A Population Health Approach in Education to Support Children's Early Development

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Interdisciplinary Research Term Paper

Introduction

Early childhood, defined as birth to age eight, is well recognized as a critical stage of development. Children's development during these years is known to have a significant and lasting impact on their later physical, social and emotional health, as well as academic and employment outcomes. Children's growth learning and development are influenced by a variety of factors, including environmental, family, geographic, and socioeconomic, and can often be predicted at an early age. For example, academic achievement and cognitive development can be predicted by children's exposure to socioeconomic disadvantage. Education can help mediate early socioeconomic status and adult mortality, but many children already face significant adversity when they enter school. These experiences can present challenges in classroom integration, and without intervention, children are likely to fall behind their peers as they continue in school. Children who score below the 10th percentile in one or more domains at age five are more likely to be in the bottom 20% of student scores. These children may show below-average abilities in one or more areas of basic physical health and well-being, social competence, emotional maturity, language and cognitive skills, or communication skills and general knowledge. Absence of core competencies in any of these areas, along with prior adverse characteristics, can manifest in problematic classroom behaviors such as poor emotional self-regulation and difficulty interacting with peers, resulting in educators spending more time managing their classrooms and less time by supporting learning.
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Abshor's 2017 research suggests that policies and programs aimed at reducing inequality are critical to improving outcomes for children. In addition, numerous studies show that investment in the early years is one of the most cost-effective investments in human capital, leading to sustainable development of a country. These trajectories and predictive models have led to support for intervention in the early years given that it will have a lasting impact on later adult health, well-being, and academic achievement. Population health approaches are present in healthcare, where large population-level datasets are routinely relied upon to monitor trends and identify potential areas of need.

Educators in both schools and early childhood education and care settings are increasingly being asked to consider different types of data when planning children's education and development; and in entrance assessment and standardized testing. The census reports on communities rather than individuals and can help governments, localities, schools and communities understand the environments and experiences children are exposed to from birth

to school age. Australia is currently the only country that regularly collects this data through a national census, making it an invaluable dataset to use in planning and building community partnerships, while also presenting unique challenges for educators who are increasingly expected to that they will integrate the data into their planning.

To adapt to new ways of using data, education might choose to look to other sectors where this has become common practice. One such industry is healthcare, where a common approach has been developed to use population datasets to monitor trends and identify potential areas of need.

Construct definitions

Given the interdisciplinary nature of this work, it is important to define some key terms that have been used throughout the paper to ensure the inclusiveness of birth across the eight sectors, health and education.

Educators – including all staff involved in teaching and learning in pre-school and early years school sites

Leaders - head teachers, directors of early childhood education and care and staff involved in education policy roles such as partnership coordinators.

Learning – “The natural process of exploration that children engage in from birth as they expand their intellectual, physical, social, emotional and creative capacities. Early learning is closely linked to early development” Development — "Knowledge of age-related characteristics that allows for general predictions about what experiences are likely to best support children's learning and development”

Population data – data that is not available at the individual level but is aggregated for groups.

Population health approach to planning

A population health approach is increasingly recognized for reducing healthcare demand and contributing to health system sustainability. Despite the lack of an official definition, the population health approach aims to improve the health of the entire population and reduce health inequalities between population groups by considering risk factors and conditions that affect health (Cha, 2018). Other key elements and actions that can be used to characterize a population health approach include: focusing on population health, addressing determinants of health and their interactions, basing decisions on evidence, applying multiple strategies, using public engagement mechanisms, collaborating across sectors, and levels, increasing initial investment and demonstrating accountability for health outcomes. Early childhood educators,

both in preschool and school settings, are already applying some of these concepts in their work. This paper seeks to draw a comparison between the ways in which education and health use data to inform their planning and the extent to which lessons from a population health approach can be used to support education to incorporate new population data sets into their planning. Table 1 below outlines the key elements of the population health approach, along with our interpretation of how these concepts can be applied in both health and education. The descriptions for the health sector were based on our interpretation of the literature, as well as the table presented by Health Canada on "key actions" and can help create a shared understanding between sectors.

Table 1

Alignment between population health approach elements, in health and education.

Population Health Concepts	**Health**	**Education**
Focus on:	The health of populations using indicators for measuring health status	Children's developmental and learning progress.
Address the determinants of:	Health and their interactions by analyzing and measuring their relationships	Children's progress by exploring the contextual and operational factors at play.
Base decisions on evidence	Emphasis on the robustness of evidence, often using Randomised control trials; and drawing on a variety of data and methods throughout all stages of policy and program development, before disseminating findings.	Uses evidence/outcomes-based and descriptive studies to make decisions about educational goals and improvements for learning communities.
Increase upstream investments	Concerned with impact of interventions on health outcomes. Criteria are applied to select priories for investment. There is a balance of short and long term investments, and an aim to influence investments in other sectors	Concerned with impact of studies to inform the direction of, and to improve educational outcomes. Investments are both short and long term

By applying concepts from the population health approach to the educational setting, educators and leaders (principals and site directors) could leverage the diversity of abilities and influence of their transition partners (those who also influence children before or during school, including; family, service workers in early childhood education and care, education providers, community organizations and key community individuals) to mitigate risks and develop

solutions aimed at improving child development. This would also help to foster real collaboration between preschool and school settings.

Supporting developmental trajectories

Child development and early education are internationally recognized as important contributors to health. The United Nations has formally recognized this importance through the Sustainable Development Goals. The fourth goal "ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all" specifically seeks to promote access for all children to quality education. These goals were also reflected in the Convention on the Rights of the Child, which established the right of children to: have the opportunity to develop their abilities to the maximum, the right to education and through education to develop their personality and talents.

Despite the clear impact that the first few years have on a child's trajectory, there has been little research into the extent to which early childhood experiences are considered and planned for in early childhood education (Kim, 2022). Furthermore, planning for children using population-level data and approaches is a relatively new practice in the early childhood education sector, with aggregated population-based data on early childhood development emerging only in the last decade. Additionally, little is known about the utility of aggregated early child development data and the processes for integrating it into planning, rising questions for educators, leaders, and their communities.

Aims

The primary aim of this review is to examine what is currently known about the applicability of population health approaches to planning in preschool and school settings and to what extent the application of relevant concepts such as collaboration, use of data and consideration of risk and protective factors are likely to improve outcomes children.

Discussion

This term paper has identified four synthetic constructs that attempt to interpret some of the research in educational planning to answer the original question: “How can a population health approach be applied to educational planning to support early child development?” The four constructs identified are: elements of population health approaches exist in educational communities and can help improve outcomes for more children; interdisciplinary collaboration and partnerships have unique opportunities to influence children's development; children's development can be affected at different levels and system change requires a range of drivers

and supports. Despite their different sources, these concepts contain unifying themes that can be used to draw generalizations from the findings.

Therefore, it could be argued that while the education sector draws on elements of the population health approach, they often apply health or wellness interventions and do not take a holistic approach, missing a critical opportunity to maximize the return on their efforts and improve outcomes for children (Wilson, Jovanovic, Harman-Smith and Ward, 2019).

There appear to be two distinct areas of opportunity for integrating population health approaches into planning. The first would be to include it in the work that is already taking place in preschool and school settings through planning for children's needs based on their past experiences. Continuity of learning and successful transitions is argued to play a vital role in children's educational success and their ability to maximize learning opportunities. There is therefore a requirement within education systems that programs be organized in a way that maximizes the learning opportunities for each child. Educators who are prepared for their cohorts are better positioned to support children in crucial transitions, increasing the proportion of children who experience continuity in their learning rather than interruption. This paper identified the potential benefit of incorporating information about factors influencing child development into educational planning to better capture and build on children's prior experiences and anticipate how these may continue to influence their learning, development and ability to engage in learning opportunities. What is important is that properly designed and managed educational programs have been proven to generate a high return on investment, primarily in the form of savings in relation to reducing conditions in later life. Several models have been proposed to explain the influence of socioeconomic status and ultimately life experiences on later life outcomes, and each provides a case for education systems to play a substantial role in reducing initial burdens on individuals, communities, and economies. The temporal model suggests that socioeconomic factors are most influential when experienced during specific developmental periods, such as birth to age three (Varol and Farran, 2006). In education, research suggests that systems need to respond early in children's lives and provides an impetus for schools to advocate for children before they enter formal education to avoid problems later in life. Conversely, the accumulation model suggests that the detrimental effects of socioeconomic status can accumulate over the life course and will continue to do so as exposure to disadvantage increases. This model can help educators consider factors that have influenced children's development and consider how they may present additional challenges and barriers to a child's engagement in learning. Although preschool and school environments cannot influence socioeconomic status (SES), there are cases where education may also have helped mediate some of the negative effects of SES. Regardless of their differences, each of these models emphasizes the importance of early sensitive periods and their impact on later health and development. If schools are aware of the abilities that children bring to school and

plan educational experiences that are appropriate to build on those abilities, there is not only a greater opportunity to meet children's needs, but also an increased likelihood of development (van der Pluijm, van Gelderen, Lusse and Kessels, 2021).

The second area of opportunity to integrate a population health approach would be to build on what is already occurring and increase the outreach into the community. The significance of partnerships emerged as a recurring theme across the four constructs. Partnerships with community stakeholders and families supported children's development by reducing inequities in access, ensuring all children were connected with the school, and children were receiving the services and supports they required. Once children are enrolled in school there are many programs and interventions available to support children and families and improve health. However, there appears to be multiple challenges facing schools and their ability to increase their reach into the community prior to children starting school including funding, role constraints and data sharing (Lake and Evangelou, 2019). To overcome these challenges, schools could employ aspects of a population health approach to working together with other stakeholders in the community, to promote healthy child development before school entry. This could support families and the community, so that their children can arrive at school with an increased capacity to learn. Early intervention programs can have positive effects on children's developmental trajectories and learning, particularly when applied prior to school age. Local approaches that focus on addressing risk factors and promoting protective factors at a community level are not only more cost efficient but could also improve the success of the program by ensuring it reaches all children during the crucial years of development .

Despite the known interactions between early childhood education and later life outcomes it appears as though there is a wariness of educational research and practice towards health paradigms. This may be due to educators feeling as though they do not possess the skills to draw these connections or being unable to obtain the appropriate data required to draw such links. Trend data can help to identify where there are protective and risk factors at a community, state or national level, and help educators to consider appropriate resources that can help them address the needs of incoming cohorts. In turn, educators are likely to be better placed to develop a suitable curriculum and by understanding the source of the problems can put in place supports for children to reduce the time spent reacting to the everyday problems presented in the classroom. Further support in the way of professional development or integration into early childhood education courses, may be required to assist educators in developing relevant data interrogation skills and to acknowledge the usefulness of data in their practice.

If a population health approach were to be applied to educational planning, with the ultimate goal of supporting children's development, it would require consideration of the supports and

structures already in place at both the local and systemic levels. Recognizing the differing goals of health and education systems, any approaches applied would need to be modified for the environment and goals of the education sector. It is likely that a new approach, specifically designed with education at the helm, would be required to meet the needs and restraints of the system. An ‘education promotion approach’ could see improved stakeholder relationships prior to school entry and ultimately improved outcomes for children.

Conclusion

This review used the CIS method to outline key concepts that have emerged in the literature on population health approaches and their application to educational planning and early childhood development. Within education, there are a number of models that are used to improve outcomes for children and families. Although a population health approach to educational planning does not explicitly exist, the results of this review suggest that it is indeed possible to adapt a population health approach to preschool and school education planning, and that this is likely to be beneficial for children's development. There is currently a dearth of research demonstrating this benefit, and more work is needed to articulate the ways in which population data add value to schools and the extent to which this type of planning improves children's school experiences and educational outcomes. . Finally, implementing such an approach will require systemic changes and support to enable schools to connect with their communities and flexibly respond to children's contexts.

Thus, this review poses several key questions that could guide future research or inform practice. First, does data on the teacher population increase understanding of the context and factors that guide children's learning and development, and thereby plan for children's development and learning? Second, how can partnerships support educators to plan holistically from a population perspective? Finally, are schools able to engage with communities before children enter school, and if so, what impact does this have on children's development at school entry?

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