

# Costs and Benefits in Education

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Impact

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Mental problems have an economic impact on all aspects of the affected individuals' lives, generating costs and benefits in multiple social sectors.<sup>1,2</sup> Costs and benefits associated with mental problems that occur in the education sector can be particularly relevant in the context of interventions targeting children and adolescents. However, these costs and benefits are not often considered in health economic evaluations.<sup>3,4</sup> This can be attributed to limited knowledge on the importance of including these costs and benefits in health economics studies, but also to the scarcity of methods and tools for including these costs and benefits. The aim of this dissertation was to investigate available methods for including education costs and benefits in health economics research, and explore the attitude towards their inclusion among health economists. Furthermore, the studies included in this dissertation propose new standardized identification, definition, measurement, and valuation methods that can enable the inclusion of education costs and benefits in health economics studies in a transparent way and enhance the comparability and transferability of the costing evidence generated. This section reflects on the scientific and social impact of this dissertation.

### **Scientific impact**

In practice, most health economic studies tend to adopt a narrow perspective, focusing on a limited range of costs and consequences,<sup>3,4</sup> which can potentially lead to inefficient resource allocation decisions.<sup>5</sup> The results of this dissertation can facilitate the adoption of a broader societal perspective in health economics and contribute in several ways to more optimal decision-making on the allocation of resources. First, the evidence presented in the systematic literature review of economic evaluations and cost-of-illness studies (Chapter 2) suggests that education costs and benefits can make up a large proportion of the total costs associated with a condition or an intervention in the mental health domain. These results provide the rationale for the importance of considering the inclusion of these costs and benefits in health economic studies when their inclusion can be expected to be relevant (e.g. in economic evaluations of interventions that target children and adolescents).

Second, health economists and health technology assessment experts who participated in the survey (Chapter 4) indicated that they found it important to consider including education costs and benefits in health economic evaluations. However, they also mentioned several barriers to their inclusion, such as the irrelevance of broader costs and consequences to the budget holder, the difficulty of obtaining the necessary data and of quantifying the intersectoral impact of health interventions, and the difficulty of defining the boundaries of a societal perspective. The results of this study can help direct future research towards the development of methodological guidance to overcome these barriers.

Third, the costing tools presented in this dissertation (Chapters 3-6) can contribute to bridging the current gap in the availability of methods for including education costs and benefits in economic evaluations. The results of the studies presented in Chapters 3 and 4 can help researchers select relevant resource-use items in the mental health domain for inclusion in health economics studies. In comparison with previous research, the list presented in this dissertation incorporated evidence from the international grey literature and feedback from experts in the education sector for its validation. The resource-use measurement (RUM) instrument, the PECUNIA RUM (Chapter 5), can be used for collecting resource-use data for

multi-sectoral health economic evaluations, including data on resource use in the education sector, in a standardized way. The PECUNIA RUM can therefore not only support the inclusion of broader costs and benefits in economic evaluations, but also contribute to the overall structural enhancement of national and multi-national economic evaluations. By outlining the development process of the PECUNIA RUM in detail, this study can also be of interest to researchers who set out to develop a RUM instrument. The unit cost calculation tool, the PECUNIA Costing Template for services, presented in Chapter 6, can support the calculation of unit costs of services, and the presented unit costs can be incorporated in economic evaluations that include costs in the education sector. Furthermore, by providing a standardized transparent method for calculating unit costs, this costing tool can help identify and explain variability in the unit costs that stems from aspects other than the methodological approach. Finally, the joint use of the tools presented in this dissertation can contribute to producing comparable health economic evidence within and across countries in Europe.

The relevance of this dissertation is not limited to the discipline of health economics. The methods and tools presented here can support economic evaluations of public health and educational interventions in the school setting. Experts in the education sector were one of the target groups for research presented in this dissertation; their input was sought for the validation of costs and benefits as described in Chapter 3. Researchers in the area of the economics of education can also utilize the methods and tools presented in this dissertation for conducting economic analyses of interventions in the education sector. Furthermore, by demonstrating the impact of the costs of mental problems on the education sector, the studies included in this dissertation can facilitate cross-sectoral collaboration between health and education economists.

## **Social impact**

This dissertation also provides important insights into social challenges and can be of interest to policymakers, particularly those in the health and education sectors. By highlighting the cross-sectoral economic impact of mental problems, this dissertation is aligned with broader approaches to policymaking,<sup>6</sup> such as Health in All Policies<sup>7</sup> and systems thinking,<sup>8</sup> that stress the importance of collaboration across societal sectors to improve population health. Broader acceptance and the adoption of a societal perspective in health economics can facilitate the inclusion of relevant costs and consequences of health interventions in economic analysis and thereby contribute to reducing bias in study results and ensuing policy recommendations.<sup>9</sup> Adopting a broader perspective can also incentivise intersectoral coordination and collaboration and promote the development of joint funding arrangements across the affected societal sectors. The latter can be particularly important for improving mental health care in Europe, given its severe underfunding.<sup>10</sup>

Furthermore, as indicated in the expert survey (Chapter 4), the irrelevance of broader costs and consequences of health interventions to the budget holder was one of the barriers to adopting a societal perspective in health economics studies. Currently, the majority of national costing guidelines recommend the adoption of a narrow perspective for conducting health economic analyses.<sup>11</sup> This highlights the responsibility of policymakers and regulatory bodies in promoting good research practices to support optimal decision-making. The results of this

dissertation, in conjunction with other methodological research, can be used for revising the existing guidelines to incorporate guidance for adopting a broader perspective in health economics.

## **Dissemination**

To reach the scientific community, the results of this dissertation were presented at major health economics conferences in the form of abstracts, oral presentations, and parts of organized sessions. Some of the conferences targeted a broader multi-disciplinary audience including policymakers, and representatives of patient organizations, industry, and regulatory bodies in addition to academics. Studies presented in this dissertation have been published in or submitted to peer-reviewed journals. Please refer to Dissemination Activities for the full overview.

The results of this dissertation were also disseminated as part of the communication and dissemination strategy of the PECUNIA project. Two satellite workshops were organized to present the results of the project to the broader multi-disciplinary audience. The first satellite workshop took place in July 2019 at the International Health Economics Association congress in Basel. Its aim was to present intermediate project results, including the steps taken to identify relevant cost items in the education sector (Chapters 3 and 4) and to develop the PECUNIA RUM (Chapter 5). The second satellite workshop was organized online due to the COVID-19 pandemic, and advertised to a broad group of stakeholders. The workshop was dedicated to presenting the results of the PECUNIA project, including the final version of the PECUNIA RUM (Chapter 5) and the unit costs of education services (Chapter 6). The recording of the workshop is available on YouTube.<sup>12</sup> The tools developed in the PECUNIA project, the PECUNIA RUM and the PECUNIA Reference Unit Cost Templates are available for non-commercial use free of charge. They can be accessed via the website of the PECUNIA project.<sup>13</sup> The PECUNIA RUM is currently available in English as a pen-and-paper questionnaire for the adult population. Further plans include the development of a digital version, proxy and child versions, and formal translation into other European languages. The PECUNIA RUM will also be included in the Database of Instruments for Resource Use Measurement (DIRUM), which acts as an open-access repository of RUM instruments for use in economic evaluations.<sup>14</sup>

## References

1. S Trautmann, Rehm, J, and Wittchen, HU. The economic costs of mental disorders: Do our societies react appropriately to the burden of mental disorders? *EMBO reports* 2016; 17(9):1245-1249.
2. CM Doran and Kinchin, I. A review of the economic impact of mental illness. *Australian Health Review* 2017; 43(1):43-48.
3. RM Drost, van der Putten, IM, Ruwaard, D, Evers, SM, and Paulus, AT. Conceptualizations of the societal perspective within economic evaluations: a systematic review. *International journal of technology assessment in health care* 2017; 33(2):251-260.
4. DD Kim, Silver, MC, Kunst, N, et al. Perspective and costing in cost-effectiveness analysis, 1974–2018. *Pharmacoeconomics* 2020; 38(10):1135-1145.
5. B Jönsson, *Ten arguments for a societal perspective in the economic evaluation of medical innovations*. 2009, Springer.
6. S Walker, Griffin, S, Asaria, M, Tsuchiya, A, and Sculpher, M. Striving for a societal perspective: a framework for economic evaluations when costs and effects fall on multiple sectors and decision makers. *Applied health economics and health policy* 2019; 17(5):577-590.
7. T Ståhl, Wismar, M, Ollila, E, Lahtinen, E, and Leppo, K. Health in all policies. Prospects and potentials. Helsinki: Finnish Ministry of Social Affairs and Health 2006.
8. D De Savigny and Adam, T, *Systems thinking for health systems strengthening*. 2009: World Health Organization.
9. SM Evers, Hiligsmann, M, and Adarkwah, CC. Risk of bias in trial-based economic evaluations: Identification of sources and bias-reducing strategies. *Psychology & health* 2015; 30(1):52-71.
10. OECD/EU, *Promoting mental health in Europe: Why and how?*, in *Health at a Glance: Europe 2018: State of Health in the EU Cycle*. 2018, OECD Publishing: Paris/European Union, Brussels.
11. ISPOR. Pharmacoeconomic Guidelines Around The World. <https://tools.ispor.org/peguidelines/>. [Accessed 27 October, 2021].
12. PECUNIA Project EU. [https://www.youtube.com/channel/UCGZfd67eR\\_c2Ysk44hxmAdw](https://www.youtube.com/channel/UCGZfd67eR_c2Ysk44hxmAdw). [Accessed 24 November, 2021].
13. PECUNIA Project. <https://www.pecunia-project.eu/>. [Accessed November 24, 2021].
14. Database of Instruments for Resource Use Measurement. <https://www.dirum.org/>. [Accessed November 24, 2021].