



## Prevalence of Different Types of Cheating in School and Academic Studies in Iran: A Systematic Review and Meta-analysis

Mina Akbarirad<sup>1</sup>, Reza Ahmadi<sup>2</sup>, Moslem Ahmadyousefi givmardi<sup>3</sup>, Atiyeh Montazeri Khadem<sup>4</sup>, Fatemeh Vafi sani<sup>5</sup>, \*Anis Montazeri Khadem<sup>6</sup>, Shahrzad Moeinaddini<sup>7</sup>

<sup>1</sup> Internist, Assistant Professor of Internal Medicine, Department of Medicine, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran. <sup>2</sup> Assistant Professor of Emergency Medicine, Department of Emergency Medicine, Faculty of Medicine, Mashhad University of Medical sciences, Mashhad, Iran. <sup>3</sup> MA of Educational Administration, Department of Education, Zarand Branch, Islamic Azad University, Kerman, Iran. <sup>4</sup> MA of Educational Administration, Department of Education, Kerman Branch, Kerman, Islamic Azad University, Iran. <sup>5</sup> Master of Operating Room, Department of Operative Room and Anesthetics, School of Paramedical, Sabzevar University of Medical Sciences, Sabzevar, Iran. <sup>6</sup> MA of Clinical Psychology, Department of Psychology, Kerman Branch, Islamic Azad University, Kerman, Iran. <sup>7</sup> Student Research Committee, Kerman University of Medical Sciences, Kerman, Iran.

### Abstract

**Background:** The education system and society suffer huge costs because of cheating. It is important to address this phenomenon since the cheating person often transfers this inappropriate behavior into working environments after graduation. Moreover, the motivation to avoid cheating decreases in honest people. The present review investigated the prevalence of cheating on academic and school examinations and projects.

**Materials and Methods:** In this systematic review and meta-analysis, electronic databases, including PubMed, Scopus, Web of Science, and Cochrane Library were searched with no time and language limitation up to December 2020. Main keywords were (Cheating OR Plagiarism OR Dishonesty) AND (College OR student OR School OR Exam). Meta-analysis was carried out using the Comprehensive Meta-Analysis software (CMA).

**Results:** Six studies involving 1474 subjects were included in the study. The overall cheating frequency regardless of cheating type was 68% (95% CI: 54-79%; heterogeneity:  $I^2$ : 96%), and 87% (95% CI: 36- 98%; heterogeneity:  $I^2$ : 96%) of students had experienced cheating at least once during an examination, and 64% (95% CI: 49-76%; heterogeneity:  $I^2$ :97%) during the academic period. Frequency of plagiarism in writing theses and essays was 51% (95% CI: 9.6- 91%; heterogeneity:  $I^2$ : 97 %:). According to one study, female students reported significantly lower acts of cheating than male students.

**Conclusion:** The results show that the average of cheating in examinations, projects and dissertations is higher than average. Given the results, it is necessary to minimize the cheating behavior among students through the necessary training, creating stricter rules, imposing more penalties on offenders, and preventing competitive behaviors in the classroom.

**Key Words:** Academic, Cheating, Iran, Prevalence, School, Systematic Review.

\*Please cite this article as: Akbarirad M, Ahmadi R, Ahmadyousefi givmardi M, Montazeri Khadem A, Vafi sani F, Montazeri Khadem A, et al. Prevalence of Different Types of Cheating in School and Academic Studies in Iran: A Systematic Review and Meta-analysis. Med Edu Bull 2021; 2(2): 173-82. DOI: [10.22034/MEB.2021.295751.1015](https://doi.org/10.22034/MEB.2021.295751.1015)

### \*Corresponding Author:

Anis Montazeri Khadem, MA of Clinical Psychology, Department of Psychology, Kerman Branch, Islamic Azad University, Kerman, Iran.

Email: [montazerianis@gmail.com](mailto:montazerianis@gmail.com)

Received date: Feb. 14, 2021; Accepted date: Jun.12, 2021

## 1- INTRODUCTION

As upstream documents such as the fundamental transformation of education, the goals approved by the Higher Education Council, and the program of strategic transformation of the formal and public education system of the Islamic Republic of Iran emphasize the training of committed, responsible, justice-seeking, caring, benevolent, honest, and moral people, cheating in the context of the educational system is regarded as contrary to these goals. Cheating poses challenges and problems for the education system and society (1). Cheating can be considered as a significant issue in the fields of education, research, and ethics (2).

Cheating on examinations and assignments is considered as an immoral phenomenon and is one of the most common types of academic dishonesty (3). Academic cheating is a serious problem at all levels of education worldwide (4). Cheating is committed in two ways: cheating on examinations and assignments: using unauthorized notes in open examinations or home examinations, using unauthorized notes in class examinations, cheating open test answers and solving test at home from another person, cheating classroom tests from another person, allowing or obtaining permission to cheat test answers are among relevant examples (5). Researchers believe that the prevalence of cheating in different universities is increasing over time (2).

Factors related to cheating can be divided into three categories: individual factors such as age, gender, educational background, moral attitudes, and previous cheating behavior; situational factors, including students' perceptions of high assignment workload, social norms in favor of cheating, and common cheating behavior among peers; and institutional factors, such as promoting competition and over-tolerance of cheating due to low risk of detection, reporting, and punishment (6, 7). Cheating triggers for a student have a

complex and multifactorial nature. Many authors have cited several reasons for cheating activities. In one study, it was noted that some people who engage in dishonesty during their college years prefer short-term risks over immediate benefits, regardless of final and long-term costs (8). Another study found that if the opportunity arose, a large percentage of students cheated on a particular examination (9). Numerous studies have cited personal characteristics; for example, the greater tendency of male students to engage in such activities in the settings of higher education institutions is because they feel that it is easy to cope with this behavior (10).

Also, the awareness of honest people and teachers regarding the cheating of others can reduce their motivation to cheat (3). The most common method of cheating on examinations is copying from someone else's paper, and the most common method of cheating on homework is to copy assignments from a classmate and the Internet (4). Cheating evokes connotations of lying, deception, trickery, deceit, and similar concepts and can bring unfair benefits (3). The education system has undertaken a lot of costs for many years because of cheating (11). The high prevalence of cheating is a warning to society. If students are supposed to pass their examinations by cheating, they will not gain optimal literacy and knowledge, and this can inflict irreparable damage to the future of society (12).

Cheating is regarded as one of the most important factors threatening learners' learning. Most people have reported this academic dishonesty during their studies (13, 14). Academic cheating is a concern for healthcare educators as it can spread cheating behaviors into unethical clinical practices after graduation. This concern has been repeatedly supported by previous researches. However, the results of a study of nursing students who cheated in their

studies demonstrated that these individuals were more likely to manipulate clinical information in the future compared to non-cheaters (15). Research shows that 80% to 90% of students commit academic cheating before finishing high-school education (16). A 25% cheating rate in examinations is a pervasive phenomenon that is not limited to geographical boundaries or specific schools and universities; some experts have referred to this phenomenon as an epidemic and some as a chronic problem due to its high prevalence (13, 14, 17).

Some students had committed at least one type of plagiarism while writing an article or dissertation, and 50% of students have committed cheating at least once during their clinical course (2). In addition, some respondents may ignore their cheating or do not admit to it because they consider academic cheating to be a sensitive issue. Thus, the actual cheating rate may be higher than the rate reported in the present study (18). Since the education system and society have suffered huge costs from cheating, it is important to address this behavior because cheaters often bring this inappropriate behavior to the workplace after graduation. On the one hand, cheating reduces the motivation to perform appropriately in an honest person. On the other hand, this problem has increased in recent years with the introduction of new technologies (3).

Cheating can occur because of internal factors such as lack of responsibility and lack of sufficient time, and external factors such as the difficulty of assignments and high expectations from the others (4). Religious affiliations affect family and social upbringing, personality, age, sex, the importance of examinations, and strictness of examination supervision (5). Considering the different prevalence of cheating among students, the limited number of studies in Iran, and the lack of a general estimate of the relevant research,

the present review article aims to investigate the prevalence of cheating behaviors in examinations and academic projects in students.

## **2- MATERIALS AND METHODS**

### **2-1. Data sources**

The Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) checklist was used as a template for this review. A systemic search of electronic databases Medline (via PubMed), SCOPUS, Web of Science, ProQuest, Cochrane Library, and Google Scholar was carried out without any time and language limitation up to December 2020. The keywords (Cheating OR Plagiarism or Dishonesty) AND (College OR student OR school OR exam OR University) AND (Iran OR Iranian) were searched with Mesh terms. To complete the study, Persian databases such as SID, Magiran, and CIVILICA were also searched using same keywords. The search was done independently and in duplicate by two reviewers and any disagreement between the reviews was solved by the supervisor.

### **2-2. Included studies**

Review articles, systematic reviews, case-control studies, cross-sectional studies, qualitative studies, and descriptive and analytical studies were included. Pilot, preliminary, and case report studies were not included due to their limited sample size and higher risk of bias. The included studies were published in English up to December 2020.

### **2-3. Study selection**

Database search was done for possible studies, abstracts of the studies were screened for identification of eligible studies, the full texts of articles were obtained and assessed, and a final list of included studies was made. This process was done independently and in duplication

by two reviewers and any disagreement was resolved by the third reviewer. References were organized and managed using EndNote software (version X8).

#### 2-4. Data collection process

A form was developed and followed for each study. Two reviewers collected, combined, and compared the data independently and in duplication for

accuracy and any discrepancies were solved by a third reviewer. The information extraction form included the author(s), year of publication, location of the study, grade, size of study samples, the prevalence of cheating, and total scores of the STROB (Strengthening the Reporting of Observational Studies in Epidemiology) checklist (19) (**Table.1**).

**Table-1:** General characteristics of included studies.

Author, Year, Reference	Sample size	Location, Iran	Grade	Prevalence (%)	*STROB score (0 to 22)
Nakhaee et al., 2005, (14)	302	Kerman	Medical students	50	17
Abedinipoor et al, 2015, (16)	536	Qom	Students of Qom University of Medical Sciences	62	15
Amini et al., 2016, (17)	136	Shiraz	Medical students in their last three years	80% on exam and 25% plagiarism in writing their thesis and essays	17
Moradi et al., 1996, (20)	270	Hamedan	Students of Hamadan University of Medical Sciences	66	16
Kazemian et al., 2017, (24)	77	Mashhad	Students of Dental School	77.9% cheating on project	16
Faraasat et al., 2017, (36)	153	Mashhad	High school	96.1%	16

\*Reference 19.

#### 2-5. Risk of bias in individual studies

Risk of bias assessment was done following the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) checklist (19). The STROBE recommendations consist of a checklist of 22 items that guide the reporting of cohort, case-control, and cross-sectional studies to facilitate the critical appraisal and interpretation of results. The assessment was performed by two reviewers independently and in duplication and any discrepancies were resolved by a third reviewer

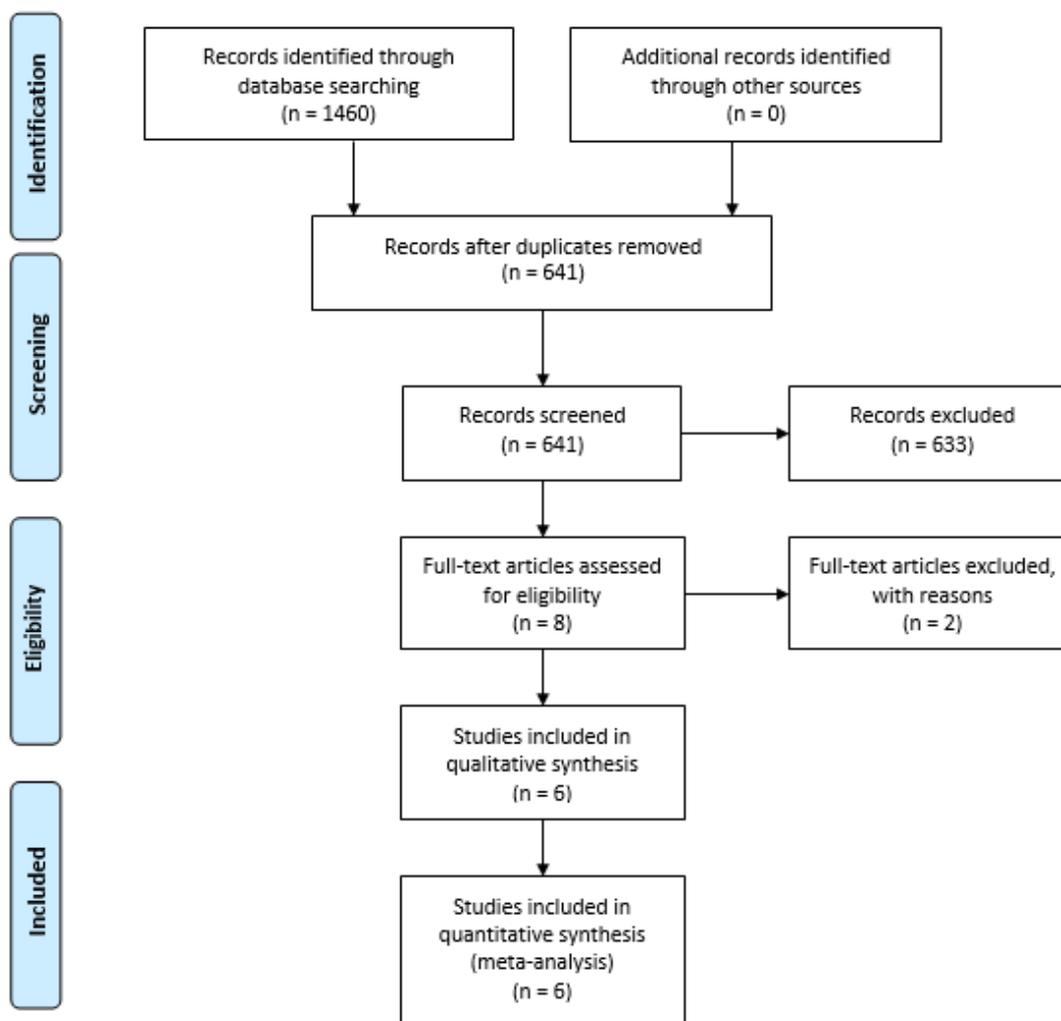
#### 2-6. Statistical analysis

Statistical data were analyzed using the Comprehensive Meta-Analysis software (CMA) version 3.0. The heterogeneity was determined between studies using  $I^2$  and Cochran's Q test. Higgins et al. suggested a value of less than 25% as low, values of 25- 75% as moderate, and values of greater than 75% as high heterogeneity. Based on the results from heterogeneity, random or fixed effects were calculated to estimate the effect size of cheating with a 95% confidence interval (CI) in forest plots.

The forest plot was applied to report the meta-analysis findings, in which the square size indicates the sample size in each study and the drawn lines on both sides of the 95% confidence interval indicate the effect size of each study.

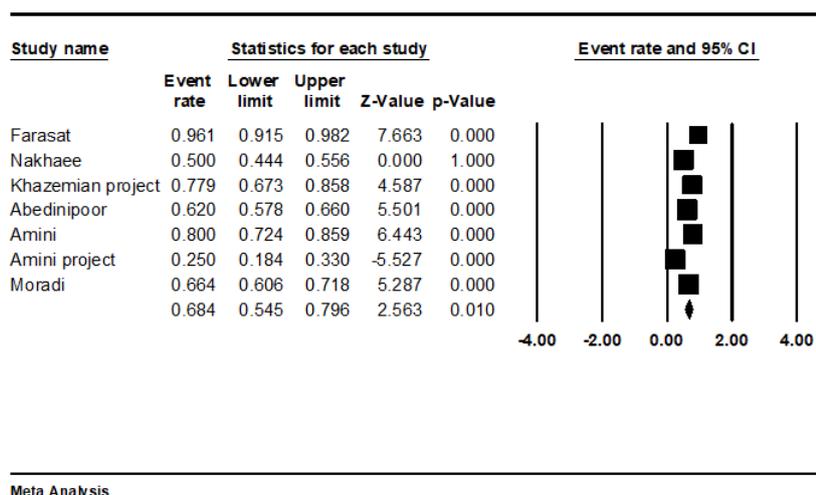
### 3- RESULTS

Finally, six studies were included in the systematic review (**Figure. 1, Table.1**).



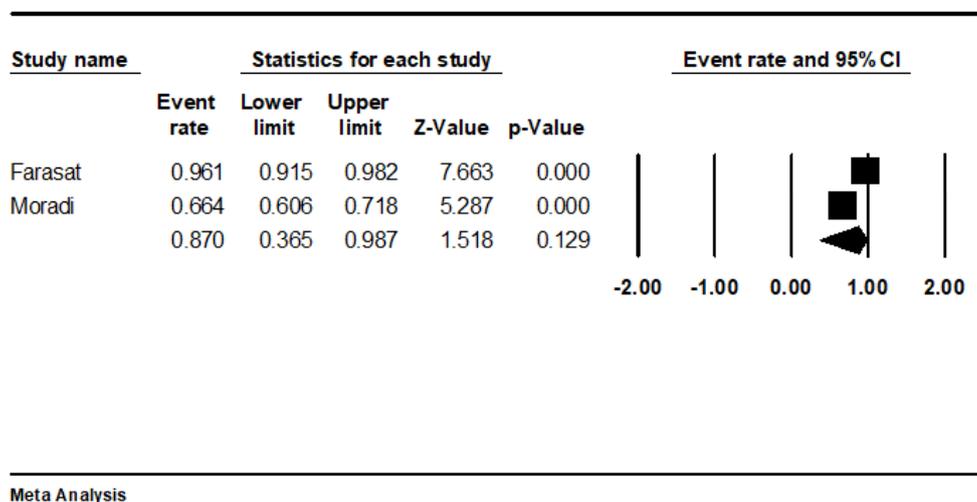
**Fig.1:** PRISMA flowchart.

The Overall cheating frequency regardless of cheating type was 68% [95% CI: 54 to 79%; heterogeneity:  $I^2$ :96%; **Figure. 2** (16, 20-24)].

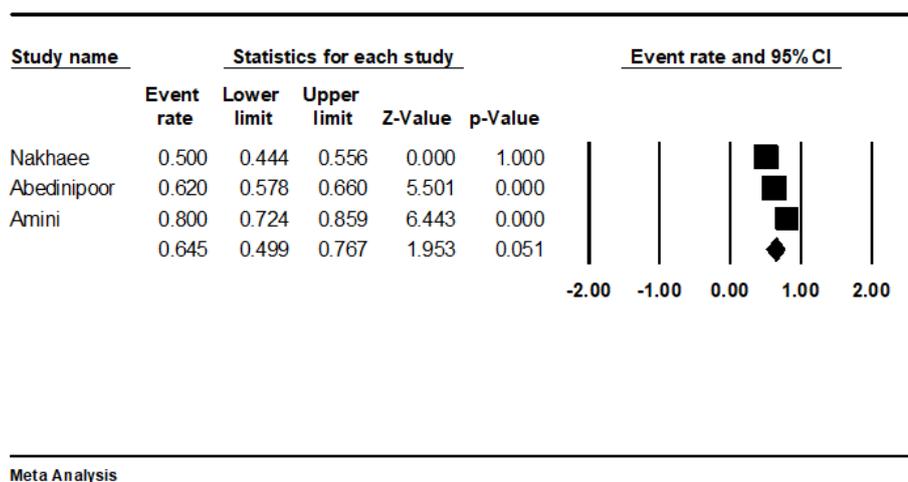


**Fig. 2:** Overall cheating frequency regardless of cheating type. The horizontal lines denote the 95% CI; ■ Point estimate (size of the square corresponds to its weight); ♦, Combined overall frequency.

A total of 87% (95% CI: 36-98%; heterogeneity:  $I^2:96%$ : **Figure. 3**) of students had experienced cheating at least once during an examination at school (20, 23), and 64% (95% CI: 49-76%; heterogeneity:  $I^2: 97%$ ; **Figure. 4**) during the academic period (16, 21, 22).

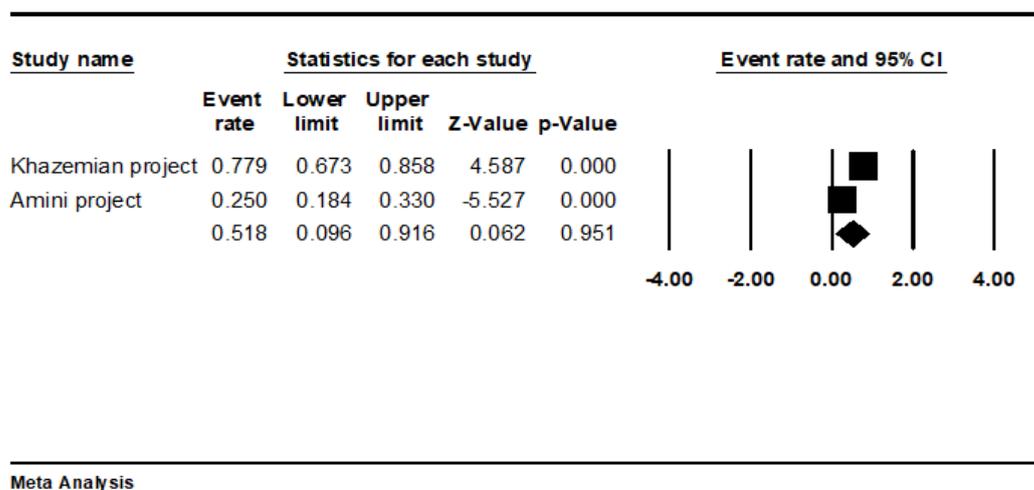


**Fig. 3:** Overall cheating frequency regardless of cheating type in examinations at school. The horizontal lines denote the 95% CI; ■ Point estimate (size of the square corresponds to its weight); ♦, Combined overall frequency.



**Fig. 4:** Overall cheating frequency regardless of cheating type in examinations during the academic period. The horizontal lines denote the 95% CI; ■ Point estimate (size of the square corresponds to its weight); ♦, Combined overall frequency.

The frequency of plagiarism in writing theses and essays was 51 % [95% CI: 9.6-91%; heterogeneity:  $I^2$ : 97%; **Figure.5**] (22, 24)]. According to one study, female students reported a significantly lower frequency of cheating than male students (22).



**Fig. 5:** Overall cheating frequency regardless of cheating type in theses and essays during the academic period. The horizontal lines denote the 95% CI; ■ Point estimate (size of the square corresponds to its weight); ♦, Combined overall frequency.

#### 4- DISCUSSION

To the knowledge of authors, this study is one of the first to investigate the prevalence of various types of cheating during school and academic studies in Iran. Results showed that the overall cheating frequency, regardless of cheating type, was 68% (16, 20-24). A total of 87%

of students had experienced cheating at least once during an examination (20, 23), and 64% during the academic period (16, 21, 22). The frequency of plagiarism in writing theses and essays was 51 % (22, 24). According to one study, female students reported significantly lower cheating than male students (22). Results of a study on medical students in Saudi

Arabia showed that the cheating prevalence was higher among male students (34.2%) than females (21.3%), and the difference was statistically significant (26). In a study by Monteiro et al. (2018) in Portugal, the percentage of students who cheated at least once increased with each school year (3.4% and 17.3% in the first and fifth years, respectively) (27). In a study in South Australia, Tonkin (2015) reported that the prevalence of self-reported cheating and plagiarism among medical students was 25-35% and up to 90%, respectively. The proportion of students involved varied from 25% to 89%, and students seemed to be divided in whether they considered this behavior unethical (28). In a study in Ethiopia, Desalegn et al. (2014) reported that the prevalence of self-reported cheating was 19.8% among students, 12.1% had cheated during the entrance examination, and a total of 95% had witnessed cheating by others and had not reported it to the supervisors. The findings showed a significant relationship between cheating behavior and parents' education level, grade point average, and interest in education and the probability of cheating was significantly higher among students who went to private high schools, consumed drugs, and did not attend lectures (29). In a study in South Korea, Park et al. (2013) found that 50% of students were involved in cheating and 75% were involved in cheating behaviors, which were due to their desire for gaining higher scores and finding better jobs and lack of time and motivation. Such a worrying level of cheating has been reported among South Korean nursing students and with the globalization of the nursing labor market, this issue needs immediate attention (30). In a study on the prevalence of cheating among pharmacy students, 16.3% admitted to cheating during their academic years. Approximately, 74% of the pharmacy students admitted that they and their

classmates helped each other in assignments (31). In a study by Harris et al. (2005) in the United Kingdom, pharmacy students were asked to complete a 16-scenario survey of cheating activities. The results showed that 53% of students participated in dishonest behaviors and were more likely to cheat on written examinations (32). In a study by Jalilian et al., 60.9% (126) of the participants had a history of cheating during their university education (33). Coverdale et al. reported that 49 students (39%) changed or manipulated the data, and 37 students (29%) had cited fake sources (34). In his study, Heron reported that out of 3975 students in 31 medical schools, 2459 (62%) completed the research questionnaire. A total of 39% of respondents reported witnessing some form of cheating by classmates during the first two years of medical education. In contrast, 66.5% reported hearing (about?) such cheating. However, the self-reported prevalence of cheating in medical schools was only 4.7% (35).

## 5- CONCLUSION

The results show that the rate of cheating in examinations, projects, and dissertations is higher than average. Therefore, it is necessary to minimize cheating behaviors among students through the necessary training, creating stricter rules, and imposing more penalties on offenders and prevent competitive behaviors in the classroom. Considering the significant rate of cheating in the medical and paramedical schools, there is a need to adopt appropriate and preventive measures by researchers, faculty members, managers and policymakers to prevent this problem as much as possible. Due to the small number of studies and the small sample size, high heterogeneity should be interpreted with caution. On the other hand, since most studies have been conducted in Iran, these findings cannot be generalized to other countries.

## 6- AUTHORS' CONTRIBUTIONS

Study conception or design: MA, RA, AM, and MA; Data analyzing and draft manuscript preparation: AM, FV, AM, and SM, Critical revision of the paper: MA and AM, Supervision of the research: MA, and AM; Final approval of the version to be published: MA, RA, MA, AM, FV, AM, and SM.

**7- CONFLICT OF INTEREST:** None.

## 8- REFERENCES

1. Lupton RA, Chaqman KJ. Russian and American college students' attitudes, perceptions and tendencies towards cheating. *Educational Research*. 2002;44(1):17-27.
2. Grimes PW. Dishonesty in academics and business: A cross-cultural evaluation of student attitudes. *Journal of Business Ethics*. 2004;49(3):273-90.
3. Ejei, J., Shahabi, R., Alibazi, H. Relationship between personality traits and self reported academic cheating in high school students. *Journal of Psychology*, 2012;15(4), 412-24.
4. Barzegar Bafrooei K. The relationship between individual and situational factors with elementary fifth grade students cheating. *Journal of school psychology*. 2014;3(3):6-20.
5. Mitra A, Marjan P, Sarah R, Mehdi S, Mozhddeh R. The Comparison of Medical Students' Attitudes and Performance Regarding Different Types of Academic Cheating During Clinical Courses. *The Journal of Medical Education Development*. 2014;12(5):671.
6. Nath L, Lovaglia M. Cheating on multiplechoice exams: Monitoring, assessment, and an optional assignment. *College Teaching*. 2009;57(1):3-8.
7. Whitley BE. Factors associated with cheating among college students: A review. *Research in higher education*. 1998;39(3):235.
8. Baumeister RF, Scher SJ. Self-defeating behavior patterns among normal individuals: review and analysis of common self-destructive tendencies. *Psychological bulletin*. 1988;104(1):3.
9. Uhlig GE, Howes B. Attitude toward cheating and opportunistic behavior. *The journal of educational research*. 1967;60(9):411-2.
10. Norton LS, Tilley AJ, Newstead SE, Franklyn-Stokes A. The pressures of assessment in undergraduate courses and their effect on student behaviours. *Assessment & Evaluation in Higher Education*. 2001;26(3):269-84.
11. Khamesan A, Amiri M. The study of academic cheating among male and female students. 2011.
12. Fattah A, Mameneh M, Sahraie Z, Seyd Mohammadkhani A, Sayar S, Vafi Sani F, et al. Factors Affecting Students' Cheating Behaviors in Schools and Universities and Applying the Results in Quality Assessment: A Narrative Review. *International Journal of Pediatrics*. 2019;7(12):10643-50.
13. Roohi R. Role of Big Personality Traits and Academic Self-efficacy in Tendency to Cheat and Cheat Attempt among High School Students. *Focus On Medical Sciences Journal*. 2016;2 (4):1-5.
14. Nakhaee N, Seyyed Hosseinie SV. Investigation of medical students opinions on cheating and its frequency. *Strides in Development of Medical Education*. 2005;1(2):57-63.
15. Way G. Moral Judgment Development of Student Nurses in an Associate Degree in Nursing Program. 2016.
16. Abedinipoor A, Samadi F, Momeniyan S. Prevalence and factors associated with cheating among students of Qom University of Medical Sciences. *Journal of Medical Education Development*. 2015;8(19):73-80.
17. Amini M, Parizad M, Rivaz S, Sagheb MM, Rivaz M. The Comparison of Medical Students Attitudes and Performance Regarding Different Types of Academic Cheating During Clinical Courses. *Strides in Development of Medical Education*. 2016;12(5):709-17.
18. Ma Y, McCabe DL, Liu R. Students' academic cheating in Chinese universities:

Prevalence, influencing factors, and proposed action. *Journal of Academic ethics*. 2013;11(3):169-84.

19. Poorolajal J, Cheraghi Z, Irani AD, Rezaeian S. Quality of cohort studies reporting post the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement. *Epidemiology and health*. 2011;33.

20. Moradi V, Saeedi-Jam M. Study causes of students cheating in exams students in Hamedan University of Medical Sciences. *Teb va Tazkiyeh*. 1991;40:16-9.

21. Nakhaee, N., Seyyed Hosseinie, S. Investigation of medical students opinions on cheating and its frequency. *Strides in Development of Medical Education*, 2005; 1(2): 57-63.

22. Amini, M., Parizad, M., Rivaz, S., Sagheb, M., Rivaz, M. The Comparison of Medical Students Attitudes and Performance Regarding Different Types of Academic Cheating During Clinical Courses. *Strides in Development of Medical Education*, 2016; 12(5): 709-17.

23. Farasat, M., Mahram, B., Aminkhandaghi, M. A Study of the Students' Attitude towards Cheating and the Rate of Cheating Among Them and the Predictability of Their Attitude Based on the Implemented Curriculum. *Educational Measurement and Evaluation Studies*, 2017; 7(17): 133-55.

24. Kazemian A. Academic Misconduct in Carrying out an Academic Project: A Study among the Sixth-year Students of Mashhad Dental School. *Journal of Mashhad Dental School*. 2017;41(2):139-46.

25. Abdulghani HM, Haque S ,Almusalam YA, Alanezi SL, Alsulaiman YA, Irshad M, et al. Correction: Self-reported cheating among medical students: An alarming finding in a cross-sectional study from Saudi Arabia. *Plos one*. 2019;14(4):e0215862.

26. Monteiro J, Silva-Pereira F, Severo M. Investigating the existence of social networks in cheating behaviors in medical students. *BMC medical education*. 2018;18(1):1-8.

27. Tonkin AL. "Lifting the carpet" on cheating in medical school exams. *BMJ*. 2015;351.

28. Desalegn AA, Berhan A. Cheating on examinations and its predictors among undergraduate students at Hawassa University College of Medicine and Health Science, Hawassa, Ethiopia. *BMC medical education*. 2014;14(1):1-11.

29. Park E-J, Park S, Jang I-S. Academic cheating among nursing students. *Nurse education today*. 2013;33(4):346-52.

30. Rabi SM, Patton LR, Fjortoft N, Zgarrick DP. Characteristics, prevalence, attitudes, and perceptions of academic dishonesty among pharmacy students. *Am J Pharm Educ*. 2006 Aug 15;70(4):73. doi: 10.5688/aj700473.

31. Harris, R., & Rutter, P. Cheating by pharmacy students: Perceptions, prevalence and comparisons. *Pharmacy Education*, 2005; 5: 53-60.

32. Jalilian F, Moazami P, Mirzaei-Alavijeh M, Moazami AM, Jalili C. Sensation seeking and the intention to cheating among college students: An application of the theory of planned behavior. *Research Journal of Applied Sciences*. 2016;11(8):645-9.

33. Coverdale JH, Henning MA. An analysis of cheating behaviours during training by medical students. *Medical Teacher*. 2000;22(6):582.

34. Abdulghani HM, Haque S, Almusalam YA, Alanezi SL, Alsulaiman YA, Irshad M, et al. Self-reported cheating among medical students: An alarming finding in a cross-sectional study from Saudi Arabia. *PLoS One*. 2018;13(3):e0194963.

35. Heron R. Cheating in medical school: a survey of second-year students at 31 schools. *Acad Med*. 1996;71:Z67-Z73.

36. Farasat M, Mahram B, Aminkhandaghi M. A Study Of The Students' attitude Towards Cheating And The Rate Of Cheating Among Them And The Predictability Of Their Attitude Based On The Implemented Curriculum. 2017;7(17):133-55.