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Time Windows Used when Identifying Current Drug Use and Polypharmacy

Giometto Sabrina[1], Reilev Mette[2], Thomsen Ernst Martin[2], Støvring Henrik[2,3,4], Pottegård Anton[2]

(1) Department of Clinical and Experimental Medicine, University of Pisa
(2) Clinical Pharmacology, Pharmacy and Environmental Medicine, Department of Public Health, University of Southern Denmark
(3) Department of Biomedicine, Aarhus University
(4) Steno Diabetes Center Aarhus, Aarhus University Hospital

CORRESPONDING AUTHOR: *Giometto Sabrina, sabrina.giometto@phd.unipi.it*

BACKGROUND

There is no consensus on the definition of the prevalence of drug use, including polypharmacy, regarding the length of the time window and the number of required concomitant medications.

OBJECTIVES

We aim to explore how the estimated prevalence of drug use in general, and of polypharmacy in particular, is affected by the applied definition.

METHODS

We conducted a drug-utilization study divided into two parts: in the first part, we focused on estimation of current use, corresponding to 'baseline drug use' in a cohort study. Using population-based registries from Denmark, we identified a cohort of individuals aged ≥18 years during 2020-2022, assigned them a random index date and considered 'current use' of the following drugs: statins, glucose-lowering drugs (GLDs), selective serotonin reuptake inhibitors (SSRIs), opioids, and non-steroidal anti-inflammatory drugs (NSAIDs). The second part of the study focused on polypharmacy, defined according to five different definitions, with estimations of its prevalence using population-based registries from Denmark. We identified a cohort of individuals older than 65 years in 2022, and we considered all drugs available in the registries except for anti-infectives for systemic use. We also evaluated the accuracy of different criteria for predicting polypharmacy using simulations.

RESULTS

Evaluating baseline drug use, we observed that the proportion of individuals classified as exposed increased with use of time-windows up to the first 90 days before the index date, reaching a plateau using windows around 120-150 days for statins, GLDs, and SSRIs, and around 180-300 days for opioids, whereas it was not reached for NSAIDs within 360 days. The prevalence of polypharmacy ranged from 21.1% (10 different 4th level Anatomical Therapeutic Chemical (ATC) groups in one year) to 92.3% (two different 4th level ATC groups in one year) depending on the applied definition, varying with the number of different ATC groups and time periods. In the simulation, the best criterion for identifying polypharmacy required at least two dispensations for each of at least five drugs, with sensitivity ranging between 0.93 and 1.00, and specificity between 0.72 and 1.00.

CONCLUSIONS

Time windows up to 90 days are too short to identify baseline drug use in the Danish setting. How polypharmacy is defined significantly influences its estimate, suggesting a need to use multiple definitions in each study.

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