

Economic Inequality in Life Satisfaction and Self-perceived Health in Iranian Children and Adolescents: The CASPIAN IV Study

Abstract

Background: The purpose of this study was to assess socioeconomic status (SES) inequality in life satisfaction (LS) and good self-perceived health (SPH) in Iranian children and adolescents. **Methods:** This nationwide study was conducted as part of a fourth national school-based surveillance program performed on 14880 students aged 6–18 years who were living in urban and rural areas of 30 provinces of Iran between 2011 and 2012. Using principle component analysis, the SES of participants was constructed as single variable. SES inequality in LS and good SPH across the SES quintiles was assessed using the concentration index (C) and slope index of inequality (SII). The determinants of this inequality are investigated by the Oaxaca Blinder decomposition method. **Results:** Frequency of LS along with the SES quintiles shifted significantly from 73.28% (95% CI: 71.49, 75.08) in the lowest quintile to 86.57% (95% CI: 85.20, 87.93) in the highest SES quintile. Frequency of favorable SPH linearly increased from lowest SES quintile (76.18% (95% CI: 74.45, 77.92)) to highest SES quintile (83.39% (95% CI: 81.89, 84.89)). C index for LS and good SPH was negative, which suggests inequality was in favor of high SES group. SII for LS and SPH was 15.73 (95% CI: 12.10, 19.35) and 8.21 (95% CI: 5.46, 10.96). Living area and passive smoking were the most contributed factors in SES inequality of LS. Also passive smoking and physical activity were the most contributed factors in SES inequality of SPH. **Conclusions:** SES inequality in LS and good SPH was in favor of high SES group. These findings are useful for health policies, better programming and future complementary analyses.

Keywords: Inequality, life satisfaction, self-perceived health

Introduction

There is a huge amount of evidence indicating that people who have lower socioeconomic status (SES)^[1] experience higher morbidity and mortality.^[2] Studies show that current living conditions of young adolescents and their childhood exposures to physical or social deprivations are effective on their mental health in adulthood.^[3] Studies assessing the impact of familial SES and child or adolescent health status and health-related quality of life (HRQoL) have indicated that social class positions are related to self-reported health status and HRQoL. Evidence was also found that low parental educational status and limited family material resources may result in a decreased HRQoL in childhood. Parental education is to some extent a predictor of quality of life in childhood but no longer during adolescence. Results show that material indicators are better predictors of subjective

outcomes such as HRQoL than educational indicators.^[4]

Life satisfaction (LS) as a part of subjective well-being is the judgment and evaluation of the individual about how she/he perceives life globally,^[5] and self-perceived health (SPH), a subjective assessment of health status, is extensively used in the public health field, is a subjective assessment of health status, and can serve as a global measure of health status in the general population. It is also known as self-assessed health or SPH and refers to a single-item health measure in which individuals rate the current status of their own health on a four- or five-point scale from excellent to poor.^[6]

Gender differences, SES, levels of education, and weight perception are predictors of SPH. Among adolescents, body dissatisfaction and weight perceptions, parent relation, home life, family income, physical exercise, and school achievements

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have been among the predictors of SPH.^[7,8] Although many studies show the relationship between SES and health problems in adulthood, the effects on health status and especially on self-rated health SPH and LS have rarely been investigated in childhood and adolescent. Although some studies have shown different psychological well-being regarding to different SES,^[9,10] the evidence for a relation between subjective health variables in children and adolescents and family SES is not consistent. Most of the mechanisms linking SES to child's well-being were different regarding to material and social resources and the way causing health problems. Several ways of measuring SES have been proposed, but in this study, they include parental level of education, possessing a family private car, and type of home. Familial wealth was assessed by the children and adolescents, whereas the parents reported their educational status themselves. It was hypothesized that the different SES variables would show different relations to SPH and LS in children and adolescents.

The aim of this study was to assess the impact of different SES measures on SPH and LS on child and adolescent using the Blinder–Oaxaca method based on the results of fourth round of school-based national survey of “Childhood and Adolescence Surveillance and Prevention of Adult Noncommunicable Disease” (CASPIAN-IV) study (2011–2012).

Methods

Based on the results of the fourth round of school-based national survey of “Childhood and Adolescence Surveillance and Prevention of Adult Noncommunicable Disease” (CASPIAN-IV) study (2011–2012), the present paper aimed to assess LS and SPH inequality in Iranian children and adolescents. The details of study protocol published before,^[11,12] and here, we point to essentials in brief.

The calculated sample size was 100 people multiplied by sex grouping (boy and girl), living area (urban and rural), and an attrition rate of 20%. Hence, 480 students (48 clusters with 10 students in each province of country) were selected. Overall 14,880 school students aged 6–18 years were selected by multistage, cluster sampling method from 30 provinces of Iran. Database of Ministry of Education was used for stratification of schools. After

random selection of schools based on standard protocols, trained health-care providers conducted all processes of examinations and inquired with calibrated instruments. Following the World Health Organization (WHO)-global school-based student health survey (WHO) instructions, information was recorded in the checklists and validated questionnaires were completed for all participants.^[12] To ensure the data gathering process, Data and Safety Monitoring Board of the project supervised and monitored the data gathering at different levels of data gathering.^[11,12]

Study terms

- Demographic information: Demographic information including age, sex, residence area, birth order, family-based characteristics, family history of chronic diseases, parental level of education, possessing a family private car, type of home, and ... completed for all participants through an interview with parents or child. Some complementary information on screen time, physical activity, and many other components of lifestyles were also questioned
- Socioeconomic status:^[1] using principal component analysis (PCA) variables including parents' education, parents' job, possessing private car, school type (public/private), type of home (private/rented), and having personal computer in home were summarized in one main component SES. SES was categorized into 5 quintiles. Through which, the first quintile was defined as a “lowest SES” and the fifth quintile as a “highest SES” groups
- Smoking status: Smoking status was categorized into three groups of active, passive, and smoking exposure as follows:
 - A person who smoked at least one cigarette a day (7 cigarettes per week) at the time of the study was considered an active smoker
 - The students, who reported smoker people in their living environment, were considered as passive smoker
 - Smoking exposure was defined as active or passive smoking or both of them
- Self-rated health: SPH was assessed through a single item, “How would you describe your general state of health?” the categories of response were “Perfect,” “Good,” “Moderate,” and “Bad”
- LS: LS was assessed through a single item. Individuals were asked to indicate their degree of LS by using a

tenth-point scale from 1 = very dissatisfied to 10 = very satisfied. Fewer than six responses were aligned to not satisfy, and responses of equal and upper 6 were defined as a satisfied.

Ethical concerns

The study proposal and protocols were reviewed and approved by Ethics Committees and other related national regulatory organizations. Participation in study was voluntary. After compete explaining of the aims and protocols, written consent and verbal assent were obtained from students and their parents.

Data analytic procedures

Association of independent variables with LS and SPH assessed through logistic regression analysis and presented by crude and adjusted OR (95% CI). Using PCA variables including parents' education, parents' job, possessing private car, school type (public/private), type of home (private/rented), and having personal computer in home, one main component was summarized as SES.^[13,14]

The concentration index (C) and slop index of inequality (SII) were applied to indicate SES inequality in LS and SPH. The relationship between the LS and SPH with SES quintile was examined through the C statistics. This statistics interpreted based on the dependent variable and SES distribution.^[15,16] The C can be calculated using the following formulae $C = \frac{2}{n\mu} \sum_{i=1}^n h_i R_i - 1$, in which the

amount of LS and SPH for the students presented with H_i . Furthermore, relative rank of student in the distribution of SES and mean value of dependent variable were presented through the R_i and μ , respectively. The positive value of C shows that the dependent variable is unequally distributed in favor of low SES group.^[16,17]

Moreover, Blinder-Oaxaca decomposition method was applied to examine the decomposition of LS and SPH between the first and last quintiles of the SES.^[18-20] The aforementioned method works based on two regression models that were fitted independently in high and low economic groups.

$$Y_H = BX_H + \varepsilon_H \quad (1)$$

$$Y_L = BX_L + \varepsilon_L \quad (2)$$

Y is the dependent variable; β is the coefficient including the intercept; X is the independent variable, and ε is the error. The gap between the two groups is:

$$\bar{y}_H - \bar{y}_L = (\bar{x}_H - \bar{x}_L) \beta_H + \bar{x}_L (\beta_H - \beta_L) \quad (3)$$

and

$$\bar{y}_L - \bar{y}_H = (\bar{x}_H - \bar{x}_L) \beta_L + \bar{x}_H (\beta_H - \beta_L) \quad (4)$$

The right hand side of the aforementioned equations accounts for observable or explained differences; whereas, the left part of the equations indicates the differences in variable coefficients which is known as unexplained component. Using this method, the difference between the mean values of dependent variable would be divided into explained and unexplained components. Explained and unexplained components can be yielded as differences in the groups' characteristics and different effect of these characteristics in each group, respectively.^[16]

The decomposition was conducted through a logistic regression model with independent variables in each economic group to determine the regression coefficients (β) as the main effect and its interaction with other independent variables.

Statistical measures were assessed using survey data analysis methods in the Stata software (version 11.1, Stata Corporation, College Station, TX, USA). $P < 0.05$ was considered as statistically significant. The Oaxaca command was run in version 10 of the Stata software (Stata Corporation, College Station, Texas, USA).

Results

Out of 14,880 invited students, 13486 participants completed all required data in the present study (participation rate: 90.6%). The average range of student age was 12.47 ± 3.36 years with no significant difference between two genders. Girls consisted 49.2% of the population, and 75.6% of participants resided in urban areas of the country.

Frequency of LS and favorable SPH in different SES quintiles is demonstrated in Table 1. Our findings revealed that through an increasing pattern, frequency of LS along with the SES quintiles shifted from 73.28% (95% CI: 71.49, 75.08) to 86.57% (95% CI: 85.20, 87.93). These for SPH were, respectively, 76.18 (74.45, 77.92) and 83.39 (81.89, 84.89). Association of LS and SPH with SES

Table 1: Socioeconomic inequality in life satisfaction and self-perceived health frequency in Iranian children and adolescents: the CASPIAN IV study

Outcome	Q1 (95% CI)	Q2 (95% CI)	Q3 (95% CI)	Q4 (95% CI)	Q5 (95% CI)	Total (95% CI)	SII (95% CI)	C (SD)
LS	73.28 [71.49, 75.08]	77.94 [76.03, 79.74]	80.43 [78.64, 82.11]	82.99 [81.19, 84.66]	86.57 [85.20, 87.93]	80.17 [79.18, 81.13]	15.73 [12.10, 19.35]	0.03 0.01
SPH	76.18 [74.45, 77.92]	79.26 [77.39, 81.02]	80.05 [78.29, 81.71]	81.54 [79.81, 83.16]	83.39 [81.89, 84.89]	80.13 [79.25, 80.99]	8.21 [5.46, 10.96]	0.02 0.01

LS=Life satisfaction, SPH=Self-perceived health, CI=Confidence interval, Q=Quantile, SII=Slope index of inequality, C=Concentration index, SD=Standard deviation

approved through SII (coefficient; 15.73 [12.10, 19.35] and 8.21 [5.46, 10.96]). C index for LS and SPH inequality is estimated 0.03 and 0.02, respectively, suggesting that optimal LS and SPH are mostly concentrated in high SES classes.

The association between independent variables and outcomes (favorable LS and SPH) is demonstrated in Table 2 by using univariate and multivariate regression models. OR for LS and SPH rose as SES quintiles improved (OR for SPH in Q2 = 1.23 and in Q5 = 1.61, OR

Table 2: Association of independent variables with life satisfaction and good self-perceived health in Iranian children and adolescents in univariate and multivariate models: the CASPIAN IV study

Variables	LS		Good SPH	
	Crude OR (95% CI)	Adjusted OR (95% CI)	Crude OR (95% CI)	Adjusted OR (95% CI)
SES (Q1)				
Q2	1.30 [1.13,1.49]*	1.29 [1.12,1.50]*	1.18 [1.03,1.36]*	1.23[1.05,1.42]*
Q3	1.50 [1.30,1.74]*	1.59 [1.36,1.85]*	1.24 [1.07,1.43]	1.30 [1.12,1.52]*
Q4	1.79 [1.52,2.10]*	1.98 [1.66,2.35]*	1.36 [1.17,1.59]	1.49 [1.25,1.76]*
Q5	2.32 [1.96,2.76]*	2.50 [2.10,3.00]*	1.55 [1.32,1.82]	1.61 [1.36,1.93]*
Physical activity (Mild)				
Moderate	1.40 [1.27,1.56]*	1.28 [1.14,1.43]*	1.31 [1.18,1.46]*	1.21 [1.08,1.36]*
vigorous	1.70 [1.50, 1.92]*	1.41 [1.24,1.61]*	1.64 [1.45,1.85]*	1.41 [1.24,1.61]*
Sex (Boy)				
Girl	1.04 [0.92,1.16]	1.08 [0.96,1.21]	0.93 [0.83,1.03]	1.00 [0.90,1.12]
Screen Time (<=2h)				
>2 h	0.84 [0.75,0.94]*	0.88 [0.78,0.99] *	0.87 [0.78,0.97]*	0.98 [0.87,1.10]
Region (Urban)				
Rural	1.05 [0.90,1.21]	1.12 [0.96,1.31]	1.10 [0.96,1.25]	1.11 [0.96,1.29]
Passive smoker (No)				
Yes	0.62 [0.57,0.68] *	0.69 [0.63,0.77] *	0.63 [0.57,0.69]*	0.68 [0.61,0.75]*
Active current smoker (NO)				
Yes	0.36 [0.29,0.45] *	0.56 [0.43,0.71] *	0.44 [0.35,0.56]*	0.64 [0.50,0.83]*
Living parents (Both)				
One of them	0.47 [0.39,0.57]	0.39 [0.30,0.51]	0.66 [0.55,0.80]	0.58 [0.43,0.77]*
None of them	0.62 [0.44,0.85] *	0.65 [0.45,0.95]	0.88 [0.62,1.25]	1.02 [0.66,1.57]
Birth order (First)				
Second	0.87 [0.78,0.96] *	0.94 [0.83,1.05]	0.98 [0.89,1.09]	1.06 [0.94,1.19]
Third	0.78 [0.68,0.89] *	1.00 [0.85,1.18]	0.87 [0.76,0.99]*	1.03 [0.88,1.21]
Forth or more	0.69 [0.61,0.79]*	1.08 [0.92,1.25]	0.85 [0.75,0.96]*	1.18 [1.02,1.37]
Family size	0.73 [0.67,0.80]*	0.92 [0.82,1.03]*	0.81 [0.74,0.88]*	0.90 [0.8,0.99]*
Age	0.88 [0.87,0.90]	0.90 [0.88,0.91]	0.91 [0.89,0.92]*	0.93 [0.91,0.94]*

*Statistically significant; LS=Life satisfaction, SPH=Self-perceived health

for LS in Q2 = 1.29 and in Q5 = 2.5). Family structure (the number of parents living with child) demonstrated to have a significant impact on SPH and LS while no significant association was observed between living area, birth order, and outcomes. Smoking status (both active and passive) on the other hand resulted in a significant decrease in OR for favorable SPH and LS (active smoking OR = 0.56 for LS and OR = 0.64 for SPH). Age similarly displayed a reverse correlation with LS and SPH (OR = 0.90 for LS and OR = 0.93 for SPH).

Table 3 reveals an inequality in suboptimal LS and SPH prevalence between the lowest and highest SES quintiles in adolescent population. The prevalence of poor LS was estimated 86.57% and 73.28% in lowest and highest quintiles, respectively; therefore, a gap of -13.28 in favor of highest SES quintile was observed. Suboptimal SPH had the prevalence of 83.39% and 76.18% in mentioned SES quintiles, respectively, with a discrepancy gap of -7.20 in favor of highest SES quintile.

Using Blinder– Oaxaca decomposition method, the impact of several socioeconomic variables on inequality in LS and SPH was investigated. Mentioned variables comprised demographic characteristics (age and sex),

family characteristics (living with parents and birth order), behavioral characteristics (smoking status, physical activity and screen time), and living area.

Analysis of the socioeconomic factors which cause the gap in tooth brushing between the first and fifth quintiles showed that only 3% of the difference was explained by the factors considered in the study and 17% remained unknown. Residence area, family size, and smoking status made a significant contribution to the gap between the first and last SES groups. Residence area (-2.01 [95% CI: -3.46, -0.55]) was along with the maximum levels of gaps between SES categories.

Decomposing the gap in poor LS to explained and unexplained components showed that only 0.96% out of the 13% of the difference was explained by the independent variable included in the study. Living area (1.76 (0.49, 3.03)) and passive smoking (-0.57 [-0.85, 0.29]) had the greatest contributions to the gap between the first and last SES groups, respectively. These findings suggest that if lowest and highest SES quintiles were adjusted for all the variables, the gap in poor LS prevalence between quintiles would have expanded to -14.7. Therefore, it suggests that factors other than those evaluated in this

Table 3: Decomposition of the gap in life satisfaction and self-perceived health between the first and fifth quintiles of socioeconomic status in Iranian children and adolescents: the CASPIAN IV study

	LS prediction % (95%CI)	P	SPH prediction % (95%CI)	P
Prevalence in fifth quintile	73.28 [71.49, 75.08]	<0.001	76.18 [74.45, 77.92]	<0.001
Prevalence in first quintile	86.57 [85.20, 87.93]	<0.001	83.39 [81.89, 84.89]	<0.001
Differences (Total gap)	-13.28 [-15.53, -11.02]	<0.001	-7.20 [-9.49, -4.92]	<0.001
Due to endowments (explained)				
Age	0.22 [-0.09, 0.54]	0.17	0.16 [-0.09, 0.41]	0.22
Sex	0.01 [0.04, 0.06]	0.63	0.01 [-0.04, 0.05]	0.96
Screen Time	0.36 [-0.21, 0.92]	0.22	0.28 [-0.31, 0.86]	0.35
Living area	1.76 [0.49, 3.03]	0.01	0.93 [-0.36, 2.20]	0.16
Active current Smoker	0.09 [-0.07, 0.25]	0.27	0.07 [-0.06, 0.21]	0.29
Passive smoker	-0.57 [-0.85, 0.29]	<0.001	-0.59 [-0.87, -0.30]	<0.001
Physical activity	-0.02 [-0.22, 0.19]	0.88	-0.002 [-0.41, -0.04]	0.02
Living parents	-0.06 [-0.28, 0.15]	0.56	-0.001 [-0.15, 0.14]	0.93
Birth Order	-0.83 [-1.95, 0.28]	0.14	0.37 [-0.75, 1.50]	0.52
Subtotal gap	0.96 [-0.91, 2.83]	0.32	0.99 [-0.82, 2.80]	0.28
Due to coefficients (unexplained)				
Age	-10.42 [-18.97, 1.87]	0.02	-16.49 [-24.84, -8.14]	<0.001
Sex	4.03 [-2.58, 10.64]	0.23	3.22 [-3.56, 10.003]	0.35
Screen Time	-0.39 [-1.40, 0.62]	0.45	-0.43 [-1.45, 0.57]	0.40
Region	7.75 [0.06, 15.45]	0.048	5.48 [-3.05, 14.007]	0.21
Active current smoker	-0.1 [-0.51, 0.31]	0.65	0.07 [-0.35, 0.49]	0.74
Passive smoker	-1.09 [-3.02, 0.84]	0.27	-2.68 [-4.66, -0.70]	0.01
Physical activity	1.85 [-1.33, 5.03]	0.25	1.22 [-1.98, 4.41]	0.46
Living parents	-0.20 [-0.67, 0.26]	0.39	-0.18 [-0.63, 0.27]	0.44
Birth order	-0.98 [-3.87, 1.91]	0.51	1.43 [-1.58, 4.45]	0.35
Constant	-14.70 [-29.46, 0.07]	0.051	0.17 [-15.13, 15.48]	0.98
Subtotal gap	-14.23 [-17.12, -11.35]	<0.001	-8.20 [-11.14, -5.25]	<0.001

LS=Life satisfaction, SPH=Self-perceived health

study are responsible for creating aforementioned gap in (suboptimal) LS frequency between SES quintiles. Furthermore, decomposing the gap in (poor) SPH frequency between SES quintiles into the explained and unexplained components indicated that only 0.99% out of the 7% of the differences was explained by the included variables. Passive smoking -0.59 ($-0.87, -0.30$) had the largest contribution to the gap of poor SPH between the first and last quintiles of SES.

Discussion

Based on our knowledge, this is the first study investigating SES role in LS and SPH inequality in a population of Iranian adolescents. The significance of this subject lies within the impacts of LS and SPH on quality of life and functionality in adolescents.^[21-24]

Findings of the current study support a linear trend of LS and SPH inequality when compared between different SES quintiles. In other words, different socioeconomic classes of Iranian adolescents experience distinct amounts of poor LS and SPH. This inequality is in favor of higher SES classes, meaning that higher SES groups of adolescents have lower prevalence of poor LS and SPH. The magnitude of LS inequality is greater when compared to SPH inequality.

Several studies have noted the inequalities of health domains between different socioeconomic classes of society. Some have investigated the association of health and income inequality in different individual countries suggesting that income inequality is reversely correlated with reporting worse health in a national level.^[25,26] Exploring the matter in international level supports a similar result.^[27,28] SES^[1] is determined by a variety of factors including (but not confined to) income state. Several studies investigated the role of SES in health inequality by evaluating the mediating effects of variables such as education, family affluence (wealth), marital status, and occupation.^[29,30] Most of these studies have been conducted in adults. This could be due to the fact that adolescents' SES is less influenced by differences in their education, income, and occupation which are most significantly concerned in adults.^[31] Adolescent studies generally consider parent's education, parent's occupation, family structure, and adolescent's access to some services/owning special assets as SES determinants of participants.^[4,32]

The impact of SES inequality on SPH and LS (as particular domains of health) has been attended in previous studies. Majority of these studies have investigated the matter in adult populations, indicating socioeconomic gradients for LS^[15,16,33] and SPH^[17,18,30] between adults of different social classes.

Previous studies support the association between SES inequality and health (including SPH and LS) inequality in adolescents, and therefore, our findings are consistent with prior researches. Investigating the mediating factors

has mostly indicated significant influencing roles for determinants such as family structure (the number of parents living with child) and environment, material accessibility (family affluence), and behavioral factors (such as smoking status and physical activity).^[4,7,9,19,20,34-37] Recent WHO HBSC report (from the 2009/2010 survey) also suggested a negative association between determinants of adolescent SES (such as poor communication with parents, lack of access to education, poor family environment, and low family affluence) and poor LS and SPH.^[38] While searching the literature, we did not encounter any research comparing the magnitude of socioeconomic inequalities in LS and SPH (neither in adults nor in adolescents and children populations).

Several studies have used method of decomposing SES inequalities in different health factors such as infant mortality,^[39] mental health,^[40] child survival,^[41] obesity,^[42] hypertension,^[43] oral health,^[44] and child vaccination.^[45] SPH inequality has been the focus of several studies conducted in adults, with the objective of determining socioeconomic factors contributing to the inequality.

In a study conducted by Yiengprugsawan *et al.*, inequality in SAH and four other health domains were assessed using decomposition method. The concentration index for suboptimal SAH was negative suggesting higher concentration of suboptimal SAH in lower socioeconomic groups of society. The contributions of three main characteristics of participants in creating the mentioned inequality were estimated. These main variables comprised demographic (age, gender), socioeconomic (income state, education attainment and economic status), and geographic (region) features of the study population. Findings of this research indicated that nearly half (47%) of the SAH inequality was explained by SES, particularly income state (approximately 28% of the contribution). The impacts of demographic features and region were estimated 31% and 21%, respectively.^[46]

Other studies investigating the contributing factors in SPH inequality are approximately similar in results. The majority of them account income and education as greatest contributors in SPH inequality.^[47-49] Other variables such as age, activity, occupation, region, and having insurance have been considered as less significant contributing factors in adults.^[50-54] While reviewing the literature, no study investigating the role of SES determinants in SPH inequality in adolescents was found. This fact seems to be the justifying reason for different results of the current study.

Based on our knowledge and an extensive review of literature, LS inequality and its contributors have not been investigated in any prior researches, neither in adults nor in adolescents. Therefore, it could be concluded that the present study is the first to evaluate the influence of SES determinants on LS inequality. The current findings are suggestive of other factors rather than age, gender,

region, PA, ST, and smoking status to be the influential determinants of LS inequality in adolescents.

Conclusions

In general, the findings of the current study support the influence of SES on SPH and LS inequality in adolescents although the investigated SES factors such as demographic characteristics, living area, and behavioral features (such as PA, ST, and smoking status) seem to fail in justifying the inequality observed in adolescents. Therefore, the current study represents the large impression of unknown factors that impact the inequality in favor of higher SES quintiles. This underscores the requirement for future extensive studies regarding the role of SES determinants (such as participants' mental status and their cultural disparities) in aforementioned inequalities.

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Conflicts of interest

There are no conflicts of interest.

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