Review Article

Investigating the Relationship Between Structural Determinants of Health and Preterm Delivery: A Systematic Review

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ABSTRACT

Background: Preterm delivery is one of the main causes of newborn mortality, signifying the inequality of conditions in receiving the necessary prenatal care.

Objectives: The present systematic review was conducted to investigate the relationship between preterm delivery and socio-structural determinants of health with an emphasis on occupation, education, and income in Iranian society based on the World Health Organization model.

Methods: In this systematic review, all observational articles published from 2000 to November 2021 were examined by searching the international and Persian databases of Scopus, PubMed, Google Scholar, Web of Science, Embase, ProQuest, Cochrane, IranDoc, and SID. Keywords were extracted through the MESH. The articles were searched using English and Persian keywords of occupation, education, income, social and economic status, and preterm delivery and appropriate operators, such as AND, OR, as well as a combination of the search strategy of each database, and all related articles were collected.

Results: In the initial search, 1456 articles were found, and a total number of 17 articles were finally included in the study, of which 12 articles were on occupation, ten articles on education, four studies on income, two studies on socio-economic status, seven studies on occupation, and eight studies on education. All studies on income and socio-economic status had shown a statistically significant relationship between these structural determinants and preterm delivery.

Conclusions: Preterm delivery is a prevalent problem with critical complications in Iran and there is a significant relationship between structural determinants and preterm delivery. Appropriate interventions, such as life skills training, self-care, and prenatal care

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1. Introduction

Preterm delivery is one of the main problems in the area of fertility [1]. The rate of preterm delivery in developed countries is between 5% and 15%, but in some places, it has been reported to range from 4% in the highest social classes to approximately 6% in the lowest social classes [2]. In 2005, the Institute of Medicine (IOM) estimated that the annual social cost of preterm delivery in the United States was $ 26 billion dollars, which included the cost of medical care for children under five years old, preterm delivery, maternity costs, and early intervention costs [3]. The rate of preterm delivery in Iran has been reported to be between 5.6 and 34.9%, which is the cause of 75 to 90% of neonatal mortalities [4].

Recent advances in the area of premature newborn care have increased the survival of these newborns. However, the increased prevalence of medical disabilities, learning difficulties, and behavioral and psychological problems among premature newborns have led to the concerns that these newborns may have more problems in their adulthood [5]. These problems include respiratory distress syndrome, dysplasia, anemia, chronic fatigue syndrome, dizziness, internal cerebral and abdominal bleeding, bacterial or fungal sepsis, retinopathy, necrotizing enterocolitis, learning and behavioral problems, mental retardation, blindness, hearing loss, and growth problems [6-9]. However, the significant growth of preterm delivery in different societies can cause numerous consequences, the most important of which is newborn mortality, which may lead to significant social and economic costs and consequences. There are specific causes for about half of preterm deliveries, but the exact cause is still unknown for the other half. Various factors play a role in this regard, and it is of great significance to identify the hidden communication channels between them [10].

Social determinants of health refer to the conditions, in which people are born, grow, live, and work. These conditions are among the key factors of equality in the area of health [11, 12]. Given the fact that living and working conditions are the determinants of most existing injustices, justice policies should focus on improving these living and working conditions and try to reduce the injustices [13]. Social justice is a matter of life and death. Socio-economic policies have a determinant effect on whether a child can grow and develop to their full potential and have a prosperous life or will have a ruined life [14]. Recently, different models have been proposed for illustrating the mechanisms of social determinants of health. One of the most complete models is the World Health Organization (WHO) Social Determinants of Health Model [15]. This model focuses on two main groups of determinants, namely, structural and intermediary determinants. Structural determinants refer to the factors, which create a social class, such as gender, income, education, and ethnicity, and intermediary factors include environmental conditions (e.g., work and housing), psycho-social conditions (e.g., psychosocial stresses), and behavioral factors (e.g., smoking) [16].

Objective

Given the global significance of preterm delivery and its short-term and long-term consequences for the infant, family, and society, and considering the uncertainty of its causes in 50% of cases and the lack of attention of public and researchers on this important issue, the identification of effective factors is necessary in this regard. Accordingly, the present systematic review was conducted to investigate the relationship between preterm delivery and socio-structural determinants of health with emphasis on occupation, education, and income in Iranian society based on the WHO model.

2. Methods

Data sources

This study was a systematic review of all observational articles conducted in Iran on the relationship between preterm delivery and socio-structural determinants of health with emphasis on occupation, education, and income in Iranian society. The preferred reporting items for systematic reviews and meta-analyses (PRISMA) was used to identify and articulate the problem explored in this work, collect and analyze data, interpret the findings, and draw conclusions. Documents published from 2000 to November 2021 in international databases of Scopus, PubMed, Google Scholar, Web of Science, Embase, ProQuest, and Cochrane and the Persian databases of IranDoc and SID were reviewed. Keywords were extracted through Medical Subject Headings (MESH) terminology. The articles were searched using English and Persian keywords of occupation, education, income, social and economic status and preterm delivery, and appropriate operators of AND, OR, as well as a combination of the search strategy of each database. The search was performed by two researchers separately. All related articles in Iranian society were searched and

collected. All unrelated or duplicate studies were excluded from the study.

Study Selection

Inclusion criteria included Studies on the relationship between preterm delivery (weeks 20 to 37 of pregnancy) and socio-structural determinants of health with emphasis on occupation, education, and income, studies conducted in Iran, observational studies, and those with available full text were included.

The following studies were excluded from the analysis:

- Case studies
- Systematic review
- Chronic disease
- High-risk pregnancy
- Research on mental syndromes
- Original accessible articles
- Unrelated reports

Examining the quality of studies

The criterion of Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) was used for the evaluation of the quality of the articles, which was conducted by two researchers separately. In this 22-item checklist, the minimum and maximum scores of the studies range from 1 to 44. Based on the obtained scores, the articles were divided into three groups of low-quality (0-21), medium-quality (22-33), and high-quality (34-44) articles [17], and the Kappa coefficient was used to examine the agreement among the researchers.

Data extraction

The search was conducted independently by two researchers in order to avoid bias. Information, such as the name of researchers, year of research, place of research, sample size, type of study, and structural determinants were extracted by two researchers separately.

3. Results

Finally, after reviewing the title, inclusion criteria, abstract, and the main text of the articles, 17 articles were included in the study. All studies examined at least one of the structural determinants (occupation, education, income, and socio-economic status) and some of them investigated several structural determinants together (Figure 1).

According to the STROBE checklist, the studies were of medium and high quality, and the kappa agreement coefficient was K=0.79 among the researchers. Among the studies, 12 studies examined occupation, ten studies education, four studies income, and two studies socio-economic status (Table 1). Generally, seven studies on occupation, eight studies on education, and all studies on income and socio-economic status found a statistically significant relationship between these structural determinants and preterm delivery. The results showed that education, occupation and income, and economic and socio-economic status are associated with preterm delivery in Iran.

4. Discussion

Pregnancy and childbirth are considered special events for women and families. During this time, extensive physiological changes occur, which affect the body and soul of mothers. If a transition occurs from a physiological state to a pathological state, the health of the mother and neonate will be threatened. Moreover, a major goal for the socio-economic development of any society is to ensure the life of the mother and neonate and, hence, the role of the environment and its resources is very important and effective in this regard [32]. The health of mothers and newborns is basic to families and societies and of particular importance in ensuring and maintaining the health of the family and society [33]. Socio-economic status is evaluated at three levels of individual, family, and local. Although each level may seem independent, these levels affect each other's consequences and can be examined at different stages of life [34]. The Commission on Social Determinants of Health (CSDH) framework assumes that structural factors produce or strengthen social stratification in society, which is used as a definition of people's individual, social, and economic status and refers to the factors that lead to health injustice [35]. Health-related injustice within and among members of society is rooted in the adverse experiences of this condition in the early stages of life and can affect children's brain development. There is an increased risk in this area and interventions seem necessary to reduce this risk [36].

Economic problems are one of the most important obstacles to the achievement of women to their health

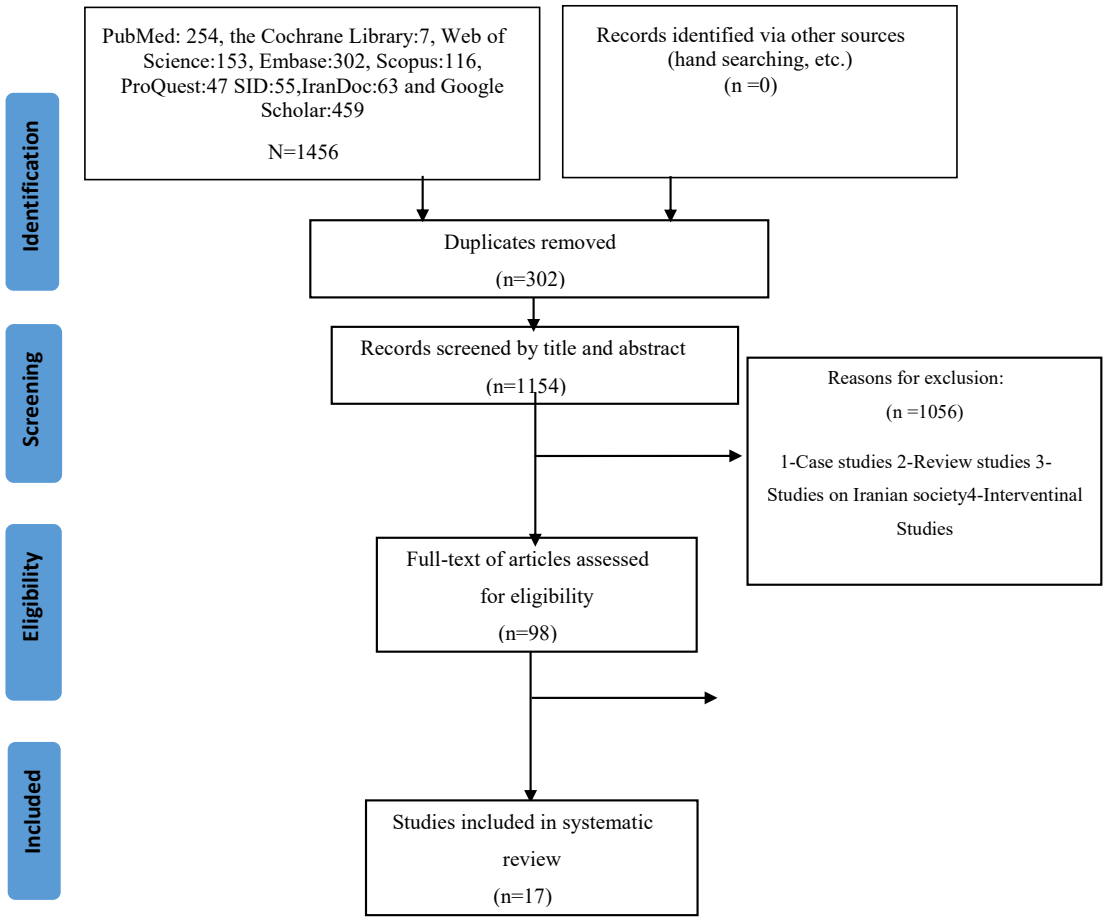

Figure 1. Flowchart for the selection of studies

Journal of Pediatrics Review

needs, especially during pregnancy and childbirth [37]. Because of poverty, inadequate pregnancy-related knowledge, and no awareness of the existence of service centers for periodic pregnancy examinations, women do not refer to these centers; there is also a strong relationship between education and one's desire for receiving pregnancy care [38]. Peacock et al. (1995) argued that socioeconomic status can lead to preterm delivery in various ways, as preterm delivery is correlated with life events, marital status, income, housing, and education. The prevalence of health symptoms and problems during pregnancy, such as preterm delivery, is higher among the lower social classes; moreover, under the influence of stress, catecholamine is released and some changes are made in the concentration of other hormones [39]. Niedhammer et al. (2011) also maintained that the level of socioeconomic status, through the level of the mother's education, is a significant predictor of preterm delivery [40].

As aware and ever-present members of the family, mothers provide their children with love and affection to improve their personal, social, and mental health [41]. Family education has a strong intergenerational effect and is considered a strong determinant of children's health, survival, and education [42, 43]. Early life social injustice through childhood development and educational achievement leads to health injustice leading to low income and higher fertility in the future [44]. El-Sayed et al. (2012) examined the relationship between social factors, health indicators, and changes happening over time from 1989 to 2006; they found that over time, preterm delivery increased in more educated women, whereas it remained unchanged in less educated ones. Additionally, the risk of preterm delivery was lower in less educated women than the more educated ones [45]. In the study by Mortensen et al. (2009), education and income were related to preterm delivery [46]. In the study conducted by Agour et al. (2012), there was a relationship between education and preterm delivery [47]. Mothers' education is a critical factor in newborn health, which can increase children's chances of having a healthy and active life in adulthood [48]. Morgan et al. (2008) indicated that among five socio-economic variables (education of husband and wife, occupation of husband and wife, and income), the level of mother's

Table 1. Studies evaluating the relationship between structural determinants and preterm delivery in Iranian society

Researchers	Years	Country/City	Sample Size	Research Type	Evaluated Structural Determinants
Mirabzadeh et al. [4]	2011-2012	Tehran	500	Prospective cohort	Occupation* Education* Income*
Jandaghi et al. [18]	2011	Qom	10913	Cross-sectional	Occupation Education Socio-economic status*
Ebrahimi and Bahra-ninejad [19]	2014	Bushehr	304	Prospective	Occupation*
Kamalifard et al. [20]	2010	Tabriz	396	Case-control	Occupation* Education*
Rajaee et al. [21]	2010	Shiraz	1117	Cross-sectional	Occupation Education*
Amini and Savahi [22]	2011	Fars province	244	Case-control	Occupation
Khakbazan [23]	2007	Tehran	518	Cross-sectional	Occupation
Sehhati-Shafaii et al. [24]	2010	Ardabil	960	Descriptive	Occupation Education*
Latif [14]	2005	Mashhad	600	Case-control	Occupation* Education
Mirzaei and Alizadeh [25]	2007	Kerman	988	Descriptive	Occupation Education
Khaleghinia and Sade-ghi Moghadam [26]	2012	Qom	400	Cross-sectional	Occupation
Mahmoodi et al. [27]	2013	Tehran	750	Case-control	Income* Education*
Mahmoodi et al. [28]	2015	Tehran	750	Case-control	Occupation* Education*
Salehi et al. [29]	2016	Tehran	589	Case-control	Occupation* Education*
Mahmoodi et al. [30]	2017	Tehran	750	Case-control	Education* Income*
Eshghizadeh et al. [31]	2015	Gonbad	233	Case-control	Income*
Neshat et al. [32]	2013	Dorood	300	Cohort	Socio-economic status*

* Statistically significant at (P<0.05).

Journal of Pediatrics Review

education was a strong predictor of preterm delivery. Moreover, in this study, occupation and low income were not risk factors for preterm delivery [49].

Some explain the relationship between education and health through occupation and economic conditions, meaning that the higher the education, the more likely you are to be employed in healthier, higher-paying jobs and workplaces that allow you to have more control over your life. These conditions, thus, contribute to the health of family members. More financial resources lead to the adoption of a healthier lifestyle and better nutrition as well as access to better health services [15]. As one of the most important economic categories, income includes various aspects, such as knowledge and physical and mental health. Income inequality is one of the unpleasant phenomena of social life, and its reduction and elimination are a top priority in almost all human societies [50]. As a complicated variable, income has a cumulative effect on life, which can often change in short-term periods [51]. Income is, thus, an approximate indicator of access to resources and living standards [52, 53]. Joseph et al. (2014) revealed that preterm delivery was spontaneously correlated with income [54]. Bibby et al. (2004) considered low social class, low education level, and low income as the risk factors for preterm delivery [55]. Moreover, poverty can lead to social segregation and isolation. Societies with high levels of income inequality are less likely to enjoy social cohesion and, consequently, suffer from higher levels of violence [12].

Employment promotes the growth and value of women, because social interactions strengthen their communication and decision-making ability and their access to resources and, generally, improve their social status [55]. Social consequences, authority, and independence are among the positive aspects of women's employment, interference with household plans and parenting is mentioned as the negative aspect of their employment [56]. Working conditions can also affect

the health and justice of individuals and society. Poor working conditions can affect mental health almost as much as job loss. Poor working conditions, such as prolonged standing and exposure to chemicals can develop adverse consequences, such as miscarriage, preterm delivery, low birth weight, and birth defects. Job stress can also impose negative effects on fetal growth and development [27].

5. Conclusion

Preterm delivery is a prevalent problem with critical complications in Iran and structural determinants have a significant relationship with preterm delivery. Proper interventions, such as life skills training, self-care, and prenatal care can contribute to the improvement of pregnancy outcomes. Most studies in Iran have investigated demographic factors and no study has examined the impact of economic inequality on the incidence of preterm delivery. Future studies can investigate the effect of inequality on the incidence of preterm delivery.

Ethical Considerations

Compliance with ethical guidelines

This study was approved by the Ethics Committee of the University of shahid beheshti university of medical scinces (Code: IR.SBMU.PHARMACY.REC.1400.276).

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Authors' contributions

All authors equally contributed to preparing this article.

Conflicts of interest

The authors declared no conflict of interest.

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References

1. Ghorbani M, Dolatian M, Shams J, Alavi-Majd H. Anxiety, post-traumatic stress disorder and social supports among parents of premature and full-term infants. Iran Red Crescent Med J. 2014; 16(3):e13461. [DOI:10.5812/ircmj.13461] [PMID] [PMCID]

2. Steer P. The epidemiology of preterm labour. BJOG. 2005; 112(Suppl 1):1-3. [DOI:10.1111/j.1471-0528.2005.00575.x] [PMID]

3. Frey HA, Klebanoff MA. The epidemiology, etiology, and costs of preterm birth. Semin Fetal Neonatal Med. 2016; 21(2):68-73. [DOI:10.1016/j.siny.2015.12.011] [PMID]

4. Mirabzadeh A, Dolatian M, Forouzan AS, Sajjadi H, Majd HA, Mahmoodi Z. Path analysis associations between perceived social support, stressful life events and other psychosocial risk factors during pregnancy and preterm delivery. Iran Red Crescent Med J. 2013; 15(6):507-14. [DOI:10.5812/ircmj.11271] [PMID] [PMCID]

5. Watson HA, Carlisle N, Seed PT, Carter J, Kuhrt K, Tribe RM, et al. Evaluating the use of the QUiPP app and its impact on the management of threatened preterm labour: A cluster randomised trial. Plos Med. 2021; 18(7):e1003689. [DOI:10.1371/journal.pmed.1003689] [PMID] [PMCID]

6. Hille ET, den Ouden AL, Saigal S, Wolke D, Lambert M, Whitaker A, et al. Behavioural problems in children who weigh 1000 g or less at birth in four countries. Lancet. 2001; 357(9269):1641-3. [DOI:10.1016/S0140-6736(00)04818-2] [PMID]

7. Saigal S, den Ouden L, Wolke D, Hoult L, Paneth N, Streiner DL, et al. School-age outcomes in children who were extremely low birth weight from four international population-based cohorts. Pediatrics. 2003; 112(4):943-50. [DOI:10.1542/peds.112.4.943] [PMID]

8. Marlow N, Wolke D, Bracewell MA, Samara M; EPICure Study Group. Neurologic and developmental disability at six years of age after extremely preterm birth. N Engl J Med. 2005; 352(1):9-19. [DOI:10.1056/NEJMoa041367] [PMID]

9. Cooke RW. Health, lifestyle, and quality of life for young adults born very preterm. Arch Dis Child. 2004; 89(3):201-6. [DOI:10.1136/adc.2003.030197] [PMID] [PMCID]

10. Shapiro GD, Fraser WD, Frasch MG, Séguin JR. Psychosocial stress in pregnancy and preterm birth: Associations and mechanisms. J Perinat Med. 2013; 41(6):631-45. [DOI:10.1515/jpm-2012-0295] [PMID] [PMCID]

11. Marmot M, Allen J, Bell R, Bloomer E, Goldblatt P; Consortium for the European Review of Social Determinants of Health and the Health Divide. WHO European review of social determinants of health and the health divide. Lancet. 2012; 380(9846):1011-29. [DOI:10.1016/S0140-6736(12)61228-8] [PMID]

12. Wilkinson R, Marmot M, World Health Organization. Regional Office for Europe. Social determinants of health: The solid facts, 2nd ed (en). World Health Organization. Regional Office for Europe. https://apps.who.int/iris/handle/10665/326568

13. Kiani Z, Simbar M, Dolatian M, Zayeri F. Structural equation modeling of psychosocial determinants of health for the empowerment of Iranian women in reproductive decision making. BMC Womens Health. 2020; 20(1):19. [DOI:10.1186/s12905-020-0893-0] [PMID] [PMCID]

14. WHO commission on social determinants of health. Closing the gap in a generation: Health equity through action on the social determinants of health: Final report of the commission on social determinants of health. Geneva: World Health Organization; 2008. https://apps.who.int/iris/bitstream/handle/10665/43943/9789241563703_eng.pdf

15. Dolatian M, Sharifi N, Mahmoodi Z, Fathnezhad-Kazemi A, Bahrami-Vazir E, Rashidian T. Weight gain during pregnancy and its associated factors: A Path analysis. Nurs Open. 2020; 7(5):1568-77. [DOI:10.1002/nop2.539] [PMID] [PMCID]

16. Mackenbach JP, Bakker M. Reducing inequalities in health: A European perspective. Taylor & Francis; 2003. https://www.google.com/books/edition/Reducing_Inequalities_in=0

17. Poorolajal J, Cheraghi Z, Irani AD, Rezaeian S. Quality of Cohort Studies Reporting Post the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) Statement. Epidemiol Health. 2011; 33:e2011005. [DOI:10.4178/epih/e2011005] [PMID] [PMCID]

18. Jandaghi G, Khalajinia Z, Moghadam P. Contribution of maternal demographic and medical factors to the risk of prematurity in Qom hospitals. Maced. J. Med Sci. 2011; 4(1):60-3. [DOI:10.3889/MJMS.1857-5773.2011.0152]

19. Ebrahimi M, Bahraninejad Z. [The relationship between occupational fatigue and preterm delivery (Persian)]. Iran South Med J. 2014; 17(2) :233-42. http://ismj.bpums.ac.ir/browse.php?a_3-447&slc_lang=en&sid=1

20. Kamalifard M, Alizadeh R, Sehatishafaei F, Gojazadeh M. [The Effect of Lifestyle on the Rate of Preterm Birth (Persian)]. J Ardabil Univ Med Sci. 2010; 10(1):55-63. https://jarums.arums.ac.ir/article-1-235-fa.html

21. Rajaee FA, Mohammad BA, Mohammadi M, Jolaee H, Alipour H. [Evaluation of risk factors in preterm delivery and impact of education in its prevention (Persian). Daneshvar Med. 2010; 17(86):11-8. https://www.sid.ir/en/Journal/ViewPaper.aspx?ID=256346

22. Amini A, Savaie M. [Pregnancy complications among hospital operating room personnel in Fars province, Iran (Persian)]. J Gorgan Univ Med Sci. 2011; 13(1) :88-93. http://goums.ac.ir/journal/article-1-972-fa.html

23. Khakbazan Z, Geranmayeh M, Taghizadeh G, Haghani H. [The survey of association between occupational factors and preterm childbirth (Persian)]. J Hayat. 2008; 13(4):5-14. https://hayat.tums.ac.ir/article-1-158-en.html

24. Sehhati-Shafaii F, Asadollahy M, Piri R, Naghavi-Behzad M, Farzollahpour F. Prevalence and risk factors of preterm labor in Health Educational Centers of Northwest Iran (2009-2010). Life Sci J. 2013; 10(3):231-6. [DOI:10.7537/marslsj100313.37]

25. Mirzaie F, Mohammah-Alizadeh S. Contributing factors of preterm delivery in parturient in a University Hospital in Iran. Saudi Med J. 2007; 28(3):400-4. [PMID]

26. Khalajinia Z, Sadeghimoghaddam P. [Prevalence and maternal risk factors of preterm laboring in Qom, 2007 (Persian)]. Qom Univ Med Sci J. 2011; 5(1):30-6. https://journal.muq.ac.ir/browse.php?a_id=72&sid=1&slc_lang=en

27. Mahmoodi Z, Karimlou M, Sajjadi H, Dejman M, Vameghi M, Dolatian M. Working conditions, socioeconomic factors and low birth weight: Path analysis. Iran Red Crescent Med J. 2013; 15(9):836-42. [DOI:10.5812/ircmj.11449] [PMID] [PMCID]

28. Mahmoodi Z, Karimlou M, Sajjadi H, Dejman M, Vameghi M, Dolatian M, et al. Association of maternal working condition with low birth weight: The social determinants of health approach. Ann Med Health Sci Res. 2015; 5(6):385-91. [DOI:10.4103/2141-9248.177982] [PMID] [PMCID]

29. Salehi K, Mahmoodi Z, Kabir K, Dolatian M. Pathways of job style and preterm low birth weight. Electron Physician. 2016; 8(9):2888-96. [DOI:10.19082/2888] [PMID] [PMCID]

30. Mahmoodi Z, Karimlou M, Sajjadi H, Dejman M, Vameghi M, Dolatian M. A Communicative Model of Mothers' Lifestyles During Pregnancy with low birth weight based on social determinants of health: A path analysis. Oman Med J. 2017; 32(4):306-14. [DOI:10.5001/omj.2017.59] [PMID] [PMCID]

31. Eshghizadeh M, Moshki M, Majeedi Z, Abdollahi M. [Modifiable risk factors on preterm birth: A case-control study (Persian)]. Intern Med Today. 2015; 21(2):141-6. [DOI:10.18869/acadpub.hms.21.2.141]

32. Neshat R, Majlesi F, Rahimi A, Shariat M, Pourreza A. [Investigation the relationship between preterm delivery and prevalence of anxiety, stress and depression in pregnant women of Dorrod Health Center, Iran in 2010 (Persian)]. The Iranian Journal of Obstetrics, Gynecology and Infertility. 2013; 16(67):16-24. [DOI: 10.22038/IJOGI.2013.1907]

33. MacKian SC. What the papers say: Reading therapeutic landscapes of women's health and empowerment in Uganda. Health Place. 2008; 14(1):106-15. [DOI:10.1016/j.healthplace.2007.05.005] [PMID]

34. Krieger N, Rowley DL, Herman AA, Avery B, Phillips MT. Racism, sexism, and social class: Implications for studies of health, disease, and well-being. Am J Prev Med. 1993; 9(6):82-122. [DOI:10.1016/S0749-3797(18)30666-4] [PMID]

35. World Health Organization (WHO). A conceptual framework for action on the social determinants of health. Geneva: World Health Organization; 2010. https://apps.who.int/iris/handle/10665/44489

36. Walker SP, Wachs TD, Grantham-McGregor S, Black MM, Nelson CA, Huffman SL, et al. Inequality in early childhood: Risk and protective factors for early child development. Lancet. 2011; 378(9799):1325-88. [DOI:10.1016/S0140-6736(11)60555-2] [PMID]

37. Kaddour A, Hafez R, Zurayk H. Women's perceptions of reproductive health in three communities around Beirut, Lebanon. Reprod Health Matters. 2005; 13(25):34-42. [DOI:10.1016/S0968-8080(05)25170-4] [PMID] [PMCID]

38. Rahman M, Abedin S, Kamruzzaman IN, Islam N. Women's empowerment and reproductive health: Experience from Chapai Nawabganj District in Bangladesh. PJSS. 2008; 5(9):883-8. https://www.researchgate.net/publication/278677205_Women_e_and_repro_Bangladesh

39. Peacock JL, Bland JM, Anderson HR. Preterm delivery: Effects of socioeconomic factors, psychological stress, smoking, alcohol, and caffeine. BMJ. 1995; 311(7004):531-5. [DOI:10.1136/bmj.311.7004.531] [PMID] [PMCID]

40. Niedhammer I, Murrin C, O'Mahony D, Daly S, Morrison JJ, Kelleher CC, et al. Explanations for social inequalities in preterm delivery in the prospective Lifeways cohort in the Republic of Ireland. Eur J Public Health. 2012; 22(4):533-8. [DOI:10.1093/eurpub/ckr089] [PMID]

41. Rosato M, Laverack G, Grabman LH, Tripathy P, Nair N, Mwansambo C, et al. Community participation: Lessons for maternal, newborn, and child health. Lancet. 2008; 372(9642):962-71. [DOI:10.1016/S0140-6736(08)61406-3] [PMID]

42. Bloom DE. Education, health, and development. Cambridge: American academy of arts and sciences: 2007. Layout 1 (psu.edu)

43. Caldwell JC. Routes to low mortality in poor countries. Popul Dev Rev. 1986; 171-220. [DOI:10.2307/1973108]

44. Grantham-McGregor S, Cheung YB, Cueto S, Glewwe P, Richter L, Strupp B; International Child Development Steering Group. Developmental potential in the first 5 years for children in developing countries. Lancet. 2007; 369(9555):60-70. [DOI:10.1016/S0140-6736(07)60032-4] [PMID] [PMCID]

45. El-Sayed AM, Galea S. Temporal changes in socioeconomic influences on health: Maternal education and preterm birth. Am J Public Health. 2012; 102(9):1715-21. [DOI:10.2105/AJPH.2011.300564] [PMID] [PMCID]

46. Mortensen LH, Lauridsen JT, Diderichsen F, Kaplan GA, Gissler M, Andersen AM. Income-related and educational inequality in small-for-gestational age and preterm birth in Denmark and Finland 1987-2003. Scand J Public Health. 2010; 38(1):40-5. [DOI:10.1177/1403494809353820] [PMID]

47. Auger N, Park AL, Harper S, Daniel M, Roncarolo F, Platt RW. Educational inequalities in preterm and term small-for-gestational-age birth over time. Ann Epidemiol. 2012; 22(3):160-7. [DOI:10.1016/j.annepidem.2012.01.004] [PMID]

48. Osrin D, Mesko N, Shrestha BP, Shrestha D, Tamang S, Thapa S, et al. Implementing a community-based participatory intervention to improve essential newborn care in rural Nepal. Trans R Soc Trop Med Hyg. 2003; 97(1):18-21. [DOI:10.1016/S0035-9203(03)90008-3] [PMID]

49. Morgen CS, Bjørk C, Andersen PK, Mortensen LH, Nybo Andersen AM. Socioeconomic position and the risk of preterm birth: A study within the Danish National Birth Cohort. Int J Epidemiol. 2008; 37(5):1109-20. [DOI:10.1093/ije/dyn112] [PMID]

50. Morley J, Cowls J, Taddeo M, Floridi L. Public Health in the Information Age: Recognizing the Infosphere as a Social Determinant of Health. J Med Internet Res. 2020; 22(8):e19311. [DOI:10.2196/19311] [PMID] [PMCID]

51. Zolfaghari M, Kabiri M, Saadatmanesh H. Impact of socioeconomic infrastructure investments on income inequality in Iran. J Policy Model. 2020; 42(5):1146-68. [DOI:10.1016/j.jpolmod.2020.02.004]

52. van Doorslaer E, O'Donnell O, Rannan-Eliya RP, Somanathan A, Adhikari SR, Garg CC, et al. Effect of payments for health care on poverty estimates in 11 countries in Asia: An analysis of household survey data. Lancet. 2006; 368(9544):1357-64. [DOI:10.1016/S0140-6736(06)69560-3]

53. Mackenbach JP, Kunst AE. Measuring the magnitude of socio-economic inequalities in health: An overview of available measures illustrated with two examples from Europe. Soc Sci Med. 1997;44(6):757-771. [DOI:10.1016/s0277-9536(96)00073-1] [PMID]

54. Joseph KS, Fahey J, Shankardass K, Allen VM, O'Campo P, Dodds L, et al. Effects of socioeconomic position and clinical risk factors on spontaneous and iatrogenic preterm birth. BMC Pregnancy Childbirth. 2014; 14:117. [DOI:10.1186/1471-2393-14-117] [PMID] [PMCID]

55. Bibby E, Stewart A. The epidemiology of preterm birth. Neuro Endocrinol Lett. 2004; 25(1):43-7. https://www.nel.edu/journal/search/?q=Thology+of+preterm+birth

56. Mutambirwa J, Utete V, Mutambirwa C, Maramba P. Consequences of Family Planning on Women's Quality of Life in Zimbabwe'. In: M. Mohyl editor. Women and Development in Zimbabwe: The Role of Family Planning. Harare: Weaver Press. 1998.

57. Kiani Z, Simbar M, Fakari FR, Kazemi S, Ghasemi V, Azimi N, et al. A systematic review: Empowerment interventions to reduce domestic violence?. Aggress Violent Behav. 2021; 58:101585. [DOI:10.1016/j.avb.2021.101585]

58. Marmot M. Closing the health gap in a generation: the work of the Commission on Social Determinants of Health and its recommendations. Glob Health Promot. 2009; Suppl 1:23-7. [DOI:10.1177/1757975909103742] [PMID]