

Identifying and capturing intersectoral costs and benefits relating to sexual health

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IMPACT

Sexual health problems can generate wide-ranging health, social, and economic implications both within and beyond the healthcare sector. In health economics, the term *intersectoral costs and benefits* (ICBs) describes costs and benefits of health problems and/or health-related interventions that spill over to other non-health sectors. Despite international literature advocating for a broader perspective (where appropriate), such as a societal perspective, to include ICBs in analyses, most sexual health studies still use a healthcare perspective. Those studies that do adopt a societal perspective often have a limited scope in considering ICBs. The first aim of this thesis was hence to explore and identify relevant ICBs relating to sexual health and to develop a sector-specific (cost) classification scheme to categorise these ICBs into different (policy) sectors.

While pursuing this aim and conducting a systematic review of cost-of-illness (COI) studies to explore such intersectoral costs it became evident that there was no standard tool in English to review and critically appraise COI studies. Therefore, a further aim of the thesis was to develop a critical appraisal tool for these studies in order to explore the studies' methodological approaches. Thus, the additional aim that emerged was to develop a consensus-based checklist for the critical appraisal of COI studies, serving as a minimum standard to review and assess existing COI studies and addressing scientific as well as methodological interests.

Scientific impact relating to intersectoral costs and benefits

There are significant implications for research concerning the first aim of this thesis, exploring the intersectoral impacts associated with sexual health. Based on the findings presented in this thesis, there are relevant ICBs associated with sexual health problems and interventions across various sectors of society. These include impacts on the patient and family, informal care sector, productivity (paid labour, non-paid opportunity costs), education, and consumption.

The two systematic reviews – one reviewing COI studies and another reviewing full economic evaluations – identified relevant ICBs considered in the analyses of these studies, categorised and synthesised these by (policy) sector to provide an overview of ICBs in form of a sector-specific (cost) classification scheme. The findings illustrate the importance of considering ICBs in health economic studies; this is particularly true for economic studies that adopt a broader or societal perspective and when the goal is to assess the total burden on society.

The interviews with experts in the field of sexual health that were conducted as part of this thesis further explored potentially relevant wider ICBs relating to sexual health; complementary to the two systematic reviews. The interview findings confirmed that sexual health is complex and can generate wide-ranging impacts on other areas of health (e.g., reproductive health, mental health) and other non-health sectors of society (e.g., patient/family, productivity, education, criminal justice) that need to be captured when assessing the total burden of sexual health on society. The findings from the interviews were listed in a sector-specific (cost) classification scheme to provide a comprehensive overview.

This thesis contributes to the existing health economic literature by addressing the literature gap concerning the area of interest and by establishing and presenting a sector-specific (cost) classification scheme listing relevant intersectoral impacts relating to sexual health. This classification scheme represents an important initial step toward explicitly and transparently demonstrating these impacts to guide future comprehensive research in this field and generally the field of public health. The classification scheme can assist in identifying and understanding potentially relevant wider ICBs relating to sexual health and public health in a transparent and standardised manner. This thesis acknowledges that capturing these wider intersectoral impacts of sexual health interventions (and public health interventions in general) in economic studies often poses methodological challenges. Nonetheless, the development of the classification scheme represents an initial step towards offering a more comprehensive depiction of these impacts.

Given the holistic nature of sexual health, future scientific research could further explore intersectoral costs related to sexual health that have been discussed outside the realm of the health economics literature, such as in journals and studies focusing on education, criminal justice, drug and alcohol consumption, and social services. By doing so, the sector-specific (cost) classification scheme can be validated and expanded where necessary.

The findings from the systematic review of COI studies, the systematic review of economic evaluations, and the conduct of the interviews with experts in sexual health were summarised and published separately in international peer-reviewed journals, disseminating relevant research findings with the wider scientific community.

Policy impact relating to intersectoral costs and benefits

This thesis highlights the important policy implications associated with the intersectoral impacts of sexual health. Policy-makers require comprehensive and robust information in order to inform optimal decisions. Sexual health problems and interventions can generate various costs and benefits across different (policy) sectors of society, including spillover effects on other areas of health (e.g., reproductive health, mental health), relationships and family, productivity and labour, education, criminal justice, among others. These broader impacts should be considered in decision-making processes, including resource allocation and prioritisation of healthcare and public health interventions. The consideration of intersectoral costs in COI studies and economic evaluations can have an impact on study outcomes and the overall cost burden. This is particularly important as these studies are often used in policy-making processes and should ideally depict all relevant costs and benefits concerning sexual health in order to optimally inform policy/decision-makers.

To give one example, this research demonstrates that COI studies that account for intersectoral costs tend to reveal a higher disease burden on society. Excluding intersectoral costs from analyses can consequently underestimate the total cost burden of, for instance, sexually transmitted infections (STIs) and HIV and hence sub-optimally inform policy/decision-makers. Including intersectoral costs can provide a more accurate depiction of the overall

impact. For policy-makers in healthcare and public health, this means that demonstrating a higher cost burden for STIs and HIV may prioritise interventions for prevention, treatment, and management over competing healthcare demands. Similarly, economic evaluations that incorporate intersectoral costs often yield more favourable cost-effectiveness estimates compared to those with narrower perspectives, due to the greater comprehensiveness of the factors considered.

In conclusion, the sector-specific (cost) classification scheme for intersectoral costs related to sexual health presented in this thesis can be a valuable resource for researchers, health economists, and policy-makers. It can help to better illustrate and understand the broader societal impacts of sexual health and can improve the communication of relevant information to decision/policy-makers.

Scientific impact relating to the checklist for COI studies

This thesis revealed a notable absence of a standard tool in English to review and critically appraise the comprehensiveness, transparency and consistency of COI studies. This thesis addressed this gap in research and practice by developing a consensus-based checklist for the critical appraisal of COI studies, using qualitative research methodologies including a scoping review and key expert interviews. In other words, this checklist not only has a scientific impact, addressing a gap in research, but is also a potential methodological improvement, presenting a new tool that can be used to appraise the methodology of studies.

The findings from the scoping review of COI studies and the expert interviews highlighted that there is an inconsistency in the use of existing checklists and guidelines for reviewing and assessing COI studies and provided evidence supporting the need for a standardised checklist. More specifically, it revealed that previous research had frequently relied on (parts of) checklists and guidelines for full economic evaluations to assess COI studies or had developed an ad-hoc checklist for a one-off purpose (e.g., as part of a systematic review of COI studies). The checklist presented in this thesis allows researchers and users to assess the methodological approaches and reporting in existing COI studies, aiding in the critical

evaluation of their comprehensiveness, transparency, and consistency, for instance, when evaluating these studies as part of a systematic review.

Further research should include formal pilot testing of the checklist. Currently, it has been applied and tested at Maastricht University and the University of Birmingham. Additional testing across various disease areas is recommended to assess its applicability and potentially refine the checklist questions. Future studies should also monitor checklist usage and collect feedback from a diverse range of users.

The findings from the expert interviews with health economists and other experts working with COI studies and with experience developing health economic guidelines or checklists were summarised and published in *The International Journal of Technology Assessment in Health Care*, disseminating relevant research findings with(in) the scientific community. Further, the checklist was presented at international health economics conferences, including the IolaHESG 2021 (The lowlands Health Economists' Study Group) and the iHEA Conference 2021 (International Health Economics Association) to seek feedback from experts during the development phase of the checklist and to disseminate research findings.

Policy impact relating to the checklist for COI studies

Relevant implications exist for decision/policy-makers concerning the consensus-based checklist for COI studies. COI studies have proven to be valuable tools for decision/policy-makers. This thesis addressed the controversies surrounding COI studies while highlighting their crucial role in health economics and policy. COI estimates serve to project disease-related expenses, address specific health issues, and provide policymakers with essential information regarding various cost components and categories (both within health and non-health sectors) associated with an illness. This thesis introduced a consensus-based checklist for the critical assessment of COI studies, one that can be applied as a minimum standard, in particular when the aim is to evaluate and compare the comprehensiveness, transparency, and consistency of and across COI studies. This is vital for decision-makers because it ensures

that the information conveyed to them is comprehensive and captures any limitations in the evidence.