

## Moral Development among Dental Students – A Cross Sectional Study

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### Abstract

**Background:** Moral education teaches diversity, tolerance and mutual respect to an individual. The aim of the present study was to assess the moral development in dental students based on Kohlberg's theory (Heinz dilemma) and Moral Development Scale for Professionals (MDSP).

**Methodology:** Students, both under graduates and post graduates, studying in one of the dental colleges in south-east part of India were recruited into the present cross sectional study. The participants were given scenarios of Heinz dilemma and the explanations assessed for the stage of moral development. Additionally, a 12 item self-report MDSP was employed to grade the participants quantitatively.

**Results:** There was a statistical significance difference in distribution of participants in the stages ( $p=0.04$ ) and score range ( $p=0.001$ ), when the level of moral development was assessed based on Heinz dilemma and MDSP respectively.

**Conclusion:** Based on the study findings, the population included has enough moral development, but incorporating morals and ethics as a part of curriculum is always advisable. Also, there is a need of further research on large scale of subjects by including students from different parts of the country.

**Key words:** Ethics, Dental student, Moral development

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Date of Submission: 24-03-2020

Date of Acceptance: 11-04-2020

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### I. Introduction

The moral development in children was first projected by Jean Piaget in Cognitive theory<sup>1</sup>. It was further modified by developmental theorist, Lawrence Kohlberg, and has been put forward as Kohlberg's theory of moral development<sup>2,3,4</sup>. According to this theory, moral reasoning is a result of socialization and social learning, and is considered to progress through a series of stages<sup>4,5</sup>. Though androcentrism is the major drawback of this theory<sup>6</sup>, it still serves as a basis in this arena. The open ended questions in this theory prompted the need for a standardized scale. This led to the development of Moral Development Scale for Professionals (MDSP)<sup>7</sup>. In a profession, like dentistry, ethical values are important as they reflect the quality of work delivered and decision making skills. The morality of a dentist determines patient - dentist and dentist - patient relationship. In the literature, only one study in Brazil assessed the moral development of dental students using open ended questions<sup>8</sup>. As there is no reported study in India, which assessed the moral development of dental students, the present study has been undertaken.

### II. Methodology

This cross sectional study was conducted in one of the dental colleges in south-east part of India. All the interns and post graduates ( $n=160$ ) who gave their consent to participate were recruited into the study. The moral development of all participants was assessed using two methods; first means was with Heinz dilemma and second by employing Moral Development Scale for Professionals (MDSP). All the participants were asked to answer all the questions using both the methods. Those participants who did not completely answer the questions were excluded from the study.

#### First method of assessment (Heinz dilemma)

Three scenarios with situational dilemmas were presented to all the students.

##### Scenario 1

A woman was near death from a unique kind of cancer. There is a drug that might save her. The drug costs X per dosage. The sick woman's husband, Heinz, went to everyone he knew to borrow the money and tried every legal means, but he could only get together about X. He asked the doctor scientist who discovered the drug for a discount or let him pay later. But the doctor scientist refused.

- 1) Should Heinz break into the laboratory to steal the drug for his wife?
- 2) Why or why not?

Scenario 2

Heinz broke into the laboratory and stole the drug. The next day, the newspapers reported the break-in and theft. Brown, a police officer and a friend of Heinz remembered seeing Heinz last evening, behaving suspiciously near the laboratory. Later that night, he saw Heinz running away from the laboratory.

- 1) Should Brown report what he saw?
- 2) Why or why not?

Scenario 3

Officer Brown reported what he saw. Heinz was arrested and brought to court. If convicted, he faces up to two years' jail. Heinz was found guilty.

- 1) Should the judge sentence Heinz to prison?
- 2) Why or why not?

Based on the explanation given to support their views; the participants were given the stage of moral development as Punishment-Obedience Orientation (stage 1), Instrumental Relativist Orientation (stage 2), Good Boy-Nice Girl Orientation (stage 3), Law and Order Orientation (stage 4), Social Contract Orientation (stage 5), Universal Ethical Principle Orientation (stage 6).

**Second method of assessment (MDSP)**

This was a 12 item self-report Scale with a likert scale for each question<sup>7</sup>. The scores for each question were 1 to 5 in reverse order and the total score obtained by summing the individual scores was from 12 to 60. The details of the questionnaire are given in Figure 1. The obtained data was tabulated and analyzed statistically.

**III. Results**

A total 160 students in the age range of 21 to 28 years ( $24.2 \pm 3.69$ ) participated in the study. Among these 160 students, 94 (58.75%) were postgraduates and 66 (41.25%) were undergraduates. Male to female ratio of the participants was 0.34 (males: 25.62% and females: 74.37%).

In the first method of assessment, Heinz dilemma, 22.7%, 28.8% and 48.5% of undergraduate students were in stage 4, 5 and 6 respectively. On the other hand, 1.1%, 33.0%, 39.4% and 26.6% of postgraduates were in 3, 4, 5 and 6 stages respectively. There was a statistical significance difference in distribution of participants ( $p=0.04$ ); whereas no significant difference between males and females in the staging based on Heinz dilemma was observed ( $p=0.34$ ).

In the second method of assessment, MDSP, among the undergraduates students 1.5%, 84.7% and 13.6% of students were in the score ranges of 25 - 37, 38 - 50 and > 50 respectively. On the other hand, 4.4%, 75.6% and 20% of postgraduates were in 25 - 37, 38 - 50 and > 50 score ranges respectively. There was a statistical significance difference in distribution of participants ( $p=0.001$ ); whereas no significant difference in the scores between males and females ( $p=0.15$ ) was observed.

When method 1 and method 2 were compared, irrespective of the stage in Heinz dilemma, majority of the participants scored 38 - 50 in MDSP, the details of which are represented in table 1.

**IV. Discussion**

The training of a dental student is a complex, multidimensional phenomenon. The ability to be trained, beyond personal interests, is influenced by personality of the dental student, social values, morality and ethics. Though there is constant advancement in the dentistry, the ability of future dentists to exercise ethical judgement is imperative in clinical practice. The status of moral and ethical development of students in medical and nursing fields have been assessed in previous studies<sup>4,7,9</sup>. On the other hand, studies in this perspective are limited and have included only undergraduates as their target population. The highlighting feature of the present study is the inclusion of both undergraduates and post graduates as the study population. Based on Heinz dilemma, most of the undergraduates and post graduates recruited in the present study, were in stage 5 or 6 (post-conventional level) which was in contrast to the findings of a study on undergraduate medical students, where most of them were in stage 3 and 4 (conventional level)<sup>4</sup>. Also, the findings were in contrast to a study done on thirty six under-graduates in dentistry, where majority of the students were in stage 2 followed by stage 3, with only one student in stage 5<sup>8</sup>. The present study findings were in accordance to an intercultural study conducted among Brazilian and American university students, where majority of the students were found to be in stage 5 or 6<sup>10</sup>. Though it is reported that stage 6 seldom occurs before 40 years<sup>11</sup>, few participants in the present study, irrespective of the graduation level, were in stage 6.

The moral development scale for professionals (MDSP) has not been employed in any of the previous studies. The construct validity of this scale was tested on nursing students<sup>9</sup>. The majority of the students' score was in the range of 38-50, irrespective of the level of graduation. These scores were higher than the scores reported on nursing students. 13.6% of undergraduates and 20% of postgraduates obtained a score of more than 50 in the present study, whereas the one done on nursing students had a maximum score of 28<sup>9</sup>.

The comparison of moral development of undergraduates with that of postgraduates is the unique feature of the present study. Normally, it will be expected that undergraduates will be in lower stage of development compared to postgraduates. However, in the present study, undergraduates had a better moral development compared to postgraduates; this situation of postgraduates might be due to the diversified thoughts on questions (out of focus), deep thinking, past experiences with the patients, lack of moral education in undergraduation, stress to achieve academic excellence, previous struggles to get into admission for postgraduation. Also, the postgraduates might have felt it as a hypothetical issue and failed to imagine the seriousness of questions because of academic pressure.

The participants in the present study posed additional questions while responding to the Heinz dilemma, as it was an open questionnaire. This led the participants to think beyond the arena of given task; some of the questions were: What would be the further approach of the organizations to help Heinz’s wife, if he is sentenced to jail?; On humanitarian grounds, if Heinz is freed ignoring the stealing of drug, how can he manage to afford for other dosage?; If Heinz is freed, what is the step to support the scientist who will be in crisis?; Though he got drug unofficially, he cannot use it without a guidance of doctor!; If the police officer was a friend, he might be knowing the problem of Heinz and why he has not helped him before talking about rules and regulations?

The results of the present study demonstrates the impact of educational system in sculpturing a student. Rather than focusing on excellence in academics, children from young age should excel life with sense of empathy.

### V. Conclusion

Advancements of technology alone cannot reduce the morbidity and mortality of patients. It is responsibility of education system to focus not only in shaping the dental students into skilled professionals, but also to make them think beyond their self benefits. Though the volunteers in the present study has enough moral development, but incorporating morals and ethics as a part of curriculum is always advisable. Also, there is a need of further research on large scale of subjects by including students from different parts of the country.

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Table legend:

Table 1: Comparison of two methods of moral Development

Figure legend:

Figure 1: MDSP Questionnaire

MDSP - Scores	Heinz Dilemma - Stages			
	3	4	5	6
25-37	0%	2%	2%	5.30%
38-50	0.00%	80.40%	83.90%	75.40%
>50	100.00%	17.40%	14.30%	19.30%
MDSP= Moral developmental scale for professionals				
<b>Table 1:</b> Comparison of two methods of moral Development				

Figure 1:

**MORAL DEVELOPMENT SCALE FOR PROFESSIONALS**

1. To meet with expectations from others has its own value

Strongly agree	Agree	Neutral	Disagree	Strongly disagree
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2. Important to listen to what people mean in moral issues

Strongly agree	Agree	Neutral	Disagree	Strongly disagree
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3. Right behaviour consists of doing one's duties

Strongly agree	Agree	Neutral	Disagree	Strongly disagree
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4. The majority is seldom wrong

Strongly agree	Agree	Neutral	Disagree	Strongly disagree
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5. Immoral conduct breaks established laws and rules

Strongly agree	Agree	Neutral	Disagree	Strongly disagree
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6. Consideration and kindness most important values in a community

Strongly agree	Agree	Neutral	Disagree	Strongly disagree
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7. A value in itself to treat authorities with respect

Strongly agree	Agree	Neutral	Disagree	Strongly disagree
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8. Reasonable to listen to what most people mean is right or wrong

Strongly agree	Agree	Neutral	Disagree	Strongly disagree
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9. A good value valid for all people

Strongly agree	Agree	Neutral	Disagree	Strongly disagree
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10. A necessary condition for an action to be good is a good thought behind

Strongly agree	Agree	Neutral	Disagree	Strongly disagree
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11. Usually possible to reach consensus in moral issues

Strongly agree	Agree	Neutral	Disagree	Strongly disagree
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12. Good moral rules must be able to be put in a context

Strongly agree	Agree	Neutral	Disagree	Strongly disagree
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Nirmala K,etal. "Moral Development among Dental Students – A Cross Sectional Study." *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, 19(4), 2020, pp. 25-28.