The Social Determinants of Health in Association with Women's Health Status of Reproductive Age: A Population-Based Study

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Abstract

Background: Prioritizing women's health helps achievement of the 4th and 5th goals of Millennium Development Program. This study aimed to investigate association between social determinants of health and women's health of reproductive age.

Methods: This population-based cross-sectional study, using multi-stage sampling procedure was conducted on 770, 15 to 49-year-old women residing in any one of the 22 municipality zones across Tehran, Iran. Eligible women were interviewed at home with SF-36 (Short Form Health Survey) and socio-demographic questionnaires. Social determinants of health contains; ethnicity, education, job, income, and crowding index. Data were analyzed by ANOVA and Multiple Linear Regression using SPSS-16.The threshold of P.V was considered 0.05.

Results: Overall, 770 women with mean age 33.9±9.3 years were interviewed. Majority of them were married (72.27%), housewives (62.2%), of Persian ethnicity (64.3%), and educated to high school level (43.8%). Age with dimensions of health except role emotional, mental health, and social functioning had significant association with B from -0.65 to -0.16.educational level with dimensions of health except role emotional andsocial functioning had significant association with B from 3.61 to 6.43 (*P*<0.05). Income with dimensions of health except role physical had significant association with B from -9.97 to -4.42.

Conclusion: Reflection of unfavorable economic conditions and low education level on negative women' health experiences are alarming. Interaction between social determinants of health and health status must be considered in policymaking, and there is a need for policies that would enhance health of women in the low education and income brackets.

Keywords: Women's health status, Social determinants of health, Reproductive age

Introduction

Several factors are considered as determinants of health and complex interactions among these may have a profound impact on health (1). Prioritizing women's health helps achievement of the 4th and

5th goals of Millennium Development Program (2). Health inequalities refer to differences in health status or health outcomes associated with such factors as gender, race, ethnicity, and socioeco-

nomic status (3). In addition to association of health inequalities with genetic and biological variables, social structure is also another health-related factor (4). Men and women are exposed to determinants of health in different ways (5). In 2008, the World Health Organization's special commission emphasized the importance of research to address Social Determinants of Health (SDH) to identify and determine health inequalities according to geographical regions and groups of people (6), as progress in eliminating health inequalities in the absence of good data will be impossible (7).

SDH contain socioeconomic factors that reflect, "the conditions in which people are born, grow up, live, work, and age" (8). Evidence on the relationship between SDH and health outcomes, the prevalence of diseases and health inequalities are necessary (9, 10). Their impact on health is complicated, ranging from biology to behavior. Health inequalities usually have reverse relationship with social determinants of health, which means people with lower socioeconomic status have poor health (11, 12). Furthermore, people at lower education or income brackets, the unemployed people, and manual workers are more likely to have poor health (13, 14), yet this obvious pattern is widely varied in different populations (15). In developing countries within the Middle East like Iran, with different cultures from that of western societies, research into social health patterns, especially women's health is in its early stage (16, 17).

As a developing country, Iran is rapidly moving toward urbanization and industrialization. A higher percentage of 71% of Iran's population in 2006(71%), compared to 61.3% in 1996, and 54.3% in 1986; live in the cities (18). It is expected that socioeconomic changes at society level will affect family and household levels. Determining current condition of health status provides a basis for a series of health planning processes, including prioritizing plans, setting goals and strategy, and implementing plans (19). According to the statistics published by the Iran's Statistics Center in 2011, the highest percentage of all female population (about 60%) are women of reproductive age, and approximately 16.2% of these women live in Tehran (20). Given that women's health in this

period affects long-term health of theirs and their family members(21), and that a large proportion of women's population in this country are women of reproductive age, it is necessary to study women's health status.

This study aimed to investigate the relationship between social determinants of health and women's health status of reproductive age. Understanding social determinants of health related to changes in health is important for policy making to reduce health inequalities.

Material & Methods

Study design and sampling method

This population-based cross-sectional survey has been conducted in Tehran during February to September 2013. This study is a part of a mixed method study using a sequential explanatory design, the protocol of which has been previously published. The sample size in the current study was 770 people as explained in the protocol (22).Participants were 770 women of reproductive age (15- to 49-year-old), residing in any one of the 22 municipality zones across Tehran.

These women were selected through a multi-stage sampling procedure. Tehran is divided into 22 zones and each zone is divided to a number of blocks with unequal population. For our trained interviewers it was only possible to question 10 eligible women from each block. Therefore, 77 blocks were surveyed in our study. The number of blocks in each zone was proportion to size of study population in the corresponding zone. In each zone the required number of blocks was randomly selected from the list of blocks. In each city block, the total number of households was divided by 10 to find the distance between household in the list. The eligible women were chosen via systematically random sampling to interview. In case a woman declined to take part, the family next door was invited to participate in the study and complete the questionnaire. Considering random sampling from all 22-city zones in this study, there is no selection bias and the internal validity is increased.

Eligibility criteria in this study were women in age group of 15-49 years and no any known diseases such as severe mental retardation and mental disorders (making them unable to respond to the questionnaire).

Study Scales

Dependent variable: Health status of women of reproductive age

The SF-36 questionnaire (Short Form Health Survey) is a general scale of health status. It is a tool for assessment of health of the general population, and can be used to compare health status over time, place, and people (23). This scale was first designed by Ware et al. to evaluate health of the community, determine health policies, and assess the efficiency of the designed treatment. It can be completed as self-administered, or with help of an interviewer in person or by telephone. SF-36 questionnaire consists of 8 health-related concepts/domains: physical functioning with 10 items, role limitations due to physical problems with 4 items, bodily pain with 2 items, general health with 5 items, vitality with 4 items, social functioning with 2 items, role limitations due to emotional problems with 3 items, and mental health with 5 items. In addition, there is an item in this questionnaire that indicates perceived change in general health status by the person over last one-year period (24).

SF-36 questionnaire was translated in Iran using forward-backward translation method, and it has also been culturally adapted and its validity and reliability determined. Reliability was found using internal consistency, validity was determined using known groups comparison, and convergent validity was measured. Cronbach's coefficient of all dimensions of the questionnaire, except vitality (0.65), ranged from 0.77 to 0.90. Mean score for the 8 indicators of this test based on the protocol of the questionnaire ranged from 0 (worst status) to 100 (best status) (25). According to different Likert scale ranging from 2 to 6 items, at first all questions were weighted and changed to range from 0 to 100, with a higher score indicating higher health status. Scores for each dimension of SF–36 scale were calculated similar the instruc-tions provided in the SF–36 manual (26).The researcher had obtained prior permission for using this questionnaire.

Independent variables: Social Determinants of Health

Independent variables included social determinants of health (ethnicity, education level, occupation status, sufficiency of income for expenses, and crowding index) and other variables (age, marital status, and family size) that were assessed by socio-demographic questionnaire designed and approved by the researcher and experts. Crowding index was determined by dividing the number of family members by the number of rooms, not considering the bathroom and kitchen: low (less than1), average (between 1-2), and high (more than 2).

Data collection

All participants were interviewed face-to-face in their own house by the team of interviewers. Interviewers were trained by the research team for conducting standard interviews. To ensure reliability of the collected data, interviewers were closely controlled and monitored. To this end, the following control methods were implemented; simultaneous control of interviewers, control after performing their tasks, review of the questionnaires, and statistical control of the questionnaires. The women were interviewed alone to minimize potential response bias. Study protocol was approved by the ethics committee of Tehran University of Medical Sciences. Following a detailed explanation, informed consent was obtained from all participating women.

Data analysis

Data were analyzed using SPSS-16. The percentage of missing in variables used in the analysis was negligible and varied only from 0.2% to 1.7%; therefore ignored in the analysis. At first, the independent and dependent variables were assessed descriptively with frequency and percentage.

To investigate the relationship between dimensions of health and social determinants of health and other demographic variables, analysis of variance (ANOVA) as the univariate analysis was used

and then multiple linear regression analysis as the adjusted one were used to analyze associations between variables. On the other hand, to avoid effects of the confounding factors, and to predict effects of independent variables on dependent ones (dimensions of health), variables with significant associations in the ANOVA test were entered into the Stepwise Multiple Linear Regression. Authors have conducted 8 model of linear regression as in each of model, one of the dimensions of health considered as dependent variable and all independents variables with significant association in ANOVA were entered model. The threshold of type one error was considered 0.05.

Results

Descriptive variables
In total, 770, 15- to 49-year-old women of reproductive age with mean age 33.9±9.3 years were interviewed. Majority of them were married (72.27%) housewives (62.2%), of Persian ethnicity (64.3%), and educated to high school level (43.8%) (Table 1).

Table 2 presents mean score and standard deviation obtained in all dimensions of health in women of reproductive age. The highest mean score related to the physical functioning and the lowest mean score to vitality dimensions. Data on the item of perceived change in the health status by the person over one-year period revealed 40.2% and 29.5% of women had similar health status to the previous year's and slightly worse than the previous year's, respectively.

Health in association with demographic and socioeconomic variables
The relationship between health status of women of reproductive age and independent variables through one-way analysis of variance (ANOVA) is also has been shown in Table 2. According to the results, there was a significant association between some dimensions of health and variables; age, marital status, education level, occupation status, and sufficiency of income for expenses. To avoid effects of the confounding factors of the men-

tioned variables, these variables were entered into the stepwise multivariable linear regression model. Table3 presents adjusted association of the mentioned independent variables with health dimensions as dependent variables. The results of linear regression analysis in the models 1 to 8 are shown in Table 3.

Table 1: The characteristics of the study sample (n=770)

Variables	n (%)
Age groups (yr)	
15–25	165 (21.5)
26–35	266 (34.5)
36–45	224 (29.1)
46-49	115 (14.9)
Marital status	
Married	556 (72.2)
Divorced/ Widowed	31 (4)
Single	183 (23.8)
Ethnicity	
Fars	487 (64.3)
Azari	179 (23.2)
Others	91 (13.5)
Educational level (yr)	
Illiterate/ Primary (years 1–5)	50 (6.5)
Intermediate (years 6–8)	83 (10.8)
High school (years 9–12)	337 (43.8)
University >12	300 (38.9)
Occupation status	
Housewife	479 (62.2)
Employed	190 (24.7)
Student	101 (13.1)
Sufficiency of income for expenses	
Absolutely not	337 (44.1)
To some extent	240 (31.4)
Completely	188 (24.5)
Crowding index	
Low	215 (27.5)
Average	385 (51.6)
High	168 (20.9)
Family Size	
Less than four	321 (42.3)
Four to five	384 (50.7)
More than five	53 (7.0)

Table 2: Respondents' characteristics in association with the mean scores of health dimensions through ANOVA

Independent Variables	SF-36 subscales: mean (SD)							
	General Health	Physical Functioning	Role Physical	Role Emotional	Body Pain	Vitality	Mental Health	Social Functioning
Age groups (yr)								
15–25	67.68 (19.26)	86.71 (18.62)	75.00 (33.56)	60.36 (41.21)	67.25 (23.76)	64.52 (19.58)	65.65 (21.18)	**74.37 (23.99)**
26–35	65.07 (20.23)	84.84 (18.52)	70.72 (36.78)	65.01 (40.55)	66.56 (23.06)	60.50 (21.28)	62.38 (20.12)	**74.41 (24.77)**
36–45	58.60 (19.86)	78.13 (20.17)	62.27 (39.77)	60.81 (41.95)	57.63 (25.30)	60.04 (20.53)	62.66 (22.07)	**73.32 (23.27)**
46-49	55.75 (18.61)	68.02 (26.37)	54.13 (41.34)	57.10 (43.20)	58.97 (26.24)	56.65 (18.65)	62.45 (19.51)	**69.09 (24.28)**
ANOVA p	.000	.000	.000	.342	.000	.016	.414	**.239**
Marital status								
Married	61.13 (19.46)	79.60 (21.195)	64.67 (38.77)	62.74 (41.33)	61.71 (24.78)	59.75 (20.17)	63.16 (20.79)	**73.00 (23.94)**
Divorced/ Widowed	52.74 (21.86)	74.33 (25.24)	59.67 (39.09)	55.91 (43.36)	55.00 (26.09)	54.83 (21.92)	52.27 (23.12)	**65.94 (28.91)**
Single	67.73 (20.69)	85.58 (20.04)	74.02 (35.97)	59.07 (41.81)	68.30 (23.39)	64.39 (20.52)	64.99 (20.15)	**75.42 (23.68)**
ANOVA p	.000	.001	.010	.436	.002	.009	.010	**.126**
Ethnicity								
Fars	62.69 (19.12)	80.37 (21.56)	65.56 (39.04)	61.74 (41.95)	63.62 (24.41)	61.28 (19.42)	63.66 (19.50)	**73.93 (24.03)**
Azari	60.28 (22.32)	81.29 (21.14)	67.23 (37.59)	57.86 (41.21)	61.51 (25.45)	59.24 (21.79)	61.96 (22.62)	**71.53 (25.04)**
Others	64.35 (20.67)	82.24 (20.16)	70.91 (36.22)	67.30 (39.68)	62.77 (24.78)	59.95 (22.56)	62.90 (23.67)	**73.40 (22.97)**
ANOVA p	.225	.696	.424	.182	.628	.501	.648	**.534**
Educational level (yr)								
Illiterate/ Primary (years 1–5)	51.45 (14.98)	67.81 (22.94)	55.10 (41.13)	58.66 (41.81)	52.82 (25.61)	57.18 (19.72)	59.02 (21.36)	**69.94 (21.75)**
Intermediate (years 6–8)	57.46 (20.20)	79.35 (22.13)	62.04 (41.20)	59.03 (43.34)	59.50 (26.26)	56.82 (21.03)	60.97 (21.44)	**70.03 (22.84)**
High school (years 9–12)	60.42 (20.87)	79.27 (22.28)	64.56 (37.94)	60.46 (41.89)	61.60 (24.89)	59.20 (21.18)	61.58 (21.83)	**72.57 (25.72)**
University >12	67.72 (18.55)	85.13 (18.31)	72.23 (36.79)	64.08 (40.60)	67.18 (23.15)	63.87 (19.10)	66.29 (19.05)	**75.60 (22.83)**
ANOVA p	.000	.000	.005	.598	.000	.004	.010	**.147**
Occupation status								
Housewife	60.50 (20.14)	79.38 (21.63)	65.55 (38.25)	62.17 (41.46)	61.78 (24.42)	59.40 (20.13)	62.20 (21.02)	**73.27 (23.77)**
Employed	63.26 (19.21)	80.91 (20.64)	65.00 (39.32)	61.87 (41.15)	63.77 (24.92)	61.35 (20.35)	64.21 (19.59)	**73.16 (24.84)**
Student	69.49 (20.20)	87.27 (19.68)	75.25 (35.98)	58.33 (42.73)	67.60 (25.20)	65.15 (21.50)	65.81 (22.19)	**73.71 (24.63)**
ANOVA p	.000	.004	.057	.699	.098	.037	.225	**.983**

Table 2: Cond…

Independent Variables	General Health	Physical Functioning	Role Physical	Role Emotional	Body Pain	Vitality	Mental Health	Social Functioning
				SF-36 subscales: mean (SD)				
Sufficiency of income for expenses								
Absolutely not	58.22 (20.46)	77.29 (23.04)	62.53 (39.07)	55.98 (42.08)	56.99 (25.38)	56.55 (20.62)	59.65 (21.68)	68.88 (25.62)
To some extent	64.39 (18.46)	82.71 (19.63)	69.43 (37.56)	65.11 (40.38)	67.23 (23.83)	63.11 (19.39)	64.14 (19.60)	75.91 (22.29)
Completely	67.01 (20.24)	84.45 (19.17)	70.18 (37.70)	67.02 (40.89)	68.46 (22.20)	64.91 (20.23)	68.06 (19.91)	77.93 (22.09)
ANOVA p	.000	.000	.036	.004	.000	.000	.000	.000
Crowding index								
Low	64.76 (19.92)	83.40 (20.96)	67.26 (39.56)	60.44 (43.25)	63.87 (24.02)	59.60 (20.88)	61.85 (21.40)	75.26 (23.96)
Averag	62.17 (20.53)	80.98 (20.36)	67.14 (37.30)	61.97 (41.13)	63.30 (25.28)	61.16 (21.44)	63.66 (21.48)	73.24 (24.70)
High	61.79 (20.11)	78.27 (22.70)	65.87 (38.70)	65.54 (39.72)	62.30 (23.54)	60.73 (19.00)	64.88 (19.91)	72.79 (23.02)
ANOVA p	.291	.096	.933	.519	.848	.705	.415	.575
Family Size								
Less than four	63.93 (20.11)	82.77 (20.17)	66.40 (38.08	61.21 (41.33)	63.61 (23.87)	59.69 (20.48)	63.05 (20.72)	73.27 (24.17)
Four to five	61.00 (19.93)	78.88 (22.27)	68.00 (38.36)	62.54 (41.77)	62.71 (25.26)	61.02 (20.97)	63.21 (21.48)	73.61 (23.96)
More than five	64.61 (22.04)	83.57 (20.20)	58.96 (41.04)	61.00 (41.20)	63.92 (25.54)	64.80 (15.93)	65.22 (17.87)	74.50 (24.36)
ANOVA p	.122	.051	.272	.904	.872	.230	.794	.940
Total score	62.36 (20.13	80.83 (21.26)	66.67 (38.33)	61.59 (41.52)	63.01 (24.69)	60.62 (20.43)	63.16 (20.84)	73.30 (24.12)

This Table shows only variables, which were remained as significant factors after adjusting other variables in regression analysis with dimensions of health. As can be seen from Table 3, significant associations were found between the followings dimensions; general health, physical functioning, role limitations due to physical problems, bodily pain, and vitality with age; mental health with marital status; all dimensions of health, except role limitations due to emotional problems and social functioning with women's education level; and all dimensions of health except role limitations due to physical problems with sufficiency of income for expenses.

Table 3: Linear regression analysis for the prediction of variance in health dimensions scores by socio-demographic variables

Variables	B	Confidence interval	P
Model 1: Physical functioning			
Age	-.53	-0.69 - -0.37	0.000
Educational level			
Illiterate/Primary (years 1–5)	Reference	-	
University	4.23	1.11 – 7.36	0.008
Sufficiency of income for expenses			
Completely	Reference	-	
Absolutely not	-4.42	-7.44 - -1.40	0.004
Model 2: Role physical			
Age	-.65	-0.94 - -0.36	0.000
Educational level			
Illiterate/Primary (years 1–5)	Reference	-	
University	6.35 (.027)	0.70 – 12.00	0.027
Model 3: Bodily pain			
Age	-.32	0.51 – 0.13	0.001
Educational level			
Illiterate/Primary (years 1–5)	Reference	-	
University	4.11	0.46 – 7.76	0.027
Sufficiency of income for expenses			
Completely	Reference	-	
Absolutely not	-9.50	-13.03 - -5.97	0.000
Model 4: General health			
Age	-.33	-0.48 - -0.18	0.000
Educational level			
Illiterate/Primary (years 1–5)	Reference	-	
University	6.43	3.50 – 9.36	0.000
Sufficiency of income for expenses			
Completely	Reference	-	
Absolutely not	-5.65	-8.47 - -2.82	0.000
Model 5: Vitality			
Age	-.16	0.04 – - 0.32	0.041
Educational level			
Illiterate/Primary (years 1–5)	Reference	-	
University	3.61	0.55 – 6.67	0.021
Sufficiency of income for expenses			
Completely	Reference	-	
Absolutely not	-6.47	-9.42 - -3.52	0.000
Model 6: Social functioning			
Sufficiency of income for expenses			
Completely	Reference	-	
Absolutely not	-7.91	-11.37 - -4.45	0.000
Model 7: Role emotional			
Sufficiency of income for expenses			
Completely	Reference	-	
Absolutely not	-9.97	-15.89 - -4.04	0.001
Model 8: Mental health			
Marital status			
Married	Reference	-	
Divorced/Widowed	-9.02	-16.71 - -1.32	0.022
Educational level			
Illiterate/Primary (years 1–5)	Reference	-	
University	4.08	0.99 – 7.16	0.010
Sufficiency of income for expenses			
Completely	Reference	-	
Absolutely not	-5.22	-8.26 - -2.18	0.001

Discussion

In this study, the highest and the lowest mean scores were found in dimensions of physical functioning and vitality, respectively. In Iraqi immigrant women settled in Malaysia, the highest and the lowest scores were in physical functioning (73.5) and vitality (55.0) (27); on Arab-American women, the highest score was in physical functioning (83.75) and the lowest in role limitations due to emotional problems (46.94) (28); on U.S. women, the highest score was in physical functioning (84.2) and the lowest in vitality (60.9) (29).

In line with the objectives of the study, dimensions of general health, physical functioning, and role limitations due to physical problems, bodily pain, and vitality significantly reduced with increasing age of the women. That is, mean score in these dimensions, with every one year's aging, reduced from 0.16 (vitality domain) to 0.65 (role limitation due to physical problems), which was in agreement with the findings of other studies (30, 31). This can be due to the active lifestyle of the younger age group compared to the older ones (31). In the present study, dimensions of social functioning, role limitations due to emotional problems, and mental health did not have a significant association with age; while in other studies a significant and positive association was observed between age and these dimensions, which is indicative of better mental status of older women (30, 32). Positive mental adjustment with aging could be due to re-assessment of values in women (30).

In this study, single women were better in dimensions of general health, physical functioning, role limitations due to physical problems, bodily pain, vitality, and mental health than married women. However, these differences were insignificant in presence of other variables in regression analysis. Dimensions of vitality, social functioning, role limitations due to emotional problems, and mental health were significantly better in married women than in single women (27, 33). The impact of marital status on health is different in various cultures (34). Iranian married women, due to their huge responsibilities in carrying out household duties

are exposed to limited physical activity, unhealthy diets, and lack of attention to personal health (35). Married women in the Indian community, first play the role of the wife, the mother, and the caregiver in the family, and lastly attend to their own health needs (5). In the present study, divorced and widowed women had a significantly lower score in mental health compared to married women, which concurs with results of other studies (27, 30). The significant difference in mental health of married women may be due to the emotional support provided by the spouse (27).

In terms of educational level, all health dimensions except role limitations due to emotional problems and social functioning, were better in women with university education. Other studies also recognized university education as an influential factor in women's health (1, 36, 37). Education should be considered a central factor in explaining health inequalities. For a healthy lifestyle, education is a priority (37).

In respect to occupational status, student women were better in dimensions of general health, physical functioning, and vitality. However, in the multivariate regression analysis, no significant association was observed between occupational status and health dimensions. Findings of this study are in line with those of other studies conducted in Iran (16, 17). Although occupation is an important factor in women's health, and it is expected that women's occupational status would have a positive impact on women's empowerment, hence on their health, Lack of statistical difference between health dimensions in working women and housewives could be due to the balancing weights of positive and negative work-related factors such as confidence and increased stress. Women with active jobs and high stress report more health problems (38). In European countries, the impact of occupational status on health was weaker compared to income or education, and its association with health was not the same across European countries. As in the central European countries, a positive association was observed, and in southern and eastern European countries a negative association. Negative association shows that in less developed countries, occupational status does not ensure better health, and health is associated with

better income (37). Occupational structure such as salary level, workplace quality, and prestige of the job are effective in health (39), which was not measured in this study.

In terms of the variable of sufficiency of income for expenses, all health dimensions, except role limitations due to physical problems, had a significant association with this variable, that is, mean scores of health dimensions in women with affirmative answers to this question was significantly higher compared to women with negative answers. In other studies as well, all health dimensions in SF-36 had a significant association with people's wealth (4, 27). Women with low income reported poorer health dimensions (1, 30). Low-income women manage their own health less, which may be due to the expenses, travel, or receiving health information (30). Low income exposes people to such stressors as poorer life conditions, or economic pressures that predispose them to mental problems, where providing mental health care services can be helpful (33).

Study strengths and limitations

Strength of this study is in the use of SF-36 to assess multiple health dimensions, which is a direct health measure, and as the "gold standard measure" has potential use in directing resources to health needs (40). Besides, according to being Tehran a capital city with mixed population, it reaches a maximum of the study's generalizability. Study limitation is that, the manner these variables impact health status was not studied. The causal pathways underlying women's social determinants of health in a lifespan are necessary to determine the right interventions and effective strategies to prevent health inequalities. Qualitative approach is suggested for the future researches to explain and interpret the findings and give reasons for connectivity or the lack of it.

Conclusion

Most dimensions of health of women of reproductive age had a significant association with educational and income levels, and their reflection on negative

experiences in women's health is alarming. Women's health is the basis for family and society's health, thus, efforts to make a healthy society as a platform for women's health are essential. In policymaking, in addition to the goal of reducing income disparities, attention must also be paid to women's education that actively contributes to maintaining their health. Making necessary arrangements for education and employment of women, while maintaining respect for their roles as mothers and wives, appear a necessity. Interaction between social determinants of health and health status must be considered in policymaking, and there is a need for policies that would enhance health of women in the low education and income brackets.

Ethical considerations

The authors have completely observed Ethical issues (Including Informed Consent, confidentiality for information, plagiarism, double publication and/or submission, redundancy, etc.).

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