Assessment of Cardiovascular Disease Risk Factors among School Children in a Private School in Karachi, Pakistan: A Pilot Study

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Background

- **Estimates that Non Communicable Diseases (NCDs):**
  - **40% of all deaths in developing countries**

    (WHO 2007)
  - **73% of the global mortality by the year 2020**

    (White, F 2000)
- **NCDs:**
  - **Cardio Vascular Diseases [CVDs],**
  - **Hypertension and**
  - **Diabetes mellitus**

Background

- **Prevalence of CVDs is increasing significantly in developing countries**

- **Developing countries are facing the challenge of a demographic transition.**

(Ghannem, H 2006)

- **In Pakistan, CVDs result in more than 12% of all causes of mortality in urban areas**

(Pakistan demographic survey)

Background

- **Behavioral risk factors, including:**
  - **Physical inactivity and**
  - **Unhealthy diet**

  80% of coronary heart disease

- **Worldwide, 2.8 million people die each year as a result of being overweight**

Background

- **An estimated 35.8 million (2.3%) of global DALYs are caused by overweight or obesity**
- **Globally, six percent of deaths are attributed to physical inactivity**

(WHO 2011)

- **Screening of high-risk individual**

(Pourebrahim *et al 2006)*

- **Unhealthy lifestyle and behaviors**

(Khuwaja, A and Nasir, A 2004)

Methodology: Purpose

- **Identify the children at higher risk for developing CVDs at their later ages,**

- **To determine the children's reported gaps in knowledge and attitude related to diet and physical activity**

Methodology: Study procedures and participants

- **Study design: Cross sectional pilot study**
- **A private school in urban area of Karachi, Pakistan.**
- **Study subjects:**
  - **School children (both girls and boys) of Grade X**
  - **Consented to participate in the study**
- **Sample frame: All enrolled students (40 boys and 55 girls) of Grade X**
- **Sample selection: a random sampling method**

Methodology: Measures

- **Sample size: Twenty four students (10- boys and 14 girls) for data collection**
- **Data Collection Process:**
  - **A structured questionnaire was developed from WHO (2006)**
  - **Pilot tested**
  - **Major variables**
    - **Demographic data**
    - **Knowledge variables**
    - **Non-modifiable risk factors**
    - **Modifiable risk factors**
    - **Height and weight (to calculate BMI)**
    - **BMI charts for both girls and boys separately**

Methodology: Measures

- **Data collection: Trained Community Health Volunteers (nurses):**
  - **Circulation of questionnaires**
  - **Height and weight**

- **Quality of data:**
  - **Errors of non-observation**
  - **Errors of observation**
    - **Developing an appropriate questionnaire**
    - **Translating and back translating of the questionnaire in the local language**
    - **Training the interviewers**

Methodology: Measure

- **Data Analysis:**
  - **Statistical Package for Social Sciences (SPSS) version 14**
  - **Proportions of all variables of interest were calculated**

- **Ethical considerations**
  - **Approval from school administration**
  - **Consent from the study participants**
  - **Anonymity of the individuals and institution was maintained**

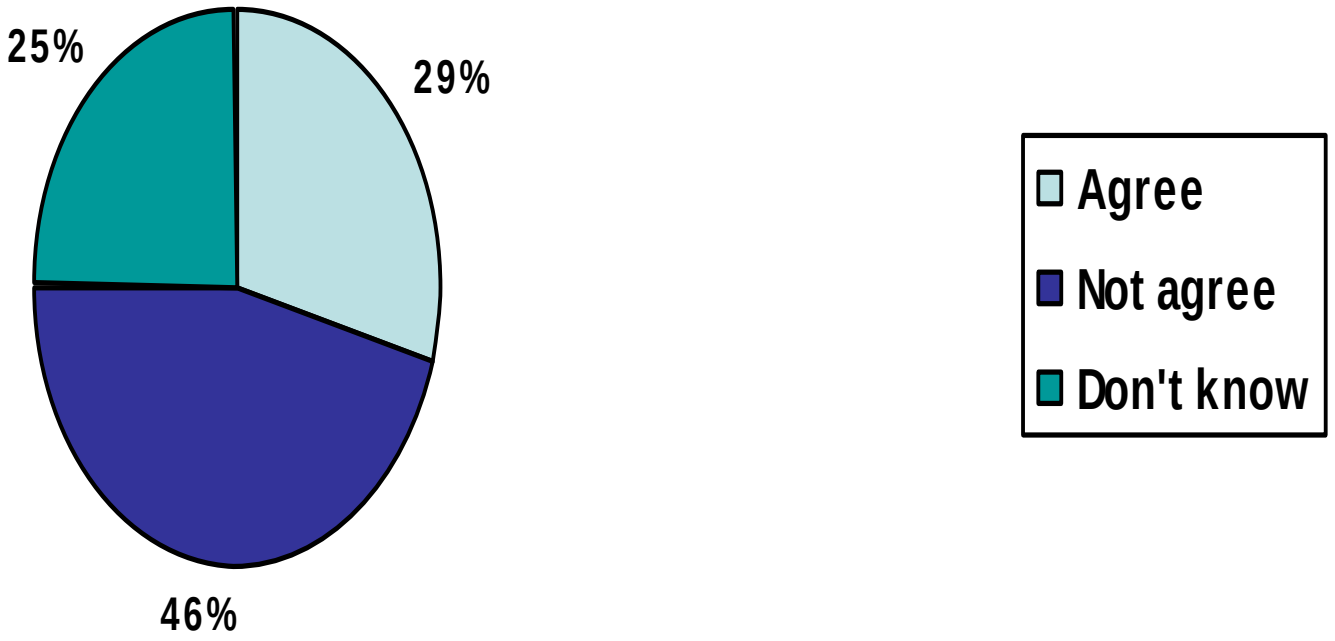
Results: . Socio-demographic Characteristics of the study participants

Variables	n = 24	Percentages (%)
Age range 13-16 years		
13-14 14-15 15-16 16 and above	4 6 7 7	16.7 25.0 29.2 29.2
Gender		
Boys	10	41.7
Girls	14	58.3
Ethnicity		
Urdu	10	41.7
Sindhi	10	41.7
Others	4	16.7

Results: . Socio-demographic Characteristics of the study participants

Working status of mothers		
House wives	13	54.2
Working outside home	11	45.8
Working status of fathers		
Office work	14	58.3
Manual work	9	37.5
Business	0	0.0
Others	1	4.2

Results: Heart diseases are preventable conditions



Results: Awareness about causes of heart diseases

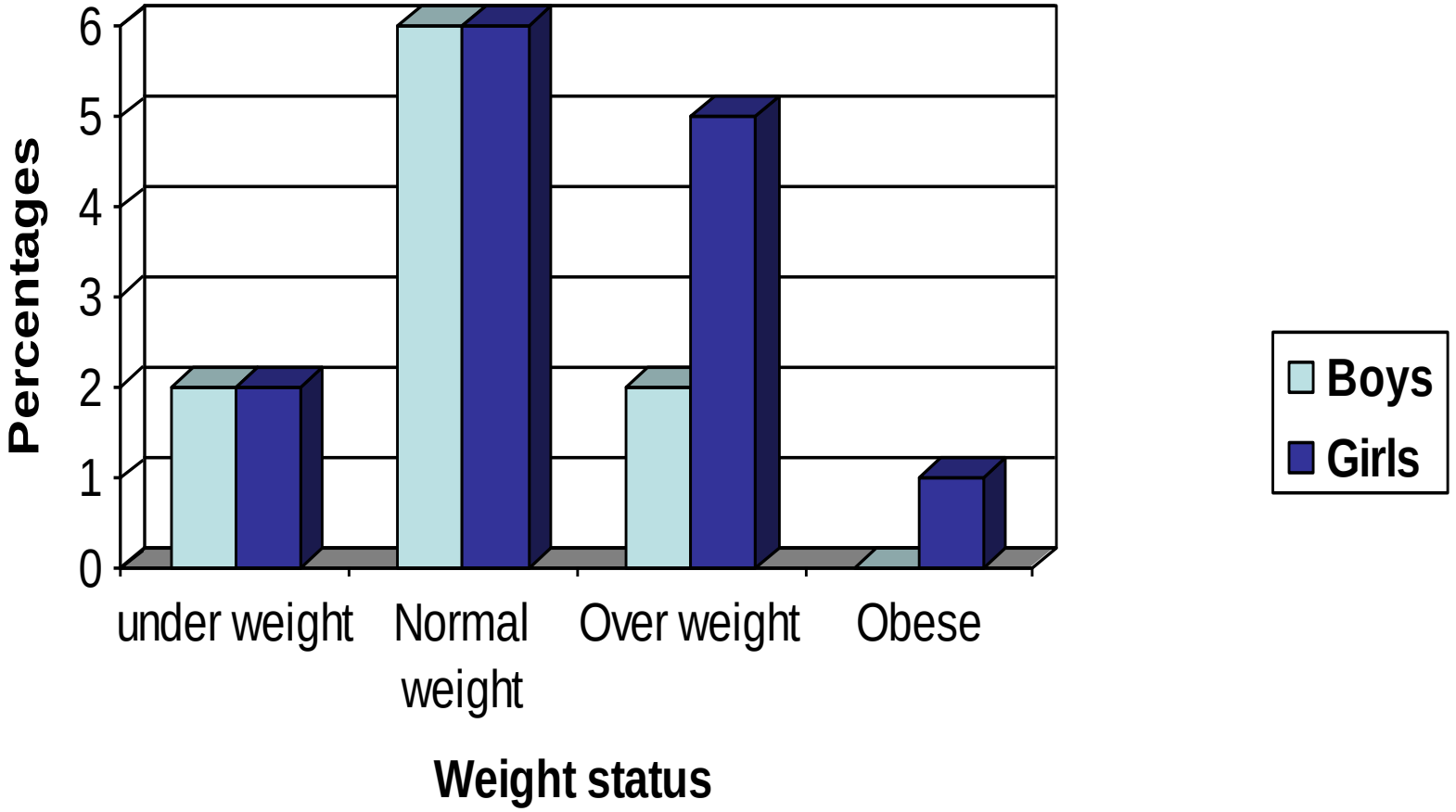
Variables*	Total (n = 24)	Percentages (%)	Boys n (%)	Girls n (%)
Overweight	12	50.0	8 (66.6)	4 (33.3)
Not exercising	4	16.7	3 (75)	1 (25)
Smoking	1	4.2	1 (100)	0 (0)
Stress	8	33.3	4 (50)	4 (50)
High cholesterol	9	37.5	5 (55.55)	4 (44.4)
High fat diet	1	4.2	0 (0)	1 (100)
Family History	1	4.2	1 (100)	0 (0)
Alcohol	1	4.2	1 (100)	0 (0)
Diabetes	5	20.8	3 (60)	2 (40)
Don’t know	2	8.3	1 (50)	1 (50)

* Sum of the responses may not be 100% as this question was multiple responded

Results: Awareness about prevention of heart diseases

Variables*	Total n = 24	Percentages (%)	Boys n (%)	Girls n (%)
Eating fiber	8	33.3	4 (50)	4 (50)
Eating low fat	3	12.5	1 (33.3)	2 (66.6)
Exercise	12	50.0	8 (66.6)	4 (33.3)
Managing stress	8	33.3	4 (50)	4 (50)
Avoid smoking	3	12.5	2 (66.6)	1(33.3)
Others	1	4.2	1(100)	0(0)
Don’t know	3	12.5	1(33.3)	2 (66.6)

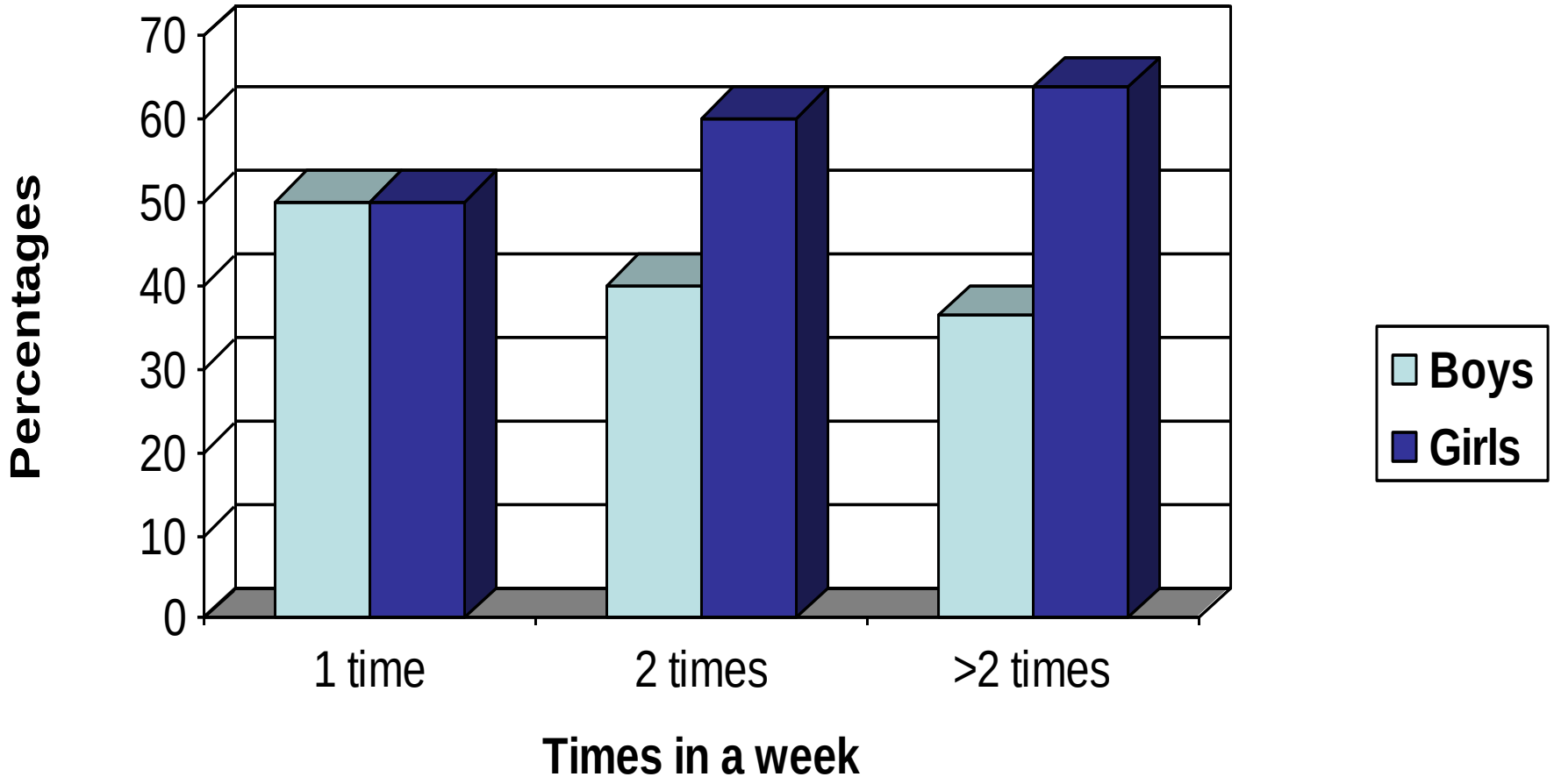
Results: Status of weight/obesity among boys and girls



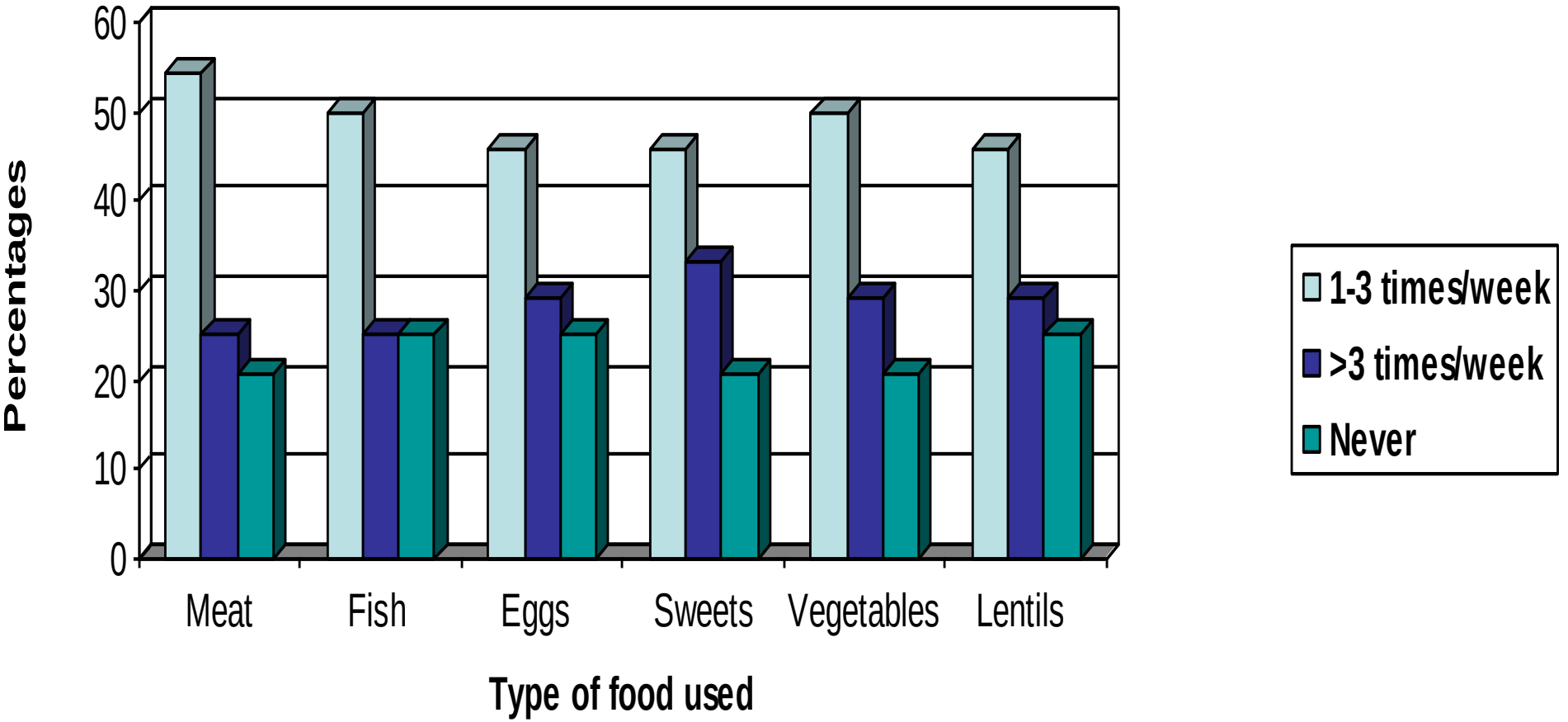
Results: Frequencies of other risk factors of developing CVD among study population

Variables	n = 24	Percentages (%)	Boys n (%)	Girls n (%)
Family History	**15**	**62.5**	**7 (46.6)**	**8 (55.3)**
Immediate parent	1	6.66	1(100)	0 (0)
Grand parent	14	93..33	7 (50)	7 (50)
Physical activity				
Yes	9	37.5	6 (66.6)	3 (33.3)
No	15	62.5	4 (26.6)	11 (73.3)
No. of day in a week 1-2 3-4 5-6 Daily	5 2 1 1	55.5 22.2 11.1 11.1	3 (60) 1 (50) 1 (100) 1 (100)	2 (400 1 (50) 0 (0) 0 (0)
Type of exercise				
Outside games Walking Other	2 2 5	22.2 22.2 55.5	2 (100) 0 (0) 4 (80)	0 (0) 2 (100) 1 (20)
Recreation activity like use/watch computer, video and/or TV				
Yes No	20 4	83..3 16.7	8 (40) 2 (50)	12 (60) 2 (50)

Results: Frequencies of taking snacks in a week by gender



Results: Frequencies of types of food ate by study participants in a week



Result: Choice of food selection

- **Friends (62.5 percent)**
- **Family (75 percent) and**
- **Taste (66.7 percent)**

Discussion

- **Lack of awareness about the causes, preventive methods and risks factors**
- **Higher prevalence of obesity 33.2 per cent**
- **Rapid urbanisation and globalisation**
- **Results cannot be generalized**

Recommendations

- **Preventive CVD programs are needed at:**
  - **Community level**
  - **School level**
- **Pilot study further planned at a macro level**
- **Development of policy at micro and macro level**

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