ORIGINAL ARTICLE

Knowledge and awareness of celiac disease among the dental students

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ABSTRACT

Consumption of gluten triggers an autoimmune disease known as celiac disease (CD). This is also referred to as nontropical sprue, celiac sprue, or gluten-sensitive enteropathy. Gluten is a protein present in wheat, barley, rye, and other grains. It is due to gluten that the dough becomes elastic and provides bread its chewy texture. The aim of this study is to assess the awareness and knowledge of CD among dental students. This survey is totally based on CD and its awareness among dental students. A survey was conducted among 100 students who are volunteers underneath. This survey contained questionnaires of CD causes, symptoms, treatment, etc., and the accrued was analyzed using SPSS statistics. The result shows that CD affects mainly the small intestine being chosen by 38.61% of students. The symptoms of CD as chronic diarrhea are chosen by 63.37%. The main cause of the disease is due to gluten chosen by 9.90%. Some of the gluten-free foods are chosen by 22.77% of students. In the Chi-square test, the association between the awareness of CD and students shows that postgraduate (PG) students are more aware than undergraduate (UG) students. However, this is not statistically significant since $P > 0.05$ ($P = 0.088$). The correlation graph says that the PGs are more aware than the undergraduates, and UGs have poor knowledge about this disease.

Key words: Awareness, celiac disease, dental students, gluten, innovative technique, novel method

INTRODUCTION

Celiac disease (CD) can be defined as an enteropathy mediated by the immune system and is triggered by the consumption of gluten in hereditarily vulnerable people. CD is one of the well-known disorders on an overall premise affecting 0.5%–1% of people in the USA as well as other developed nations.[1] Wheat, rye, and barley contain gluten as a storage protein. The liquor-dissolvable part of gluten, namely, gliadin, causes toxicity in CD, similar to it hordein is present in barley and secalin is present in rye.[2] Dermatitis herpetiformis is a skin-related complication in CD. The histocompatibility leukocyte antigen is the major predisposing gene, in which DQ2 and DQ8 are the genotypes seen in 95% of patients. The progression of celiac enteropathy is characterized by the presence of antibodies in serum, particularly the IgA class antitissue transglutaminase, antigliadin antibodies, antiendomysial antibody acting agent, and finally, clinical signs.[3] The clinical range of CD is vast consisting of

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intestinal problems (weight loss and chronic diarrhea) or abnormal extraintestinal features (neurological disturbances, anemia, osteoporosis, and so on), and silent forms which are diagnosed by serological screening.[4] CD predominance has developed as dangerous conditions, for example, autoimmune disease, particularly thyroiditis and type 1 diabetes (T1D), family history of CD, IgA deficiency, as well as some inherited disorders (Down, William, and Turner syndromes).[5] Due to its abnormal features, cases with CD often escape from diagnosis and are presented to the danger of long-term difficulties, for instance, lymphoma and infertility. CD is an everlasting condition that can be treated by avoiding the consumption of gluten-containing items. Gluten-rich food provides a considerable contribution to routine energy intake in Western countries and is pleasant to eat.[6] The progressions expected to start and keep a gluten-free diet (GFD) are not unimportant and significantly affect the nature of day-by-day life.[7]

Epidemiological studies recommend that environmental factors are significant in the progression of celiac infection. They include a defensive impact of breastfeeding and initiation of gluten-containing food in relation to weaning.[8] However, the overlap of gluten presentation with breastfeeding might be a significant factor in limiting the danger of CD.[9] The event of certain infections of the gastrointestinal tract, for example, retrovirus infection, additionally increases the danger of celiac illness in infants. Further investigation of natural factors may work with the advancement of procedures for the primary prevention of celiac infection.[10] Our research and knowledge have resulted in high-quality publications from our team.[11-25]

The objective of the study is to assess the awareness and knowledge of CD among dental students.

MATERIALS AND METHODS

A cross-sectional and descriptive study was done to analyze the awareness and knowledge among dental undergraduates (UGs). Through a survey questionnaire, the data were collected from the people. Approval was obtained from the institutional review board to conduct an online survey among 100 participants. A questionnaire of 20 open- and closed-ended questions was prepared and distributed through an online platform "Google Forms." The method of sampling that is done is simple random sampling. The responses were collected, tabulated in the Excel sheet, and analyzed. Analyzed data were represented as a bar graph. The Chi-square test was done to determine the association between the variables.

RESULTS

The survey includes 60% of UG students and 39% of postgraduate (PG) students. About 44.55% of students are aware of CD [Figure 1]. CD affects mainly the small intestine which is known only by 38.61% of students where the villi are atrophied [Figure 2]. The symptoms of CD are known only as chronic diarrhea by 63.37%, whereas it also involves weight loss, fatigue, malaise, etc., [Figure 3]. The main cause of the disease is due to gluten being chosen by 9.90% only which is a protein derivative [Figure 4]. Some of the gluten-free foods are plain meals, fish, rice, fruits, and vegetables chosen by 22.77% of students. CD is diagnosed by a blood test, and biopsy is known by 34.65% which is used to detect the antibodies level in the blood [Figure 5]. The complication regarding CD is a miscarriage, osteoporosis, and lymphoma chosen by only 25.74% which shows lesser knowledge regarding CD [Figure 6]. The correlation between the students and the awareness of CD shows the $P = 0.088$, $P > 0.05$ which is statistically insignificant [Figure 7].

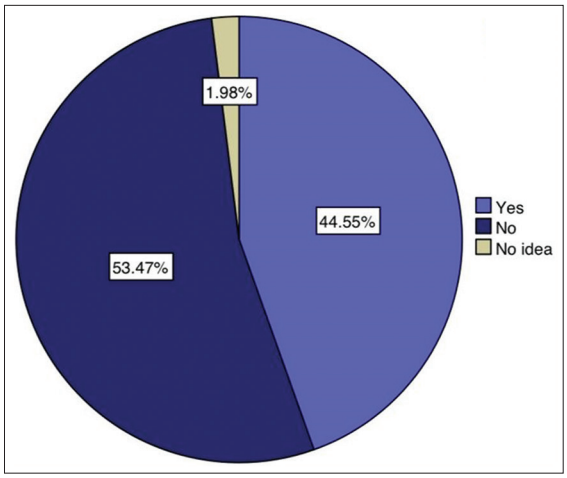

Figure 1: Pie chart indicates the awareness of CD. About 44.5% are students are aware (blue) and not aware is chosen by 53.47% (deep blue) and no idea is of 1.98% (gray)

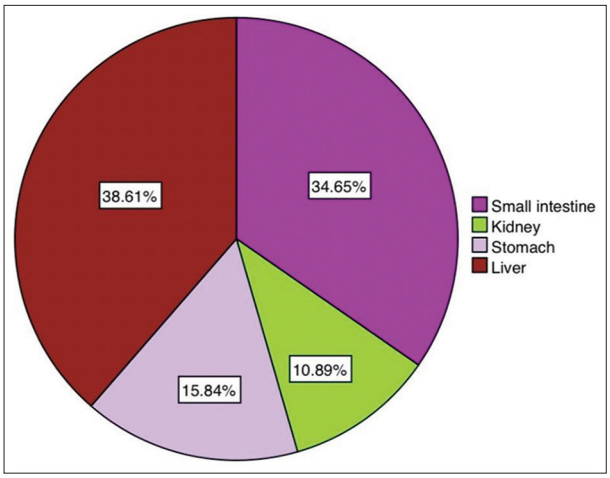

Figure 2: Pie chart represents organs affected by CD. It is chosen as small intestine by 34.65% (pink), kidney by 10.89% (green), stomach by 15.84% (lavender), and liver by 38.61% (red)

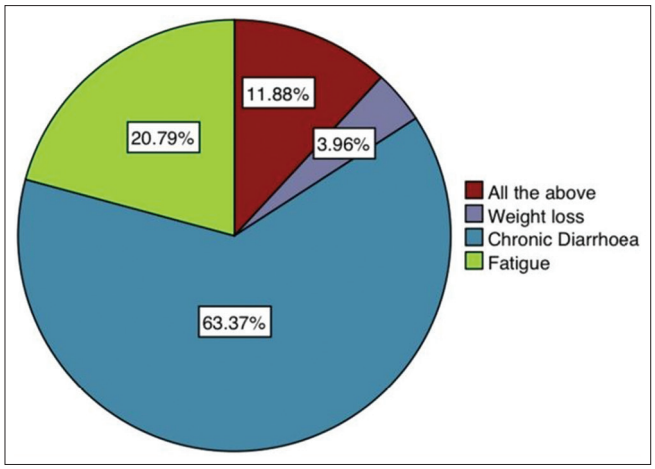

Figure 3: Pie chart represents symptoms of CD. It is chosen as weight loss by 3.96% (violet), chronic diarrhea by 63.37% (blue), fatigue by 15.84% (green), and all the above by 11.88% (red)

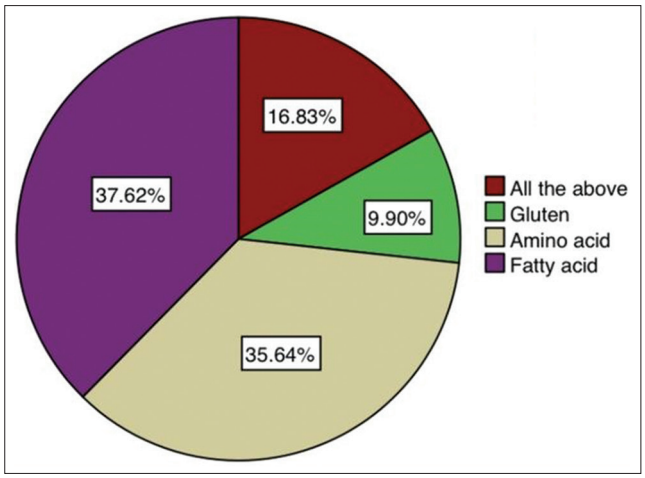

Figure 4: Pie chart represents causes of CD. It is chosen as gluten by 9.90% (green), amino acid by 35.64% (gray), fatty acid by 37.62% (violet), and all the above by 16.83% (red)

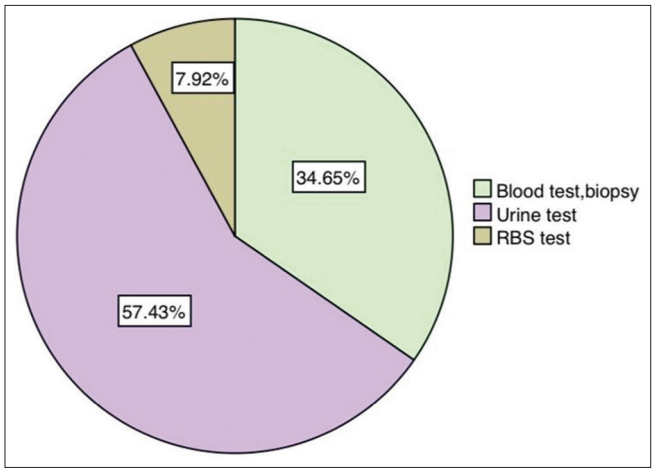

Figure 5: Pie chart represents the diagnosis of CD. It is chosen as a blood test, biopsy by 34.65% (green), urine test by 57.43% (lavender), and RBS by 7.92% (gray)

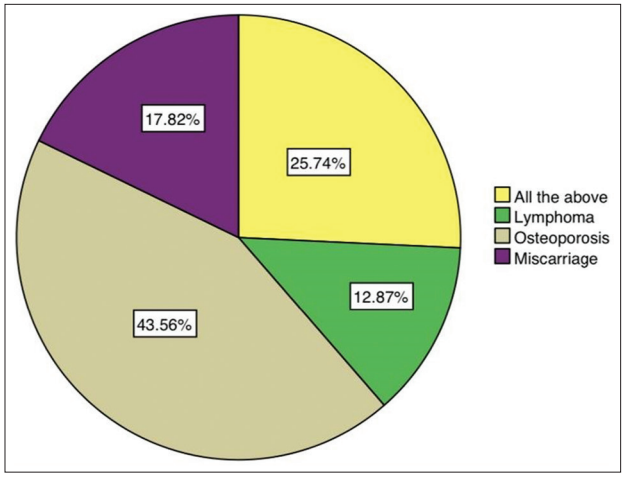

Figure 6: Pie chart represents a complication of CD. It is chosen as lymphoma by 12.87% (green), osteoporosis by 43.56% (gray), miscarriage by 17.82% (violet), and all the above by 25.74% (yellow)

DISCUSSION

The result shows that 44.5% of students are aware and the CD affects mainly the small intestine which is being chosen by 38.61% of students. The symptoms of CD as chronic diarrhea are chosen by 63.37%. The main cause of the disease is due to gluten chosen by 9.90%. Some of the gluten-free foods are chosen by 22.77% of students. In the Chi-square test, the association between the awareness of CD and students shows that PG students are more aware than UG students. However, this is not statistically insignificantly the $P > 0.05$ ($P = 0.088$). In the study reported by Mazur, only 10% of participants believed that their knowledge regarding a GFD was sufficient which showed less awareness of CD. This was three times lower than the actual number of health-care professionals who had sufficient knowledge. In our study, most of the PG students (22.77%) are aware of CD and have sufficient knowledge, whereas the UG students have lesser knowledge [Figure 7].[26]

A study by Murray *et al*. showed that the yearly frequency rate of recently analyzed CD cases in Olmsted County, Minnesota, has increased from 3.3 in 100,000 in the 1990s to 9.1 in 100,000 during 2000–2001. Moreover, during this same period, this rate is still reported in Europe (17 for each 100,000). To increase awareness, management, and diagnosis of CD, the National Institutes of Health gathered a consensus development conference on CD conducted on June 28–30, 2004.[27]

Many groups of the patient have expanded danger of CD, including T1D mellitus, Sjogren's condition, thyroiditis, Down's syndrome, IgA insufficient patients, and those having a family history of CD.[28] The predominance of celiac illness is reported at 3%–8% in type I diabetes mellitus

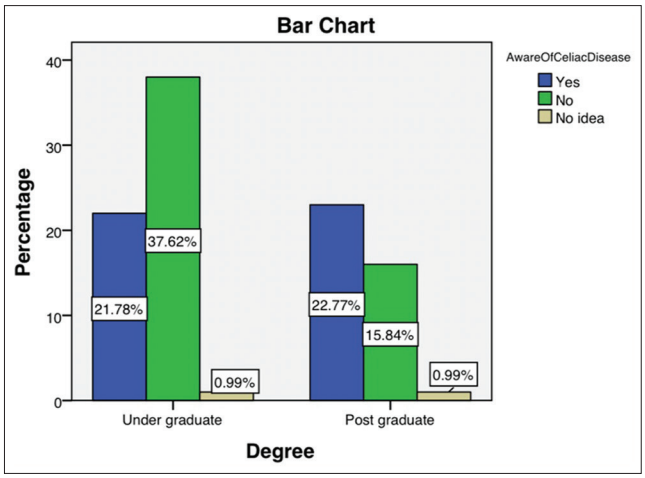

Figure 7: The correlation between the students and the awareness of CD. The X-axis indicates the UG and PG students of the participants and the Y-axis indicates the percentage of awareness of CD. The green indicates No and blue indicates Yes and gray indicates No idea. Awareness of CDs of PG students is more. Pearson's Chi-square test, $P = 0.088$, ($P > 0.05$), which is not significant statistically

patients; however, only a few doctors surveyed were aware of this affiliation.[29] Knowledge of the association of IgA deficiency is significant as negative tests for the antibodies of IgA antitissue transglutaminase and IgA antiendomysial do not prohibit the diagnosis of the disease in this population.[30] Iron-deficiency anemia or anemia with folic acid deficiency is a typical impact of CD and increasing complications in more than 50% of patients. Similarly, osteopenia is seen in around 40% of CD patients and serious osteoporosis is a periodic manifestation.[31] In this study, awareness of the complication of CDs such as osteoporosis, lymphomas, and miscarriage is more among the PGs (25.74%) than the UGs [Figure 6]. Less than half of the primary care doctors knew about these basic affiliations. Collectively, the doctors needed consciousness of the more uncommon association of CD with unexplained infertility, lymphoma, and seizure disorder.[32] Thus, our current research reveals that most PG students are aware of CD and UG students have lesser knowledge. This CD seems to be very much harmful to the future generation.

There are also limitations in estimating the information from students in a single enormous area nationwide. They are not separately recorded in indexes as not reached by our study. Our study is uncentered with a limited demographic area of a smaller sample size. No control group was there for CD and the self-reporters are less concerned about this measure taken to ensure strict anonymity.

CONCLUSION

CD is an autoimmune disease which is common nowadays due to the intake of junk food, gluten intake, etc., From this survey, about 22.77% of PGs are aware of this disease. It concludes with the correlation graph saying that the PGs are more aware than the UGs, and the UGs have poor knowledge about this disease.

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Conflicts of interest

There are no conflicts of interest.

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