

Awareness On Turner Syndrome Among Dental Students

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Abstract

Background : Turner syndrome (TS) is caused by complete loss or structural anomalies of the X-chromosome (45X). Symptoms emerge slowly, where affected females can potentially develop a wide variety of symptoms. Common symptoms include short stature and premature ovarian failure, which can result in the failure to attain puberty.

Aim: The aim of the study is to create awareness of Turner syndrome among dental students.

Materials and method: A cross-sectional questionnaire survey study was conducted among Dental Colleges of Chennai. The age range was between 18 to 23 years. The questionnaire was set and circulated among dental students. The questions were mainly to create awareness of Turner syndrome to dental students.

Results: Among the 150 dental students who participated in this survey, 129 (85.4%) participants were females and 21(14.6%) were males. 12(7.9%) participants are between 18-20years, 120(79.5%) participants are between 20-23years and 18 (12.6%) participants were more than 23 years age group. 147 of 97.4% say turner syndrome occurs in females and 3 participants are not aware. 142 (94%) participants are aware that turner syndrome is also called monosomy.

Conclusion: From this study, we have concluded that dental students have awareness about Turner syndrome. Most of the students see Turner syndrome cases in day to day life. Dental students have knowledge about Turner syndrome which is due to abnormalities of chromosomes.

Running Title: Awareness of Turner syndrome among dental students

INTRODUCTION :

Turner syndrome (TS) is caused by structural anomalies in or complete loss of the X-chromosome (45X)(1). TS is a relatively common neurogenetic disorder characterized by complete or partial monosomy-X in a phenotypic female(2). Although a rare disease with an incidence of 1 in 2500 female births, it is nevertheless the most common sex chromosome abnormality of human females(3). TS is characterized by short stature and ovarian dysgenesis, together with a broad range of other phenotypic characteristics, including an increased risk for heart and renal defects(4). TS is associated with a cognitive profile that typically includes intact intellectual function and verbal abilities with relative weaknesses in visual-spatial, executive, and social cognitive domains(5).

Turner syndrome is highly variable and can differ dramatically from one person to another. Patients with TS have to cope with many difficulties; they not only need life-long medical surveillance but also psychological care and treatment for a good outcome(6). Symptoms emerge slowly, where affected females can potentially develop a wide variety of symptoms, affecting many different organ systems(7). Common symptoms include short stature and premature ovarian failure, which can result in the failure to attain puberty. Most women with Turner syndrome are infertile(8). A variety of additional symptoms can occur including abnormalities of the eyes and ears, skeletal malformations, heart anomalies, and kidney abnormalities(9). Turner syndrome often has a higher verbal than nonverbal intelligence, learning disabilities may be difficult to identify and often are overlooked(10). These symptoms are prevalent among females with Turner and go untreated because of a lack of education about the signs, symptoms and possible treatments to improve their overall quality of life outcomes(11).

Early diagnosis and treatment of comorbidities is known to enhance the medical state of adult patients with TS(12). A diagnosis of Turner syndrome is often confirmed by chromosomal analysis, which is usually achieved by

determining the karyotype(13). Karyotyping is a laboratory test that evaluates the number and structure of chromosomes. Karyotyping can be done on almost any type of tissue. In most cases, a blood sample is used to ascertain a person's karyotype(14). Turner syndrome is being increasingly diagnosed before birth (prenatally)(10). Screening for Turner syndrome and other chromosome abnormalities can be performed by noninvasive testing on a maternal blood sample(15).

The treatment of Turner syndrome is directed toward the specific symptoms that are apparent in each individual(16). Specific therapeutic procedures and interventions may vary, depending upon numerous factors, such as disease severity; the presence or absence of certain symptoms; an individual's age and general health; and other elements(17). There is no cure for Turner syndrome, but therapies have been developed that can improve physical development(18). With proper medical care, females with Turner syndrome should be able to lead full, productive lives. The primary therapies for affected individuals are growth hormone therapy and estrogen therapy(19). Our team has extensive knowledge and research experience that has translate into high quality publications(20–28),(29–34),(35–41). The aim of the study is to create awareness of Turner syndrome among dental students.

MATERIALS AND METHOD :

Sample Selection:

A sum of 150 students were randomly selected from the dental colleges in Chennai as a participant in the survey. The age range was between 18-23 years of age with the mean age of 20 years. The data collection questionnaire was developed after reviewing various similar literature.

Inclusion And Exclusion Criteria:

Inclusion criteria set as the students of dental colleges in Chennai are considered. Exclusion criteria: students other than studying in dental colleges are excluded from this study.

Sampling Method:

In the present study, the sampling method used is a random sampling method.

Data Collection And Tabulation

The questionnaire which was taken on a google form concerns about 20 questions mainly based on the awareness of Turner Syndrome among dental students. Their responses were entered into the excel sheets and then tabulation of the data finally and the question comparison was done. Imported to SPSS. The representation of the data is through the bar graph.

Statistical Analysis

The statistical software used IBM SPSS V22. The statistical test used is Chi square test (p value). Type of analysis used were descriptive analysis, demographic data.

RESULTS:

Among 150 dental students participated in this survey, 129 of 85.4% participants are females and 21 of 14.6% are males. 12 of 7.9% participants

are between 18-20years, 120 of 79.5% participants are between 20-23years and 18 of 12.6% participants are more than 23years age group participated in this study where 143 of 94.7% participants are general dental practitioners and 7 of 5.3% participants are specialists. Many dental colleges participated in this study. 144 of 95.4% participants say turner syndrome is an abnormality of chromosomes and 147 of 97.4% participants say turner syndrome is caused by nondisjunction of chromosomes. Out of 150 participants, 147 of 97.4% say turner syndrome occurs in females and 3 participants are not aware. 138 of 91.4% participants say oral manifestation of patients with turner syndrome are changes in crown and root development, increased risk of root absorption and variation in tooth eruption. 142 of 94% participants are aware that turner syndrome is also called monosomy and 7 participants are not aware about the turner syndrome from inherited from mother or father.

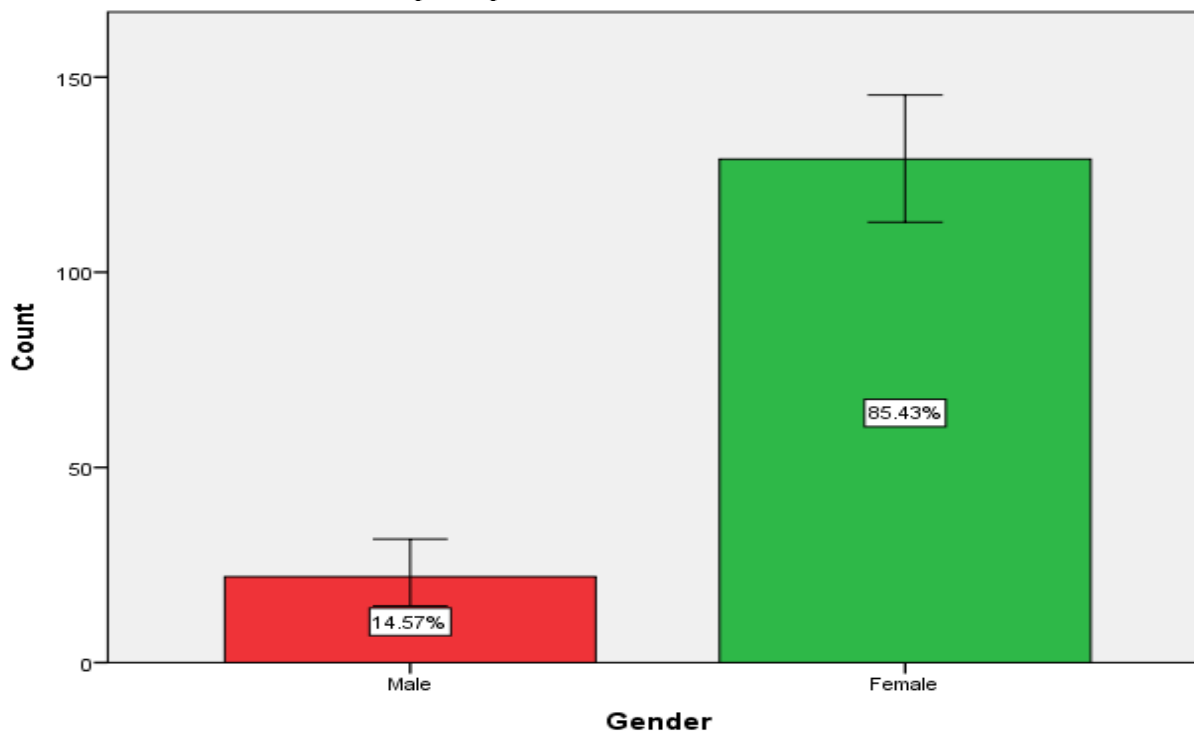


Figure 1: Bar graph represents the gender of the dental students participated in this survey. Purple represents female participants and black

represents male participants. 85.4% participants of dental students are females and 14.5% participants are males.

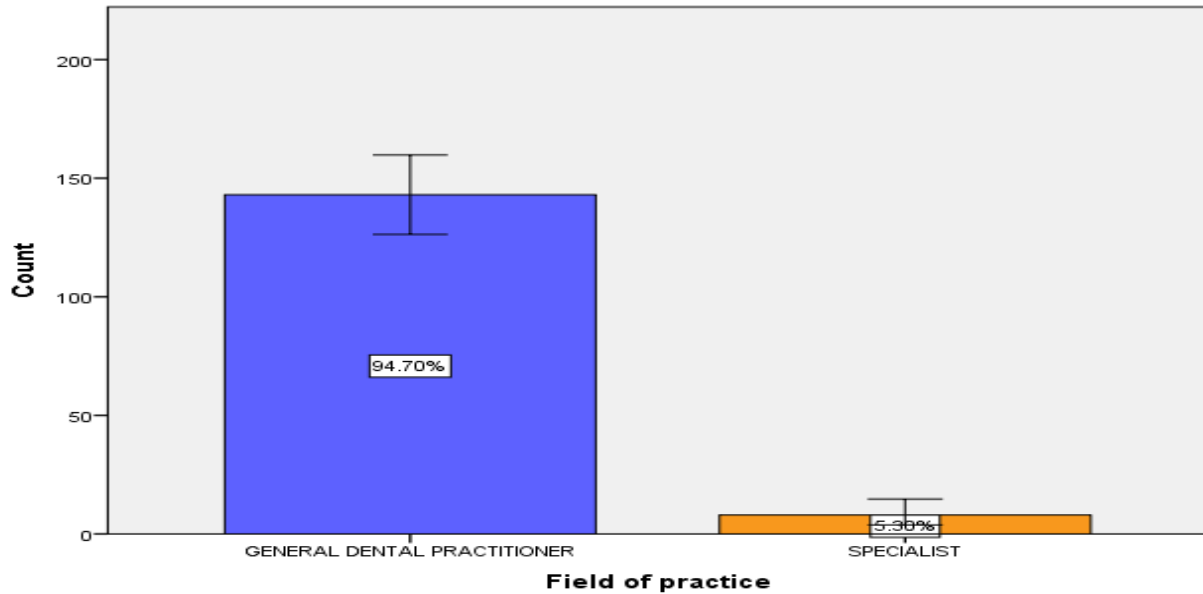


Figure 2: Bar graph represents the field of practice of dental students participated in this survey. Blue represents the general dental practitioner and orange represents specialists in

dentistry. 94.7% of participants are general dental practitioners and 5.3% participants are specialists in dentistry.

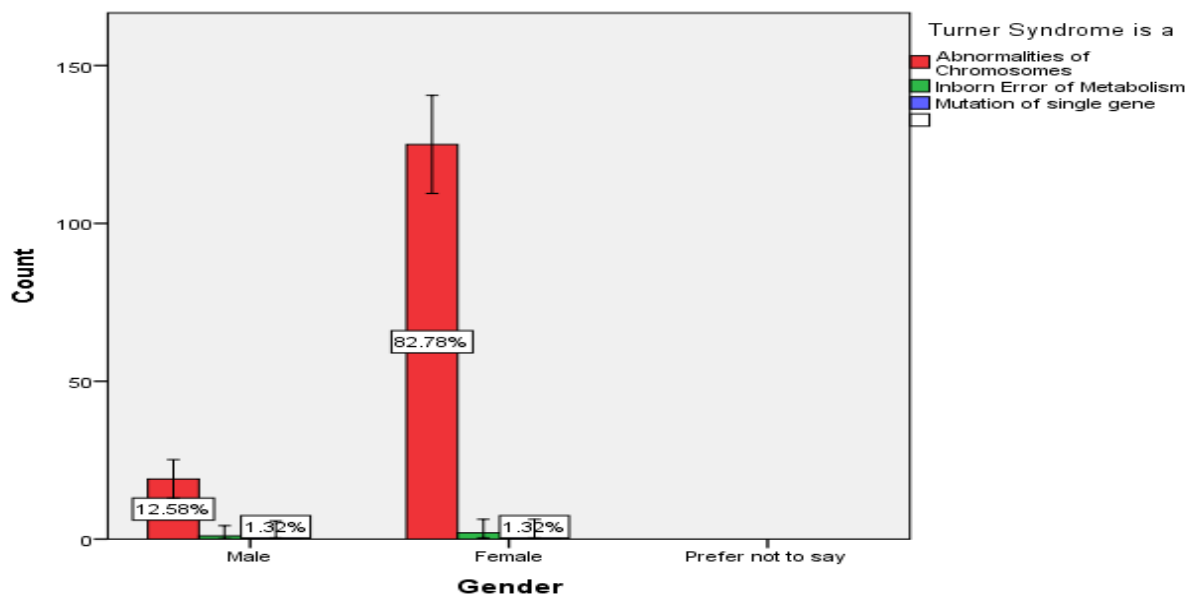


Figure 3: Bar graph represents the association between the gender and number of patients who participated in this survey. X- axis (gender) and the Y- axis (number of patients). Red represents abnormalities of chromosomes, green represents inborn error of metabolism and blue represents

mutation of a single gene. 125 of 82.7% females say turner syndrome is an abnormality of chromosomes, 2 of 1.3% females say inborn error of metabolism and 2 of 1.3% females say mutation of a single gene.

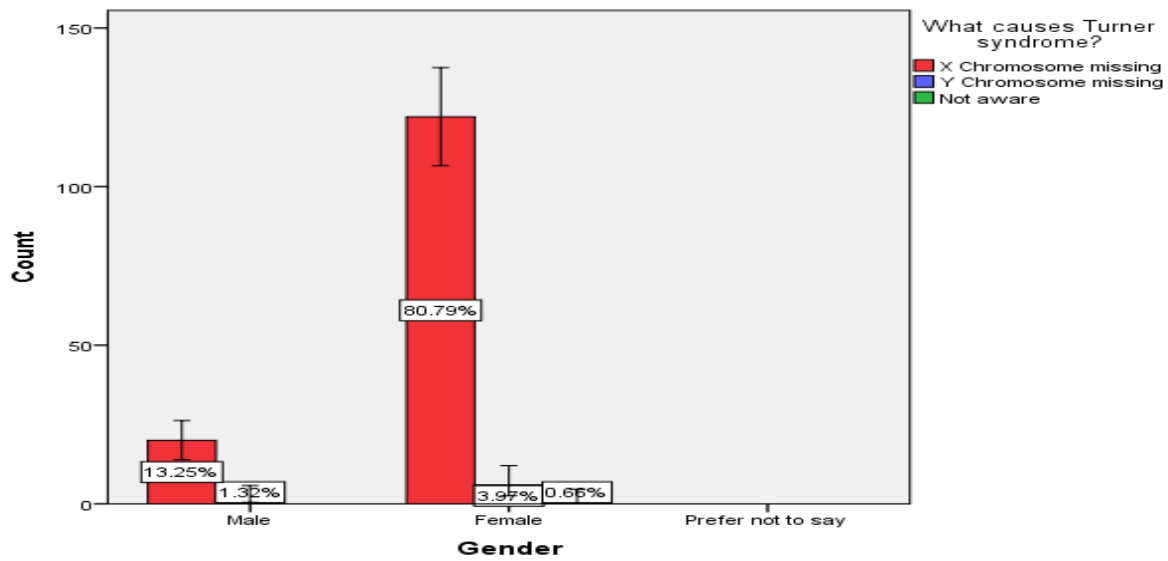


Figure 4: Bar graph represents the association between the gender and number of patients who participated in this survey. X- axis (gender) and the Y- axis (number of patients). Red represents X chromosome missing, blue represents Y

chromosome missing and green represents not aware. 122 of 80.7% females say X chromosome missing cause turner syndrome and 6 of 3.7% say due to Y chromosomes missing.

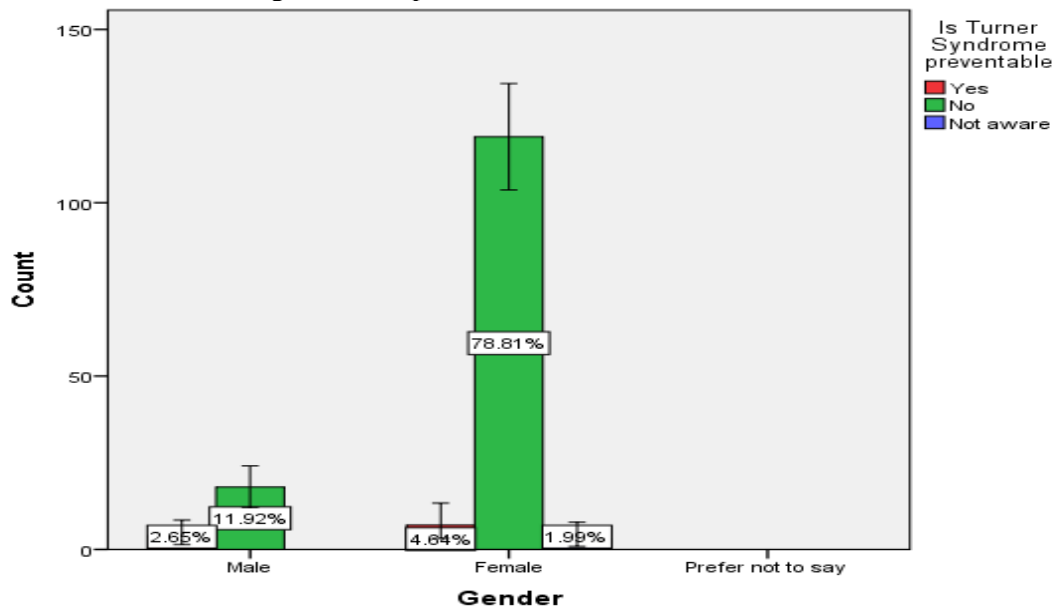


Figure 5: Bar graph represents the association between the gender and number of patients who participated in this survey. X- axis (gender) and the Y- axis (number of patients). Red represents yes, green represents no and blue represents not

aware. 199 of 78.8% female participants say Turner syndrome is not preventable, 7 of 4.64% say it is preventable and 3 of 1.9% participants not aware about the prevention of Turner syndrome.

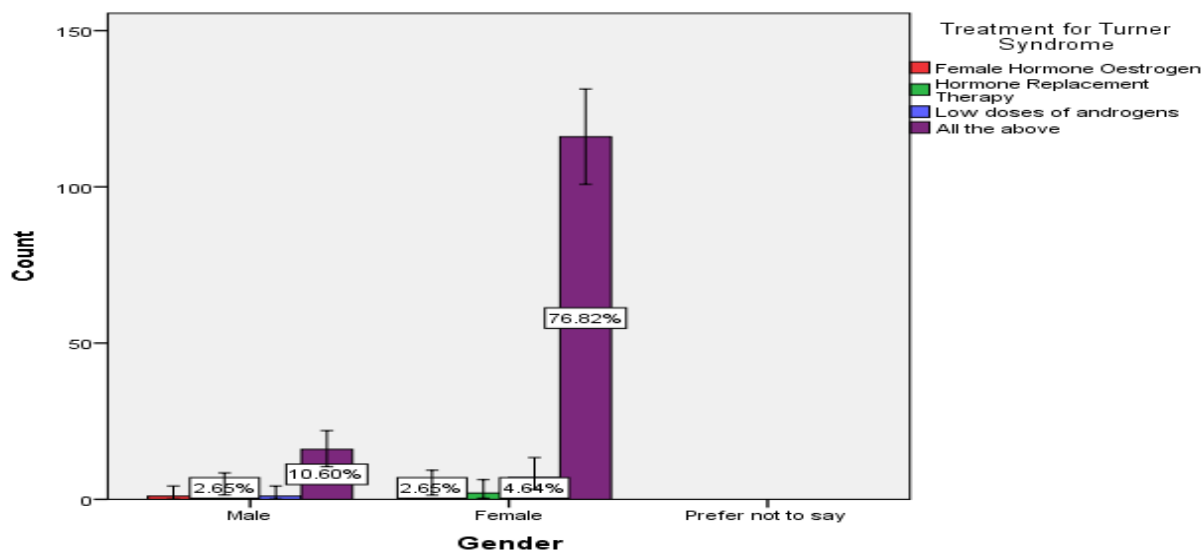


Figure 6: Bar graph represents the association between the gender and number of patients who participated in this survey. X- axis (gender) and the Y- axis (number of patients). Red represents female hormone oestrogen, green represents hormone replacement therapy, blue represents low dose of androgens and purple represents all the above. 116 of 76.8% participants say female hormone oestrogen, hormone replacement therapy, and low dose of androgens is a treatment for Turner syndrome, 7 of 4.64% say low doses of androgens and 4 of 2.65% say female hormone oestrogen is a treatment of Turner syndrome.

DISCUSSION:

Given the complexity of a TS diagnosis and treatment, the diagnosis needs to be clearly communicated to the parents from the beginning, and to the child having regard to her age and developmental stage(42). Earlier diagnosis of TS would help initiate appropriate management and counselling aimed to minimize long-term complications and comorbidities(43). The earlier the diagnosis is communicated, the better is the outcome for the girl's future(44). Education in this area could lead to appropriate screening soon after birth and optimal intervention can be given to those found to have the diagnosis of TS(45).

Awareness of the psychological and psychosocial issues in TS is as important as the knowledge of

treatment options. 76.8% of female dentists are aware about the treatment of Turner syndrome. There is evidence of a specific cognitive and psychosocial phenotype in TS, pediatricians should be attuned to upcoming developmental impairments and therefore explore the child's social behavior, playing habits, concentration levels, cognition and communication skills(46). Puberty is induced by using oestrogen therapy and the timing and dosage is extremely important for each individual girl with TS(47). Turner syndrome allows recombinant human growth hormone (GH) to be introduced in a timely fashion to improve the height prior to oestrogen therapy(48). GH and oestrogen at the appropriate age has shown to give girls a near normal adult height, improved bone mass and sexual function(49).

Another issue that needs to be addressed for TS patients is initiating psychological and educational support to optimise social interaction and educational achievements. All of these factors can certainly improve the quality of life of those affected(50).

CONCLUSION :

From this study, we have concluded that dental students have awareness about Turner syndrome. Most of the students see Turner syndrome cases in day to day life. Dental students have

knowledge about Turner syndrome which is due to abnormalities of chromosomes. Only a few of the students are not aware about Turner syndrome. Hence, we can create awareness by explaining about the causes, diagnosis and treatment of Turner syndrome. Although Turner syndrome can cause a webbed neck and it is not preventable.

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CONFLICTS OF INTEREST :

The authors declare no conflict of interest.

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