

CONNECTION OF RELIGION AND HEALTH: RELEVANCE IN THE STUDY OF OBESITY AMONGST CHILDREN AND ADOLESCENTS

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Received on 05.02.2017,
Accepted on 09.05.2017

Abstract

Background: Increasing trend in overweight and obesity among children and adolescents has been documented over the last few years. The present study has analysed the association of obesity and type-2 diabetes in different religions.

Materials and Methods: Children and adolescents aged 10-19 years were selected randomly for questioning regarding the different aspects of epidemiology and their health examination was also done.

Results and Discussion: The study area constitutes basically people belonging to Hindus, Sikhs, Muslims and Christians. Hindus and Sikhs form the bulk of population. It has been noticed that impaired glucose level, diabetic and overweight subjects were more in Hindus than other religions.

Conclusion: Cultural background and religious beliefs are so strongly associated that religion sometimes serves as an indicator of ethnic group. A great deal of interest in religious difference has been focused in the hope of discovering the degree of genetic homogeneity through inbreeding, preserved environmental consistency, difference in dietary habits etc. Further studies are required to justify the relationship of religions with obesity and its related disorders.

Keywords: Obesity, overweight, religion, epidemiology.

INTRODUCTION

Obesity and its health consequences have been recognized as major public health problems worldwide. Excess body weight is a global public health issue (WHO, 1998, Popkin et al., 1998 and Sobal 2001). Obesity is due to many factors like genetic, physiological, metabolic, behavioral, psychological, and social influences (Flegal et al. 2002). Biosocial factors that are associated with obesity include education, religion, caste, occupation, living styles etc. Religion may play a relevant role in health. The religion/health relationship has gained a support due to the growing number of precise social and epidemiologic investigations.

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Ellison and Levin's (1998) reviewed such studies and found a positive relationship between religion and health. There were only a few studies about the relationship of religion and obesity. The association between religion and health is well established in the literature. Further research is needed to understand new predictors of obesity and its related disorders. The present study has analysed the association of obesity and type-2 in different religions. A number of research studies show a positive relationship between religion and health (Strawbridge et al., 2001, Koenig et al., 2001, Hyypa and Maki 2001).

MATERIALS AND METHODS

2048 children had undergone questionnaire and dietary survey and health examination. Out of these, 1017 were from urban population and 1031 from rural population. Children and adolescents aged 10-19 years were selected randomly for questioning regarding the different aspects of epidemiology and their health examination was done. The permission from parents of the children, undergoing examination and questionnaire survey was also taken on the self-designed consent form. The Centers for Disease Control and Prevention (CDC) suggests two levels of concern for children based on the BMI-for-age charts.

At the 85th percentile and above, children are "at risk for overweight". At the 95th percentile or above, they are "overweight". The cutoff for underweight less than the 5th percentile is based on recommendations by the World Health Organization Expert Committee on Physical Status 1998.

Fasting Blood Sugar

Fasting blood sugar test was performed. The diagnostic criteria for diabetes mellitus have been modified from those previously recommended by WHO (1985). The revised criteria for the diagnosis of diabetes is used which is as follows:

Categories of Fasting plasma glucose (FPG) values are as follows:

- FPG <110 mg/dl (6.1 mmol/l) = normal fasting glucose;
- FPG 110 (6.1 mmol/l) and <126 mg/dl (7.0 mmol/l) = IFG (Impaired Fasting Glucose)/Prediabetes.
- FPG \geq 126 mg/dl (7.0 mmol/l) = diabetes

(Report of the Expert Committee on the Diagnosis and Classification of Diabetes Mellitus (2003))

RESULTS AND DISCUSSION

The study area constitutes people belonging to Hindus, Sikhs, Muslims and Christians. Hindus and Sikhs form the bulk of population. It has been noticed that impaired glucose level, diabetic and overweight subjects were more in Hindus than in other religions (Table 1, Graph 1-4).

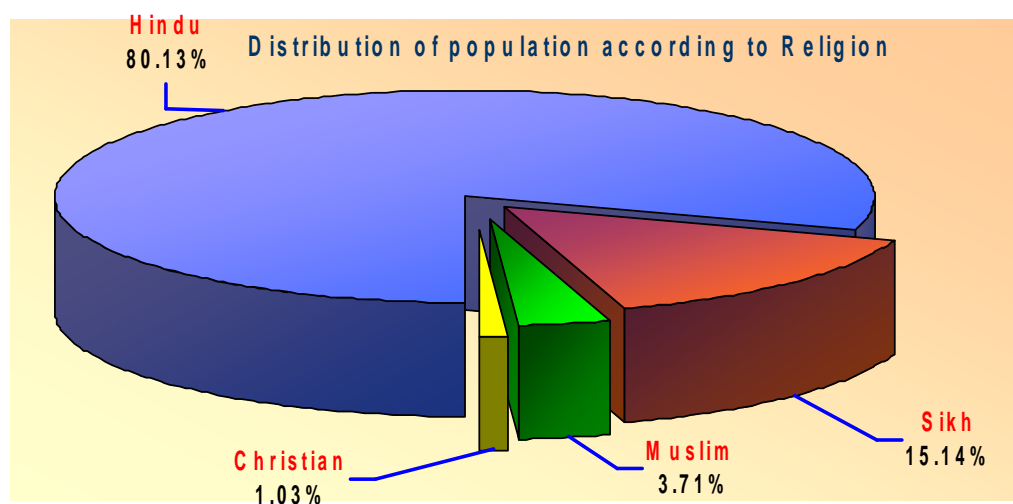
Cultural background and religious beliefs are so strongly associated that religion sometimes serves as an indicator of ethnic group. A great deal of interest in religious difference has been focused in the hope of discovering the degree of genetic homogeneity through inbreeding, preserved environmental consistency, difference in dietary habits etc.

Chhetri et al. (1975) recorded the higher prevalence of diabetes in Hindus of rural areas of West Bengal. But in urban area, it was more in Muslim population. But the number of Muslims and Christians were very less. West and Kalbflesch. (1966) found higher prevalence rate of diabetes among Hindus (2.1%) than Muslims (1.3%) in East Pakistan.

Pai et al. (1966) also observed, "The Muslim population seems to be relatively spared of this disease". This might be because Muslim in rural area was of still lower socioeconomic status and due to difference of their cultural and food habits. Sachdeva, 1968, did not find any significant difference in prevalence of diabetes between Hindus (3.7%) and Sikhs (3.8%) but this study included only an urban area of Punjab. Similarly, no significant difference was found in two major communities (Hindus and Sikhs) in the study of Berry et al. (1966) in Chandigarh, which was again an urban area. But in the present study, the data has been collected both from rural as well as urban population and it represents the total population studied more effectively. Here it has been found that obesity and diabetes is more prevalent in Hindus than in the Sikhs, Muslims and Christians as per Table no.1 and Graph 2, 3 & 4.

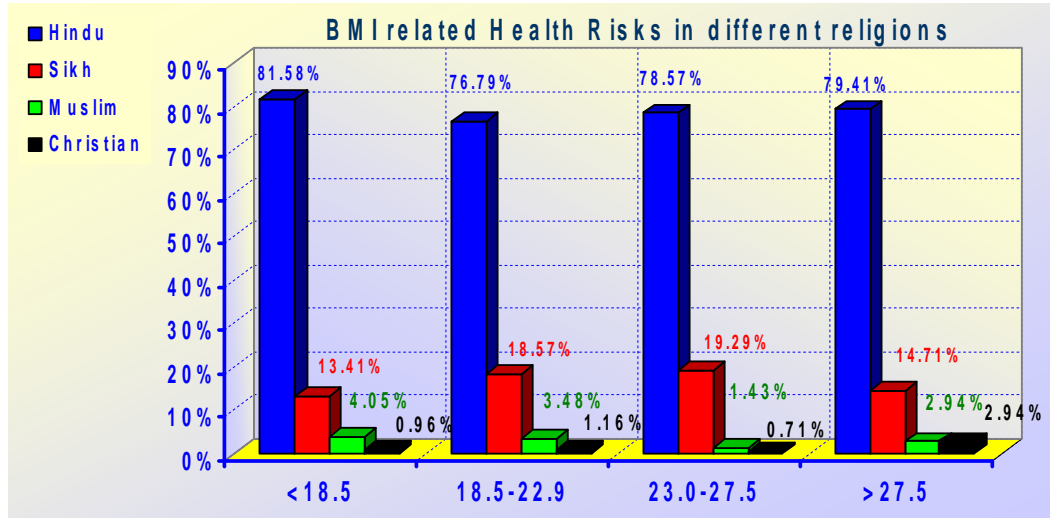
Table 1: Prevalence of impaired glucose levels, diabetes, Obesity in different religions.

Group/Sub Group	Hindu		Sikh		Muslim		Christian	
	N	%	N	%	N	%	N	%
All Data	1641	80.13	80.13	15.14	76	3.71	21	1.03
FBG Categories								
1. <110	1598	80.18	298	14.95	76	3.81	21	1.05
2. 110-126	25	78.12	7	21.88				
3. >=126	18	78.26	5	21.74				
Chi ² =4.37(df:6) C=0.05								
BMI Categories								
1. <18.5	1107	81.58	182	13.41	55	4.05	13	0.96
2. 18.5-22.9	397	76.79	96	18.57	18	3.48	6	1.16
3. 23.0-27.5	110	78.57	27	19.29	2	1.43	1	0.71
4. >27.5	27	79.41	5	14.71	1	2.94	1	2.94
Chi ² =13.43(df:9) C=0.08;								
Percentile Based								
1. Under Wt.	422	83.07	57	11.22	26	5.12	3	0.59
2. Healthy Wt.	1053	79.59	207	15.65	46	3.48	17	1.28
3. At Risk	94	74.02	31	24.41	2	1.57		
4. Over Wt	72	80.00	15	16.67	2	2.22	1	1.11
Chi ² =22.04**(df:9) C=0.10;								

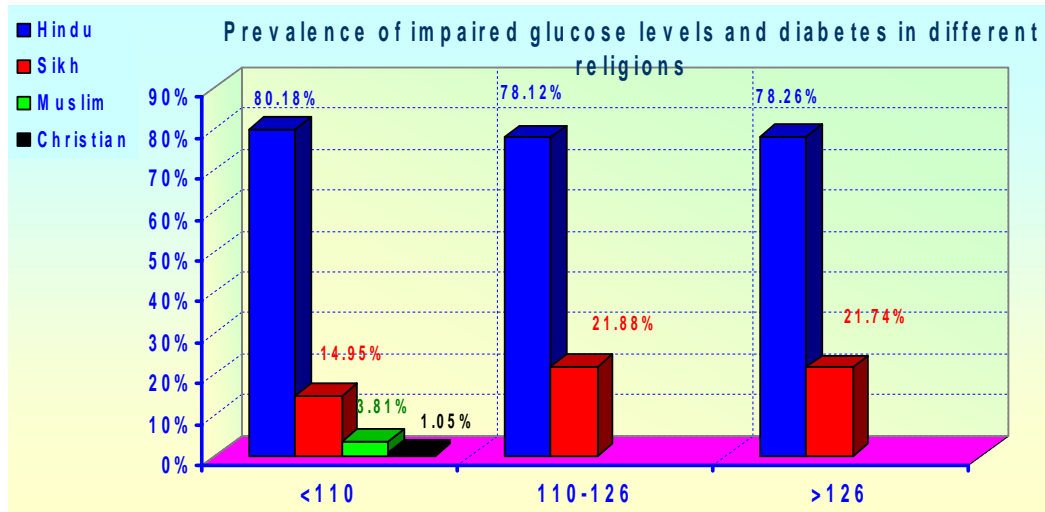


Graph 1:

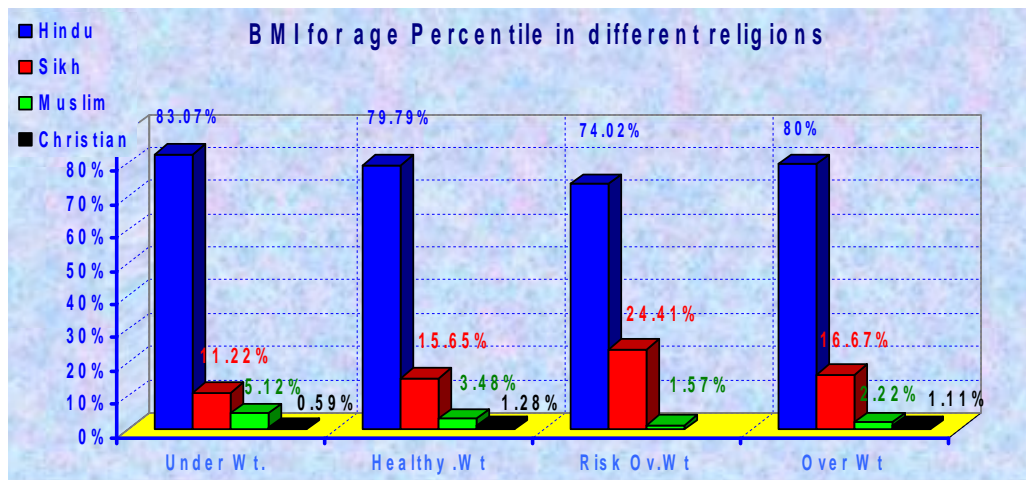
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Graph 2:



Graph 3:



Graph 4:

Body weight may be a one of the reasons between religion and mortality (McCullough et al., 2000). Religion possibly serving as a protective factor against extreme overweight (Allison et al., 2001, Troiana et al., 1996). Religion may contribute to decreased body weight in several ways. Lapane et al., (1997) reported that church members participated in the Pawtucket Heart Health Program were more likely than people who were not church members to be greater than 20 percent overweight. Church members also had higher total cholesterol and blood pressure than people who were not church members. At best, the previous studies can show an association or a correlation between religion and body weight. Using state-level ecological data and a national sample of adults, Ferraro (1998) found that there were more obese individuals in states with a higher proportion of persons claiming religious affiliation, and in states with a higher proportion of Baptists. Using individual-level data, he also found that religious practice was positively associated. Many religious functions use food, rather than alcohol, as the celebratory good to be consumed. From Sunday school donuts to church potluck dinners, food, especially high-fat foods, are key to the social organization of many U.S. religions (Sack, 2001).

It may be noted that religion does not lead to overweight and obesity, but that the opposite causal process exists—a form of social selection (Kim et al., 2003). Perhaps religious organizations provide a “religious haven”—a consoling and welcoming setting for people who are obese and seeking protection from social stigma.

In another study of 200 diabetic women only 162 (81%) were respondent of this study. The ratio of respondent in different religions was Hindu (62%), Muslim (17%), Sikh (5%), Christian (6%), Jain (7%) and Sindhi (9%) . In the study they identified being overweight or obese as significant correlates for diabetes, among women of all religions (Yadav and Bharati, 2016).

Urban and rural Muslim females have a much higher likelihood of overweight/obesity relative to the Hindu-general group. However, there is no statistical difference in urban and rural Muslim males. Sikhs have a statistically significant higher likelihood of overweight/obesity across the four sub-populations. Urban and rural Sikh males had a higher likelihood of overweight/obesity compared with the Hindu-general group. Regarding the Sikh sub-population, separate analyses (not reported here) of the 61st round (2004–05) of the National Sample Survey on consumption expenditure, reveal that notwithstanding differences in dietary patterns, the total calorific and fat intake of Sikhs across the income groups differs little from the equivalent income groups of the general Indian population. Data limitations prevent from identifying salient socio-cultural characteristics particular to the Sikhs, which may contribute to their high BMI (Siddiqui and Donato, 2016). In case of female sub-populations, some studies have raised the spectre of cultural practises and social restrictions on physical activity (and on workforce participation) and on dietary behaviour as ‘possible’ reasons for higher obesity prevalence rates but data limitations prevented further analysis (Griffiths and Bentley 2001; Chopra et al. 2013; Misra and Shrivastava 2013; Misra et al. 2013). There is a growing recognition of the need to better understand the significance of socio-cultural determinants of dietary choices and physical activity, which impact on overweight/obesity. In this regard, policy is likely to be more effective if it is targeted in a way, which recognizes socio-cultural diversity rather than being applied uniformly across all socio-cultural groups. Relationship between wealth and overweight/obesity is more intense for males than for females (Swinburn et al. 2011). There is also evidence of an important, independent role for religion, with risks for the different health indicators varying between people with the same ethnic but different religious, identifications. Adjusting for socioeconomic status attenuated the ethnic/religious patterning of, particularly; self-assessed health, longstanding activity-limiting illness, waist-hip ratio, body mass index and tobacco use (Saffron & James 2010).

CONCLUSION

To understand the complex co-relationship between ethnicity, religion and health, it is necessary to know the heterogeneity to find out the relationship between health and ethnicity/religion. Implementation of appropriate policy strategies is required. Further studies are required to justify the relationship of religions with obesity and its related disorders.

ACKNOWLEDGEMENT

The author is highly thankful to UGC for providing grant for undertaking the research award

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