Letter to Editor

Soft Drinks May Cause Mental Health Disorders in Children

Consumption of refined sugar in soft drinks has gained world-wide attention because of its possible adverse effects like obesity, dyslipidemia, diabetes mellitus and dental caries [1-3]. But many a times its negative impact on mental health has been contested due to lack of concrete evidence. In many countries parents and teachers claim that high sugar intake leads to attention and conduct problems in children [4].

The consumption of soft drinks has increased manifolds globally in recent times. A can of Coke (12 ounces or 355 mL) has 39 grams of carbohydrates (all from sugar, approximately 10 teaspoons), 50 mg of sodium, 46 gm caffeine, 0 grams fat, 0 grams potassium and 140 calories [5]. In USA per capita consumption of soft drink has increased by 500 times in last 50 years [1].

In recent past a population based cross-sectional study [4] was carried out in Oslo, Norway with the objectives to find out the association between intake of soft drink and occurrence of various psychological problems if any including mental distress, conduct problems and hyperactivity among adolescents. A total of 5547 10^{th} grade students of age 15-16 years, covering all schools of Oslo were included excluding students of non-Norwegian ethnicity and incomplete questionnaires. Self reported questionnaire was used. The questionnaire had two major components i.e. Hopkins Symptoms Check List (HSCL) and strength and difficulties questions for assessing mental health status of children and adolescents. Hopkins Symptoms Check List contained 10 items which were assessed for the preceding week and rated on a scale of 1 (not at all) to 4 (extremely)- feeling panicky, anxious, dizzy, tense, sleepless, sad, worthless & hopeless, finding fault within self and finding everything a burden. The average score of 1.85 or more indicated mental distress. The strengths and difficulties questionnaires had 25 items incorporated in five subscales: emotional symptoms, conduct problems, hyperactivity, peer problems and pro-social behaviour. Total Difficulties score was calculated by summing up scores of first four sub-scales. Each subscale item was rated on a scale of 1 (not correct) to 3 (completely correct). Response categories for consumption of sugar containing soft drinks were: seldom/never, 1-6 glasses per week, 1 glass per day, 2-3 glasses per day, or 4 glasses or more per day. A glass was defined as one containing approx. 200 mL.

25.8% girls and 8.7% boys were found to have mental distress. More girls (10.1%) than boys (8.2%) had hyperactivity score above the 90^{th} percentile. Higher percentage of girls (11.2%) had total difficulties score > 90th percentile than boys (6.2%); but conduct problems were more prevalent in boys (10%) than girls (5%). Most of the participants consumed 1-6 glasses of soft drinks per week and 21% of girls and 46% of boys consumed one glass or more every day.

The mean HSCL-10 scores, mean total difficulties scores and mean conduct problems scores had J-shaped curves when plotted against soft drink consumption, among both sexes suggesting that moderate intakes had the lowest score (better health). The score was higher (worse symptoms) among high quantity consumers than those who were non-consumers. The authors concluded that there was a strong association between soft drink consumption and mental health problems. This association remained significant after adjustment for social, behavioural and food-related factors.

The consumption of soft drinks and occurrence of mental depression has been tried to be correlated on the basis of previous ecological studies in Norway [6,7]. The present study though a cross-sectional one was probably the first documented research to find out the role of soft drink on prevalence of mental health problems. A recent study conducted among South Australian adults reported that 12.5% subjects consumed more than half a litre of soft drinks daily and after multivariate analysis it was found that they had 60% greater risk of having depression, stress-related problem, suicidal ideation, psychological distress or a current mental health condition, compared with those not consuming soft drinks [8].

In the Oslo study, biases arising due to confounding factors like eating habits, social background and behavioural pattern have been taken care of by using a logistic regression model. However, the fact that mental health problems like mental distress, conduct problems and hyperactivity may be

otherwise also present in children of 15-16 years age irrespective of consuming soft drinks, has not been highlighted. Besides, the authors have only stressed upon refined sugars as the cause for mental disturbances, while other constituents like preservatives, flavouring and colouring agents may also have a causative role to play. In fact caffeine, one of the major constituents of soft drinks, is implicated in causation of mental disturbances [9].

The present Norwegian study though cross-sectional, may act as an eye opener for the countries like India where there is no valid record on consumption of soft drink but intake of such drink is quite rampant, particularly in young generations. It will be prudent to conduct well-planned studies to replicate these results in the Indian population. The nutritional policy makers in India and many other similar countries can then consider regulating the accessibility of soft drinks in the market.

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