KNOWLEDGE AND AWARENESS OF BACTERIOPHOBIA AMONG DENTAL STUDENTS IN CHENNAI - A QUESTIONNAIRE SURVEY

Running title: To know the symptoms experienced by dental students who have bacteriophobia and its effect on their daily life.

Srigopika T,
Undergraduate student,
Saveetha Dental college and Hospital,
Saveetha Institute of Medical and Technical Sciences,
Saveetha University,
Chennai-600077
Email id: 152001029.sdc@saveetha.com

Dhanraj Ganapathy,
Professor and Head,
Department of Prosthodontics,
Saveetha Dental College and Hospital,
Saveetha Institute of Medical and Technical Sciences,
Saveetha University,
Chennai-600077
Email ID: dhanraj@saveetha.com

L. Keerthi Sasanka,
Senior Lecturer,
Department of Prosthodontics,
Saveetha Dental college and Hospital,
Saveetha Institute of Medical and Technical Sciences,
Saveetha University,  
Chennai-600077  
Email id: keerthis.sdc@saveetha.com

**Corresponding author**  
Dhanraj Ganapathy,  
Professor and Head,  
Department of Prosthodontics,  
Saveetha Dental College and Hospital,  
Saveetha Institute of Medical and Technical Sciences,  
Saveetha University,  
Chennai-600077  
Email ID: dhanaraj@saveetha.com
ABSTRACT

Introduction: Phobia is a type of anxiety disorder defined by a persistent and excessive fear of an object or situation. Phobias typically result in a rapid onset of fear and are present for more than six months. Bacteriophobia, like the name suggests, is the fear of bacteria and is experienced by people more than expected.

Aim: The aim of the study is to evaluate the awareness and prevalence of dental students who are bacteriophobic.

Materials and methods: Detailed questionnaire was created with questions about Bacteriophobia, and was circulated to 100 dental preclinical undergraduate students through google forms. The collected data were analyzed using the chi-square test in SPSS software version 21.0. Descriptive analysis was done to analyze data.

Results: It was observed that 62.16% of the dental students do not have bacteriophobia, but around 83.78% of the students believe that if students do have bacteriophobia, the psychological intervention will help.

Conclusion: From this study, it is observed that most dental students do not have bacteriophobia and there is awareness about bacteriophobia.

KEYWORDS
Bacteriophobia, Dental students, Innovative method, Psychological intervention
INTRODUCTION

Phobia is one of the many types of anxiety disorder and can be defined as a persistent and excessive fear of an object or situation. They are characterized by a rapid onset of fear and they are present for at least 6 months (1). Phobias can be divided into specific phobia, social phobia, and agoraphobia. Specific phobias are those relating to the fear of a specific object, animal, blood, injury, or other situations. The most common is the fear of spiders, snakes, and heights. Phobias are generally treated with exposure therapy where the person is put in a situation or exposed to the object that he/she fears until it is resolved (2).

Mysophobia is known by other names such as verminophobia, germophobia, germaphobia, bacillophobia, and bacteriophobia. All this has a common definition, which is the pathological fear of contamination and germs. This term was originally coined by William A. Hammond in the year 1879 when he was dealing with a case of obsessive-compulsive disorder and one of the symptoms is repeatedly washing one's hand (3). Other terms that mean abnormal fear of dirt and filth include molysmophobia or molysomophobia, rhypophobia, and rupophobia, whereas the terms bacillophobia and bacteriophobia specifically refer to the fear of microbes and bacteria in general (4).

Those who suffer from bacteriophobia have a wide range of symptoms and these include excessive hand washing, avoiding locations that contain a high presence of germs, a fear of physical contact, especially with strangers, and excessive effort dedicated to cleaning and sanitizing one's environment, refusing to share personal items, a fear of becoming ill (5). Apart from these symptoms, there are also other physiological symptoms that range in severity and this includes difficulty in breathing, excessive perspiration, increased heart rate, and states of panic when exposed to germ-enhanced conditions.

A distinction between ‘normal’ fear and ‘pathological’ anxiety has to be made (6,7). Normal fear is a physiological, behavioral, and emotional response to a feared object or situation (8). Previous literature which is similar to the present study is, building up the proper cognition and overcoming the torment of mysophobia - psychological counseling and psychotherapy of mysophobia (9) and
depression, anxiety, and stress in dental students (10). This research is needed to check for the number of dental students who are bacteriophobic and to make the dental environment better so that students can comfortably study. Dental students who are unable to show their full potential in dental settings due to being bacteriophobic can now work more comfortably. Our team has extensive knowledge and research experience that has translated into high-quality publications (11–19),(20–25),(26–30). The aim of the study is to determine the prevalence of bacteriophobia among dental students.

MATERIALS AND METHODS

The survey was done with the help of a self-structured questionnaire consisting of 10 questions. Some questions were of yes/no type and other of multiple-choice questions (Annexure 1) and it was carried out online through google forms. The participants who undertook this survey were undergraduate dental students. This is a cross-sectional study and this survey took place among dental students of Saveetha dental college and hospital, Chennai. Inclusion criteria are students who attend a dental college, people who are present during the time of study and willing to participate. Exclusion criteria include people who were not willing to participate in the study and those who were unavailable at the time of scheduled data collection. The questionnaire consists of experiences and symptoms of bacteriophobia. Total 100 responses of all participants including males and females were summed up and results were analyzed using SPSS software version 23.0. Descriptive analysis was performed to calculate frequencies of various categories.
RESULTS

The percentage distribution of participants’ age group in the study. 10.81% were 17-year-olds, 21.62% were 18-year-olds, 21.62% were 19-year-olds, 14.41% were 20-year-olds, and the rest, 30.63% were students above the age of 20 (Figure 1). 36.94% of them who responded were females and 63.06% of them were males (Figure 2). 78.38% of them had prior knowledge of bacteriophobia whereas 21.62% did not know about bacteriophobia (Figure 3). 90.99% of the study population were correct, answering that bacteriophobia meant fear of bacteria where 9.01% did not mark the right answer (Figure 4). 62.16% of them do not have bacteriophobia, 23.42% have bacteriophobia while the other 14.41% do not think so (Figure 5).

Figure 6 depicts the bar chart showing association between the gender and number of participants for the question “Are you conscious of being hygienic and washing your hands.” It is observed that 7.2% of females do not pay much attention to washing their hands and being hygienic whereas 5% of males do not pay much attention to washing their hands and being hygienic. Figure 7 depicts the bar chart showing association between the gender and number of participants for the question “Do you often avoid going to places that you think might have a lot of bacteria.”. 20.7% of females avoid going to places that they think might have a lot of bacteria whereas 18% of males do not avoid going to places that might have a lot of bacteria. Figure 8 depicts the bar chart showing association between the gender and number of participants for the question “Do you think having bacteriophobia affects your lives.” 26% of males and 18.9% of females do not have bacteriophobia and thus it does not affect their lives.
Figure 1: Pie chart represents the percentage distribution of participants’ age group in the study. Blue color represents “17 years old”, green represents “18 years old”, mustard represents “19 years old”, purple represents “20 years old”, yellow represents “21 years old”, red represents “22 years old”, light blue represents “23 years old”, grey represents “24 years old” and sky blue represents “25 years old”. 10.81% were 17 year olds, 21.62% were 18 year olds, 21.62% were 19 year olds, 14.41% were 20 year olds and the rest, 30.63% were students above the age of 20.
Figure 2: Pie chart represents the percentage distribution of gender. Blue denotes “females” and green represents “males”. 36.94% of them who responded were females and 63.06% of them were males.
Figure 3: The pie chart represents the percentage distribution of the number of subjects who know about bacteriophobia. Green represents “yes” and blue represents “no”. 78.38% of them had prior knowledge of bacteriophobia whereas 21.62% did not know about bacteriophobia.
Figure 4: Pie chart represents the percentage distribution of what the participants thought bacteriophobia means. Blue represents “fear of bacteria” and green represents “fear of virus”. 90.99% of the study population were correct, answering that bacteriophobia meant fear of bacteria where 9.01% did not mark the right answer.
Figure 5: Pie chart represents the percentage distribution of whether the participants have bacteriophobia. Blue denotes “I don't think so”, green denotes “no” and mustard denotes “yes”. 62.16% of them do not have bacteriophobia, 23.42% have bacteriophobia while the other 14.41% do not think so.
Figure 6: Bar chart showing an association between the gender and number of participants who are conscious about washing their hands. The X-axis represents the gender and Y-axis represents the percentage of responses. Blue color represents ‘I don’t pay much attention to it’, the green color represents ‘no’ and the grey color represents ‘yes’. Chi Square test was done, Chi-square value: 0.76 P-value: 0.02 (<0.05), hence statistically significant. It is observed that 7.2% of females do not pay much attention to washing their hands whereas 5% of males do not pay much attention to washing their hands.
Figure 7: Bar chart showing an association between the gender and number of participants who do not use the places where there can be bacterial contamination. The X-axis represents the gender and Y-axis represents the percentage of responses. Green represents ‘no’ and grey represents ‘yes’. P-value: 0.01 (<0.05), hence statistically significant. 20.7% of females avoid going to places that they think might have a lot of bacteria whereas 18% of males do not avoid going to places that might have a lot of bacteria.
Figure 8: Bar chart showing an association between the gender and number of participants who agree that their fear of germs affect their life. The X-axis represents the gender and Y-axis represents the percentage of responses. Blue represents ‘I don’t have bacteriophobia’, green represents ‘no’, and grey represents ‘yes’. P-value: 0.04 (<0.05), hence statistically significant. 26% of males and 18.9% of females do not have bacteriophobia and thus it does not affect their lives.

DISCUSSION

In this study we observed that 62.2% of the dental students believe that they don’t have bacteriophobia whereas 14.4% of them are not fully aware yet. Reasons for this can be multiple, maybe some of them aren’t aware of it or they weren’t exposed to bacteria enough to know that they have a phobia.

61.3% of the dental students do not get anxious at the thought of bacteria. In a similar study
conducted, it was observed that management of dental anxiety should be taught to dental students and professionals to reduce the chance of fear (8). Around 74.8% of dental students are hygienic when washing their hands. Similarly dental students from another study had good knowledge of washing hands and females performed better than males (31). In another study conducted between study groups such as nurses, nursing assistants and residents, all study groups had moderate knowledge of hand hygiene (32).

Although every effort has been made to make this study as error-free as possible, some restrictions are unavoidable. This is a cross-sectional study, so it can't be used to look at behaviour over a lengthy period of time. Students who have bacteriophobia at this time may be able to overcome their fear within a few months if they seek professional help. As a result, after a certain amount of time, this study will no longer be as reliable or credible. The way people think about anxiety and phobias evolves throughout time. What one person considers bacteriophobia may not be the same as what another person considers bacteriophobia. Since this is a self-administered questionnaire, it is not validated in a lot of previous studies. The respondents also may hide their true opinions and mark the wrong option.

It is necessary that dental students who have bacteriophobia seek psychological help because if not, it might affect their career in various ways as their profession involves dealing with pathogens such as viruses and bacteria. More awareness should be spread among dental students so it can be dealt with soon before it gets very serious and life threatening.

CONCLUSION

Within the limitations of the study, it can be concluded that the majority of dental students do not have bacteriophobia. But 83.8% of dental students believe that psychological intervention is necessary for the ones who are suffering from bacteriophobia.

AUTHORS CONTRIBUTIONS

Srigopika T: Literature search, data collection, analysis, manuscript drafting.
Dr. Dhanraj M: Aided in the conception of the topic, has participated in the study design, statistical analysis, and has supervised in preparation and final corrections of the manuscript.

Dr. L. Keerthi Sasanka: Data verification, manuscript drafting, preparation of manuscript.

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CONFLICT OF INTEREST
The author declares that there was no conflict of interest in the present study.

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ANNEXURE- 1

The questionnaire given to the participants was as follow:

1. Did you know about bacteriophobia?
   A) Yes
   B) No

2. What do you think it means?
   A) Fear of bacteria
   B) Fear of virus
   C) Fear of small insects

3. Do you have bacteriophobia?
   A) Yes
   B) No
   C) I don't think so

4. Do you think dental students with bacteriophobia are affected a lot?
   A) Yes
   B) No
   C) I don't have an opinion

5. Are you conscious of washing your hands and being hygienic?
   A) Yes
   B) No
   C) I don't pay attention to it
6. Do you get anxious at the thought of bacteria?
   A) Yes
   B) No

7. Do you often avoid going to places that you think might have a lot of bacteria?
   A) Yes
   B) No

8. Do you think having bacteriophobia affects your life?
   A) Yes
   B) No
   C) I don't have bacteriophobia

9. What symptoms do you experience?
   A) Shortness of breath
   B) Dizziness
   C) Sweating
   D) Increased heart rate
   E) None

10. Do you think psychological intervention will help?
    A) Yes
    B) No