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Original Research Article

Perceptions of the educational environment at entry and exit of medical students to clinical teaching in a rural medical college

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ABSTRACT

Background: The foundation for good health care to patients is the competence of health care providers. Motivated learners in supportive environments have high levels of self-efficacy. DREEM is considered a valid and reliable tool, globally accepted for assessing the educational environment. The objectives of the study were to elicit the perceptions of first clinical year and final year medical students in a rural medical college using the Dundee ready education environment measure (DREEM) inventory and to find out if there is any difference in the perceptions at entry and exit to the clinical environment.
Methods: This was a cross sectional study on 78 students each in first clinical year and final year of this rural medical college. The DREEM inventory was used by the investigator to record relevant data, which was then statistically analyzed using SPSS software. The student t-test was used to compare the total and sub-domain mean scores in the two groups.
Results: There was significant difference in perception in the final year students compared to the first clinical year class.
Conclusions: The students of both first clinical year and final year have a positive perception about their educational environment. However there is a significant difference in the total DREEM score as well as total sub-domain scores among first clinical year students and final year students. Student perceptions are a valuable resource for institutional curriculum planners to make appropriate changes to enhance student learning.

Keywords: Clinical teaching, DREEM, Educational environment, Medical students, Medical college, Perceptions, Teacher

INTRODUCTION

The 'educational environment' defined as everything that happens within the classroom, department, faculty or college is crucial in determining the success of undergraduate medical education.[1,2] Motivated learners in supportive environments have high levels of self-efficacy and are accompanied by positive learning outcomes.[3,4] The quality of educational environment is also indicative of the effectiveness of an educational program. Students' perception of the educational milieu can also be a basis for implementing modification and optimizing the environment.[5,6] The Dundee ready education environment measure (DREEM) was developed by Roff et al. together

with a panel of nearly 100 medical educators and 1000 students to measure undergraduate educational climates in the health professions.[7] The DREEM questionnaire consists of 50 statements with a maximum score of 200 representing the ideal educational climate. The responses, coded on a Likert scale elicit information about the educational climate with a maximum score of 5 and minimum score of 1 for each item. Items that have a mean score of 3.5 or above are classed as 'real positive points', while items with a mean of 2 or less are indicative of problem areas. Nine out of the 50 statements contain negative statements and hence are reverse coded. The DREEM inventory consists of five sub-domains with maximum score in each domain within brackets: students' perception of learning (SPL, 48), students' perception of teachers (SPT,44), students' academic self-perceptions (ASP, 44), students' perception of atmosphere (PAA, 48) and students' social self-perception (SSP, 28).[8-14]

The foundation for the health and safety of patients lies in the competence of health care providers.[15] Effective management of learning is aided by understanding the educational environment and introducing appropriate changes. Based on this context and with a very student-friendly, outward looking and dynamic management running our institution, we undertook this study to assess student perceptions of undergraduate educational environment in this rural medical college.

The objectives of the study were to elicit the perceptions of first clinical year and final year medical students in a rural medical college about the educational environment using the Dundee ready education environment measure (DREEM) inventory and to assess if there is any difference in the perceptions of the first clinical and final year students to the educational environment.

METHODS

Institutional review board and ethics committee approval were obtained for this cross-sectional study. The sample size was calculated using n-Master computer software using non-parametric, two group Wilcoxon Mann Whitney U-Test and was found to be 78 in each group for a power of 90% and alpha error of 5%.[16] The study was conducted in May-June 2016 in this rural medical college in South India. All medical students of this rural medical college were approached and those who volunteered and gave written informed consent from the first clinical year class (Group A) and the final year class (Group B) were serially enrolled. Each student was given a coded number so that their identity and responses were kept confidential. The socio-demographic details were obtained and each participant filled in the DREEM inventory. The total and five sub-domain DREEM scores were obtained. The mean scores for the first clinical year and the final year were compared to assess the difference in their perceptions of the educational environment. The data was analysed using SPSS software and summarized using tables, charts and graphs and. The variance test-Levine's test, to test variability with normal assumption was used to confirm that the two groups were comparable. The mean total and sub-domain DREEM scores of the two groups were compared using the Students t-test.

RESULTS

The basic characteristics of the study group are shown in Table 1. Of the total 156 medical students included in the study, nearly three fourths were females and aged between 19 and 24 years. Most of them were from urban locality. According to Modified Kuppusamy's scale, about two third of the sample were either from upper middle or upper socio-economic status.[17]

Table 1: Basic characteristics.

Characteristics	Number (Percentage)
Gender	
Male	42 (26.9%)
Female	114 (73.1%)
Age	
19 years	4 (2.6%)
20 years	34 (21.8%)
21 years	39 (25.0%)
22 years	25 (16.0%)
23 years	50 (32.1%)
24 years	4 (2.6%)
Year of enrolment	
2012	78 (50%)
2014	78 (50%)
Mean Total DREEM score	159.8 (79.9%)
Mean DREEM domain scores	
• Perception of learning	38.9 (81.04%)
• Perception of teachers	35.8 (81.3%)
• Academic self-perception	25.7 (80.3%)
• Perception of Atmosphere	36.8 (76.6%)
• Social self-perception	22.5 (80.3%)

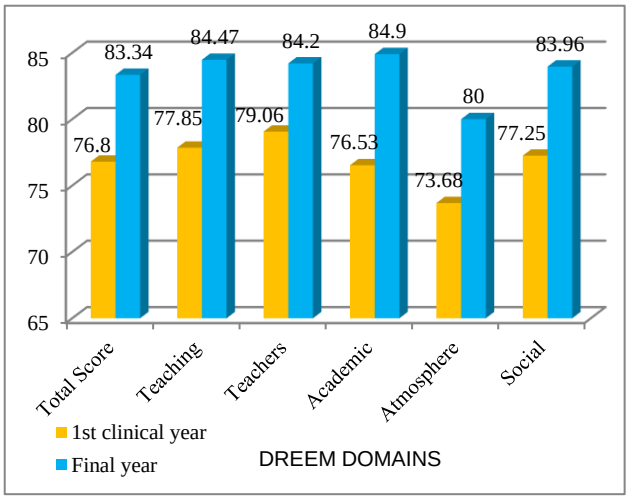

Figure 1: Mean DREEM scores for first clinical and final year students.

Figure 1 shows the graphical representation of mean DREEM scores for the two groups. The students perceptions based on their scores. Figure 1 compares the scores of the first clinical year students (entry to clinical teaching) and the final year student (at exit). The highly significant difference between the two groups ($p<0.001$) is representative of the change in student perception during the clinical course. Student perception of the educational atmosphere tends to have least scores.

DISCUSSION

The overall mean DREEM score of the 156 respondents was found to be 159.8/200 (79.9%). According to the practical guide of McAleer and Roff this indicates an excellent educational environment.[10] In similar studies conducted throughout the world, DREEM overall scores for medical schools were found to be in the range 107 to 142.9.[9,11,15,18-24]

Table 2: The approximate guide to interpreting DREEM score.

Score	Total DREEM score	Score	Perception of teachers	Score	Perception of atmosphere
0-50	Very poor	0-11	Very poor	0-12	Very poor
51-100	Plenty of problems	12-22	In need of some retraining	13-24	In need of some retraining
101-150	More positive than negative	23-33	Moving in right direction	25-36	Moving in right direction
151-200	Excellent	32-44	Model teachers	37-48	Model teachers
Score	**Perception of learning**	**Score**	**Academic self-perception**	**Score**	**Social self-perception**
0-12	Very poor	0- 8	Feelings of total failure	0-7	Miserable
13-24	Teaching viewed negatively	9-16	Many negative aspects	8-14	Not a nice place
25-36	More positive than negative	17-24	Feeling more on positive side	15-21	Not too bad
37-48	Teaching highly thought of	25-32	Confident	22-28	Very good socially

Table 3: Scores obtained for subscales by the study population.

Domain	Number of question	Max score	Mean score (n=156)	Categorization of student's perception about each domain subscale in DREEM %	
Students perception of teaching-learning (SPL)	12	48	38.9 (81.04%)	Very poor	0
				Teaching is viewed negatively	0.6
				A more positive perception	30.1
				Teaching-learning highly regarded	69.2
Students perception of teachers (SPT)	11	44	35.8 (81.3%)	Very poor	0
				In need of some retraining	0.6
				Moving in the right direction	20.5
				Model teachers	80.1
Students academic self-perception (ASP)	8	32	25.7 (80.3%)	Feelings of total failure	0
				Many negative aspects	0.6
				Feeling more on the positive side	33.3
				Confident	66.02
Students perceptions of atmosphere (SPA)	12	48	36.8 (76.6%)	A terrible environment	0
				Many issues which need changing	2.5
				A more positive atmosphere	39.7
				A good feeling overall	57.6
E. Students social self-perceptions (SSP)	7	28	22.5 (80.3%)	Miserable	0
				Not a nice place	3.8
				Not too bad	29.4
				Very good socially	66.6
Total DREEM item score for the group	50	200	159.8 (79.9%)	Very poor	0
				Plenty of problems	0
				More positive than negative	26.2
				Excellent	73.7

The approximate guide to interpreting the DREEM score is given in Table 2 and mean scores of the students in each domain in Table 3. Nearly three fourths (73.7%) graded the educational environment of the college as "excellent' in the DREEM questionnaire.

In our institution exit feedback has been solicited from internes in the last three years and changes are regularly being made. There are a couple of studies on students currently being carried out in the institution to obtain

student perceptions and the management is open and pro-active to implement changes that are necessary.

In our sample the highest scores were related to perception about teachers (81.3%) and learning domains (81.04%). The lowest score was related to perception about atmosphere (77.6%). This implies that steps need to be taken to provide a more relaxed and comfortable ambience for learning. These findings are in accordance to similar studies.[25,26]

In the students' perception of teaching-learning (SPL), 69.2% thought highly of the teaching with a mean SPL score of 81.04%. The fact that item 38 (I am clear about learning objectives of the course) had the lowest mean score (2.7) emphasizes the importance of orientation not only at the beginning of the course, but also for each class/session so that the learning objectives are clear to teacher and student. The perception of first clinical year students on Item 25 (The teaching overemphasizes factual learning), and Item 48 (The teaching is too teacher-centred) differs significantly from their final year peers indicating the need for movement from factual learning to early clinical exposure.

The students' perception of teachers (SPT) as role models was high with 80.1% responses indicating teachers were role-models. However, Item 8 (The teachers ridicule the students) and Item 9 (The teachers are authoritarian) was answered more negatively by all students which may indicate that teachers are still wearing their traditional hats. There were similar findings in another study as well.[3] Further, there is a significant difference in the mean scores indicating that final year students tend to have more issues with teachers.

Regarding students' academic self-perception (ASP), the majority of students (66.02%) expressed confidence about their academic performance (80.3%). However item 27 (I am able to memorize all I need) received a low score of 2.38 and 2.08 respectively, for final year and first clinical year students. This may require the introduction of innovative learning strategies like brain mapping, group learning, early clinical teaching and integrated learning. There was a significant improvement in the academic self-perception between final years and first years ($p<0.001$).

The students' perceptions of atmosphere (SPA) actually represents the real-life educational environment and thus the dynamism of the curriculum.[10] More than half the students (57.6%) perceived their surroundings positively. Item 35 (I find the experience disappointing) and Item 42 (The enjoyment outweighs the stress of the course) shows unfavourable response score around 3.6. This projects the stressful medical education schedule. Thus suitable strategies have to be evolved to improve the immediate surroundings of students and enable them to cope with the pressures of being a medical student.

In the students' social self-perceptions (SSP) nearly two-thirds (66.6%) believed their cliché was 'very good socially' while nearly one third 29.4% thought that the society they live in is 'not too bad'. Item 3 (There is a good support system for students who get stressed) shows scores of 2.82 and 2.69 respectively and displays the urgent need of implementing creative foster/mentor systems where teachers can be made available to support students. This should be discussed not only at the curriculum planners' level but administrators need to get involved to establish a social and academic support service for students.

Thus, even in the presence of very positive perception of total education environment as well as overall perception of each of the domains, there are specific individual areas where creative improvement strategies need to be set in place in future enhancement plans.

The three highest rated items were knowledgeable teachers, existence of good friends, (similar to findings of Gade et al), teachers coming well prepared for class and teachers building confidence among students.[6] The most problematic items in each domain were teachers ridiculing students, absence of clear learning objectives, inability to memorize, presence of stress more than enjoyment and lack of support system for stressed students which coincide with the findings of Gade et al, where there is a mean score of less than 2 for item no 4 (I am too tired to enjoy the course).

Although there were low scores in few items, like teachers being authoritarian, getting angry in class, failing to provide a positive feedback to students and ridiculing of students, the scores given by final year students were higher than the mean scores of the junior batch. Similar complaints were addressed in few studies.[3,28] Furthermore, as shown by Brown et al final year students' perceptions of their social life tend to be more disappointing than those of the junior batch, whereas poor social life reflected that enjoyment doesn't really outweigh the stress.[15]

In few items like, over-emphasizing of factual learning, inability of teachers to provide positive feedback, lack of confidence in being prepared for this profession, cheating being a problem in campus, uncomfortable atmosphere in class both socially as well as during tutorials or seminars, lack of motivation as a learner and getting bored of the course, the first clinical year students tend to score much less than their seniors. These are the areas where there is scope for improvement.

Table 4: Mean item DREEM Scores for final and first clinical year students.

Question items		Mean(SD) Scores for study groups		
		Final year	First clinical year	p-value*
Perception of learning				
1	I am encouraged to participate during teaching sessions	3.58 (0.87)	3.31 (0.9)	
7	The teaching is often stimulating	3.47 (0.76)	3.26 (1.01)	
13	The teaching is registrar centred	3.37 (0.88)	3.26 (0.84)	
20	The teaching is well focused	3.45 (0.9)	3.14 (0.96)	
22	The teaching help me to develop my confidence	3.64 (0.8)	3.41 (0.87)	
24	The teaching time is put to good use	3.51 (0.99)	3.01 (1.06)	0.000
25	The teaching overemphasizes factual learning#	3.62 (0.87)	2.9 (1.1)	
38	I am clear about learning objectives of the course	2.71 (0.94)	2.76 (0.95)	
44	The teaching encourages me to be an active learner	3.55 (0.9)	3.24 (1.06)	
47	Long term teaching is emphasized over short term learning	3.13 (0.95)	2.97 (0.87)	
48	The teaching is too teacher centered#	3.46 (0.92)	3.06 (0.67)	
Perception of teachers				
2	The teachers are knowledgeable	4.24 (0.66)	3.96 (0.95)	
6	The teachers are patient with patients	3.45 (0.9)	3.15 (0.85)	
8	The teachers ridicule the students#	2.73 (1.02)	2.94 (0.63)	
9	The teachers are authoritarian#	2.45 (0.84)	2.63 (0.79)	
18	The teachers have good communication skills with patients	3.99 (0.83)	3.63 (0.9)	
29	The teachers are good at providing feedback to students	3.27 (0.9)	2.59 (0.93)	0.001
32	The teachers provide constructive criticism here	3.17 (0.93)	3.01 (0.96)	
37	The teachers give clear examples	3.44 (0.86)	3.19 (0.87)	
39	The teachers get angry in class#	2.88 (1.01)	3.09 (0.97)	
40	The teachers are well prepared for their classes	4.03 (0.8)	3.46 (1.1)	
50	The students irritate the teachers#	3.41 (1.2)	3.14 (0.96)	
Academic self perception				
5	Learning strategies which worked before continue to work for me now	3.24 (1.15)	3.06 (0.94)	
10	I am confident about my passing this year	3.78 (0.92)	3.49 (0.87)	
21	I feel I am being well prepared for my profession	3.14 (0.88)	2.85 (0.98)	
26	Last year's work has been a good preparation for this year's work	3.76 (0.66)	3.00 (0.88)	0.000
27	I am able to memorize all I need	2.38 (1.04)	2.05 (0.86)	
31	I have learned a lot about empathy in my profession	3.79 (0.84)	3.51 (0.89)	
41	My problem solving skills are being well developed here	3.35 (0.8)	3.10 (0.86)	
45	Much of what I have to learn seems relevant to a career in healthcare	3.72 (0.77)	3.42 (0.98)	
Perception of atmosphere				
11	The atmosphere is relaxed during the ward teaching	3.58 (0.9)	3.03 (0.92)	
12	This school is well timetabled	3.67 (1.07)	3.04 (1.2)	
17	Cheating is a problem in this school#	3.06 (1.1)	2.86 (1.09)	
23	The atmosphere is relaxed during lectures	3.42 (0.9)	3.04 (1.01)	
30	There are opportunities for me to develop interpersonal skills	3.10 (1.02)	3.06 (0.98)	
33	I feel comfortable in class socially	3.31 (0.9)	3.1 3(0.95)	
34	The atmosphere is relaxed during seminars/tutorials	3.18 (1.13)	3.06 (0.99)	
30	There are opportunities for me to develop interpersonal skills	3.15 (0.92)	3.18 (0.97)	0.000
33	I feel comfortable in class socially	3.19 (0.95)	2.67 (0.97)	
34	The atmosphere is relaxed during seminars/tutorials	3.62 (0.87)	2.9 (1.1)	
35	I find the experience disappointing#	2.71 (0.94)	2.76 (0.95)	
36	I am able to concentrate well	3.55 (0.9)	3.24 (1.06)	
42	The enjoyment outweighs the stress of the course	2.56 (1.2)	2.67 (1.05)	
43	The atmosphere motivates me as a learner	3.09 (0.88)	2.81 (1.04)	
49	I feel able to ask the questions I want	3.08 (1.06)	2.83 (1.04)	
Social self perception				
3	There is a good support system for students who get stressed	2.82 (1.09)	2.69 (0.98)	
4	I am too tired to enjoy the course#	3.00 (1.19)	2.78 (1.14)	
14	I am rarely bored on this course	3.05 (1.15)	2.64 (0.93)	
15	I have good friends in this school	4.45 (0.57)	4.01 (0.96)	0.000
19	My social life is good	3.27 (1.1)	3.37 (1.09)	
28	I seldom feel lonely	3.33 (1.15)	2.87 (1.08)	
46	My accommodation is pleasant	3.59 (1.09)	3.26 (1.17)	

* Using t-test for Equality of Means. # Negative item which are reverse coded. Highlighted items depicts problem areas where there is a scope for improvement. It was found that none of the students scored any item above 2.7. Nevertheless we had two item with a score of more than 4.

Perception of environment varied between year-level of enrolment i.e. the variation follows a consistent increase as year of study increases. The greatest increase was in perception about learning and academics. In most of items, there is an increase in scores from first clinical year students to final year students. This shows students get more adapted as they spend more time in the campus. Similar findings were found in a study by Till H et al.[23] Conversely, in a study by Brown et al, second year students produced more positive DREEM results than fourth year students.[15]

The limitations of this study are that the individual items were not analysed and qualitative data was not collected in order to more deeply address specific problems or highlight strengths of the institution.

For ethical reasons, student volunteers were recruited for this study after a class. This may have inflated scores, as those who were present at the time of administration may have felt more positively towards their course than those who were absent (evidenced by the fact they were at class), or alternatively may have deflated the scores, as those with less satisfaction may have been keener to take part in order to voice their grievances.

CONCLUSION

The students of both first clinical year and final year have a positive perception about their educational environment. There is a statistical significance between the total DREEM score as well as total sub-domain score among first clinical year students and final year students. In summary the teaching learning experiences were more appreciated by final years than the first clinical years. Mentoring by teachers more valued by final years. Personal learning strategies improved in the final year students. The final years were more adapted to the learning atmosphere and the social environment with more positive scores than their junior peers.

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REFERENCES

1. Genn JM. AMEE Medical Education Guide No. 23 (Part 2): Curriculum, environment, climate, quality and change in medical education- a unifying perspective. Med Teacher. 2001;23(5):445-54.
2. Roff S, McAleer S. What is educational climate? Med Teacher. 2001;23(4):333-4.
3. Demirören M, Palaoglu Ö, Kemahli S, Özyurda F, Ayhan IH. Perceptions of students in different phases of medical education of educational environment: Ankara University Faculty of Medicine. Med Educ Online. 2008;13(8):1-8.
4. Syed IS, Jayadevan S. Students' Perception of learning environment in a medical school experiencing curricular transition in United Arab Emirates. Med Teacher. 2011;33:e37-42.
5. Aghamolaei T, Fazel I. Medical students' perception of the educational environment at an Iranian Medical Sciences university. BMC Med Educ. 2010;10:87.
6. Gade S, Chari S. Students perception of undergraduate educational environment in multiple medical institutes across central India using DREEM inventory. NJIRM. 2013;4(5):125-31.
7. Roff S, McAleer S, Harden R, Al-Qahtani M, Uddin A.A, Deza, H, et al. Development and validation of the Dundee Ready Education Environment Measure (DREEM). Med Teacher. 1997;19(4):295-9.
8. Whittle S, Whelan B, Murdoch-Eaton DG. DREEM and beyond; Studies of the educational environment as a means for its enhancement. Education for Health. 2007;20(1):7.
9. Jiffry MTM, McAleer S, Fernando S, Marasinghe RB Using the DREEM questionnaire to gather baseline information on an evolving medical school in Sri Lanka. Med Teacher. 2005;27(4):348-52.
10. Roff S, McAleer S, Ifere OS, Bhattacharya S. A global diagnostic tool for measuring educational environment: comparing Nigeria and Nepal. Med Teacher. 2001;23(4):378-82.
11. Divaris K, Barlow PJ, Chendea SA, Cheong WS, Dounis A, Dragan IF, et al. The academic environment: the students' perspective. Eur J Dent Educ. 2008;12(s1):120-30.
12. International standards in medical education: assessment and accreditation of medical schools'-educational programmes. A WFME position paper. The Executive Council, The World Federation for Medical Education. Med Educ. 1998;32(5):549-58.
13. Yusoff MSB. The Dundee Ready Educational Environment Measure: a confirmatory factor analysis in a sample of Malaysian medical students. Int J Humanit Soc Sci. 2012;2(16):313-21.
14. Dunne F, McAleer S, Roff S. Assessment of the undergraduate medical environment in a large UK medical school. Health Educ J. 2006;65:149-58.
15. Brown T, Williams B, Lynch M. The Australian DREEM: evaluating student perceptions of academic learning environments within eight health science courses. Int J Med Educ. 2011;2:94-101.
16. Sample size calculated using nMaster Sample Size Calculation software produced by Department of

Biostatistics, Christian Medical College, Vellore 632 004. Tamil Nadu. India.
17. Maheshwaran G. Kuppuswamy's socio-economic status scale- a revision of income parameter for 2014. Int J Rec Trends Sci Tech. 2014;11(1):1-2.
18. Riquelme A, Oporto M, Oporto J, Mendez JI, Viviani P, Salech, et al. Measuring students' perceptions of the educational climate of the new curriculum at the Pontificia Universidad Catalica de Chile: performance of the Spanish translation of the Dundee Ready Education Environment Measure (DREEM). Education for health (Abingdon, England), 2009;22(1):112.
19. Mayya SS, Roff S. Students' perceptions of the educational environment: A comparison of academic achievers and under-achievers at Kasturba Medical College, India. Educ Health. 2004;17(3):280-91.
20. Al-Ayed IH, Sheik SA. Assessment of the educational environment at the college of medicine of King Saud University. Riyadh. East Mediterr Health J. 2008;14(4):953-9.
21. Bouhaimed M, Thalib L, Doi SA. Perception of the educational environment by medical students undergoing a curricular transition in Kuwait. Med Princ Pract Epub. 2009;18(3):204-8.
22. Till H. Identifying the perceived weaknesses of a new curriculum by means of the Dundee Ready Education Environment Measure (DREEM) Inventory. Med Teach. 2003;26:39-45.
23. Bassaw B, Roff S, McAller S, Roopnarinesingh S, Lisle JD, Teelucksingh S, et al. Students' perspectives on educational environment, Faculty of Medical Sciences, Trinidad. Med Teach. 2003;25:522-6.
24. Bakhshi H, Abazari F, Bakhshialiabad MH. Nursing Students' Perceptions of their Educational Environment Based on DREEM Model in an Iranian University. Malays J Med Sci. 2013;20(4):56-63.
25. Al-Hazimi A, Zaini R, Al-Hyiani A, Hassan N, Gunaid A, Ponnamperuma G, et al. Educational environment in traditional and innovative medical schools: a study in four undergraduate medical schools. Educ Health. 2004;17:192-203.
26. Seabrook MA. Clinical students' initial reports of the educational climate in a single medical school. Med Educ. 2004;38:659-69.

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