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The impact of socioeconomic position (SEP) on women's health over the lifetime

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ABSTRACT

The “social gradient of health” refers to the steep inverse associations between socioeconomic position (SEP) and the risk of premature mortality and morbidity. In many societies, due to cultural and structural factors, women and girls have reduced access to the socioeconomic resources that ensure good health and wellbeing when compared with their male counterparts. Thus, the objective of this paper is to review how SEP - a construct at the heart of the Social Determinants of Health (SDoH) theory - shapes the health and longevity of women and girls at all stages of the lifespan. Using literature identified from PubMed, Cochrane, CINAHL and EMBASE databases, we first describe the SDoH theory. We then use examples from each stage of the life course to demonstrate how SEP can differentially shape girls' and women's health outcomes compared with boys' and men's, as well as between sub-groups of girls and women when other axes of inequalities are considered, including ethnicity, race and residential setting. We also explore the key consideration of whether conventional SEP markers are appropriate for understanding the social determinants of women's health. We conclude by making key recommendations in the context of clinical, research and policy development.

1. Introduction

In almost all countries, women live longer than men yet experience poorer mental health, greater disability and greater comorbidities. This paradoxical female advantage in life expectancy is, however, expected to decrease worldwide by 2030 [1]. The excess mortality rates of men, especially those under age 45, have historically been explained by accidents and injuries. However, changing risk factor profiles observed globally, particularly from smoking cessation, have conferred greater survival gains in men. At the same time that these mortality risk factors have changed, the global economic climate has changed dramatically, particularly in recent times in the context of the COVID-19 pandemic. Austerity measures in response to economic downturns have and will continue to exacerbate socioeconomic inequalities for all. These widening socioeconomic inequalities may help explain the weakening female survival advantage [2].

A social determinants of health (SDoH) framework seeks to

understand how materialist and structuralist health inequities persist throughout life. This is a useful framework for understanding how the health and longevity of females differs relative to males and each other. A SDoH approach purports that health outcomes depend on the organisation and distribution of socioeconomic resources across any given society [3]. The “social gradient of health” refers to the steep inverse associations observed between SEP and mortality/morbidity [4]. Measures of SEP (e.g., individual and household income, employment conditions) that are used to determine socially graded patterns are being thought of as inherently gendered. Moreover, some have argued that the role of gender has subsequently been neglected in discussions of how SEP influences health across the life course [5]. This is despite the fact that, in almost all societies, women and girls, when compared with their male counterparts, have reduced access to the socioeconomic resources - namely education and/or employment - that ensure good health and wellbeing. This can stem from cultural biases and practices that can commence early in the life course (e.g., discriminatory feeding

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patterns, gender-based violence, uneven labour divisions) and persist across middle and later life (e.g., the gender pay gap, political impotence [6]). The ways in which SEP is measured may affect interpretation of the social gradient of health for females. Moreover, SEP may exert its influence on the outcomes of women and girls differently to boys and men at specific stages of the life course. These concepts will, thus, be explored in this paper.

1.1. Aims

The objective of this paper is to review how, what and when SEP - a construct at the heart of the SDoH theory - shapes the health and longevity of women and girls. We first describe SDoH theory and then use examples from each life course stage to demonstrate how SEP can differentially shape girls'/women's health outcomes compared to boys'/men's. These stages aligning with important SEP transitions rather than those associated with biological development. We also consider differences in outcomes between sub-groups of girls/women when other axes of inequalities like ethnicity and residential setting are considered. We discuss how the timing and trajectory of SEP across the life course may be important in these determinations and conclude by making key recommendations in the context of clinical, research and policy development.

1.2. Methodological approach

Given the broad scope of our aims, it was not feasible to conduct a systematic review. Rather, we conducted a narrative review based on targeted search of the research literature and author expertise. Using keywords including “gender”, “sex”, “women”, “girls”, “social gradient”, “socioeconomic status”, “education”, and “health”, we searched PubMed, Cochrane, CINAHL and EMBASE databases to identify articles published after the year 1990. Articles published within the last decade, systematic reviews, and primary studies with population-wide or cross-country samples were preferentially included. We have focused on health conditions that are most pertinent to the lifespan stage in question, e.g., cognitive development in early life, overweight/obesity in adolescence, premature cardiovascular disease (CVD) in adulthood, and frailty in older age. Where possible, we have included studies from non-Western countries. Throughout this review we have exclusively used the term “gender” in order to improve readability, but acknowledge that “gender” and “sex” are two separate but interrelated constructs with differential effects on the SDoH [7].

2. What is meant by social determinants, socioeconomic status and socioeconomic position more specifically?

A SDoH framework purports that the conditions in which individuals live, work, and age shape our health, wellbeing, and longevity. Disadvantageous living conditions, financial means, lifestyle habits, health literacy, and healthcare access at individual to even continental levels may underpin the association between low SEP and poorer health outcomes. Conventionally, “social class” and “socioeconomic status” (SES) have been employed as constructs for understanding how health outcomes are socially graded. While useful in illustrating the social gradient of specific health conditions, different indicators will produce varying slopes [4]. “Social class” as a socioeconomic measure has been argued to more accurately reflect “occupational class”, while “SES” conflates different SEP constituents like actual resources and status/prestige [4]. SEP instead exerts its influence on health via numerous exposures, resources, and vulnerabilities including income, poverty, and education. SEP will be used henceforth. The SEP-health relationship has been demonstrated repeatedly. A systematic review of 36 studies [8] found that people of lower SEP have greater risk of mortality, CVD, cancer, amongst other health conditions, than those of higher SEP. When data were disaggregated by gender,

women of lower SEP were especially vulnerable to coronary heart disease. However, it has been argued that, in the main, SDoH theory is often discussed without considering the inherent gender differences in SEP and its measurement. This is in spite of the fact that women and girls are most disadvantaged by institutional policies and provisions that govern the labour market and family experiences that drive socioeconomic inequalities [5]. With this in mind, we now consider how SEP shapes morbidity and mortality of women and girls at critical life stages that align with important SEP transitions. Given the focus of women's health across the life course has often been centred around sexual and reproductive health, we have selected stages based on SEP transition (e.g., educational attainment in adolescence and young adulthood), acknowledging that they may not occur in the same sequential manner for all women and girls and may vary across countries and settings.

3. How does SEP impact women and girl's health across the lifespan?

3.1. Early life

A SDoH framework is often guided by life course epidemiology; a field largely concerned with the timing of exposures, mechanisms, intermediary factors and resources that drive health inequalities across the life course [5]. The enduring effects of early life exposures (economic, social, behavioural) from gestation to young adulthood on health outcomes in later life has been extensively examined. Indeed, SEP-graded health outcomes observed in adulthood have antecedents in early life [9,10]. For example, birth outcomes are shaped by parental socioeconomic factors and impact upon health across the life course. Studies from industrialised countries have demonstrated that socioeconomic disadvantage at individual (e.g., parental SES), neighbourhood (e.g., poverty, unemployment) and national (e.g., GDP) levels increases the likelihood of adverse birth outcomes, including small-for-gestational age, preterm birth, and low birth weight [11,12]. The way in which gender modifies the SEP-health gradient appears dependent on the outcome of interest and the comparator group. For example, lower childhood SEP is known to predict poorer physical and cognitive outcomes and acute medical conditions [13]. For girls, the impact of poverty (as determined by parental income and mother's education) on cognitive developmental delays appears to be pronounced, especially when compared to boys [14]. In Australia, the most stark SEP differences in 5-year old's development are *within* gender groups, with language and cognitive developmental delay more common for both male and female Indigenous children than non-Indigenous children [15]. Data from India suggest that although girls appear to be inoculated against the SEP gradient in early childhood development, this is reversed after age 5, with boys (particularly those in the upper classes) performing better [16]. Indeed, low-middle income country status is highly correlated with indices that measure gender inequalities in reproductive health, political empowerment and economic status. Thus country-level SEP indicators including gender equality is an important predictor of survival. Data from 195 countries [17] shows that the more gender unequal a society is, the lower the survival rate of girls compared to boys. Again, using the example of India, girls under 12-years with cardiac defects are less likely to have their guardians agree to cardiac surgery when compared to boys (70 % vs. 44 %). Social class greatly influences access to treatment, with 90 % of girls in the “upper class” receiving the surgery versus 21.3 % in the “upper-lower class”. Deep-seated social factors perpetuating gender biases, such as the customs of arranged marriages and “dowry”, appeared to drive these poorer outcomes for girls [18].

3.2. Adolescence

SEP remains a powerful predictor of health in adolescence [19,20],

during which time parental employment, family affluence and composition are commonly constituents of an adolescent's SEP. Cognition outcomes continue to be socially patterned from childhood into adolescence [14] and the same is true of physical health outcomes like weight. In the US, an inverse association exists between SEP and overweight in adolescent girls (particularly White) but not boys [21]. In other studies, SEP and ethnicity interact to confer risk for physical health conditions like CVD and protective effects on mental health. Data from the UK showed SEP patterning for psychological well-being in girls [22], with low SEP asserting a stronger influence on Black compared to White girls. Systolic blood pressure increased with level of disadvantage amongst Black Caribbean girls; a trend that was exacerbated in subsequent years [23]. But cross-country comparisons reveal the complexity of the SEP patterning of health of boys and girls, indicating it is largely context-specific. For example, in a national comparison of Russian, US and Chinese children/adolescents aged 6–18, higher overweight/obesity was observed for: urban boys in China; urban girls from low- and high-income groups in Russia; and African-American and Mexican-American girls in the US (especially those aged ≥ 10 years) [24]. In Zambia, one of the countries with the highest HIV burden in the world, young women have higher rates of HIV infection than young men. Yet the gender gap is narrowing in both urban and rural areas [25] attributed primarily to higher educational attainment of both sexes. An increasing proportion of young women enrol and stay in school, thus, delaying their sexual debut [26]. In addition to preventing sexually transmitted infections, education can help prevent precocious pregnancy. A cross-national comparative study showed evidence of a strong, negative educational gradient in early childbearing in all 20 high-income countries included. There was also an increase in the prevalence of early childbearing amongst lower educated females born between 1955 and 1981 in 10 of the included countries, with only one country (Poland) showing a decrease in the educational gap [27]. Paradoxically, gender bias can compromise educational attainment and result in early attrition from the education system. In some developing countries in which resources are scarce and girls may be required to earn money for their families, education deprivation is a significant issue affecting girls health and safety, especially in rural regions [28].

3.3. Young adulthood

The period from adolescence to young adulthood sees a transition from parental level SEP affecting an individual's health to their own educational status shaping access to socioeconomic resource (e.g. higher income, stable employment) that protect against both the onset and consequences of ill health. Higher levels of education attainment provide a basis for enhanced self-control and problem-solving skills in adulthood, that can facilitate both the adoption of lifestyle behaviours and entry into environmental contexts that promote health and well-being. Data from the US show that women's self-rated health, which is typically poorer than men's, improved from 1972 to 2002, and that this improvement could be largely accounted for by increased educational attainment across this same time period [29]. In contrast, men did not experience a linear increase in self-rated health in this study, which suggests that women may reap greater health benefits from increased educational attainment. This is supported by evidence showing the deleterious health effects of having low educational attainment are more potent for women than men for CVD [30]. This is even true in countries in which a greater number of women are graduating with university degrees than men [31].

For many, this period of the lifespan sees individuals in gainful employment for the first time. Studies utilising employment related markers like income as a measure of SEP provide some insight into the health inequalities faced by women. In a cross-sectional survey of working-age Catalonian residents, individual income showed a graded association with self-rated health for both men and women, whereby

individuals with lower monthly incomes reported worse health. Individual income largely accounted for women's poorer self-rated health compared to men's, with analyses adjusting for individual income abolishing this gender difference in health [32]. Occupational class has also been used to examine gender differences in SEP and health outcomes. In a cross-sectional study of 10,000 Barcelona residents, self-rated health was poorer for men in lower occupational classes, compared to that of managers and skilled supervisors. In contrast, only women in unskilled jobs had worse self-rated health than the reference category. Rather, the number of hours per week of domestic labour was an important determinant of self-rated health in women, whereas it was not for men [33]. The impact of children and family composition will be discussed in more detail in the following section.

3.4. Adulthood

Income and education continue to shape women's health into mid-life. With respect to the former, the Whitehall Study II shows that men and women with the lowest individual income were significantly more likely to have metabolic syndrome, compared to those with the highest. Although the magnitude of this effect was similar for both genders, the use of household income as a measure of SEP revealed a relatively steeper social gradient of health for women than men [34]. With respect to the latter, the gap in self-rated health between the lowest and highest educational levels appears to be widening in many Western countries. This is somewhat dependent upon age, gender and race. In US citizens aged 35–49, the education health gap remained relatively stable for men from 1982 to 2003, whereas educational disparities in self-rated health diverged for White women and converged for Black women [35]. Similar temporal trends have been found when examining mortality. In a study using US mortality data, middle aged (45–54 years old), White women experienced the greatest increase in the educational gradient of mortality, due to substantially increased mortality rates amongst those with high school diplomas or less [36]. As discussed previously, educational attainment is a key indicator of age of first pregnancy which, along with family composition and relationship status, is of particular relevance both to women's ability to earn money and their individual health outcomes during this stage of the lifespan.

During this period of adulthood whereby partnerships are formed and families are started, the role of household and partners' SEP can begin to influence a woman's health. In general, marriage appears to be a protective factor for many health conditions [37]. While married women have a survival advantage over unmarried women, the premium afforded to married men may be more pronounced [38]. Over recent decades, however, the marriage advantage appears to have increased. The assumption was that people with lower education were marrying less frequently while those of comparable levels of education tended to marry later. Yet, US [39] and Norwegian [40] data show that temporal changes in educational status of married people contributed little to the steepening health gradient. Interestingly, data from Hungary show that in middle-age, a married woman's SEP has greater influence on her husband's mortality than his SEP on her mortality [41]. A population-wide Norwegian study demonstrated that older men's mortality across all causes of death was strongly associated with their wife's educational status. Meanwhile, a husband's income and occupation were related to few cause-specific mortality outcomes in women [42]. Women with higher education levels tend to be more likely to engage in health-promoting behaviours [43]. It is thus plausible they influence the diet, exercise, and smoking/drinking habits of their partners [44]. While a recent meta-analysis of over 7 million individuals found that being unmarried led to a greater risk of stroke and mortality for men compared to women [37], other meta-analyses have found no significant gender differences in the marriage advantage for CVD risk [45] and mortality [46].

Changes in family composition owing to reproduction, child rearing and relationship breakdowns, are defining features of women's adult

years. These factors have an important effect on professional attainment, employment conditions and career advancement and financial independence, and therefore how SEP shapes women's health. While parity (i.e. motherhood) has been positively associated with better CVD risk [47]) across SEP categories [48], other studies show that mothers have poorer self-reported health (in spite of similar rates of chronic conditions) particularly those who are living at or near the poverty line [49]. Part of the reason may be that motherhood is associated with financial penalties in the form of time out of the workforce (due to maternity and carers leave), but also potentially wage reductions [50]. Single mothers appear to be particularly disadvantaged in terms of SEP and its impact on health outcomes [51]. For example, despite greater opportunities for educational and employment attainment over recent generations, there are widening SEP disparities for US women, especially for mothers without partners. Since the 1960s, the number of single-parent US households headed by women has tripled. Ten percent of US women aged 25–54 years live in poverty, a plausible driver of increasing premature mortality rates. Women aged 35–54 [52] are the only sub-population in the US to have experienced large increases in coronary heart disease mortality since the early 2000s. Compared to same-age women in England, US women show earlier risk markers of chronic disease [53]. Differences for younger US women (45–54 years) are as pronounced as their older female counterparts for CVD risk factors such as obesity, cholesterol, heart attack, angina and stroke. US health inequalities clinically evident at early ages are best ascribed to socio-political influences rather than conventional risk factors [53].

3.5. Late adulthood and older age

As women reach older age with greater disability and comorbidities, having accumulated less wealth due to relatively fewer employment-related opportunities, it stands to reason that older women are susceptible to the social gradient of health. There is evidence to suggest that indeed women's SEP is more precarious over the life course for reasons discussed in previous sections (e.g., extended periods out of the workforce, reduced access to independent wealth), compared with men's which exhibits greater stability [54]. Data from the Survey of Health, Ageing and Retirement in Europe (SHARE) study (N = 20,289; 50+ years of age) showed that while both childhood and current SEP exerted strong and independent effects on self-rated health in older age, their relative influence differed by gender. For example, current SEP explained less of the variance in self-rated health than childhood SEP for men, whereas current SEP was more important than childhood SEP in explaining variance in self-rated health for women. In addition, all current SEP indicators had a significant influence on self-rated health in older women, whereas being employed and household net wealth were not significantly associated with self-rated health in older men. Thus, the authors concluded that SEP in childhood was more predictive of older men's self-rated health, while current SEP in older age was more important for women's self-rated health [54]. Conversely, poor health can also influence material wealth in later life. In New Zealand, the odds for entering their seventies with material hardship were greater for women and Māori, yet this association was attenuated by mid and late life adverse events such as onset of serious illness [55]. Interestingly, having children may provide protective health related effects. The SEP of one's grown children has been shown predictive of risk of parental death, potentially independent of parent's own SEP [56]. Of course, the gendered nature of SEP-health trends in this age group are likely to be both outcome and country-specific. In South Korea, a longitudinal study of 4165 aged 65+ years found wealth was inversely associated with depressive symptoms (measured using the Center for Epidemiologic Studies of Depression scale) in men, whereas low education and income predicted depression in women [57]. On the other hand, in England, data from the first two waves of the English Longitudinal Study of Ageing (ELSA) found no gender differences for wealth as a predictor of functional impairment (measured using six Activities

of Daily Living) in those above 50 years of age [58].

4. Key considerations

4.1. How can we mitigate deleterious effects of SEP on women's health?

Interventions and policies that mitigate deleterious effects of SEP on girls' and women's health should target micro-, meso-, and macro-levels. Whilst policies that provide universal health coverage is one obvious initiative, coordinated interventions targeting these levels are required to address gendered health inequities in underprivileged populations. In India, women of low SEP have a lower share of hospital care than men, even when provided with free access. This suggests that free hospital care alone is not sufficient to guarantee gender equity in healthcare access [59]. It is well established that interventions reliant upon individual resources will preferentially advantage those of higher SEP and thus maintain health inequalities [60]. A key consideration is the socio-political environment in which individuals live, work and age, including the State-provided resources available. National social security provisions can insulate women's disease and mortality risk. This includes the extent to which a nation's welfare provisions allow for an acceptable standard of living independent from family relationships (defamilisation) and insulated from market dependence (decommodification). In countries with welfare systems that promote greater financial autonomy for women, a weaker social gradient of health for women would be expected. A longitudinal analysis of data comparing different welfare regimes within Europe indeed support this hypothesis. The social gradient of health, as measured by the impact of education, income and wealth on 11-year change in frailty, was steepest for older women residing in Southern European countries that are characterised by less defamilising and decommodifying welfare systems. Conversely, this gradient was flattest for those living in Northern European countries; typically characterised by comparatively high levels of gender equality and social democratic politics [61]. Whether these results are generalisable to other Western nations or low-to-middle income countries is unclear. However, there is good evidence that the strength of association between women's SEP and their life expectancy varies with level of economic development [62].

4.2. Are conventional SEP markers best for understanding women's health over the life course?

Conventional SEP markers were developed by and for men and are generally not well-suited to assessing women's socioeconomic circumstances [8] and associated health outcomes. Here, we have provided examples showing specific measures may produce differential health gradients between women and men. If employment markers alone are used to assess women's engagement with the workforce and thus SEP, disengagement with the workforce may be a marker of extreme wealth, child rearing, studying, disability or extreme poverty at different points of the life course. Alternatively, using household income assumes women have equal access to pooled resources, which in many cultures is not the case [8]. This might help explain why some studies using conventional measures show that SEP-related health differences are more pronounced for men [8]. Studies where the mortality gradient was stronger for men than women have used employment [63] and occupational exposures [64]. Yet classifying women's SEP based on occupation is problematic given that women cannot always be classified appropriately using census data [65]. Thus, appropriate weighting and consideration of interactions between conventional markers of SEP for women (e.g. education, marriage and number of children) may be required to acknowledge women's unique health circumstances. As such, there has been a push to broaden SEP to include important inputs like social isolation, pessimism, childhood adversity, or domestic situation [66,67]. For example, the influence of childhood adversity [68] and psychological strain/job satisfaction [66,67] is stronger for women than

men. A study that investigated gender, mortality and SEP by using both social disadvantage (defined by social distance from high SEP [69]) and occupational class demonstrated that the social gradient of mortality was greater for women when using the former, and greater for men when using the latter [70]. This suggests that the use of conventional, occupational based SEP indicators may be underestimating the social gradient of health for women.

Ultimately the best SEP marker by which to assess health inequalities between women/girls and men/boys and amongst women and girls requires consideration of life course epidemiology. This field seeks to understand the temporal trajectories, patterns and mechanisms by which SEP drives health inequalities. Applying a life course epidemiology framework that considers these assumptions is critical for determining research design and data collection as well as to guide resource allocation (examples of which are provided in the following section). To date, there is a lack of consensus regarding the exact trajectory of health inequalities over time; some argue the data show they widen, others purport they converge while others suggest they remain stable over time [71]. While we have discussed the influence of SEP in each life stage as discrete periods, they cannot be separated in our attempts to understand the relationship between SEP, gender and health. This review highlights the complexities of these trajectories; they may be somewhat dependent upon stage of the lifespan, the health outcome of interest, setting and referent group. For example, an SEP marker like educational attainment may not yield mortality benefits for women when compared to White men but may when compared to non-White women or when considering other inequality axes like age, race, disability or rurality. An added incentive for developing an approach that uses multiple and contextual SEP indicators is that it may help to further disentangle the gender paradox of women's health.

5. Clinical and policy implications

In clinical practice, medical practitioners require robust tools and clinical aids by which to assess and tailor patient care according to SEP. There remains an absence of such tools much less those which consider the nuanced issues pertaining to gender or other axes of inequality discussed herewith [72]. In the UK and Scotland, the QRISK [73] and ASSIGN [74] algorithms used in clinical practice to determine 10-year absolute CVD risk of patients include a measure of area-level material deprivation; one of few such tools to do so. Whether this measure of SEP is most appropriate for use in women of different ages, ethnic and other backgrounds remains unclear in the context of the issues discussed in this paper. This is largely because these tools have been developed and populated by data from male-dominated historical cohorts. Nevertheless, the advantage of using and further developing and refining risk assessment tools that contain SEP measures is not only critical for greater discrimination between cases and non-cases but for the purpose of equity. In the clinical context, the provision of lifestyle advice, counselling and interventions for preventing and managing chronic physical and mental conditions requires clinicians to appreciate that individuals living under conditions of scarcity cannot freely make decisions about their own health and investments that may, in fact, afford them the opportunity to escape those very circumstances [75]. Where low SEP is identified, an understanding of how limited economic resources restrict decision making can help guide the implementation of health promoting incentives - especially for those on welfare who have high material deprivation.

From a public health perspective, investment in early life education of all, and especially girls in settings of marked gender inequality, is critical to lifelong health. In conjunction with other interventions, education (both formal attainment and health literacy) appears to be the key to improving SEP and is a strong determinant of future employment and income [76]. Skills and knowledge obtained from greater education may enhance confidence, adeptness or receptiveness to health education [77]. However, the greatest reduction to the social

gradient of health can arguably be achieved by developing interventions that minimise the extent to which socioeconomic resources confer a health benefit [78]. This notion has underpinned many public health initiatives, which have aimed to overcome differences in SEP. One pertinent example is the fortification of flour with folic acid in over 80 countries worldwide. This is opposed to recommending that women take folic acid supplements during pregnancy, which disadvantages women of lower SEP due to issues of cost and access. Preliminary evidence suggests that folic acid fortification of flour at a population-level reduces the risk of neural tube defects in foetuses and improves the folate status of women of reproductive age [79].

6. Recommendations for additional research

Acknowledging the heterogeneity both between women and men and amongst women in the context of analytic frameworks is critical. Pragmatically, research in this area should consider interactions between gender and both conventional and non-conventional SEP markers to ensure that health inequalities for sub-populations are not concealed. Consensus on gender-specific SEP indicators across the life course are required. Of note, there has been work developing tools by which to assess adolescents' material circumstances and family affluence as a measure of self-reported family socioeconomic status [80]. Further research is necessary to develop indicators specific to developing countries, given that the majority of this research has been generated in developed countries.

7. Conclusion

The role of SEP on the health and longevity of women and girls is complex and fluctuates throughout the life course. This trajectory appears dependent upon (i) the outcome of interest and setting in which the research is conducted; (ii) how SEP is defined and the level (macro or micro) at which it is measured; and (iii) the extent to which other axes of inequality are considered (ethnicity, residential setting, Indigenous status). How SEP is measured and applied is an important consideration given that many women are likely to have variable engagement with the workforce and possible financial reliance on others at various stages of the life course. It is likely that the conventional concept of SEP itself may inherently misrepresent gender-based inequalities in health. Taking a broader view of SEP, that includes psychosocial inputs and considers SEP as a web of interconnected variables, may provide a more accurate understanding of women's health - relative to men and each other across the life course. This is vital from both clinical and public health perspectives in order to design and deliver interventions which are appropriate for women and girls of lower SEP and thus may assist in ameliorating the social gradient of health.

Contributors

Adrienne O'Neil participated in the conceptualisation of the study, and the writing of the first draft and subsequent revisions.

Josephine D. Russell participated in the writing of the first draft and subsequent revisions.

Kelly Thompson participated in the development of the first draft.

Melissa L. Martinson participated in the drafting of the manuscript and subsequent revisions.

Sanne A. E. Peters participated in the writing of the first draft and subsequent revisions.

All authors saw and approved the final version.

Conflict of interest

The authors declare that they have no conflict of interest.

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Ethics

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