



DENTAL INFECTION CONTROL IN HAFAR AL-BATIN DENTAL CENTER

Sami Farhan Mkmi Alanezi^{1*}, Bader Ateeq Shamlan Alshammari²,
Meshal Khalaf Alshammari³, Khalid Mohammed Almuteri⁴

^{1*,2,3,4}Hafar Al Batin Health, KSA

***Corresponding author:** Sami Farhan Mkmi Alanezi

^{*}Hafar Al Batin Health, KSA

Abstract

A small percentage of germs can lead to an infection. In a dental setting, the patient's saliva mixed with blood, pus, plaque, and reticular fluid is frequently aerosolized and spattered, potentially infecting the dental practitioner. descriptive analytical method utilized 127 employees working in Hafar Al Batin dental center participant most of them 87% were female, 13% were male, and 20% The results showed the attitude toward infection control was high; the most negative attitude item was (Is the doctor obligated to wash hands and wear gloves in the dental clinic?" the most attitude item was (Is the doctor obligated to wash hands and wear gloves in the dental clinic) with high attitude and mean 2.88, followed by (Do you think that sterilizing the dental chair reduces infection) with high attitude and mean 2.74, followed by (Can wearing gloves be a substitute for hand washing) with low attitude and mean 1.47 the results showed there is no significant difference in attitude toward infection control due to gender, age, educational level, or infection as a result of the dental visit. Research and study in the case of transmission and how to reduce it through disinfection and some other methods will reach to reduce the potential risks of infection. The cross-infection control strategy every patient must undergo screening. Dental team members must maintain good health. Think about immunization Prophylaxis before and after exposure. Hepatitis B, influenza, mumps, measles, tetanus, rubella, tuberculosis, and whooping cough vaccinations are required for all members. Hand care and washing: provide personal protection barriers use cautionary aseptic techniques.

Keywords: Infection, disinfection, doctor, patients.

CHAPTER 1

INTRODUCTION

Everyday living involves the presence of germs, which can be found in our land, water, bodies, and air. Others are hazardous, while other microbes are beneficial. Numerous bacteria exist in and on our bodies without harming us, and some even aid in maintaining our health. Only a small percentage of germs can lead to an infection.

In a dental setting, the patient's saliva mixed with blood, pus, plaque, and reticular fluid is frequently aerosolized and spattered, potentially infecting the dental practitioner.

This is because microbes always interact with these bodily fluids and generate infectious and transmissible diseases, the most prevalent of which are the common cold, herpes, hepatitis, and AIDS.

Universal precautions must therefore be followed, and every patient must be treated as though they could be contagious.

The term "universal precaution" refers to the application of uniform infection control practices across the board.

The dentist must therefore be aware of these safety measures and must adhere to the infection control procedure in his dental facility.

The need of using the right disinfection and sterilization techniques has been underlined in numerous papers that detail diseases caused by incorrect cleanliness of patient care items. According to the item's original purpose, it document offers suggestions for the appropriate technique for cleaning and sterilizing patient-care goods (i.e., critical, semicritical, noncritical). In addition to alcohol, glutaraldehyde, hydrogen peroxide, peracetic acid, sodium hypochlorite, iodophors, phenolic, and quaternary ammonium compounds are other chemical disinfectants that are suggested for patient-care equipment and instruments. Based on the potential for infection when using the item, the disinfectant, concentration, and exposure period were chosen. The four sterilization techniques that are briefly covered include dry heat, innovative low- temperature sterilization technologies, and steam sterilization.

LITERATURE REVIEW

A Study Addressed: (The Role of Education in the Prevention and Control of Infection)

This paper presents a literature review that was conducted before a study on the experiences of student nurses and midwives studying infection control in clinical practice. Its goal is to define the role played by education in standard precautions, with an emphasis on ensuring that infection control precautions are followed and lowering infection rates. It also lists the techniques for instructing in infection control. The evaluation concludes that there doesn't sufficient and persuasive data to support the claims of education increases compliance with infection control measures or lowers infection rates, particularly over the long term. Future research directions are indicated (Deborah J. Ward, 2011).

Another Study of (Infection Control in the ICU) Nosocomial infections (NIs) now affect 5 to 15% of hospitalized patients, and 25 to 33% of those admitted to intensive care units (ICUs) may develop problems as a result. The most frequent causes are bacteremia resulting from intravascular devices, intraabdominal infections following trauma or surgery, and pneumonia associated with mechanical ventilation. The purpose of such an outline is to persuade ICU doctors that the principles of infection control in the ICU are based on straightforward ideas and that applying preventative measures should not be seen as a restrictive or administrative charge of the work but rather as a set of fundamental steps, that can be taken right at the bedside.

Understanding the pathophysiology and the logic of preventative methods that are beneficial requires a thorough understanding of the epidemiology, based on sufficient monitoring methodologies. The fundamentals of all- encompassing precautions, including the application of common and isolated precautions and the management of antibiotic usage, were examined. There are specific practical preventive and control strategies for infection at surgical sites, such as bloodstream, urinary tract, and ventilator-associated pneumonia. Recent evidence firmly establishes that these tactics might only be lastingly successful if they can be ingrained into the conduct of all staff who assist patients. Therefore, infection control measures must be prioritized, and completely included in the ongoing process of raising the standard of care. (Philippe Eggimann MD, Didier, 2001).

A Study Addressed as (The Low Bury Lecture: Behaviour in Infection Control)

Cross-transmission associated with ineffective patient care procedures is the primary cause of the majority of healthcare-associated illnesses. Modern infection control faces a major difficulty in changing healthcare workers' behaviour, which typically implies improving processes. Infection control could benefit from studying the behavioural sciences to increase the compliance of healthcare personnel with procedures. Social cognitive models can enhance our comprehension of how people

behave. Cognitive factors that influence behaviour are learned through socialisation and are subject to change.

However, none have yet been successfully used to explain behaviour in the area of infection control. Some models have been applied to examine determinants of health behaviour. Their multidimensional nature leads to effective infection control practises improvement measures. Similar to this, social models that incorporate various levels of cognitive determinants have a better probability of successfully explaining behavioural change. There are specific references to hand hygiene behaviour as well as practical examples related to infectious disease issues. The idea of the evolutionary perspective, which holds that activity, is perceived as being impacted by and affecting numerous levels of influence and that it both affect and is influenced by the social environment, appears to hold promise for explaining behavioural techniques (D. Pittet, 2004).

OBJECTIVES

1. To avoid exposing patients and members of the dental team to diseases (including HIV, HBV, syphilis, and influenza) while receiving dental care.
2. To achieve the lowest feasible level of harmful microorganisms in the dental environment and consequently during dental procedures.
3. To treat each patient with a high-quality crossinfection control to stop the spread of infection.
4. To make cross-infection control simpler, enabling the dental team to conduct dental treatments with the least amount of disruption.

Problem Statement

The problem is the lack of recent studies to cover this medical content, and because we see that risks of infection do not have specific ways of transmission and we are trying here to address the research on how it is transmitted not only through contact but some of the following points may be a sign of infection, including:

- Redness or swelling in the wound area.
- Bleeding or pus from the wound site.
- The appearance of an unpleasant odour.
- The pain is getting worse.
- The temperature rises above 38 for more than 4 hours.
- Thick green or yellow discharge from the wound site.
- An increase in the size of the wound or a change in its colour to dark.

Research Questions

- What are the main factors that cause infection? □ What are the causes of infection?
- How do disinfection operations reduce infections?
- What are the factors that can increase the transmission of infection?
- How can we reduce the transmission of infection in dental practice?

General Aims

- Determining the causes of infection.

Specific Goals

- Determining the causes and types of infection.
- What is the impact of the spread of infection, and how to reduce it in dental practice?

METHODOLOGY

The research follows the descriptive analytical method, then statistical analytical work will be done through a questionnaire targeting a random sample, from about 127 employees working in Hafar AL-Batin Dental Center.

Ethical Considerations

The following ethical considerations are considered in the study:

- Informed consent: The researcher recruits willing participants after fully explaining the purpose of the research.
- A consent form was distributed on time, giving participants enough time to read and comprehend it before a verbal explanation of potential risks and benefits was given to each participant.
- The ethical approval was obtained from the local research ethics committee at Hafar ALBatin Health.

CHAPTER 2

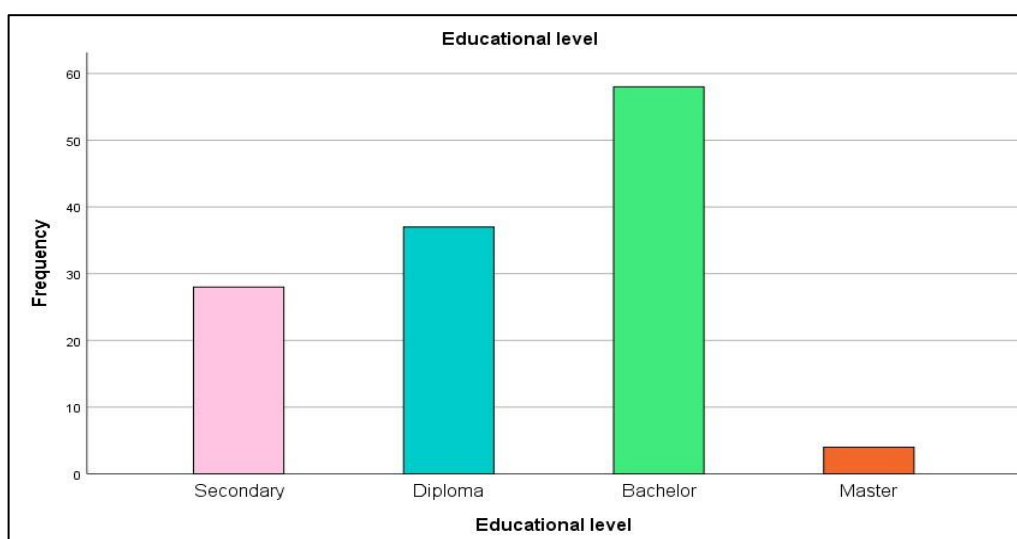
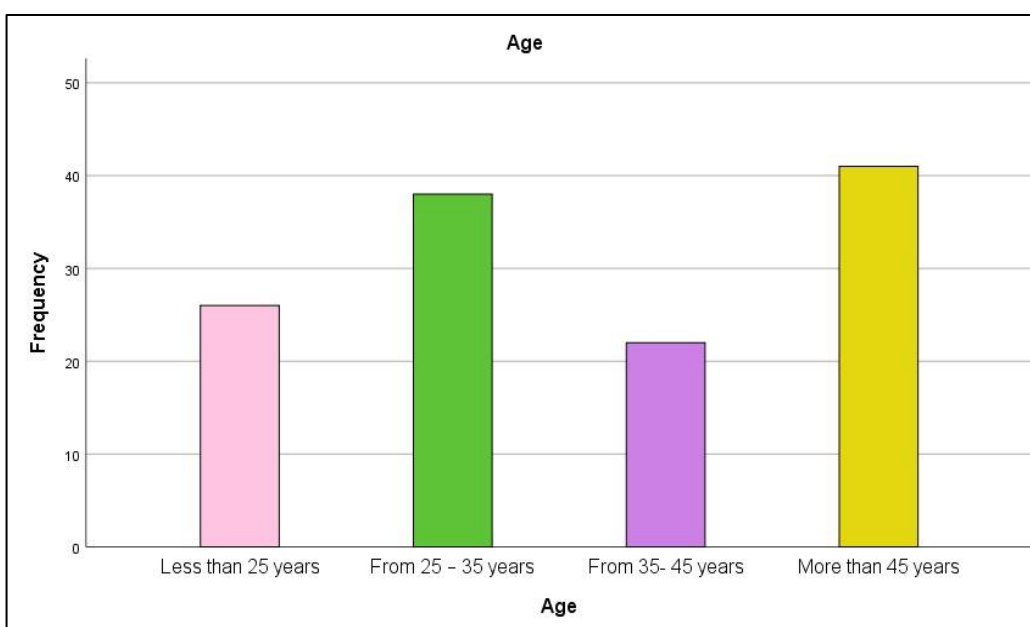
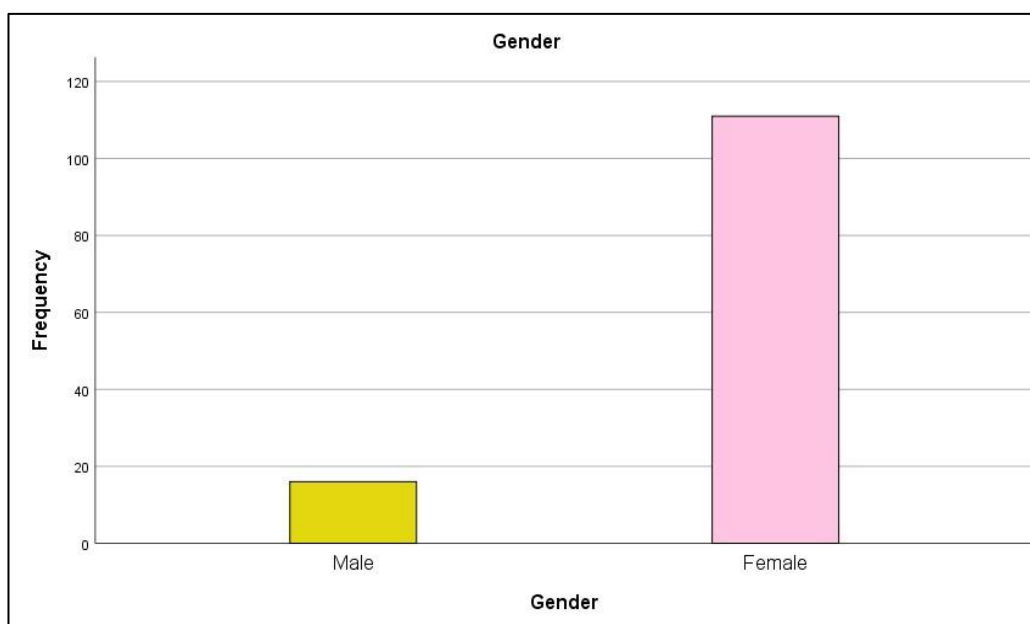
RESULTS

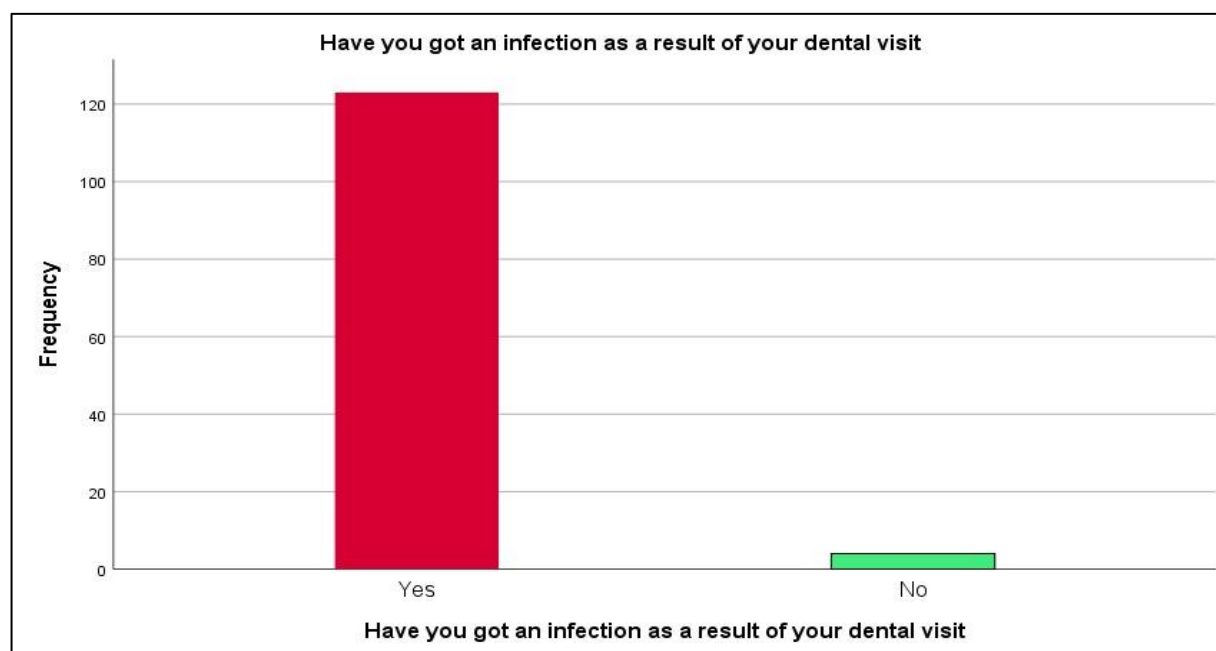
The results showed the participants were 127, most of them 87% were female, 13% male, 20% aged less than 25years, 30% from 25 – 35 years, 17% from 35 – 45 years, 32% more than 45 years, 22% with secondary education, 29% diploma, 46% bachelors, 3% master, there were 97% have got infection a result to their dental visit, and 3% no The results showed the attitude toward infection control level was high with mean 2.39, about the items, the most attitude item was (Is the doctor obligated to wash hands and wear gloves in the dental clinic) with high attitude and mean 2.88, followed by (Do you think that sterilizing the dental chair reduces infection) with high attitude and mean 2.74, followed by (Do you find the dental clinic maintaining the sterilization of tools to combat infection) with high attitude and mean 2.71, followed by (Is hand washing the most effective way to fight infection in the dental office) with high attitude and mean 2.59, followed by (To avoid acupuncture injuries, should the needles be rewrapped/bent after use) with high attitude and mean 2.58, followed by (Do you take adhere to the medical instructions for infection control in the dental clinic) with high attitude and mean 2.55, followed by (Do fluids from dental treatment transmit infection) with moderate attitude and mean 2.24, followed by (Do you commit to wearing a mask before and after entering the dental clinic) with moderate attitude and mean 1.79, followed by (Can wearing gloves be a substitute for hand washing) with low attitude and mean 1.47.

The results showed there were 97% had gotten an infection as a result of their dental visit, the attitude toward infection control level was high, and there is no significant difference in attitude toward infection control due to gender, age, educational level, or infection as a result of dental visit The results showed there is no significant difference attitude toward infection control due gender, age, educational level, infection as a result of the dental visit.

Table 1: basic data (N=127)

Variables	Categories	N	%
Gender	Male	16	13
	Female	111	87
Age	Less than 25 years	26	20
	From 25 – 35 years	38	30
	From 35- 45 years	22	17
	More than 45 years	41	32
Educational level	Secondary	28	22
	Diploma	37	29
	Bachelor	58	46
	Master	4	3
Have you got an infection as a result of your dental visit	Yes	123	97
	No	4	3



**Table 2: Mean range of antibiotic uses practice**

Mean range	Scale	Interpretation
1 – 1.66	1	Low
1.67 – 2.33	2	Moderate
2.34 – 3.00	3	High

Table 3: distribution response to attitude toward infection control

No	Items	No	May be	Yes	Mean	SD	Level
1	Do you take to adhere to the medical instructions for infection control in the dental clinic	7 6%	43 34%	77 61%	2.55	0.6	High
2	Do you find the dental clinic maintaining the sterilization of tools to combat infection	2 2%	33 26%	92 72%	2.71	0.49	High
3	Do you think that sterilizing the dental chair reduces infection	5 4%	23 18%	99 78%	2.74	0.523	High
4	Is the doctor obligated to wash hands and wear gloves in the dental clinic	1 1%	13 10%	113 89%	2.88	0.348	High
5	Do you commit to wearing a mask before and after entering the dental clinic	57 45%	41 32%	29 23%	1.78	0.796	moderate
6	Can wearing gloves be a substitute for hand washing	89 70%	16 13%	22 17%	1.47	0.775	Low
7	Do fluids from dental treatment transmit infection	29 23%	38 30%	60 47%	2.24	0.804	Moderate
8	Is hand washing the most effective way to fight infection in the dental office	12 9%	28 22%	87 69%	2.59	0.659	High
9	To avoid acupuncture injuries, should the needles be rewrapped/bent after use	13 10%	27 21%	87 69%	2.58	0.672	High
	Total				2.39	0.26	High

Table 4: difference in attitude toward infection control according to basic data

Variables	Categories	Attitude Mean	Test	Statistics	p-value
Gender	Male	2.4	Independent Samples Test	0.02	0.984
	Female	2.39			
Age	Less than 25 years	2.31	ANOVA	1.389	0.249
	From 25 – 35 years	2.44			
	From 35- 45 years	2.39			

	More than 45 years	2.41			
Educational level	Secondary	2.43	ANOVA	0.924	0.431
	Diploma	2.41			
	Bachelor	2.36			
	Master	2.53			
Have you got an infection as a result of your dental visit	Yes	2.4	Independent Samples Test	0.333	0.906
	No	2.28			

CHAPTER 3

DISCUSSION

Dentistry is increasingly concerned with infection control. Patients who are receiving dental care run a serious risk of getting sick and spreading infections. Similar emphasis has been paid to crosscontamination and patient-to- patient transmission of disease. When resolving these problems, two unique elements need to be considered. (1) How to prevent dentists and their employees from getting sick and spreading disease to patients; and (2) What safety measures should be done to prevent crosscontamination with equipment?

Because of the present epidemic, dentists must closely adhere to established protocols to guarantee the safety of dentists, employees, and patients. You can considerably lower the risk of disease transmission and take fewer measures by adhering to the advice of the American Dental Association (ADA), the Centers for Disease Control and Prevention (CDC), or the Saudi Ministry of Health (SMOH) [1, 2].

Almost all the participants suffered from infection as a result of the dental clinic visit. This shows the danger of this process and its high burden among patients having dental problems and seeking dental care in clinics.

Our study aimed to assess the attitude of the participants towards dental infection in dental clinics. It was found that the attitude of the participants towards dental infection is high. The most scoring opinion was that dentists are obligated to wash their hands and wear gloves while working in the clinics. Most of the participants agree that sterilizing the chair reduces infection. The majority of the participant agrees that the tools should be sterilized as well. They think that hand washing is the most important way to fight infection and this was provided with a high attitude. They also believe that they should adhere to the medical instructions in dental clinics to combat infection. A moderate attitude towards the transmission of infection from dental fluid treatments and is committed to maskwearing before and after the entrance of the clinics. People thought that wearing gloves can't substitute for handwashing in the process of infection prevention.

There was no significant association between attitude towards dental infection and age, gender, education level or being infected from dental visits.

Therefore, dental hygiene could be kept at its peak in all dental clinics to avoid any infections which can lead to serious complications. This is done through continuous hand washing, wearing of gloves, wearing of face masks among dentists and patients, proper sterilization of tools, Adequate sterilization of dental chair and adherence to the dentist's instructions regarding dental hygiene in the clinic.

CONCLUSION

We need some research and study on the case of transmission and how to reduce it through disinfection and some other methods that will reduce the potential risks of infection. There were no restrictions on the cross-infection control strategy: Every patient must undergo screening. Dental team members must maintain good health. Think about immunization. Prophylaxis before and after

exposure to Hepatitis B, influenza, mumps, measles, tetanus, rubella, tuberculosis, and whooping cough vaccinations are required for all members.

Hand care and washing: provide personal protection barriers and use cautionary asthmatic techniques. Blood and saliva-contaminated blood can be disseminated during treatment and cleaned up by anything that has been in the patient's mouth. Carefully organize instruments.

RECOMMENDATION

Carrying out future studies in other healthcare settings, increasing sample size and studying different variables associated with attitudes towards dental infection. We also recommend the spread of public health awareness regarding the danger of dental infection and the importance of dental hygiene to eliminate the problem of dental infection and the accompanying complications. Personal and dental clinic hygiene should also be focused on as they are the main factors controlling the problem of dental infection.

Limitations

Of the study can include a small sample size, conduction of the study in only one setting and studying the association of attitudes towards dental infection with few variables.

Author's Contributions

This work was carried out in collaboration among all authors. All read and approved the final manuscript.

REFERENCES

1. Pittet, D. (2004). *The Lowbury lecture: behaviour in infection control*. El Sevier- Science Direct.
2. Deborah, J. W. (2011). *The role of education in the prevention and control of infection: A review of the literature*. Science Direct - Elsevier.
3. Philippe Eggimann, MD, Didier. (2001). *Infection Control in the ICU*. ELsivier- Science Direct.
4. Upendran, A., Gupta, R., & Geiger, Z. (2022). Dental Infection Control. *StatPearls* [Internet]. [cited 2022 Dec 4]; Available from: <https://www.ncbi.nlm.nih.gov/books/NBK470356/>
5. Natto, Z. S., Alshehri, M. M., & Alghamdi, F. K. (2021). Infection Control Practices at the Dental Clinics in Jeddah, Saudi Arabia. *J Multidiscip Healthc* [Internet]. [cited 2022 Dec 4], 14, 2951. Available from: [/pmc/articles/PMC8550542/](https://pubmed.ncbi.nlm.nih.gov/34550542/)