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**ORIGINAL ARTICLE****SOCIOECONOMIC DETERMINANTS OF HEALTH IN KERSA DISTRICT, JIMMA ZONE, SOUTHWEST ETHIOPIA****Worknesh Amdino, MD,MPH, Chali Jira, BSc, MPH, CHMPP, DVLDP, Mirkuzie Wolde, MD, MPH****ABSTRACT**

**BACKGROUND:** *The socioeconomic determinants of health can be understood as the social conditions in which people live and work. The objective of the study was to explore the socioeconomic determinants of health in adults aged 18 years and above with the Ethiopian context for possible policy directives and intervention.*

**METHODS:** *A community based survey was conducted in Kersa District, Jimma Zone on a sample of 422 adults, who were residing in a randomly selected ten kebeles (nine rural and 1 urban). Data were collected through face-to-face interview. The outcome variable was self rated general health state which is measured in a single five point Likert item, which is dichotomized as "poor health" and "good health" for subsequent analysis.*

**RESULTS:** *Household asset index was constructed as a proxy measure for socioeconomic status a single household asset index was constructed for the whole sample using principal component analysis (PCA). Majority of the respondents 378 (89.6%) rated their health state as good and 44 (10.4%) rated their health state as poor. The Bivariate analysis exhibited association of statistical significance with age ( $P$  value for trend = <0.001), moderate physical activity OR(95%CI:0.22-0.81), place of residence OR(95%CI:1.33-6.33) and alcohol consumption OR (95%CI: 0.07-0.83) but the independent predictors of poor health state were sufficient physical activity of moderate intensity OR (95%CI :0.19-0.77), age OR (95%CI: 1.02-1.07) and sex OR ( 95%CI: 1.12-4.79).*

**CONCLUSIONS:** *The socioeconomic determinants of health in this study converged mainly on to negative lifestyle practice such as level of physical activity and the socio demographic characteristics sex and increasing age which signifies upcoming intervention strategies in the future should emphasize health problems of females and the elderly. And also equipping the community with the right information about the benefits of sufficient physical activity deserves special attention.*

**KEY WORDS:** *Social Determinants of Health (SDH), Self Rated Health (SRH), Southwest Ethiopia*

**INTRODUCTION**

The socio-economic determinants of health can be understood as the social conditions in which people live and work. Lack of income, inappropriate housing, unsafe workplaces, and lack of access to health systems are some of the social determinants of health leading to inequalities within and between countries (1).

The relationship between socio-economic characteristics and health, and the causal pathways underlying such a relationship continues to be a widely debated topic by economists and other social scientists (2-7). As noted by Deaton and Paxson, "There is a well documented but poorly understood gradient linking socio-economic status to a wide range of health outcomes" (8).

Social epidemiological research indicates that poor health is not simply confined to those at the bottom of the social hierarchy. There is a 'social gradient' of mortality and morbidity that affects all members of society. With each step as one moves down the social ladder, the worse one's health is. Marmot and colleagues were the first to

show this gradient in their study of British civil servants, known as the Whitehall studies (9). Since then the social gradient has been shown for many diseases and health determinants. The pattern persists at all levels, such that those of even relatively high socioeconomic position die at younger ages than those at the highest levels (10).

An unprecedented opportunity exists to improve health in some of the world's poorest and most vulnerable communities - if approaches are chosen that tackle the real causes of health problems. The most powerful of these causes are the social conditions in which people live and work, referred to as the social determinants of health (SDH). Social determinants reflect people's different positions in the social "ladder" of status, power and resources. Evidence shows that most of the global burden of disease and the bulk of health inequalities are caused by social determinants (11, 12).

Communicable diseases, malnutrition, and reproductive ailments account for most of the mortality gap between high- and low-income countries and between the rich and the poor (13, 14). The poor also often suffer from higher rates of non-communicable

diseases such as depression and cardiovascular diseases in North America and alcohol-related ailments in the Russian Federation. Malnutrition is a double burden: poorest groups have both high rates of malnutrition and diabetes and obesity (15).

Causal pathways between the social determinants of health and health outcomes are not well understood. Some believe increases in life expectancy are strongly linked to healthcare spending (16). Other authors suggest that differentials in life expectancy and infant mortality between populations are due to other factors including lifestyles and preferences(17-19), social class and occupation (20, 21), and environmental factors (22, 23).

Evidence from trends in health inequalities - in both the developing and developed world supports the notion that health inequalities rise with rising per capita incomes. The association between health and inequality and per capita income is probably due in part to technological change going hand in hand with economic growth, coupled with a tendency for the better off to assimilate new technology ahead of the poor (24).

Recent studies in Ethiopia have also documented similar pattern. According to a study in Eastern Ethiopia the effect of age, male gender and income to be positive on health seeking behavior in that the relatively rich, the elderly and males were found to be more likely to seek care when they were sick and to visit higher-level health facilities (25).

Mortality was seen to be less likely in the literate, the married and those gainfully employed (26). Furthermore, causes of mortality in the study population were typical of conditions that are prevalent in least developing countries, infectious and communicable diseases (27).

Depicting the pattern and determinants for inequalities in health access and utilization that impact health status would help policy makers in designing appropriate health systems which addresses health inequities and inequalities (28).

Therefore, this study tried to identify the extent of socioeconomic determinants of health in adults aged 18 and above with the Ethiopian context for possible policy directives and intervention.

## SUBJECTS AND METHODS

The study was conducted in Kersa district from February 10 – 25, 2008. Kersa district is located in Jimma Zone, Oromia Regional State, in South West Ethiopia. The capital of the district, Serbo, is located 22 km east of Jimma and 324km from Addis Ababa. A community based cross-sectional study design was employed. The source population comprised all adults aged 18 years and above residing in the Kersa District at least for 6 months or more before the study period.

The district has 31 kebeles, which were stratified into rural and urban. Serbo, the only urban and nine rural

kebeles were selected randomly out of the 30. Households were selected by simple random sampling methods based on the house number list retrieved from the respective kebele administration and the district health office. From the selected households, eligible respondent were selected randomly by using the Kish table (29). A sample size of 422 was computed, taking confidence level of 95%, anticipated frequency of individuals with poor self rated health state of 50% and margin of error of 5%, 10% non response rate. The total sample was distributed using proportional to size allocation to each kebele.

The variables included in this study were socio-demographic and economic characteristics, life style variables, physical access to health facility, and 7 Likert items measuring social support. A single 5 point Likert item was used for general self rated health state from “very good” to “very bad” which was dichotomized into two categories; ‘very good’ and ‘good’ health ratings were combined as “good health state” and ‘moderate’, ‘bad’ and ‘very bad’ ratings were taken as “poor health state”. These variables (poor/good health state) were defined as 0-1 dummy variable where 0 stands for good health state and 1 stands for poor health state.

A single wealth index was constructed for the whole sample using principal component analysis (PCA), and the households were categorized into five economic groups (quintiles) the lowest 20% referring to the poorest quintile while the highest 20% referring to the richest quintile.

The enumerators were high school graduates who speak the local language fluently and well acquainted with the locality. Following training on the research objectives and interviewing techniques, data collection was commenced at the household level using structured pretested questionnaire under close supervision. Up to three visits were paid to households where the eligible respondent was not available at the time of earlier visits. The data were entered; edited, cleaned and analyzed was carried out using SPSS windows version 12.0.1.

Ethical clearance was obtained from Ethical Clearance Committee of the Public Health Faculty, Jimma University. A written letter was submitted to Kersa District Health Office and to the respective kebeles to acquire permission from the local officials. Informed verbal consent was obtained from each respondent.

## RESULTS

A total of 422 adults were interviewed, of whom 377 (89.3%) were rural residents and the remaining 45 (10.7%) were urban residents. Three hundred ninety five of the respondents (93.6%) were Muslims, 363 (86%) were married, 401 (95.0%) belong to the Oromo ethnic group 311 (73.3%) were without formal education. Males make up about half of the respondents 213 (50.5%). Most

of the respondents 203 (49.3%) were farmers by occupation, followed by housewives 132 (31.3%). The average family monthly income was  $262 \pm 10$  Ethiopian Birr. Most 253 (60.0%) of the families earn less than 200 Ethiopian Birr per month (Table 1).

Three hundred (81.0%), of the households were located within 60 minutes walking distance from the nearest health institution, moreover, 403 (95.5%) reported traveling on foot to reach the nearest health facility.

The majority of respondents 356 (84.4%), were self employed where as 12 (2.8%) were either government or

non government employee and the remaining 54 (12.8%) reported not working for payment at the time of the study .The main reason for not being engaged in any job was home making or caring for family 41 (75.9%), old age 3 (5.6%) and ill health 1 (1.9%).

The wealth index revealed that 72 (19.1%) of rural households & 12 (26.7%) of urban households were in the lowest wealth quintile and 70 (18.6%) of rural households & 15 (33.3%) of urban households were in the highest wealth quintile (Table 2).

**Table 2.** Distribution of households by wealth quintile and place of residence, Kersa District, Jimma Zone, February, 2008

<i>Self rated health</i>	<i>Frequency</i>	<i>Percentage (%)</i>
Very good	289	68.5
Good	89	21.1
Moderate	31	7.3
Bad	9	2.1
Very bad	4	0.9
Total	422	100

**Table 3.** Distribution of general health state description, Kersa district, Jimma Zone, February, 2008

<i>Wealth index</i>	<i>Place of residence</i>		<i>Total N (%)</i>
	<i>Rural N (%)</i>	<i>Urban N (%)</i>	
Q <sub>1</sub> (poorest)*	72 (19.1)	12 (26.7)	84 (19.9)
Q <sub>2</sub>	78 (20.7)	7 (15.6)	85 (20.1)
Q <sub>3</sub>	80 (21.2)	4 (8.9)	84 (19.9)
Q <sub>4</sub>	77 (20.4)	7 (1.7)	84 (19.9)
Q <sub>5</sub> **	70 (18.6)	15 (33.4)	85 (20.1)
	377 (100)	45 (100)	422 (100)

\* Q<sub>1</sub>: The lowest 20%

\*\* Q<sub>5</sub>: The highest or the top 20%

General health state was rated by the respondents as very good 289 (68.5%), good 89 (21.1%) and the rest 31(7.3%), 9 (2.1%) and 4 (0.9%) rate their health state as moderate, bad and very bad respectively (Table 3).

Considering lifestyle practices, the overall prevalence of alcohol consumption was found to be 3.1% where male respondents were accounting 5.2% and female respondents making up 1.0%. Heavy drinking was reported by 2 (0.5%) where both sexes exhibiting equal

percentage. The prevalence for tobacco use was 10.7 % (16.0% males and 5.3% females) and daily smokers were 14 (3.3%).The prevalence of khat chewing was 68% (38.7% males and 29.3% females) and daily khat chewing was reported by 81 (19.2%).

Three hundred eighteen (75.4%) reported insufficient physical activity, in contrast to 104 (24.6%) who stated to have sufficient physical activity. Of those with sufficient physical activity, rural residents account for 93 (22.0%).

**Table1.** Socio-demographic characteristics of respondents (n=422), Kersa District Jimma Zone, Oromia region, February, 2008

Socio-demographic characteristics	Frequency (%)
Residence of Respondents	
Urban	45 (10.7)
Rural	377 (89.3)
Age	
18-29	148 (35.1)
30-39	124 (29.4)
40-49	73 (17.3)
50-59	47 (11.1)
60+	30 (7.1)
Sex	
Male	213 (50.5)
Female	209 (49.5)
Religion	
Muslim	395 (93.6)
Orthodox Christian	26 (6.2)
Catholic	1 (0.2)
Ethnicity	
Oromo	411 (95.0)
Amhara	16 (3.8)
Guragie	4 (0.9)
Keffa	1 (0.2)
Marital status	
Unmarried	44 (10.4)
Married	363 (86.0)
Divorced	1 (0.2)
Widowed	14 (3.3)
Educational status	
No formal schooling	311 (73.3)
Less than primary	60 (14.2)
Primary education	21 (5.0)
Junior Secondary education	15 (3.6)
High school completed	9 (2.1)
More than high school education	6 (1.4)
Occupational status	
Farmer	208 (49.3)
House wife	132 (31.3)
Daily laborer	35 (8.3)
Government worker	7 (1.7)
Merchant	23 (5.5)
Students	10 (2.4)
Jobless	6 (1.4)
Retired	1 (0.2)

Three hundred seventy eight (89.6%) reported to have good general health state, the remaining 44 (10.4%) were reported having poor general health state. The sociodemographic variables sex and age showed a statistically significant association with poor self rated health state with females and increase in age, independently associated with poor health state. This

implies that for each one year increase in age, there was a 4% increased chance of having poor self rated health state. Females were more than 2 times likely to report poor self rated as compared to males or (2.31,95%CI: 1.12-4.79). Individuals with sufficient physical activity were 61% less likely to report to poor health state or (0.39, 95%CI: 0.19-0.77) (Table 4).

**Table 4.** logistic regression analysis of poor health state and socio demographic and life style variables among adults, Kersa District, Jimma Zone, Oromia, February 2008 (N= 422)

Variables	Self rated health		Odds Ratio (OR)	
	Poor N (%)	Good N (%)	Crude (95%CI)	Adjusted (95%CI)
Sex*				
Male	18 (4.3)	195 (46.2)	1	1
Female	26 (6.2)	183 (43.3)	1.54 (0.82-2.90)	2.31 (1.12-4.79)
Residence				
Rural	34 (8.3)	343 (81.3)	1	1
Urban	10 (2.4)	35 (8.3)	2.88 (1.31-6.33)	2.06 (0.87-4.89)
Physical activity**				
Insufficient	26 (4.3)	292 (69.2)	1	
Sufficient	18 (4.3)	86 (20.4)	0.43 (0.22-0.81)	0.39 (0.19- 0.77)
Alcohol				
No	40 (9.5)	369 (87.4)	0.244 (0.07-0.83)	0.263(0.068-1.015)
Yes	4 (0.9)	9 (2.1)	1	1
Wealth Index (continuous)			0.978 (0.866-1.106)	0.981 (0.864-1.11)
Age*** (continuous)			1.035 (1.013-1.057)	1.040 (1.017-1.065)

\*p value = 0.024 \*\* p value = 0.07 \*\*\*p value < 0.001

## DISCUSSIONS

Self rated health is widely used in health studies because it is generally accepted as a good predictor of morbidity and mortality. Self reported data on perceived health status has been shown to be highly predictive of mortality and other health outcomes (30, 31).

Up on bivariate analyses, self rated health state was associated with age, sex, place of residence, habit of alcohol consumption and level of physical activity. But, on multivariate regression model age, sex and level of physical activity were the independent predictors for poor health state.

In this study only 10.4% of the respondents rated their health as poor, which is a lower value when compared to the Ethiopian national health survey report (39.2%) . The fact that 89.6% reported good health state might be due to the reason that the study area is a site for community based education of Jimma University (JU), which may have impact on the community as a result of various health promotion and awareness raising efforts at the grass root level (32).

An increasing age has shown an increased odds of poor health state OR (1.04; 95%CI, 1.02-1.07) with the implication of a 4% increased chance of reporting poor health state with a unit increase in age. This is consistent with the Indian study ,where older women reported significantly poorer subjective health than men (p value < 0.01) this could be explained with the fact that health depreciates with increasing age (33). Besides this study revealed an increased poor health rating among females,

OR (2.31; 95%CI, 1.21-4.79) which is in line with the above Indian study. This may be due to the differential distribution of disease condition among male and women also may be explained by the differential reporting behavior of females (34).

Men are believed to rate their health state mainly by comparing it with other men, whom they often judge as having worse global health than themselves. Women tend to rate their self rated health state (SRH) by considering various sources and are also trained in judging the health status of themselves and others by having the responsibility for the health of the family. Studies also showed that middle age men tend to suffer more from life threatening conditions than corresponding women do, while females suffer more from chronic disabling conditions than men (34-36). In contrast a study done in Estonia did not show any significant differences between men and women subjects (38).

Physical activity of moderate intensity was found to be one of the independent predictors for poor health state. This study revealed that only a quarter of the study subjects had sufficient level of physical activity of moderate intensity, in contrast to the Ethiopian National health survey report over three quarters had physical activity of moderate intensity (32). This could be explained by cultural differences and the fact that the farmers' physical activities are season dependent, which might have been affected by the prolonged dry season experienced in the area during the study period.

Moderate intensity physical activity presented a beneficial effect; those with sufficient physical activity

exhibited 61% lesser chance of reporting poor health state which is consistent with a report from USA, the least active individual having an increased chance of reporting poor health up to 82% (35).

A Cambodian study, where logistic regression indicated heterogeneity in health across quintiles with the bottom quintiles reporting the worst health state; this survey didn't reveal any statistical significance association with the socioeconomic status index or wealth quintile index. This may be due to the wealth indices derived are relative measures of socio-economic status, so while this type of measure is useful for considering inequality between households, it cannot provide information on absolute levels of poverty within a community (37,38).

In the Estonian study, where education, economic activity or employment status, occupation and personal income were strongly associated with poor self rated health for both men and women. But this study showed inconsistent result where education, employment status and occupation had no significant association. This could be explained with the fact that education may not be related to health in developing societies in similar ways as in other parts of the world. Part of this could be explained with minimal variation in education while part may be because education is not a good indicator of socioeconomic status in these societies (35, 39).

In this study it was found that 81% of the respondents were residing in households located within 60 minutes of walking distance from the nearest health institution implying that the health facilities are closer enough to be reached with reasonable amount of effort by the majority of the community being served, which is supported by the fact that studies has shown that most people won't travel farther than 5km to basic preventive and curative care (40).

This study relied on self reported measures of health status and life style variables as a result may be subjected to recall bias and social desirability bias and its reliance on cross sectional data, precludes any interpretation of causal relation between physical inactivity and poor health.

In conclusion, it was observed, that social determinants of health (SDH) – in Kersa district converged mainly on to the lifestyle practices; whereby there exists unprecedented opportunity for primary prevention. Optimal level of Physical activity of moderate intensity has beneficial health effect but the prevalence for moderate physical activity was found to be remarkably low in the community. Females and the elderly people exhibited poorer health state, implying the need for special attention.

Policy makers should gear their upcoming intervention strategies towards health problems of females and the elderly; focusing on the right information about the benefits of physical activity and the adverse

effects of insufficient physical activity. Resolving the direction of causation between poor health state and physical inactivity may be an important area for future research.

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