

Content available at: <https://www.ipinnovative.com/open-access-journals>

Indian Journal of Clinical Anatomy and Physiology

Journal homepage: <https://www.ijcap.org/>

Original Research Article

Study on motivation factors and their affectiveness among the students of anatomy

Philippe Manyacka Ma Nyemb^{1,2,*}, Mouhamadou Moustapha Niang¹,
Habsatou Yattara¹, Aïnina Ndiaye³, Magaye Gaye³¹Dept. of Anatomy and Organogenesis, UFR 2S, Gaston Berger University, Saint-Louis, Senegal²Dept. of General Surgery, Regional Hospital, 401 Sud, Saint-Louis, Senegal³Dept. of Anatomy and Organogenesis, Faculty of Medicine, Cheikh Anta Diop University, Dakar, Senegal

ARTICLE INFO

Article history:

Received 02-04-2022

Accepted 11-10-2022

Available online 12-01-2023

Keywords:

Motivation

Medical student

Anatomy

Improving learning

ABSTRACT

Nowadays, we see in many medical students a real demotivation whatever the discipline involved. This has disastrous effects in the student world resulting in a lack of interest in courses on the one hand but also the abandonment of medical studies on the other.

The objective of this work was to identify the motivation factors of anatomy students of first and second years, determine the different types of motivation, assess the degree of motivation, and make recommendations to improve the motivation of anatomy students particularly, and generally during medical studies.

In this context, we conducted a cross-sectional and descriptive study with L2 and L3 medical students at Gaston Berger University in Saint-Louis in the 2021/2021 academic year.

We collected 135 questionnaires from 153 students, giving a response rate of 88.2%. Most respondents were male. The overall degree of motivation was 77.85% with no significant difference between the two sexes.

Motivation is probably the most important factor that teachers can target to improve learning. A better understanding of the determinants and indicators of motivation could, to some extent, improve medical student training.

This is an Open Access (OA) journal, and articles are distributed under the terms of the [Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License](https://creativecommons.org/licenses/by-nc-sa/4.0/), which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: reprint@ipinnovative.com

1. Introduction

Student motivation is an essential condition for learning. It has been the subject of numerous works which have consisted in the identification of its various components, the analysis of its real impact on the learning process and the development of educational methodologies to create and maintain it at all levels of education. Motivation remains a complex parameter to study because it is largely influenced by multiple external and internal factors. The student's perception of himself and of the context

in which his learning takes place is one of the most important components to consider in this context. Viau in his motivational dynamics model considers three elements: the student's perception of the value he attributes to an activity, his perception of his competence to succeed in this activity, and his perception of the degree of control that he has over its progress and consequences.^{1,2} These motivational determinants influence three learning behaviors: cognitive commitment which corresponds to the degree of mental effort that the student deploys during the execution of a learning activity, perseverance which results in the time that it devotes to it, and finally the performance which designates the results.³

* Corresponding author.

E-mail address: phil_manyacka@yahoo.fr (P.

Manyacka Ma Nyemb).

It is interesting to note that, despite the great development of research and theories in the field of motivation, very few studies focus on older students facing higher education. Everything happens as if it were agreed in advance that students at the University are necessarily motivated, given that at this level they choose to study. However, if we take a closer look at the statistics, we find that during the first year of study, a large number of students drop out of school, change fields, or fail to achieve the fixed objectives. It is by observing this phenomenon with our first- and second-year medical students that the idea of a reflection on this topic was born, taking the Anatomy and Organogenesis Teaching Unit as a model.

The objective of this preliminary work is therefore to analyze the various tools offered during the teaching of anatomy and organogenesis from the perspective of motivation, and to objectively assess the degree of motivation of our students.

2. Materials and Methods

This is a cross-sectional and descriptive study aimed at determining the factors influencing the anatomy course, as well as the type and strength of their motivation, through the statements of students in license 2 and license 3, in based on a self-administered questionnaire, delivered to students.

L2 and L3 students from the Gaston Berger University of Saint-Louis of the UFR 2S (faculty of medicine) received the questionnaire. A questionnaire was specially developed and validated to conduct our survey, based on a review of the literature. This questionnaire includes 31 questions in the form of multiple-choice questions and a 5 levels Likert scales.

Questionnaires were distributed in classrooms during the month of March 2021. All participants were informed of the objectives of the study, their participation was voluntary with respect for anonymity. The average response time, previously estimated at 60 minutes, was respected.

Statistical analysis was performed using SPSS software. The descriptive analysis consisted in calculating the absolute and relative frequencies for the qualitative variables, and the positioning and dispersion parameters for the quantitative variables (means, standard deviations).

3. Results

The total number of questionnaires collected at the end of the data collection is 135 out of 153 students in L2 and L3, i.e., a response rate of 88.2%. The other 18 students who did not complete the questionnaire were regularly absent.

This workforce breaks down as follows:

1. 81 students out of 82 second-year students, a response rate of 98.8%.
2. 59 students out of 71 third-year students, a response rate of 83.10%.

3.1. Proposition 6 (I work hard in anatomy because I find the lessons interesting)

In our study, 40 students with a motivation above 80% strongly agree that the anatomy lessons are interesting and 25 students with motivation greater than 80% agree to work hard in anatomy. Half of the students are willing to sacrifice themselves to study hard in anatomy. Only two students wouldn't agree to study hard in anatomy.

Proposition 8 (In anatomy, my goal is to validate the teaching unit with the least possible effort).

Indeed, in our study 67 students among the 135 disagree that the teaching unit should not be validated without the least effort. Only two students agree to validate the teaching unit with the slightest effort.

Proposition 13 (I think that the anatomy teacher and monitors should insist only on the lessons that will come to the exam).

In our study, 98 students among the 135 with a motivation higher than 60% disagree and want that the teacher and monitors insist on the whole program if possible. One out of 135 students agrees with this statement.

Proposition 14 (I think there is no point in studying lessons for which we will not be evaluated).

In our study, 104 students out of 135 disagree with a motivation greater than 60% and want to study all the lessons to assimilate more knowledge. A student agrees to study only the assessed lessons.

3.2. Proposition 16 (I think I am among the best students in the class)

For this proposition, the proportion is equal with 45 students who agree, 45 students who disagree and 45 students who don't know.

Proposition 18 (I am aware that anatomy is an essential topic for the future doctor that I am).

In our study, 132 students among the 135 agree that anatomy is an essential topic. One student does not know, and one student disagrees.

Proposition 20 (The difficulty of some anatomy lessons does not bother me, if it allows me to learn).

In our study, 56 students with a motivation greater than 80% agreed to learn anatomy despite the difficulty of some lessons. 10 students with a motivation above 80% disagree.

3.3. Proposition 22 (I find the anatomy course interesting)

In our study, 109 students among the 135 have a motivation higher than 80% and agree that the anatomy course is interesting. On the other hand, two students out of 135 disagree.

3.4. Proposition 27 (When I prepare for the anatomy exam, I systematically try to motivate myself)

In our study, 68 students among the 135 with a motivation higher than 80% systematically motivate themselves before preparing for the exam. Only 6 students disagree.

Proposition 31 (For me motivation has no importance in anatomy, you just must validate the EU).

In our study, 109 students with a motivation greater than 60% disagree and believe that motivation is important in anatomy. However, 4 students think that they do not need motivation to validate the teaching unit.

Sociodemographic characteristics of the studied population

1. Sex

The distribution of students by gender showed a male predominance in 55% of cases (Figure 1).

2. Age

- (a) The maximum age of students was 25 years old.
- (b) The minimum age for students was 18 years old.
- (c) The average age of the students was 21.34 years.
- (d) The sex ratio was 1.2.

3. Degree of motivation

Figure 2 shows the degree of motivation during the anatomy teaching of L2 and L3 students. The average degree of motivation was 77.85%.

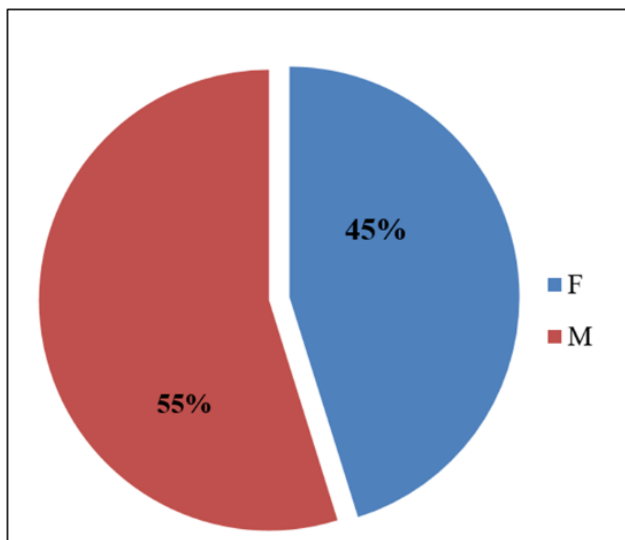


Fig. 1: Distribution by gender

Figure 3 shows the degree of motivation according to gender. The degree of female students' motivation was 77%. The degree of male students' motivation was 78%.

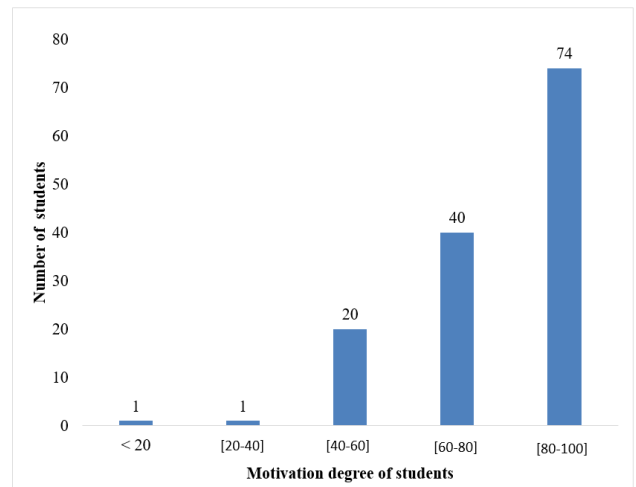


Fig. 2: Distribution of students according to their degree of motivation of during anatomy teaching

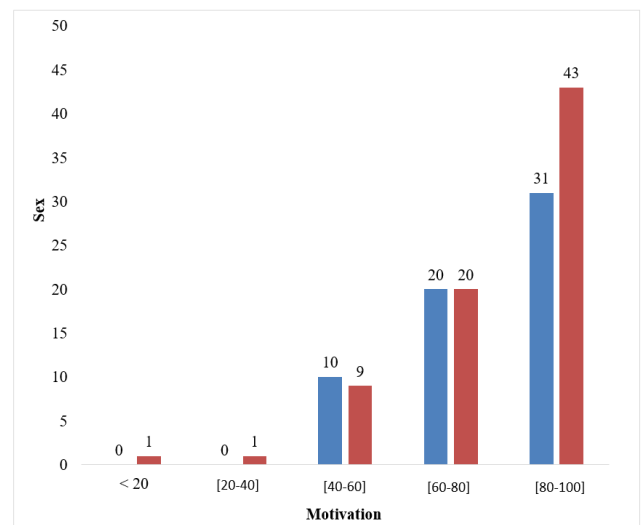


Fig. 3: Distribution of the degree of motivation according to sex (female in blue, and male in red)

4. Discussion

In our study, the distribution by gender shows a clear male predominance. This result does not agree with the report of the NODHP (national observatory of demography of the health professions) of France in 2004 which objectified that 65% of the students of second year in medicine are women, thus confirming the significant increase in the number of female physicians who started in the 1960s.⁴⁻⁶ According to forecasts, they should constitute more than half of practicing physicians in the future.⁷

Our study showed that among the 135 students, the motivation level average is 77.85%. This is not the case for dental students in Morocco where there are 190 students in the first and fifth year, and they have a moderate motivation

Table 1: Results of the anonymous questionnaire on motivation among anatomy students (license 1 and 2)

S.No.	Proposals	Strongly disagree	Disagree	Neither disagree nor agree	Agree	Strongly agree
1.	I find that studying anatomy gives me personal satisfaction	2	2	6	57	68
2.	In anatomy I must study the courses enough to draw my own conclusions	3	12	23	67	30
3.	I think every anatomy lesson can be interesting if you work on it	0	3	7	46	79
4.	I think studying an anatomy lesson can be as interesting as a good movie or a novel	12	19	13	51	40
5.	I usually test myself on the most important chapters until I understand them completely	5	24	13	59	35
6.	I study hard in anatomy because I find the lessons interesting	2	4	12	61	56
7.	I spend a lot of my free time trying to complete my knowledge of anatomy	10	51	15	44	15
8.	In anatomy, my goal is to pass the teaching unit with as little effort as possible	65	42	9	9	10
9.	I don't find anatomy lessons interesting, so I make as little effort as possible	104	26	3	0	2
10.	I think I can manage by memorizing the key chapters instead of trying to understand them	61	43	10	17	4
11.	In anatomy I limit my work to what is asked of me, because there is no point in putting in extra effort	58	60	5	8	4
12.	I think there's no point in understanding the anatomy course in depth, it's a waste of time. You just must validate the Anatomy teaching unit.	100	30	3	1	1
13.	I think that the anatomy teacher and monitors should only insist on the lessons that will come to the exam.	59	56	5	8	7
14.	I think there is no point in studying lessons for which you will not be evaluated	82	39	3	6	5
15.	I think the best way to pass the anatomy exam is to memorize the answers of old tests	64	40	14	10	7
16.	I think that I am among the best students in the class	24	21	45	24	21
17.	I have no difficulty understanding anatomy class, and when the conditions are right, I can perform very well.	4	17	10	63	41
18.	I am aware that anatomy is an essential fundamental science for the future doctor that I am.	2	0	1	21	111
19.	Whether in anatomy or in other disciplines, I am motivated by the challenge of learning and discovering.	1	13	14	53	54
20.	I don't mind the difficulty of some anatomy lessons, if it allows me to learn.	2	27	20	63	22
21.	Even when I have a bad exam result, I try to learn from my mistakes.	4	4	4	49	74
22.	I find the anatomy class interesting.	2	0	3	35	95
23.	When I prepare for the exam, I use lessons done in class but also other sources.	6	20	11	65	33
24.	It's hard for me to decide which parts are the most important during anatomy class.	5	16	14	64	36
25.	I always try to take the advice of other students when I study my lessons.	15	23	18	57	22
26.	During the anatomy class, I systematically take notes even if the teacher will share the course material.	6	11	6	60	52
27.	When I prepare for the anatomy exam, I systematically try to motivate myself.	1	5	12	67	50
28.	The people around me (parents, friends, family, etc.) have frequently motivated me since the beginning of my medical studies.	1	4	8	33	89
29.	Motivating myself is more important than the motivation that comes from those around me.	5	21	19	40	50
30.	I am more motivated during practical anatomy work and tutorials in anatomy than during lectures.	5	19	24	43	44
31.	For me motivation is of no importance in anatomy, you just must validate the teaching unit.	97	28	6	3	1

score of 56.7%, according to the SMMS score.⁸ In the study of the motivation of the undergraduate medical students of Marrakech, their degree of motivation is 47.67% according to the SMMS score.⁹ Our motivation obtained by our students is superior to that obtained by other faculties.

In university studies, motivation is associated with orientation towards a specific field of study, commitment to the effort to learn, self-discipline to achieve one's goals, perseverance in the face of the difficulties and failures that we encounter.¹⁰ We can believe that university students are necessarily motivated, given that at this level they make the choice of their studies. However, teachers sometimes note a certain percentage of absenteeism in classes and tutorials, as well as an insufficient investment in clinical internships, judged by the low number of acts performed during clinical sessions. This low involvement could be related to low motivation. According to Viau et al.,¹¹ low motivation to learn can characterize some undergraduate university students and is one of the main reasons leading them to drop out. In addition, survey results have shown that the more students advance in their studies, the less they feel motivated and the more their interest and their scientific curiosity as well as their perseverance decrease.¹² This decrease in motivation can affect student performance.¹³

In our study, 51 of the 61 girls have a motivation greater than or equal to 60%, i.e., 77% on average. And the boys, 63 out of the 74 have a motivation greater than or equal to 60%, i.e., 78% on average. What is not the case in the study Hulsman et al (Faculty of Medicine of Amsterdam)¹⁴ and Wilson et al (Faculty of Medicine of the West Indies),¹⁵ the average SMMS score was 56.6 and 60.3 respectively, with no significant difference between the two genders. While The Zugun-Eloae study¹⁶ reported that female students at Iasi Medical School are significantly more motivated than male students, their average SMMS score was 57.86 versus 50.47 for their male counterparts. The same trend is observed in the Kusurkar et al. study where female students have a higher motivational strength than male students.¹⁷ The degree of motivation obtained by our students is higher than the SMMS score of other faculties.

The vague perception of the usefulness of teaching is a major cause of demotivation among undergraduate students.¹⁸ A student who aspires to become a doctor expects to be immersed in medical practice from the start of their training, but the lessons they receive sometimes seem too theoretical in relation to their professional project. They find it difficult to perceive the relevance of the courses in their curriculum and in relation to their career plan.¹⁹ As a result, students feel that the reasons for which they are engaged in their studies are little considered in teaching.¹⁸ For some students, demotivation may be because the results obtained (exams results) do not correspond to the efforts made.¹⁸ This can be at the origin of a great disappointment, thus leading to a resignation regarding their commitment

to their studies, thus leading to a drop in their motivation. In other cases, demotivation can be attributed to personal changes (e.g., financial or family difficulties).¹⁹

The students of L2 and L3 of medicine thus present a motivation which varies little according to the sex and the level of study. Our study has some limitations that can be highlighted, in particular the problem of non-responses (response rate is only 88.2%). Non-respondents could present a particular motivational profile, the refusal to complete the questionnaires possibly being linked to their demotivation. This selection bias could be the cause of an overestimation of the motivation scores. The validity of the measurement tool used has not been verified in other works, however it has demonstrated good internal reliability. Moreover, in our study, we took two different samples, formed by first-year and second-year students. To check if there is a real demotivation, it would be desirable to follow the same sample from the first year until the fifth or sixth year to describe the evolution of their degree of motivation along their years of study. Thus, several factors are likely to influence student motivation. In addition to factors relating to the individual's personal life (including family influence) and to society and its values, there are also many factors related to the learning environment. Among the latter, we find the operating rules of the institution, the educational activities, and the evaluation practices. Viau thus considers that these factors play a major role in motivation. At the level of the faculty of dental medicine of Casablanca, for a few years, learning sessions in clinical reasoning and devices responding to the format of problem-based learning have been introduced into the training course to promote among students the acquisition of autonomy with respect to their learning. This autonomy is essential for the acquisition of new knowledge and skills, thus allowing a probable improvement in the perception that the student has of his competence, which constitutes one of the determinants of motivation. Other measures should be put in place to avoid a decrease in motivation during training. Regarding teaching activities, it is important to make explicit the links between theoretical and practical knowledge and to show the relevance of the course in the curriculum and in relation to professional needs. Indeed, Barker and Olson²⁰ had reported that the decrease in intrinsic motivation of first-year medical students may be related to the fact that they have difficulty finding the relevance of what they are doing during this first year of study in relation to their plan to become a medical practitioner.

5. Conclusion

The results obtained in this study confirm the importance of studying the motivational dynamics that animate medical students during the innovative educational activities offered to them. We must not forget that educational activities are the means by which medical students learn and are

formed. If they do not perceive the usefulness of educational activities that require them to participate actively, if they do not feel that they are able to learn during these activities and if they do not perceive that they have some control over their progress, their motivation will be affected; they will not commit to it in their study, and some will be tempted to give up.

At the same time, this study warns us against the belief that any innovative pedagogical activity, asking students to work in cooperative mode and on a subject that interests them, immediately arouses their motivation. These activities will arouse their motivation if they meet other conditions. Similar studies should be conducted at the university to verify whether innovative educational activities meet these motivational conditions. The results of such studies will help teachers to offer their students innovative educational activities which, while promoting their learning, will be able to arouse their motivation throughout their training.

6. Source of Funding

None

7. Conflict of Interest

The authors declare no conflict of interest through this work.


8. Acknowledgements

None.

References

- Viau R, Joly J, Bédard D. The motivation of students in teacher training with regard to innovative educational activities. *J Educ Sci*. 2004;30(1):163–76.
- Skinner EA. Perceived Control, Motivation, & Coping. Thousand Oaks, CA: SAGE Publications; 1995. doi:10.4135/9781483327198.
- Salomon G. The differential investment of mental effort in learning from different sources. *Educ Psychol*. 1983;18(1):42–50.
- Lapeyre N. Les professions face aux enjeux de la féminisation. Toulouse: Octares; 2006. Available from: <https://id.erudit.org/iderudit/017614ar>. doi:https://doi.org/10.7202/017614ar.
- Rault JF, Bretonlerouillois GL. Atlas of medical demography in France. Paris: Public Health and Medical Demography; 2014. Available from: https://www.conseil-national.medecin.fr/sites/default/files/external-package/analyse_etude/17q5sx6/atlas_2014.pdf.
- ONDPS Les effectifs et l'activité des professionnels de santé Les effectifs et l'activité des professionnels de santé; 2004. Available from: <https://www.vie-publique.fr/sites/default/files/rapport/pdf/064000455.pdf>.
- Bessiere S, Breuil-Genier P, Darrine S. La démographie médicale à l'horizon 2025 : une actualisation des projections au niveau national; 2004. Available from: <https://drees.solidarites-sante.gouv.fr/publications/etudes-et-resultats/la-demographie-medicale-lhorizon-2025-une-actualisation-des>.
- Badre B, Serhier Z, Bennani-Othmani M, Arabi SEL. Are the students of the faculty of dentistry in Morocco motivated? *Pédagogie Méd*. 2016;17(2):109–16.
- Ismail MA. Motivation pour les études médicales : étudiants du premier cycle. Morocco; 2017. Available from: <http://wd.fmpm.uca.ma/biblio/theses/annee-hm/FT/2017/these136-17.pdf>.
- Kusurkar R, Kruitwagen C, Cate OT, Croiset G. Effects of age, gender and educational background on strength of motivation for medical school. *Adv Health Sci Educ Theory Pract*. 2010;15(3):303–13.
- Janz N, Charnay MP, Paccaud CL, Lecloux S. Minutes of the educational meeting “The motivation of students at the University” University of Lausanne 23 April 2013; 2013. Available from: https://www.unil.ch/files/live/sites/cse/files/shared/trencontres/rapport_rencontre_motivation_10dec2013_v1.pdf.
- Careau L, Fournier AL. La motivation. Université Laval. 2002 [On-line]. Disponible sur; 2002. Available from: http://bibliothèque.cegepr.qc.ca/public/8fb3d2ee-8c32-43c4-9851-2df6895b1ccc/documents/7_guide_motivation.pdf.
- Viau R, Joly J, Bédard D. La motivation des étudiants en formation des maîtres à l'égard d'activités pédagogiques innovatrices. *Revue des Sciences de l'éducation*. 2004;30(1):163–76.
- Hulsman RL, Ende J, Oort FJ, Michels RPI, Casteelen G. Effectiveness of selection in medical school admissions: evaluation of the outcomes among freshmen. *Med Educ*. 2007;41(4):369–77.
- Wilson JL. A two factor model of performance approach goals in student motivation for starting medical school. *Issues Educ Res*. 2009;19:271–81.
- Zugun-Eloae C, Iorga M, Gavrilescu IM. Motivation, Stress and satisfaction among medical students. *Rev Med Chir Soc Med Nat Iasi*. 2016;120(3):688–93.
- Bédard D, Viau R. Le profil d'apprentissage des étudiantes et des étudiants de l'Université de Sherbrooke : résultats de l'enquête menée au trimestre d'automne 2000. Sherbrooke (QC): Université de Sherbrooke; 2001.
- Pelaccia T, Delplancq H, Tribby E, Leman C, Bartier JC, Dupeyron JP. La motivation en formation: une dimension réhabilitée dans un environnement d'apprentissage en mutation. *Pédagogie Méd*. 2008;9:103–21.
- Viau R. La motivation en contexte scolaire. 5th ed. Bruxelles: De Boeck; 2005. p. 218.
- Barker JR, Olson JP. Medical students' learning strategies: evaluation of first year changes. *J Miss Acad Sci*. 1997;42:96–100.

Author biography

Philippe Manyacka Ma Nyemb, -  <https://orcid.org/0000-0002-3339-4312>

Mouhamadou Moustapha Niang, -

Habsatou Yattara, -

Magaye Gaye, -

Cite this article: Manyacka Ma Nyemb P, Niang MM, Yattara H, Ndiaye A, Gaye M. Study on motivation factors and their effectiveness among the students of anatomy. *Indian J Clin Anat Physiol* 2022;9(4):273-278.