) beliefs and perceptions about men and women; (iii) activities, roles, and engagement in society; and (iv) institutions, laws, and policies (gender equity initiatives). This information, taken together with the international prescribing cascade data tables, will be used to generate hypotheses regarding how gender roles, relations (i.e. gender equity), and power relations may contribute to observed trends and differences in prescribing cascades across countries.

Other differences have not been highlighted, as an exploration of how sex and gender are associated with the development and impact of prescribing cascades is our final objective. It is not possible to achieve this objective until we have created a comprehensive inventory of prescribing cascades. We have completed the Delphi project and generated a nine-item consensus-based list of clinically important prescribing cascades. Currently, we are looking at identifying gender-related variables in international, diverse secondary data sources to help identify patterns in inappropriate polypharmacy including prescribing cascades. Moreover, we are in the thematic analysis stage of the vignettes project that is designed to explore implicit gender biases in prescribers.

Positive impact of the project on gender equality/scientific evidence on gender in the field

iKASCADE is a relevant and timely initiative that has the potential to stimulate international recognition of prescribing cascades and ultimately change health system management and policies to improve the health of older men and women., culminating in papers being published related to each objective mentioned above. These papers will inform recommendations around strategies tailored for women and men to reduce prescribing cascades and thereby improve their health and wellness. The novel component of profiling sex and gender in this important international issue will also add value by elevating increasing the research community's consideration of sex and gender more broadly within geriatric pharmacology and geriatric medicine research.