



## The Association between Socio-economic Context at Individual and Neighbourhood Levels, Wellbeing and Lifestyle Behaviours of Young Iranian Women

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### Abstract

**Background:** This study explored the relationship between socio-economic characteristics at the individual and neighbourhood levels, and wellbeing and lifestyle behaviours of young Iranian women.

**Methods:** Cluster convenience sampling was used to select 391 Iranian women participated in this cross-sectional survey in Shiraz, Iran in 2013. A scale adapted from the British General Household Social Capital questionnaire was used to assess neighbourhood socio-economic characteristics. The satisfaction with life scale, WHO quality of life scale, and the International Health and Behaviours Survey were used to measure wellbeing outcomes and lifestyle behaviours.

**Results:** Findings showed participants were dissatisfied with their neighbourhood socio-economic conditions (M:  $36.3 \pm 9.8$ , score range: 11-60) as well as the availability of leisure facilities (M: 1.8, score range: 1-5) in their local areas. Correlations and regression analysis revealed that better neighbourhood socio-economic characteristics were positively associated with better wellbeing outcomes as well as healthier lifestyle behaviours.

**Conclusion:** These findings suggest the need for transitioning economies to be cognisant of the importance of social policy and strategies for enhancing neighbourhood socioeconomic status in order to enhance wellbeing outcomes for sub-populations, including young women.

**Keywords:** Neighbourhood, Socioeconomic, Wellbeing, Quality of life, Lifestyle behaviours, Young women, Iran

### Introduction

In recent decades, interest in the local context, such as socio-economic neighbourhood conditions, and its influence on various individual and population health and wellbeing outcomes has grown enormously. A growing body of evidence supports the association between neighbourhood characteristics and individual health (1-3). For example, the role of material factors in determining health outcomes has been extensively investigated (2). Existing multilevel studies highlight the importance of the neighbourhood context (2) and of the characteristics of neighbourhoods or

locations for individual health and wellbeing (3). Neighbourhood prosperity substantially influences various kinds of health and wellbeing outcomes. Neighbourhoods with low prosperity have higher rates of ill health (4). Research conducted in Western European Society reports that living in poorer neighbourhoods are linked with poorer health outcomes, irrespective of an individual's socio-economic status (5). Housing areas, neighbourhood factors, and residential stability are linked with self-rated health. Health is distributed unequally in the population and individ-

ual health patterns change according to the neighbourhood inhabited (6). Hence, there is greater morbidity and mortality among inhabitants of socio-economically weaker areas, demonstrating that one's neighbourhood is influential in multiple aspects of health (3, 7).

As well as neighbourhood socio-economic characteristics, individual socio-economic and socio-demographic status affects health (8). In general, individuals with higher socio-economic status have better health compared to individuals with lower socio-economic status (8). This correlation has been found across various locations, ages, genders, and occurs between different ranges of socio-economic status (9). Variations in health and wellbeing outcomes may be affected by complex interactions between characteristics of individuals and the places in which they live (10). Although the literature emphasises the influence of both individual and neighbourhood level characteristics on health and wellbeing, measures of neighbourhood level characteristics have received comparatively limited attention (11). In addition, there have been limited studies in developing societies exploring the potential role of neighbourhood socio-economic characteristics in shaping the health of specific populations such as young women.

This study addressed these gaps in the literature by exploring the relationship between socio-economic characteristics at the individual and neighbourhood levels with the quality of life, satisfaction with life, and lifestyle behaviours of young Iranian women. More specifically, this cross-sectional study examined whether neighbourhood socio-economic characteristics contribute to differences in health in young Iranian women, and if so, whether this effect remains stable when accounting for individual socio-economic characteristics and personal demographic factors. Finally, this study aimed to identify the relative importance of socio-economic characteristics at both individual and neighbourhood levels as predictors of quality of life (QoL), satisfaction with life (SwL), and lifestyle behaviours.

## **Methods**

This study was conducted with a quantitative approach, using structured data collection and standardized measures in order to test the hypothesis of the relationship between individual and neighbourhood socio-economic characteristics, lifestyle behaviours, and wellbeing outcomes in young Iranian women.

### ***Setting and study participants***

#### ***Population***

According to the most recent national Iranian census, the Iranian population in 2011 was 75.1 million, with more than half of the population aged less than 35 yr and 49.6% of the total population being female. The country has 30 provinces and there are 1,135 municipal zones within these provinces. The current study was conducted in the province of Fars (population 4,596,658), more particularly, in the province's capital city of Shiraz (population 1,711,186, with approximately 500,000 young women aged 18-35) (12).

#### ***Sampling***

This survey was administered to a cross-sectional sample of young Iranian women. Multi-level cluster sampling was used for data collection. Shiraz has ten major districts with different individual and neighbourhood characteristics. Five of these clusters were randomly chosen to represent different individual and neighbourhood characteristics. In the next stage, important social, religious and economic locations were randomly chosen within each cluster to be sampling sites (public and private universities, public and private workplaces, religious locations, health care centres, and public places). In the last step, 420 young Iranian women aged between 18 and 35 were recruited through convenience sampling at the selected locations. The approximate total population in Shiraz of women aged 18-35 is 500,000, thus, the estimated sample size required was 383 to estimate the 95% confidence interval for a

percentage with a margin-of-error of at most  $\pm 5\%$ . A total of 420 women were approached to allow for about 10% not wishing to participate. To encourage completion of the surveys, a researcher who had the same language as the participants was available to answer questions and provide assistance.

In order to facilitate the data collection, five native-speaking research assistants were recruited to cooperate with the researcher at selected data collection sites. At each site, the members of the research team would approach young women and ask whether they would be willing to participate in the study. Upon expressing interest, the aim of the study was explained for participants and the information sheet and informed consent were provided. The questionnaire was completed at the data collection location, and the research assistants provided assistance if required. Totally, 391 responses were received. A box of chocolates was given to each participant as a token of appreciation.

Approval to conduct the study was granted by a human research ethics committee of an Australian university and a local university in Iran.

### *Participants' characteristics*

Of the 420 subjects approached to participate in the study, 391 completed the questionnaire, making for a response rate of 93%. The mean age of participants was 27.3 (SD: 4.8), and 78% were of Fars ethnicity. The majority of participants were Muslim (96%), and 40.4% had an average level of religiosity. Most of the participants (76.4%) had a tertiary qualification and 48% were in paid employment. The summary of personal characteristics and demographic factors at the individual level is provided in an earlier paper by the same authors (17).

## **Measures**

### *Explanatory measures*

#### *Individual socio-demographic factors*

The individual socio-economic factors measured included education, education of partner, occupation, individual and household income. In addition, age, ethnicity, religious affiliation, level of

religiosity, marital status, parental status, and number of children were the personal characteristics and demographic variables examined. Level of religiosity was measured through a single question about how religious participants consider themselves to be, with response options ranging from 1 (not religious at all; never following religious practices) to 4 (very religious; following religious practices very often/often) (13).

### *Neighbourhood socio-economic measures*

To measure these variables, the British General Household Survey (GHS) Social Capital scale under the terms of the Open Government License (OGL) of Britain was used (14). The GHS Social Capital survey has a database of questions from which researchers choose required questions. As the reliability and validity of this questionnaire had not been confirmed with an Iranian population, in preparing the questionnaire, a process of item review was conducted by a panel of Australian and Iranian public health experts to assess the content validity of questions. In addition, a pilot study was conducted to ensure that the instrument was population appropriate. To measure the reliability of the instrument, Cronbach Alpha and a test-retest procedure were employed. Cronbach's alpha reliability was 0.87, which is acceptable for this scale. A test-retest procedure was conducted among 15 participants within a 10-d interval, and showed a correlation coefficient of 0.83 between the two sets of responses, which indicates an acceptable level of reliability for this scale.

The scale for measuring neighbourhood socio-economic characteristics included 13 items comprising questions about socio-economic elements of the local area, with Likert response options from 1 (very dissatisfied) to 5 (very satisfied) and a general question regarding the availability of leisure facilities for young women, with response options from 1 (far too few) to 5 (far too many). In addition, the period of living in the local area and satisfaction with living there were measured based on the British General Household Survey (GHS) Social Capital scale. The item measuring how long participants have lived in their local

area had seven response options from less than 12 months through 20 yr to more than 20 yr. Satisfaction with living in the local area included three items, with a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree).

### ***Dependent measures***

#### ***Satisfaction with life (SwL)***

The SwL scale is a widely used and respected instrument to measure subjective wellbeing. It is a five item self-report scale using a seven point Likert type response format of 1=strongly disagree through 4=neutral to 7=strongly agree with a summated score range from 5 (low satisfaction) to 35 (high satisfaction). The validity and reliability of this scale for Iranian society has been confirmed (15).

#### ***Quality of life (QoL)***

The Persian/Farsi version of the WHOQoL-BREF was used for measuring QoL. The WHOQoL-BREF comprises 26 items exploring the four domains of physical, psychological, social and environmental QoL. It is a reliable and validated scale for assessing QoL of Iranian people (16, 17).

#### ***Lifestyle behaviours***

The International Health and Behaviour survey was used for measuring lifestyle behaviours of smoking, alcohol consumption and physical activity. The response options of smoking range from 1 (never smoke) to 8 (usually smoke more than 20 cigarettes per day). For drinking, the response options range from 1 (a non-drinker) to 4 (a regular-drinker) and for physical activity the response options range from 1 (never) to 5 (every day) (18).

#### ***Statistical Analysis***

For data analysis, the Statistical Package for the Social Sciences (SPSS) version 21.0 (Chicago, IL, USA) was used. Descriptive analyses such as mean, standard deviation, and score ranges were calculated to describe the basic features of the data, including socio-economic characteristics at

both individual and neighbourhood levels. *t*-test and one-way ANOVA with pairwise comparisons based on Tukey's method were used for comparative analyses. Correlations between the neighbourhood socio-economic characteristics, lifestyle behaviours and wellbeing were calculated using Pearson's correlations. Multiple linear regressions were also used to examine whether socio-economic characteristics at both individual and neighbourhood levels predict health related outcomes. The assumptions of the final regression model, including linearity, homogeneity and normality, were met. Additionally, the imputation method was used in order to compensate for missing data. This method has been used in similar studies particularly with limited missing data as was the case in the current study (19).

## **Results**

### ***Descriptive Analysis***

44.2% of participants had lived from 0–<5 yr in their local area, 12% for 5–<10 yr, 20.7% for 10–<20 yr, and 22.5% for more than 20 yr. The average length of stay in the local area was about 5 yr (SD: 2.1). The mean score of satisfaction for people living in the local area was  $10 \pm 3.1$  (score range: 2-15), which indicates a moderate level of satisfaction.

Regarding the neighbourhood socio-economic conditions, the lowest satisfaction was related to employment opportunities (18.9%), the availability of museums (20.2%), libraries (24%), swimming pools (37.8%), social services (41.1%), local amenities (41.5%) and colleges (45.5%). On the other hand, participants' satisfaction was more than 50% for transport (52.2%), quality of housing (54.5%), environmental quality (56.4%), shopping centres (57.3%) and health services (63.7%). The mean score of neighbourhood socio-economic conditions was 36.3 (SD: 9.8 score range: 11-60), demonstrating that participants are moderately dissatisfied with their neighbourhood's socio-economic conditions. Furthermore, the mean score of the availability of leisure facilities in the neighbourhood was 1.8

(SD: 0.8; score range: 1-5), reflecting the low satisfaction of participants in this regard. A descrip-

tive summary of the neighbourhood socio-economic characteristic is provided in Table 1.

**Table 1:** Level of group satisfaction with neighborhood socio-economic characteristics by a sample of young Iranian women aged between 18-35 [N=391], Shiraz, Iran, 2013

Highest satisfaction (≥75% subjects)	Moderate satisfaction (66–74% subjects)	Bare satisfaction (50–65% subjects)	Dissatisfaction (<50% subjects)
		Environment quality (56.4)	Library (24)
		Quality of housing (54.5)	Museum (20.2)
		Transport (52.2)	Swimming pool (37.8)
		Health services (63.7)	Local amenities (41.5)
		Shopping centres (57.3)	Job (18.9)
			Colleges (45.5)
			Social services (41.1)

Group satisfaction defined as ≥50% of subjects rated the item as: good/very good. Group dissatisfaction: <50% of subjects rated the item as: good/very good

### **Neighbourhood Socio-economic Characteristics and Perceived Health**

*Relationships:* Pearson correlations showed neighbourhood level socio-economic characteristics and leisure facilities were significantly and positively associated with better QoL and higher SwL. In addition, a negative correlation was found between the availability of leisure facilities for young women and unhealthy lifestyle behaviours such as smoking and alcohol consumption (Table 2).

Of the neighbourhood socio-economic characteristics, all items except the availability of museums were positively related to physical QoL. All variables were positively related to both psychological and environmental QoL. Items such as quality of housing, public transport, health services, schools, colleges, shopping, and social services were positively related to social QoL. Furthermore, individuals with higher income per household had a higher level of satisfaction with living in their local area, and perceived better neighbourhood socio-economic conditions, while older individuals with higher income per household perceived a lower amount of leisure facilities in their local area (Table 2).

Multiple linear-regressions were performed for both individual and neighbourhood level socio-

economic characteristics as predictors of QoL, SwL and lifestyle behaviours. Stepwise modelling was used, as there were a large number of independent variables, successively adding or removing variables, including socio-demographic variables, particularly those with significant correlations. Table 3 displays the final model of relationships between these variables. All neighbourhood socio-economic items were found to be associated with wellbeing outcomes without considering individual socio-demographic factors. However, after adjusting for the individual socio-demographic characteristics, six items of neighbourhood socio-economic characteristics were the significant predictors of lifestyle behaviours and wellbeing. Regarding the individual socio-demographic variables, age and level of religiosity predicted wellbeing outcomes. Although, other analyses in the current study found significant associations between income, education and wellbeing, the regression analysis did not identify these two factors as predictors of wellbeing.

Findings revealed significant difference in the mean of lifestyle behaviours and quality of life domains in terms of ethnicity, employment, marital and parental status ( $P<0.05$ ). Smoking was higher among participants with children (vs. without children), while drinking was higher among unemployed participants (vs. employed

participants). Greater SwL and environmental QoL were found among Fars and Tork ethnicities (vs. Lor ethnicity). Greater physical and psychological QoL was found among participants with children (vs. without children). Greater psychological and social QoL was found among married women (vs. single and widow/divorced), and greater SwL was found among single and married women (vs. widow/divorced).

A greater length of stay in a neighbourhood was found among the Tork ethnic group, single women, and parents with more children ( $P<0.05$ ). Greater satisfaction/enjoyment of living in the local area was found among groups with higher income ( $P<0.05$ ). A greater perceived neighbourhood socio-economic status was found among the Torks, and participants with higher level of religiosity were more satisfied with the availability of leisure facilities in their local area ( $P<0.05$ ).

## Discussion

The health status of a community reflects the physical neighbourhood environment and availability of opportunities for participation in civil society (2). This study examined the association between neighbourhood and individual socio-economic characteristics, lifestyle behaviours and wellbeing outcomes. The current study makes an important contribution by examining how factors at the neighbourhood socio-economic level have a significant role in shaping lifestyle behaviours as well as subjective wellbeing including quality of life, and satisfaction with life among young Iranian women. Recently, there is an increasing interest in the impact of neighbourhood on health. Different types of empirical studies have been used to inspect possible area or neighbourhood effects, such as ecological studies relating area characteristics to mortality and morbidity rates, and contextual and multilevel analyses of area socio-economic context in relation to health and wellbeing outcomes (1). In the growing literature on neighbourhood influence there is emerging evidence that neighbourhood socio-economic

stressors and protective factors are important for enhancing or diminishing health and wellbeing (1).

In the current study, satisfaction with the neighbourhood socio-economic conditions and availability of leisure facilities had low mean scores, indicating that young Iranian women are dissatisfied with the socio-economic resources in their local area, including the availability of leisure facilities. Almost all socio-economic characteristics at the neighbourhood level influenced subjective wellbeing outcomes and lifestyle behaviours in young Iranian women. However, only three individual level characteristics of age, level of religiosity, and income had correlations with subjective wellbeing outcomes. Moreover, the final model of the regression analysis demonstrated that even after individual-level adjustment, neighbourhood level differences remain significant in an individual's perceptions of their QoL, SwL, and lifestyle behaviours. Although individual characteristics in the personal socio-economic composition are important in explaining health, neighbourhood level characteristics are also significant in shaping SwL and QoL in young Iranian women. In turn, the poorer access young Iranian women have to socio-economic resources including leisure facilities in their local area, the poorer QoL and SwL, and the unhealthier lifestyle behaviours they are likely to have. These resources and socio-economic facilities in the local neighbourhood called as "opportunity structures", which is particularly important in shaping individuals' daily life experience (20). Access or lack of access to resources and infrastructure opportunities in neighbourhoods will improve or endanger health and wellbeing either directly or indirectly (20).

In agreement with the current study, there has been a range of other cross-sectional studies demonstrated that living in a deprived, poor or disadvantaged neighbourhood is associated with poor self-reported health, adverse mental health outcomes, and greater incidence of illness (21-24). These studies showed a strong relationship between health and neighbourhood factors (2, 25, 26). In addition, health is distributed un-

equally in the population according to the neighbourhood, and the availability of neighbourhood services and amenities influences an individual's health and wellbeing outcomes (27). The individuals who are living in the socio-economically weaker areas are likely to have poorer self-rated health, and generally higher rates of morbidity and mortality (27).

In addition, to the emphasis on the link between a neighbourhood's socio-economic status and subjective wellbeing in the current study as well as in other literature, there is an association between neighbourhood socio-economic status and lifestyle behaviours. For example, the lack of access and availability of leisure facilities in the local area for young Iranian women increased their uptake of unhealthy lifestyle behaviours such as smoking, drinking, and low physical activity. One clear example is related to the lack of leisure activity opportunities and/or low availability of places to be physically active which influence the chances of physical activity for young Iranian women. Consistent with this finding, some studies indicate that those individuals living in less wealthy areas have fewer opportunities to access resources which allow them to practice more physically active lifestyles (24, 28). This could be explained by General Strain Theory (GST). This theory postulates that strains such as low socio-economic status at both individual and neighbourhood levels results in lower level of subjective wellbeing as well as unhealthy and poor coping strategies such as substance abuse and alcohol consumption (29). Hence, neighbourhood socio-economic characteristics have a significant contribution to wellbeing and lifestyle behaviours associated with variations in health (30), indicating the potential public health benefits of improving socio-economic characteristics of neighbourhoods. However, this could be of particular importance in Iranian society and especially among young women, given the particular social and cultural circumstances of Iran. The current study found that satisfaction with living in the local area affects QoL, SwL, and lifestyle behaviours. However, the length of stay in the local area does not have any influence on

QoL, SwL, and lifestyle behaviours. This finding is consistent with work that suggested length of stay in an area/neighbourhood is not linearly associated with the health of individuals (31). However, people lived in the same area for more than five yr reported poor health less frequently than those lived in an area for less than five yr (6). These differences could be related to the populations being studied as well as the different societies/cultures. A possible explanation related to the assumption that the longer people live in cohesive societies, the more social cooperation/social involvement they will enjoy, making their local area a better place to live (6). This could enhance their satisfaction with living in the local area as well as their health status; the social determinants of neighbourhoods could thus play a role in influencing the length of stay in a neighbourhood, and health and wellbeing outcomes. Further studies are required to measure the connections between the social environment of neighbourhood, length of stay in neighbourhood and health outcomes.

### ***Limitations***

This study has several limitations. First, some other variables not considered in this study, such as social connections and social cohesion in the neighbourhood environment, may in turn influence the variables affecting neighbourhood health outcomes (24). Second, the lack of categorisation of the study districts into wealthy and less wealthy districts, which could have indications regarding the differences in health and wellbeing outcomes of the individuals based on the socio-economic characteristics of their neighbourhood.

### **Conclusion**

This study shows the strong influence of neighbourhood socio-economic level characteristics on young Iranian women's QoL, SwL, and lifestyle behaviours. These neighbourhood socio-economic characteristics have to be considered when implementing poli-

cies/strategies/intervention programs in order to decrease neighbourhood inequalities and improve health and wellbeing for young Iranian women. The analysis indicates feasible avenues for more detailed research into how some neighbourhood-level characteristics relate to human health. The influence of neighbourhood characteristics on health outcomes can contribute to useful and effective public health policies.

### Ethical considerations

Ethical issues (including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been duly observed by the authors.

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**Table 2:** Correlations between socio-economic neighbourhood items, and lifestyle behaviours and wellbeing by a sample of young Iranian women aged between 18-35 [N=391], Shiraz, Iran, 2013

	Library	Museum	Swimming pools	Local amenities	Employment opportunity	Environment quality	Quality of housing	Schools	Health services	Colleges	Shopping centres	Social services	Leisure facilities	Overall socio-economic neighbourhood condition	Satisfaction with living in the local area
Satisfaction with living in the local area	0.138**	0.216***	0.302***	0.158**	0.218***	0.507***	0.420***	0.154**	0.267***	0.231***	0.238***	0.218***	-	0.422***	-
Physical QoL	0.148**	-	0.110*	0.145**	0.200***	0.210***	0.176***	0.176***	0.122*	0.211***	0.159**	0.196***	0.112*	0.257***	0.188***
Psychology QoL	0.183***	0.233***	0.150**	0.142**	0.239**	0.283***	0.159***	0.159***	0.137**	0.256***	0.192**	0.216***	0.179***	0.321***	0.282***
Social QoL	-	-	-	-	-	0.187***	0.152***	0.152***	-	0.210***	0.115*	0.216***	0.147**	0.179***	0.199***
Environmental QoL	0.299***	0.256***	0.287***	0.264***	0.338***	0.446***	0.374***	0.374***	0.319***	0.427***	0.382***	0.303***	0.181***	0.508***	0.376***
SwL	0.211***	0.204***	0.218***	0.203***	0.329***	0.374***	0.316***	0.316***	0.195***	0.265***	0.227***	0.226***	0.220***	0.374***	0.337***
Smoking	-	-	-	-	-	-	-	-	-	-	-	-	-0.145**	-	-0.108*
Drinking	-	-	-	-	-	-	-	-	-	-	-	-	-0.116*	-	-
Physical activity	-	-	-	-	-	-	-	-	-	-	-	-	0.103*	-	-

\* $P < 0.05$ ; \*\* $P < 0.01$ ; \*\*\* $P < 0.001$

**Table 3:** Multivariable regression analyses: Relation of socio-economic characteristics at individual and neighborhood levels to lifestyle behaviours and wellbeing by a sample of young Iranian women aged between 18-35 [N=391], Shiraz, Iran, 2013

Variable	Predictors	$\beta$	R <sup>2</sup>	Adjusted R <sup>2</sup>	B	SE	df	F
Physical QoL	Health services	0.19	0.08	0.08	0.29	0.08	321	15.47***
	Employment opportunities	0.16			0.24	0.08		
Psychological QoL	Age	-0.10	0.16	0.15	-0.05	0.02	309	12.26***
	Level of religiosity	0.18			0.52	0.14		
	Health services	0.17			0.33	0.11		
	Museum	0.12			0.24	0.11		
Social QoL	Environment quality	0.18	0.03	0.03	0.34	0.13	188	6.94**
Environmental QoL	Environment quality	0.28	0.27	0.26	0.51	0.14	162	20.54***
	Health services	0.27			0.49	0.13		
	Availability of leisure facilities	0.17			0.46	0.17		
SwL	Environment quality	0.39	0.42	0.39	2.02	0.64	51	17.74***
	Health services	0.35			1.79	0.64		
Smoking	Level of religiosity	-0.18	0.05	0.05	-0.36	0.10	371	10.64***
	Availability of leisure facilities	-0.10			-0.18	0.94		
Drinking	Level of religiosity	-0.45	0.20	0.18	-0.30	0.08	54	13.45**
Physical activity	Religiosity	0.11	0.01	0.00	0.15	0.07	375	4.56*

\* $P < 0.05$ ; \*\* $P < 0.01$ ; \*\*\* $P < 0.001$

Abbreviations:  $\beta$ , standardized regression coefficients as Beta; R<sup>2</sup>, R -squared