

Assessment of Knowledge, Attitude and Practical Implementation of Bioethical Principles among Dental Professionals in Lahore, Pakistan

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ABSTRACT

Aim: To analyze the level of awareness, knowledge and attitude towards bioethics among dental professionals and practical implementation of bioethical principles in their dental practice..

Methodology: A descriptive cross-sectional, pre-validated questionnaire based research was conducted at four dental teaching institutions of Lahore, Pakistan. A non-probability purposive sampling technique was used.

Results: Majority of the respondents 167(60.7%) were graduates having desirable knowledge and awareness of term "BIOETHICS". It was appreciative that contributors had a positive perspective about the role of bioethics and have accepted its worth in their daily lives. A greater proportion 117(50.9%) of the participants gave opinion that full description of risks and benefits should be stated in informed consent. The fact that most of the respondents are dedicated to learn more about bioethics was endured out by present data as 224(81.5%) were of the opinion that bioethics should be a part of curriculum at undergraduate level. The survey specified that organ donation and abortion are considered as most critical bioethical issues.

Conclusion: Dental fraternity has a fair knowledge of term 'Bioethics' and trend is seen towards practical implementation of principles of bioethics. Many domains of bioethics are still under debate because responses were influenced by cultural and religious norms. There is a dire need of development of innovative educational initiatives of ethics related to clinical/ technical issues, practice management, and social/ civic controversies.

Keywords: Bioethics, Practical Implementation, Bioethical principles, Human rights, Confidentiality

INTRODUCTION

Every moment of life has great worth and is irreversible. In Islam, life is sacred and one of the greatest blessings of Allah. The guiding principle in the Islamic bioethics is: "whoever slays a soul, unless it is for manslaughter or for mischief in the land, it is as though he slew all men; and whoever keeps it alive, it is as though he kept alive all men" (Qur'an: 5: 32). According to this verse, saving life is an obligation and the unwarranted taking of life is a major crime¹.

WT Reich defines bioethics as "The systematic study of the moral dimensions including moral vision, decisions, conduct and policies of the life sciences and health care, employing a variety of ethical methodologies in an interdisciplinary setting"².

Hrvoje Jurić, a Croatian bioethicist, presented bioethics in two perspectives; broader and narrower. The narrower standpoint links bioethics with clinical practice, healthcare, biological, biomedical and pharmaceutical researches therefore rendering it as humanely biomedical perspective. The broader standpoint insists upon a more complex definition of bioethics which comprehensively includes side by side both clinical-medical issues and numerous other that may be characterized as global-ecological.^{[3][4]} More specifically, bioethics deals with practical (or applied) ethics pertaining to human being⁵.

International bioethics began more than a decade after the birth of bioethics in USA. In 20th century during World War II, numerous unethical and inhuman experiments were performed on human test subjects known as Nazi experiments. These experiments are designated as classical example of violation of four fundamental human ethical principles: autonomy, justice, beneficence, and non-maleficence^{6,7,8}.

As medical technology is moving forward at a rapid pace, health care professionals knowingly or unknowingly are getting indulged in various ethical dilemmas. Considering the multiplex nature of health care system, bioethics aids to investigate and analyze the approach of novel practices towards social benefit and human wellbeing. Therefore it can be inferred that bioethics is a multidisciplinary field that combines philosophy, theology, history

and law with medicine, nursing, health policy and the medical humanities^{4,9}.

This study intended to analyze the level of awareness, knowledge and attitude towards bioethics among dental professionals and practical implementation of bioethical principles in their dental practice. The research is conducted to draw a practical conclusion from a survey based approach that may aid in superintendence of human rights and dignity.

MATERIALS AND METHODOLOGY

A descriptive, cross-sectional, quantitative study was conducted in four different institutes of Lahore i.e. University College of Dentistry, Sharif Medical and Dental College, Avicenna Medical College and Akhtar Saeed Medical and Dental college over a period of six months (March 2021 to August 2021). Non probability purposive sampling technique was used. Statistical analysis was done using SPSS (V.25). Inclusion criteria consisted of consultants/ faculty members, post-graduate trainees and interns. The exclusion criteria included undergraduate students, doctors other than dental professionals and private practitioners.

Questionnaire design: Questionnaire was divided into two parts i.e. Part A and Part B, containing 18 pre-validated study items. Part (A) contained close-ended questions and Part (B) consisted of four case scenarios related to bioethics^{10,11}. Part A was assessed on 3-point Likert scale (Agree, Disagree and Neutral) while Part B had four different options for each scenario, out of which respondents had to mark one only. Out of three hundred participants, two hundred and seventy five responses were received. Dropout rate was 25(8.33%) either due to incompletely filled questionnaires or due to dual responses.

RESULTS

Respondents included 146(53%) house officers, 62(22%) demonstrators, 46(16.7%) post-graduate trainees, 12(4.3%) registrars and 9(3.2%) assistant professors (Table I). Frequency and percentages of the items in Part A and Part B of questionnaire were determined and compiled in a tabulated form (Table II, III).

Results showed that majority of the respondents 167(60.7%) were aware with the term "BIOETHICS". Only 144(45.1%) agreed

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that they have discussed Bioethics in their community while on the other hand more than 124(52.6%) never discussed it.

Regarding institutional/ organizational ethical policy, 140(42.5%) of the respondents mentioned that their organization have a written ethical policy. Approximately 151(54.9%) of the respondents felt that leaders of their organization act ethically. Majority 188(68.4%) and 192(69.8%) responded that their organization do not offers any training in ethics and there is no committee for it respectively. Greater proportion of respondents 224(81.5%) were in the favor that bioethics should a part of curriculum to teach in class.

About implementing bioethics in self-practice, 209(76%) and 226(82.2%) participants agreed on utilizing their authority properly and maintaining appropriate confidentiality sequentially while 233(84.7%) responded that they try to do right things in their practice. About 78(28.4%) mentioned that favoritism do not enter in their decision making while 195(70.9%) admitted that they give favoritism to their patients.

Table I: Demographic details of respondents (n=275)

Parameters	n
Designation	
House Officers	146 (53.0%)
Demonstrators	62 (22%)
Post-graduate Trainees	46 (16.7%)
Registrars	12 (4.3%)
Assistant Professors	9 (3.2%)
Age range (in years)	
21-25	147 (53.4%)
26-30	84 (30.5%)
31-35	34 (12.3%)
36-40	10 (3.6%)
Level of Education	
Graduates	254 (92.3%)
Post-graduates	21 (7.6%)

Table II: Respondents' views on Bioethical Issues (Part A)

No.	Questions	Agree	Disagree	Neutral
1	Are you familiar with the term "Bioethics"?	167 (60.7%)	32 (11.6%)	76 (27.6%)
2	Have you ever discussed Bioethics in your circle/class?	144 (45.1%)	124 (52.6%)	7 (2.5%)
3	Does your organization have a written ethical policy?	117 (50.9%)	140 (42.5%)	18 (6.5%)
4	Do the leaders of your organization act ethically?	151 (54.9%)	109 (39.6%)	15 (5.5%)
5	Does your organization offers training in ethics?	71 (25.8%)	188 (68.4%)	16 (5.8%)
6	Does your institute have a committee for bioethics?	51 (18.5%)	192 (69.8%)	32 (11.6%)
7	Should Bioethics be a part of curriculum to teach in class?	244 (81.5%)	38 (13.8%)	13 (4.7%)
8	Do you utilize your authority properly?	209 (76%)	64 (23.3%)	2 (0.7%)
9	Do you maintain appropriate confidentiality?	226 (82.2%)	39 (14.2%)	10 (3.6%)
10	Do you challenge yourself to do the right things?	233 (84.7%)	36 (13.1%)	6 (2.2%)
11	Does favoritism ever influenced your decision making?	195 (70.9%)	78 (28.4%)	2 (0.7%)
12	Should the government allow the organ donation in Pakistan?	221 (80.4%)	52 (18.9%)	2 (0.7%)
13	If your father need a kidney to live, will you donate one of your kidneys to him?	260(94.5%)	13 (4.7%)	2 (0.7%)
14	Should Pakistan freely allow abortion?	50(18.1%)	210(76.4%)	15(5.5%)

Table III: Respondents' views on Bioethical Issues (Part B)

Scenario 1:				
Thirty patients from the outpatient clinic of the Faculty of Dentistry were enrolled in a study that aimed to evaluate the flexible denture base material as compared with conventional denture base. One of the most serious disadvantages of the resilient denture liners is colonization and infection of the material surface by Candida albicans. An oral consent has been taken from the patients without full description of the risks and benefits. Which of the following best describes obligations of informed consent?	(a) Can conduct research without ethical responsibility	(b) Written consent with brief description	(c) Full description stated in informed consent	(d) No need for informed consent
	19(6.9%)	116 (42.2%)	140(50.9%)	0
Scenario 2:				
One hundred children of both sexes, age range from 7 to 16 years, were randomly selected from the outpatient clinic of the Faculty of Dentistry. The examined children will be divided into two groups. One group will have their extensively carious teeth extracted, while the other group will go through Pulpotomy in an attempt to keep the tooth as long as possible in their mouth.	(a) Explain procedure to Child's Guardian	(b) Assent should be taken from Child	(c) Assent from Child as well as written consent from Child's Guardian	(d) No need to have Assent or Consent
	61(22.2%)	37(13.5%)	172(62.5%)	5(1.8%)
Scenario 3:				
Fifty-five patients from the outpatient clinic of the Faculty of Dentistry were diagnosed as having Lichen Planus. Biopsies were taken from the patients after their approval to confirm the clinical diagnosis (patients were not charged any money). A month later, a research on Lichen Planus is planned by the Faculty involving all biopsies that were previously obtained from the patients.	(a) Research cannot be done without Patient's approval	(b) Reports belong to Faculty of Dentistry, no need for Approval	(c) Researchers decide whether to take patient's consent or not	(d) Institution Head's Authority to decide the fate of Biopsies without Patient's interference
	167(60.7%)	19(6.9%)	84(30.5%)	5(1.8%)
Scenario 4:				
Seventy patients from the outpatient clinic were enrolled in a research. The aim of the research was to differentiate between two different treatment modalities in the management of periodontal intra-osseous bony defects.	(a) Ensure Patient's Confidentiality	(b) No need for Confidentiality	(c) Depends on investigator to keep Confidentiality or Not	(d) Institution Head's Authority decides the provisions of confidentiality
	184(66.9%)	25(9.1%)	57(20.7%)	9(3.3%)

Concerning bioethical issues, majority participants 221(80.4%) supported that government should allow organ donation in Pakistan especially kidney donation to the parents 260(94.5%). In response to the question about the permission of abortion in Pakistan, 50(18.1%) expressed their support while 210(76.4%) opposed the idea. A preponderance of respondents 140(50.9%) agreed on describing the risks and benefits of the research to the participants, while 116(42.2%) responded that a written consent with brief description ought to be taken. In researches involving children, about 172(62.5%) survey respondents thought that assent from the child as well as written consent from his/her parent/guardian has to be taken while 61(22.2%) thought that a clear description should be explained to both the child and parent/ guardian.

Regarding retrospective researches on stored samples, a large bulk of respondents 167(60.7%) gave opinion that the research cannot be done without patient's agreement while a few percentage of participants believed that this must be the researcher's prerogative. Ensuring patient's confidentiality in medical research was selected by majority of the research participants i.e. 184(66.9%) while 57(20.7%) believed that it depends upon the investigator whether to keep it or not.

DISCUSSION

Human life is as valuable as Allah mentions in the Qur'an its step by step development and finally referring to the blowing of spirit known as "Khalqan Aakhar" (Qura'an 23:14) - denotes creation of

humans as 'Ahsan-ul-Taqweem' (Qura'an 95:4).^[1] Bioethics is a multidisciplinary field and the topic areas focused in this study include awareness and discussion of bioethics among dental professionals, ethical issues faced by the dentists, bioethics in self-practice and as a part of curriculum, thoughts regarding organ donation, transplantation and abortion, informed consent and confidentiality.

In the current study, most of the respondents 167(60.7%) had a high level of *awareness of the term "Bioethics"*. This led to the presumption that the respondents either had already heard it from their teachers/ colleagues or had learnt through recent technological advances. It also provides an initial overview of the level of scientific literacy among dental professionals. This finding correlates with those revealed by *Ilyas et al.* regarding awareness level of bioethical issues among graduate and postgraduate students 152(90.4%)¹⁰.

In contrast to the aforementioned results, there was a visible shortfall of *discussion about bioethics* by respondents in community or gatherings 124(52.6%) which was contrary to the results revealed by *Ilyas et al.* where half of the participants 87(51.8%) discussed this term in class or gathering as it was a part of their syllabi¹⁰. These results indicate that public as well as educational institutes need to publish the issues through conferences, seminars, workshops and social media for increasing the awareness, reducing the fears and mapping out opinions based on correct information^{12,13,14}.

Organizational ethics is an emerging field in health care management that deals with those clinical ethical problems that have organizational effects. Dental professionals face a number of ethical issues day by day in both private and public sectors e.g. financial problems due to uncompensated care, disclosing the confidentiality of patient's information, conflicts between the governing bodies of the organization especially due to a matter of personal interest etc. In accordance to aforementioned, current study demonstrated half of the study subjects agreeing to the ethical policies 177(50.9%) and ethical attitudes 151(54.9%) of the organization and governing bodies. In parallel to this study, other researches like one conducted by *Jennifer L. Gibson* also narrated about the organizational ethics, their issues and management¹⁵.

In present research, majority of the respondents were unsatisfied 192(69.8%) regarding *non-existence of a committee of bioethics and undersupply of training programs*. Likewise another study conducted by *Soluti SS et al.* in Iran showed a noticeable number of participants 359(32.4%) receiving inadequate number of lectures/ seminars and workshops on bioethics in their departments¹². This certifies the vital role of ethical board/ committee to keep an eye on whether the mission, vision and values of an organization are being followed along with implementation of proper training programs and educational activities to enhance students' bioethical awareness.

As stated by *Ilyas et al.* in their study that majority of the study participants 151(90%) exhibited an increase level of awareness of bioethics owing to their exposure to the topic as a part of their *curriculum*¹⁰. In correlation to the above mentioned study, most of the respondents of this study 224(81.5%) were in the favor of incorporating bioethics in their syllabi which is currently absent. Therefore it is indicated that time has come for Pakistan Medical Commission to ponder about creating new modules where it must be compulsory for all the medical and dental institutes to include ethics in the curriculum.

In reference to implementation of the *principles of bioethics in self-practice*, a study performed by *Imran N. et al* revealed that doctors or trainees working at different levels in Pakistan encounter ethical dilemmas periodically but the methods of bioethics taught to them are not sufficient enough to help them cope up with those situations skillfully 226(57%)¹⁶. In consonance with the results of aforementioned study, it is quite evident that despite of facing ethical issues repeatedly, dental professionals still spare no effort to implement the principles of bioethics in self-practice. Majority of the respondents 209(76%) of this study were

well aware of how to utilize their authority in a proper way expressing to one principle of bioethics i.e. *autonomy* which means the capacity for self-governance. A high percentage of respondents 226(82.2%) knew the value of confidentiality of their patient's information indicating that they were aware of another principle of bioethics i.e. *non-maleficence* representing the obligation of a physician not to harm the patient including his/her confidentiality. Large number of participants 233(84.7%) responded that they try to act in good conscience during self-practice which brings us to one more principle of bioethics i.e. *beneficence* that denotes the practice of doing good deeds. In contrast, most of the study participants 195(70.9%) acknowledged the fact that they give favoritism to their patients which led us to recognize a violation of fourth principle of bioethics i.e. *justice*.

Organ transplantation is one of the pivotal points of discussion of bioethics which arouse some issues concerning a person's claim to determine what would happen to their bodies before and after death. In this study, the lion's share 221(80.4%) went to the participants who were supportive of government legalizing organ transplantation with informed consent as many of the study participants were in favor of donating an organ especially to their own parent. On the contrary, a study conducted by *Abbasi M et al.* in 2018 showed that most of the study subjects 198(52.51%) were unwilling to donate their organs to the needy ones while a slighter number with sufficient literacy level were in a favor of organ donation. These findings clearly revealed that higher the level of education, better will be the grasping intensity of the subject matter and lesser will be the fear of organ donation¹⁷. Another study conducted by *Daud Z et al.* in 2020 showed similar results regarding organ donation^[13]. A document given in Punjab Laws named as ACT VI issued in 2010 contained the relevant components regarding transplantation of human organs and tissues donated by a living person of a certain age or after death, thus formulating a committee for assessment of organ transplantation activity and penalizing an individual for commercial dealings and organ removal without authority¹⁸.

Abortion is viewed differently by different persons at different times in different socio-cultural conditions. In the feedback to the question about normalizing abortion in Pakistan, bulk of the respondents 210(76.4%) opposed the idea while fewer 50(18.1%) expressed their support. This was in accordance with a study administered by *Rehan N.* in three provinces of Pakistan which disclosed that majority of health care providers 77(67.3%) had an unfavorable attitude towards the idea of termination of pregnancy. Only a little 28(25%) favored induced abortion¹⁹. Homogenous antagonistic outcome about abortion was achieved by the research of *Ilyas et al.* and by *Daud Z et al.* in 2020^{10,13}. It can be supposed that the reason for such huge amount of participants opposing the concept of abortion could be either due to dissatisfaction towards clinical competencies of doctors or due to religious obligations.

Consent taking is a part of one of the principles of bioethics i.e. *autonomy*. Consent can be defined as 'to grant approval or assent' which is not a single event but an ongoing activity of communication between the dentist and the patient throughout the journey of treatment. There are various categories of consent taking such as implied consent, informed consent, written consent, valid consent etc. and which type ought to be taken depends upon the type and purpose of research or treatment and status of the patient²⁰. A story-lined question was asked from the study entrants regarding informed consent which proceeded to half of the participants 140(50.9%) agreeing on taking a consent from the patient that must describe *all* the risks and benefits of the research/ treatment. A faintly less amount of the participants 116(42.2%) were of the opinion that a written consent with *brief* description has to be taken. The difference of opinion on the sort of consent to be taken into account in this study could be due to dissimilarity in working levels and experience of practitioners. Other possible reasons could be related to the kind of study or management plan of the patient as well as the extent of learning about consent in the academic curriculum. There was a smaller gap of partakers

19(6.9%) who expressed that investigators can conduct research without any ethical responsibility. A related cross-sectional study was undertaken inclusive of 375 dental students and fresh graduates by Tahir S *et al.* where the information gathered suggested that most of the respondents 326(87%) were aware of the informed consent; whether verbal or written whereas only a few 48(13%) had no knowledge about the subject²¹.

In case of researches involving children, majority of the entrants 172(62.5%) of this study inclined towards taking *assent* from the child as well as written consent from his/her parent/guardian. The reason behind this viewpoint is based on the experience of the practitioner treating a child. Research conducted by Adewumi A *et al.* concerning a child's perceptions and involvement in consent to dental treatment revealed that children who have formerly undergone a dental treatment could come to a conclusion concerning their next treatment on their own.^[22] A child's level of maturity, past experience, awareness related to dental procedure can help him/her rule out his/her decisions. Traditionally, it is considered to take consent for minors from their parents/guardians only, after providing with all the information regarding the treatment or research. But according to the previously mentioned study, it was observed that children wanted to be more involved in consenting to their dental treatment²². Therefore, dental care providers as well as parents/guardians should acknowledge the fact that in order to increase confidence, satisfaction and understanding of dental care, children should be allowed to be a part of consenting to dental care.

Another most valued moral obligations of bioethics is *confidentiality* which comprises not only keeping the patients' secrets and avoiding the disclosure without their permission but also involves the prohibition of use of patients' samples from bio-banks without their knowledge. The use of *bio-specimens stored in bio-bank* with or without informing the patients shows how much doctors/researchers regard confidentiality. In order to know the viewpoint, a case-based question was given to the participants of this study which demonstrated the majority 167(60.7%) in favor of taking patient's agreement for usage of their data/sample, which could be due to the fact that they recognize it as ethically and morally significant and how it feels to be in someone else's shoes. It was appreciative that there were a very few participants 19(6.9%) who considered not taking any approval of the patient for use of their samples. It could be owing to the notion that samples collected for diagnostic purposes are department's possessions. In contrast to such a result, a study was established apropos patients' perspective of confidentiality with regard to their medical records by Carman D *et al.* which expressed a vast difference between patients' suppositions and true practice^[23]. The patients were unaware of the fact that doctors or staff had open access to their medical files, information and samples which they considered a violation of their confidentiality and developed an eroding trust in doctor-patient relationship.

A related scenario-based question about *confidentiality* in this study divulged that most of the study entrants 184(66.9%) wanted to make sure of their patients' confidentiality. Advances in *biotechnology and bioinformatics* have made it possible to store large amounts of bio-specimens and records. An ethical review board can play an important role to lookout the related procedures and safeguards patients' privacy, maintenance of the records including which data can be accessed, by whose authority and who will be the custodian of it. In the study concerning ethics and bio banks, Hansson MG proposed that in order to maintain a privacy of the data, research files should be coded to ensure patients' confidentiality²⁴.

CONCLUSIONS

It can be concluded from the results that dental faculty has a fair knowledge of term 'Bioethics' and they have maximum practical

implementation of principles of bioethics. Many domains of bioethics are still under debate because responses were influenced by cultural and religious norms. In view of the changing dynamics of dental profession such as oversupply of dentists, increasing competition and greater sensitivity to individuals' rights, the dental practitioners are facing ethical challenges as never before.

Conflict of interest: Nil

Recommendations: There is an urgent need for pioneering an educational initiative of ethics related to patient's rights, especially pertaining to confidentiality, clinical/ technical issues, practice management and social/ civic issues in order to secure human subjects from unjustified harm.

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