

Selected Surgical Interventions in Low- and Middle-Income Countries: A Benefit-Cost Analysis

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Abstract

Objectives: In low- and middle-income countries (LMICs), studies show that many types of surgical care are more cost-effective than other health interventions. Global health funding for these interventions, on the other hand, is still sparse. To find out how economic benefits are measured, this study conducts a scoping review of previous research on the economic impact of surgical interventions in LMICs.

Design: The data were systematically reviewed using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews checklist and the Arksey and O'Malley methodological framework for scoping reviews. We selected 19 papers that quantitatively examined the economic benefits of surgical interventions in LMICs from papers published between 2005 and 2020 using online databases.

Results: The use of disability-adjusted life years (DALYs) to measure economic impact was reported in the majority of publications (79%). In contrast, 21 percent either utilized no measure at all or alternative measures like cost-effectiveness ratios or the value of statistical life. 69% either directly assessed the economic impact in a specific area or evaluated the need for surgical procedures in LMICs, while 31% were systematic or retrospective reviews of the literature on surgical procedures in LMICs. The majority of the reviewed studies dealt with pediatric surgical procedures or a specific surgical specialty and addressed the economic impact of surgical procedures in LMICs.

Conclusion: It is necessary to accurately measure the economic impact in order to make informed policy decisions regarding investments in global health. Understanding of the overall economic value is hindered by the fact that researchers use a variety of methods to quantify the financial benefit of surgeries in LMICs. We conclude that careful selection of methods, including age and disability weights derived from the Global Burden of Disease and reporting both estimates and converting DALYs to dollars using the value of statistical life approach and the human capital approach, would benefit the literature.

Keywords: Economic • Surgical interventions • Cost analysis • Social-ecological system

Introduction

There has been a lot of support for the idea that more surgeries should be done in low- and middle-income countries (LMICs). Over 5 billion people lack access to affordable, safe surgical care and anesthesia, necessitating an additional 143 million procedures annually in LMICs. An estimated loss of US\$12–US\$13 trillion in economic productivity could occur if surgical interventions are delayed until 2030. Therefore, researchers and policymakers ought to pay attention to the hypothesis that surgical interventions and economic productivity are linked. Numerous recent studies have shown that surgical care is more cost-effective than other common health interventions. By strengthening the entire health system, investing in these services is affordable, saves lives, and encourages economic growth. In LMICs, untreated surgical conditions account for up to 2% of the decline in economic growth. Inguinal hernia repair, trichiasis surgery, cleft lip and palate repair, circumcision, congenital heart surgery, and orthopaedic procedures are among the procedure groups that offer quantifiable economic value, according to studies. Long waiting times for surgical procedures in LMICs result in significant economic losses, according to other studies. Increasing surgical capacity should be a global health priority,

as the literature supports both macro and microlevel economic improvements resulting from surgical interventions. However, there has yet to be a significant increase in global health investments to support these interventions [1,2].

Despite the developing reputation of combined techniques studies (MMR) in different fields its dialogue and utilisation in monetary and control sciences is highly new. Even alevten though integration of techniques has a protracted records in studies practice, combined techniques studies have become accepted from the Nineteen Nineties due to the preference amongst researchers to triumph over the tensions with inside the epistemological, ontological, methodological, axiological and doxological variations of quantitative and qualitative studies. That brought about the emergence of phrases which include multi-technique studies, nested analysis, a couple of stranding, blending, combining and integrating in handling each studies views [3].

We intentionally favor to use the time period combined techniques studies (MMR) because it has won forex with inside the extant literature and it captures well the essence of mixing studies methodologies higher than the opposite phrases. MMR is an: umbrella time period making use of to nearly any scenario in which a couple of methodological technique is utilized in aggregate with another, usually, however now no longer essentially, regarding a aggregate of at the least a few factors drawn from every of qualitative and quantitative procedures to studies. It is noteworthy that Christ currently mentioned combos of a couple of qualitative procedures with inside the context of MMR [4].

However, the usage of a couple of qualitative procedures is frequently mentioned the use of the idea of tri-angulation as is in short tested with inside the subsequent segment. We take the definition given via way of means of Bazeley because the historical past for our study, even though the controversy at the definition of MMR continues to be raging in educational circles. Whatever definition is preferred, what's beneficial is to make sure that blending isn't always handled in a superficial way as explicated in segment 2 of this

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article. It has to be each at philosophical and methodological ranges instead of handiest on the studies techniques phases. The extraordinary boom of MMR with inside the ultimate 20 years can be attributed to numerous elements which include the popularity that the complexity of modern studies troubles warrants multi-faceted studies designs and techniques the cappotential to reply studies questions that the opposite methodologies cannot and it gives the researcher the opportunity of concurrently growing and verifying idea with inside the equal study; the upward thrust of a technology of students that challenged the traditional methods of considering the studies process openness to methodological innovation and complementarity; the life of examples of the a success programs of studies techniques that don't observe the quantitative-qualitative divide the attractiveness that bringing collectively each quantitative and qualitative studies, in order that the strengths of each procedures are combined, results in a higher expertise of studies troubles than both technique alone and the popularisation of the mixing of studies techniques via way of means of the extant literature and the book of complete combined techniques books and the Journal of Mixed Methods which is dedicated completely to publishing combined techniques studies articles. The International Journal of Social Research Methodology: Theory and Practice (2005) and Journal of Multiple Research Approach every dedicated a whole difficulty to articles that included studies techniques. Despite its developing reputation dissenting perspectives nonetheless linger today. De Loo and Lowe argue that the capacity contribution of MMR to know-how is 'frequently oversold [5].

The different criticisms of MMR are as follows there's no settlement at the definition of the technique; now no longer all researchers are equipped with inside the complete spectrum of studies techniques and procedures, consequently MMR calls for a group technique to studies, a version which won't be attractive to a few researchers; the 2 studies paradigms are primarily based totally on one of a kind axiological, epistemological, ontological and methodological assumptions that render their methodological eclecticism untenable, in line with the methodological purists or fundamentalists; a number of the MMR conceptual layout fashions aren't always transferred to a studies context, forcing researchers to evolve and integrate current fashions to create their own; now no longer all of the studies questions can be spoke back via way of means of MMR as 'the high-satisfactory technique for any given study... can be merely QUAL or merely QUAN, instead of combined' and there's no consensus at the middle traits of the field. Moreover, a few argue that MMR is: inherently greater costly than the use of both the quantitative-handiest or the qualitative-handiest procedures greater time ingesting than the use of both the quantitative-handiest or the qualitative-handiest procedures, specifically for time certain tasks which include master's and doctoral research and reduced in size paintings tough to put in force and maximum MMR research have a post-positivist bias with an inclination of subordinating the qualitative strand to the quantitative one. Although Tashakkori and Teddlie went a protracted manner toward addressing those criticisms, we would love to emphasize that we accept as true with many theorists that the studies technique utilized in any research have to be decided via way of means of the studies trouble and its epistemological framing. Indeed, pupils which include Saunders, Lewis and Thornhill argue that the studies trouble determines the studies technique and the techniques hired when it comes to statistics had to solution the questions, in which such statistics is and the way such statistics is to be gathered and analysed [6-8].

Both phrases and numbers carry which means which is wanted in absolutely expertise the world. It is clear that there's advantage in combining the complementary strengths of qualitative and quantitative studies techniques while carrying out a study. MMR has cost to diverse disciplines. The principal appeal of MMR is that it: can concurrently cope with a numerous variety of confirmatory and exploratory questions and unmarried-technique research frequently cope with handiest one or the opposite 2 Mixed techniques studies as opposed to classical triangulation Denzin cautions researchers now no longer to confuse triangulation for combined techniques studies [8].

However, our revel in in supervising graduate studies within side the beyond ten years demonstrates that there is lots of misunderstanding around 'triangulation' as a idea utilized in social technological know-how method and 'triangulation' as a studies layout in MMR Indeed, 'the switch of the perception

of triangulation from trigonometry to the area of combined techniques [appears] to have converted it right into a fuzzy concept with a lot of viable meanings' Further, the time period triangulation has been used a lot that it has misplaced its which means altogether. Although, classical triangulation can be traced to the 'multi-trait, multi-technique matrix' of Campbell and Fiske, its authentic utilization in social technological know-how studies turned into related to validity checking thru the usage of a couple of source, or technique of statistics collection. Many researchers keep confusing triangulation with combined techniques layout. It isn't always unusual to discover a researcher such as a few interviews and participatory commentary statistics inside a quantitative survey layout and construing the studies technique to be MMR. Rather, such research has to be termed combined-mode studies or multi-techniques studies. MMR is going past an insignificant superficial aggregate of statistics from quantitative and qualitative techniques [9].

Discussion

The current review demonstrates that various methods are utilized to measure the financial impact of surgical interventions in LMICs. Our scoping review revealed that a human capital or VSL economic impact evaluation was the most common method, but regression frameworks have also been used to model the economic impact. The quality of the data, inconsistencies in how DALYs are calculated, and inconsistent weighting all limit the literature. When considering a more specific research question of interest, future research must take into account how each of these factors is incorporated into a methodological framework. There are benefits and drawbacks to this review. The primary strength of the comprehensive literature search is its explicit focus on the methodology, which has not been systematically reviewed in previous reviews. Although this review provides an overview of a variety of study designs and methods, it was not intended to critically evaluate or synthesize evidence, as is typical of a systematic review. Additionally, this review cannot be used to make specific policy recommendations because it was not intended to evaluate the quality of the included studies. On the other hand, it can be used to identify research questions and provide guidance for the creation of research strategies. To begin the process of empirically testing this association, more robust evidence is required. Surgical interventions save lives and promote economic growth³. When evaluating the economic efficiency of surgical interventions in LMICs, the studies analyzed in this article demonstrate the significance of carefully applying weights, calculating DALYs, and carefully considering the quality of the data [10].

Conclusion

Methodological triangulation, for instance, aims to test a solution "now not in order to benefit similarly statistics so that you can produce an answer." This may also include one-of-a-kind reassessments of qualitative statistics (such as interviews, documents, and commentary), in addition to reassessments that are no longer exclusively quantitative and qualitative. Methodological triangulation is now about validation rather than development. In this sense, it's more like a size method than a research plan.

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Conflict of Interest

None.

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