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Aligning education to societal needs

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Summary

Social accountability plays a fundamental role in health professions education by aligning education, research, and service activities towards priority community health needs. While this thesis primarily focuses on the educational perspective of social accountability in health professions training, it recognizes the interconnectedness of education, research, and service within the broader context of societal needs. The link between education and society has been well-established in the literature, acknowledging that the quality of medical training provided to graduates is thought to impact the type and care delivered, ultimately influencing population health. Despite the recognized importance of social accountability and its alignment with societal needs, there is a notable gap in the literature directly examining the association between educational outcomes and societal impacts. As introduced in Chapter 1, evaluating social accountability is conceptually and operationally complex. While social accountability has become an institutionalized goal that most schools strive towards, measuring its effectiveness remains a global struggle. The core principle of social accountability commences in identifying societal needs and concludes in meeting those needs. However, the practical implementation of social accountability remains elusive due to the lack of measurable performance indicators, making it challenging to assess the impact of education on society. Furthermore, there is a lack of empirical literature directly examining the association between educational outcomes and societal impacts, and limited progress has been made to understand the relationship between what programs do in training and how these activities translate into practice. The absence of valid and reliable performance indicators has hindered the evaluation of social accountability in practice. Furthermore, the lack of robust performance measures in population health perpetuates the assumption that health professions education programs address societal needs. While the importance of aligning education with societal needs is widely recognized, the lack of measurable performance indicators and empirical research hinders the evaluation of its impact.

The primary aim of this thesis was to investigate social accountability in health professions and facilitate its operationalization in practice at the regional and school level. To achieve this goal, this thesis addressed the following research questions: "What indicators may support the operationalization of social accountability?" and "How might these indicators be used to better support social accountability in practice at the regional and school level?" To answer these questions, this thesis employed a program evaluation logic model to systematically evaluate social accountability for quality improvement. Through this logic-model approach, the interconnections between program inputs, activities, and desired outcomes must be examined, and how these elements work together to achieve desired goals should be considered.

Chapter 2 presents a narrative review of prominent social accountability frameworks in health professions education. This chapter synthesized common themes and indicators across prominent frameworks to develop initial operational constructs for evaluating social accountability in health professions education. Using an iterative search of the literature, frameworks, and policy documents, 33 documents were identified. Four key social accountability frameworks were selected and analyzed. These frameworks represent the foundational values, principles, and parameters, and have been cited in subsequent papers to conceptualize social accountability.

The review utilized the context–input–process–product (CIPP) program evaluation model as an organizational framework to characterize descriptive themes. Six themes with subthemes emerged, encompassing key concepts related to shared values, professionalism, academic freedom, clinical autonomy, and core social values (relevance, quality, effectiveness, and equity). Additionally, five indicators aligned with the CIPP model were identified: context, inputs, processes, products, and impacts. Contextual factors included background information such as mission statements, community partnerships, and active contributions to health care policy. These factors help identify institutional needs, objectives, and opportunities. Inputs referred to material and human resources necessary for effective functioning. They play a critical role in determining the appropriate actions required to achieve program goals and objectives. Diversity and equity in recruitment and/or selection and community population health profiles were recognized as essential considerations for ensuring the effectiveness of health professions programs. Processes guide program implementation and involve various curricular activities and community-based clinical training opportunities or learning exposures. Products focus on the quality of student learning and its usefulness for society. They are used to measure outcomes and encompass physician resource planning, quality assurance, program evaluation, and accreditation. Lastly, impacts, included as a subcomponent of products, encompassed overall improvement in community health outcomes, reduction/prevention of health risks, and morbidity/mortality of community diseases. This review sets the stage for evaluating social accountability and serves as a critical foundation for understanding the complexities of social accountability and its translation from theory to practice. The chapter concludes with the need to create meaningful connections between program inputs, processes, products, and impacts. The identified overarching themes and subthemes provide a holistic view of the dimensions that contribute to social accountability, offering a roadmap for systematically evaluating social accountability in health professions education. However, further research on community impact is needed to better understand how educational inputs, processes, and products ultimately improve population health.

In Chapter 3, institutional practices, and administrative perceptions of social accountability in health professions education were explored. To gain insights into how social accountability is operationalized in practice, an online survey was developed and distributed to a purposeful sample of medical school deans and program directors/leads across 265 institutions in 14 countries between February and June of 2020. The survey consisted of 38-items linked to social accountability indicators, categorized using the CIPP model and focused on program mission statements, admission processes, curricular content, and educational outcomes. A total of 81 medical schools from 14 countries responded to the survey, representing a response rate of 31%. This survey represents the first known survey of administrative perceptions and institutional practices of social accountability, providing an international representation of perceived social accountability indices. The findings revealed several commonalities in social accountability practices. Notably, all respondents expressed a high importance of social accountability, and most reported that their school had an explicit social accountability mandate. Moreover, most institutions reported having a primary care or family medicine general practitioner departments or facilities and provided training and learning opportunities in community health centers or clinics. Exploratory Factor Analysis (EFA) was used to assess the inter-relationship among 28 Likert

scale survey items, and the reliability and internal consistency of these items were evaluated using McDonald's Omega (ω). The survey's 28 Likert scale items displayed excellent internal consistency ($\omega = 0.946$). However, the means and standard deviations of these items varied. For instance, as items moved from internal practices (e.g., mission statements, admission policies, and curricular activities) to external practices (e.g., stakeholder engagement and partnerships, and involvement in health human resources), response means dropped considerably. This suggests that institutional practices of social accountability predominantly focus on inputs and processes, while evidence related to community context and educational products are lacking. Findings from the EFA identified four factors aligned with the CIPP domains, accounting for 70.76% of the total variance. These factors represented 'Selection & Recruitment' (four items, aligned to inputs), 'Institutional Mandates' (four items, aligned to inputs), 'Community Awareness' (three items, aligned to context) and 'Institutional Activities' (three items, aligned to processes). All factors demonstrated acceptable internal consistency and reliability ($\omega \geq 0.75$). These findings align with previous literature, indicating that most institutions do not adequately evaluate graduate outcomes or empirically validate the extent to which schools meet their intended goals. This study offers programs and educators a new survey tool to aid in the operationalization and reliability of evaluating socially accountable indicators. Despite expanding awareness of social accountability, how it is translated into practice remains uncertain. While institutional commitment to social accountability is evident, the impact of these outcomes on the community remains unknown and not evaluated. Future research is warranted to establish meaningful relationships between medical school outcomes and community impact. Additionally, further investigation should focus how medical schools operationalize social accountability in practice, assess the quality of these practices, and measure their impact on population health.

The next step in advancing the operationalization of social accountability in health professions education was to examine how to effectively leverage publicly available data to identify population health needs. The underutilization of publicly available data in health professions education and lack of robust performance measures in population health prompted the study presented in Chapter 4. This chapter demonstrated how pan-national population health data can be used to create a reliable health index to assist schools in identifying societal needs to advance social accountability in health profession education. Using open-source data, a psychometric evaluation was conducted to examine the factor structure and reliability of the Canadian Health Indicators Framework (CHIF). Comprised of over 80 indicators measured across 4 domains and several factors, the CHIF provides reliable data on the health of Canadians, health care systems, and health determinants. Although this framework has been widely used to guide the development of previous health indicators, it has not been empirically validated. The study employed two publicly available datasets from Statistics Canada: Canadian Community Health Survey (CCHS) Public Use Microdata Files (PUMF), and mortality and vital statistics data. Statistics Canada is Canada's national statistical agency responsible for collecting data on the country's population, economy, society, and culture. The CCHS PUMF is an open access dataset, inclusive of over 1,000 variables related to Canadians' health-status, health care utilization, and health determinants. Additionally, mortality, vital statistics, and community health data were obtained from Statistics Canada's website. A total of 67 variables were identified, recoded, and aggregated to the health region (n = 97). To evaluate the factor structure of the CHIF at the health region level, a non-linear

confirmatory factor analysis (CFA) was conducted to assess the model fit of the hypothesized 10-factors. Reliability analysis using McDonald's Omega and Pearson's correlation coefficient were used to investigate the inter-relationships between factors. The findings from the nonlinear CFA rejected the original conceptual model structure of CHIF. Exploratory post-hoc modifications were imposed to improve model fit, resulting in a 5-factor multidimensional model. The 5-factors demonstrated excellent model fit, reducing the number of indicators from 67 to 32, creating a more parsimonious set of indicators. The 5-factors included: Health Conditions (8-indicators); Health Functions (6-indicators); Deaths (5-indicators); nonmedical health Determinants (7-indicators); and Community & Health System Characteristics (6-indicators). The process and indices developed in this paper serves as a starting point to allow schools to systematically leverage open-source population health data to identify regional priority health needs. This initial step is critical in advancing the social accountability agenda of health professions schools and may help narrow the gap between education and society. The chapter concludes by providing practical recommendations for these indices. For example, schools may elect to use these indices to identify societal health needs, create community profiles, inform educational priorities, and modify curricular activities and/or practices to better align with societal needs.

The final phase of advancing the operationalization of social accountability was to explore the feasibility of creating medical school service regions in Canada using preidentified geographic regions or administrative boundaries defined by governments. Identifying medical school regions is essential to accurately measure the impact of educational inputs, processes, and outcomes on the respective community. In Chapter 5, medical school service regions were created and served as the basis for evaluating the distribution and retention patterns of medical graduates. This approach provides valuable insights into advancing social accountability in health professions education by evaluating the impact of educational outcomes on the local community. To create medical school service regions, government administrative health region boundaries were utilized, and the physical locations of all Canadian medical schools were grouped according to the province(s) they reside. Information on school's distributed campuses, community training sites, and rural and regional education and training opportunities were gathered from institutional websites and assigned to corresponding health region. Geographic Information Systems (GIS) was used to visually map the 17 created service regions in Canada. Population size and density for each service region were calculated using population data obtained from Statistics Canada's website. Data from medical graduates who completed their medical degree in Canada between 2001-2015 (n=19,971) were obtained from the Canadian Post-M.D. Education Registry (CAPER) and used to analyze graduate retention patterns. CAPER serves as a national central data repository for all postgraduate medical residents, fellows and practicing physicians in Canada. Retention rates were calculated based on the proportion of graduates practicing in the same service region where they completed their undergraduate and postgraduate medical training. The findings revealed marked spatial inequities in terms of total population, land area, and population density among mapped medical school service regions. Furthermore, graduate retention patterns varied by service region and medical specialty. For instance, graduates who completed both undergraduate and postgraduate medical education in the same region had higher retention proportions in professional practice compared to those who only completed postgraduate training in the region. While previous literature reported higher retention rates for family medicine

graduates, psychiatry was reported to have higher retention rates across the medical training continuum into professional practice. The study provided a national overview of medical school service regions and in-region graduate retention trends over a 15-year period. These findings offer valuable insights into using medical school service regions and graduate retention as one approach to evaluating the extent to which schools effectively serve their local community.

Chapter 6 summarizes and synthesizes the results of the previous studies using a comprehensive systems-based evaluation approach. This evaluative approach provides a deeper understanding of the complexities involved in evaluating social accountability and addresses the research questions: "What indicators may support the operationalization of social accountability?" and "How might these indicators be used to better support social accountability in practice at the regional and school level?" Evaluating social accountability is not an easy task, and its practical implementation is limited and lacks empirical evidence. Traditional evaluative approaches have often failed to address the complex interrelationships between educational inputs, processes, products, and their collective impact on the community. Previous efforts have frequently relied on single measures, such as widening admissions criteria or implementing community-based training, to demonstrate social accountability. However, these isolated initiatives provide limited insights and fail to comprehensively capture how these efforts collectively impact the local community. For instance, when schools elect to widen their admissions criteria or pathways, do these changes reflect the underrepresented groups residing in their service region? Have admissions pathways fostered graduates more likely to practice in rural areas or serve underrepresented groups? Are community-based opportunities adequately provided in underserviced areas, and has this exposure led to more graduates pursuing professional practice in those areas? In response to these complexities, a comprehensive programmatic approach is proposed to advance social accountability. Reliance on single measure to make decisions about a complex phenomenon is limited and does not fully address the intricacies of accountability as a comprehensive system. However, a programmatic approach addresses these limitations and seeks to provide a more comprehensive evaluation of a program's efforts. This perspective offers a systematic approach needed to capture the collective impact of educational efforts on local communities and addresses these limitations through gathering data from multiple sources and contexts. This approach provides a more nuanced evaluation of social accountability and aligns with the idea that accountability should be viewed as a comprehensive system designed to support ongoing growth and improvement rather than relying on isolated data points. The thesis concludes with recommendations for using this evaluative approach and planning for future research on programmatic evaluation in the context of social accountability. It also acknowledges the limitations of the present studies and suggests that the generalization of the results should be viewed while considering these limitations. In the end, the thesis leaves readers with final thoughts on the importance of embracing a programmatic lens to enhance social accountability in health professions education.