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Educational environment and affirmative actions: perception of nutrition trainees

Ambiente educacional e ações afirmativas: percepção de estagiários de nutrição

Entorno educativo y acciones afirmativas: percepción de los aprendices de nutrición

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Abstract
The educational environment changes behavior, affective-emotional profile and influences student learning. However, the impact of this environment on health students is not known, in the context of affirmative actions and socioeconomic, demographic, cultural and quality of life variables, among themselves. Aim: to characterize the profile, compare and evaluate the perception of the educational environment by nutrition students enrolled or not by affirmative actions of a Brazilian public university. Methodology: This is a cross-sectional analytical study carried out with 141 students of the Supervised Internship in Clinical Nutrition, with 111 non-enrolled (NAA) and 30 enrolled for Affirmative Actions (AA). The students answered two questionnaires, one to characterize the socioeconomic, demographic, cultural and quality of life profile, and the other to assess the educational environment (DREEM). Results: Most participants were female, with an average age of 23 years, whites, with low per capita income and reported having stressors and emotional difficulties that interfere in the academic context. The overall DREEM score indicates a "more positive than negative" environment. Regarding the dimensions of perception of learning and social relationships, there were significant differences between AA and NAA students, in the statements "Teaching is concerned with developing my competence"; "I rarely feel alone" and "I live in a comfortable place". Conclusion: The profile of AA students, as well as their perception of the educational environment reveal that constant interventions are necessary to bring improvements in the teaching-learning process in higher education.
Keywords: Public policy; Higher education; Mainstreaming, education; Nutritional sciences; Learning.

Resumo
O ambiente educacional modifica o comportamento, o perfil afetivo-emocional e influencia a aprendizagem dos alunos. No entanto, não se conhece o impacto desse ambiente sobre os estudantes da área da saúde, no contexto das ações afirmativas e de variáveis socioeconômicas, demográficas, culturais e de qualidade de vida, entre si. Objetivo: caracterizar o perfil, comparar e avaliar a percepção do ambiente educacional por alunos de nutrição matriculados ou não por ações afirmativas de uma universidade pública brasileira. Metodologia: Trata-se de um estudo transversal analítico realizado com 141 alunos do Estágio Supervisionado em Nutrição Clínica, sendo 111 não inscritos (NAA) e 30 inscritos em Ações Afirmativas (AA). Os alunos responderam a dois questionários, um para caracterizar o perfil socioeconômico, demográfico, cultural e de qualidade de vida e outro para avaliar o ambiente educacional (DREEM). Resultados: A maioria dos participantes era do sexo feminino, com média de idade de 23 anos, brancos, com baixa renda per capita e relataram possuir fatores estressores e dificuldades emocionais que interferem no contexto acadêmico. A pontuação geral DREEM indica um ambiente "mais positivo do que negativo". Em relação às dimensões de percepção da aprendizagem e das relações sociais, houve diferenças significativas entre alunos nas falas "O ensino se preocupa em desenvolver minha competência"; "Raramente me sinto sozinho" e "Moro em um lugar confortável". Conclusão: O perfil dos alunos AA, bem como sua percepção sobre o ambiente educacional revelam que intervenções constantes são necessárias para trazer melhorias no processo de ensino-aprendizagem no ensino superior.
Palavras-chave: Política pública; Ensino superior; Inclusão escolar; Ciências da nutrição; Aprendizagem.

Resumen
El entorno educativo modifica el comportamiento, el perfil afectivo-emocional e influye en el aprendizaje de los estudiantes. Sin embargo, se desconoce el impacto de este entorno en los estudiantes de la salud, en el contexto de acciones afirmativas y variables socioeconómicas, demográficas, culturales y de calidad de vida, entre ellos. Objetivo: caracterizar el perfil, comparar y evaluar la percepción del entorno educativo de los estudiantes de nutrición matriculados o no en acción afirmativa en una universidad pública brasileña. Metodología: Se trata de un estudio analítico transversal realizado con 141 estudiantes del Pasantía Supervisada en Nutrición Clínica, de los cuales 111 no están matriculados (NAA) y 30 matriculados en Acciones Afirmativas (AA). Los estudiantes respondieron a dos cuestionarios, uno para caracterizar el perfil socioeconómico, demográfico, cultural y de calidad de vida y otro para evaluar el entorno educativo (DREEM). Resultados: La mayoría de los participantes fueron mujeres, edad promedio de 23 años, blancos, con bajo ingreso per cápita y reportaron tener factores estresantes y dificultades emocionales que interfieren en el contexto académico. La puntuación general de DREEM indica un entorno "más positivo que negativo". En cuanto a las dimensiones de percepción del aprendizaje y las relaciones sociales, hubo diferencias significativas entre los estudiantes en los enunciados “La docencia se preocupa por desarrollar mi competencia”; “Rara vez me siento solo” y “Vivo en un lugar cómodo”. Conclusión: El perfil de los estudiantes, así como su percepción del entorno educativo, revelan que son necesarias intervenciones constantes para mejorar el proceso de enseñanza-aprendizaje.
Palabras clave: Política pública; Enseñanza superior; Integración escolar; Ciencias de la nutrición; Aprendizaje.

1. Introduction

The educational environment can be defined as a set of elements, material or affective, that surrounds the student and influences the educational climate, the quality of teaching, and the effectiveness of learning (Troncon 2014). Its insertion in a large part of the student's daily life stands out. This environment, in structural terms, the teaching conditions, the performance of the teachers, the students' academic perception, the educational atmosphere and the social atmosphere are the forming components of this educational environment (Roff et al. 1997). Among the various instruments used to assess the educational environment (Miles et al. 2012), the Dundee Ready Education Environment Measure (DREEM) stands out, which assesses the positive and negative points in the teaching and hospital training environment, proposes a situational diagnosis and guides for intervention actions (Roff et al. 1997).

Among the actions of intervention, the Affirmative Actions (AA) stand out, characterized as a category of public policies aimed at offering compensation measures, repairing equal opportunities and the possibility of growth among groups considered excluded by society, due to social, racial factors, ethnic, political or economic (Cruz 2011). In the United States, this term was initially marked by the moment of internal democratic demands for the right of everyone to equal opportunities and the end of the segregationist laws in force in the country. In Europe, through the search for equal opportunities for the population. In Brazil, due to the search for redistributive or assistance political measures against racial and socioeconomic inequality evident in the country (Valente 2016).

In Brazil, one of the fields where AA is present in is higher education, in order to provide greater opportunities for low-income students to enter public higher education institutions (HEIs) (Lopes 2016). This public policy is regulated by the Brazilian Federal Law no. 12.711 (Brasil 2012), which states that all federal institutions should reserve at least 50% of their enrollment for public school students who come from families with an income equal to or less than 1.5 times the minimum wage per capita among self-declared blacks, indigenous people, and people with disabilities (Brasil 2012; Brasil 2016).

The entry of students through affirmative actions brought a new student profile to public HEIs. However, this group of students frequently faces difficulties in adapting to the university system, deficiencies in basic education, and social isolation, among other problems (Silva 2017; Junior 2014). Understanding this reality makes it possible to establish strategies for improving physical, mental, and behavioral conditions that interfere in students' learning, social relationships, and academic results (Genn 2001; Miles et al. 2012).

In light of this information, studies in the health field have evaluated the educational environment of Brazilian institutions through DREEM in order to improve the socio-behavioral and educational context of undergraduate students (Placa et al. 2015; Enns 2016). However, few studies have applied this instrument to students in the health field (in the nutrition course, for example), to analyze socioeconomic, demographic, cultural, and quality of life variables within the context of affirmative action. The objective of the present study is to evaluate the perception of the educational environment by clinical nutrition interns, some enrolled by affirmative actions and others by the universal system.

2. Methodology

Study Design

This is a cross-sectional analytical study, in which data were collected and evaluated using two instruments: the Dundee Ready Education Environment Measure (DREEM) questionnaire; and the socioeconomic, demographic, and cultural questionnaire, adapted from the National Forum of Pro-Rectors of Community and Student Affairs – Brazil (FONAPRACE) (Fonaprace 2011). Both instruments were applied at a single time for each participant.

Study Location, Population, and Sample

The study was carried out with students enrolled in the mandatory curricular internship in clinical nutrition during their last year of the nutrition course at the Faculty of Nutrition (FANUT) at the Federal University of Goiás (UFG), in the central-west region of Brazil. The internship took place at the Teaching Hospital of UFG. Of the 197 students enrolled in the discipline from the first semester of 2015 to the first semester of 2018, 141 (71%) answered the DREEM and FONAPRACE questionnaires (adapted) completely, in an average time of 40 minutes. Of this sample, 30 students entered the program through Affirmative Actions (AA) and 111 students entered via No Affirmative Actions (NAA)/Universal System (SU).

Data Collection and Analysis

The socio-demographic, economic, cultural, and quality of life variables were collected using the instrument adapted from FONAPRACE (Fonaprace 2011). Socio-demographic variables included: sex (male and female); age (20–23 years and older than 24 years); race/color/ethnicity (white and black skin color); current housing situation (alone and accompanied); means of transportation used (vehicle owned and non-owned); work situation (employed and unemployed); father's education (less than or equal to elementary school and greater than elementary school); and participation in student assistance programs (food, housing, psychological care, pedagogical reinforcement, medical care, dental care, scholarship, transportation, and daycare/daycare assistance).

The economic and quality of life variables studied were per capita income (low, which was less than 940 dollars or intermediate, which was between 940 and 3700 dollars) and having stress factors that interfere in the academic context (less than an average of 3.0 equaled a "no" answer, more than an average of 3.0 equaled a "yes" answer). The stress factors that were measured and averaged were: adaptation to new situations, family relationships, social/interpersonal relationships, love/marital relationships, situations of violence, moral harassment, conflicts of values/religious conflicts, difficulty of access material and study means, financial difficulties, learning difficulties, lack of discipline/study habits, excessive workload and/or excessive academic workload, emotional difficulties that interfere with academic performance, and use of alcohol/tobacco/medication/illegal drugs to control emotional difficulties. Emotionally difficulties included anxiety, depression, excessive shyness, fear/panic, insomnia or significant changes in sleep, feeling helplessness/despair/hopelessness, feelings of inattention/disorientation/mental confusion, eating problems, alcohol abuse, and abuse of non-legal drugs; students

who identified with one or more of these difficulties answered yes, or no if they identified with none. In regards to use of alcohol, tobacco, or drugs, students chose periodically and always (yes) or never and occasionally (no).

The internationally validated Likert scale instrument, which comprises 50 closed questions, nine of which are inverted statements (4, 8, 9, 17, 25, 35, 39, 48, 50), was randomly distributed among the following dimensions: D1 – perception of learning (12 items – 48 points); D2 – teachers' perception (11 items – 44 points); D3 – perception of academic results (8 items – 32 points); D4 – perception of the general environment (12 items – 48 points); and D5 – perception of social relations (7 items – 28 points) (Roff et al. 1997). The maximum score for this instrument is 200 points; the higher the score, the closer the environment is to ideal (Roff et al. 1997). In each of the statements, there is a score given according to five responses: "strongly disagree – 0", "disagree – 1," "not sure – 2," "agree – 3," and "strongly agree – 4." For inverted questions, an inverted score was assigned; in other words, a score of 4 was given for the greatest disagreement and 0 was given for the greatest agreement (Guimarães et al. 2015).

The individual items of the DREEM statements were analyzed according to the "score" of each item. A mean score of 3.5 or more indicated a very strong item (extremely positive); between 3.0 and 3.5 indicated a strong item (positive); between 2.0 and 3.0 indicated that some aspects needed to be improved (regular); and an average score of 2.0 or less indicated points that needed attention (negative) (Guimarães et al. 2015). The analysis of the educational environment according to the general score of the DREEM followed the following criteria: 0–50 (very weak environment); 51–100 (environment with many problems); 101–150 (more positive than negative environment); 151–200 (excellent environment) (McAller & Roff 2001).

For the DREEM dimension assessment, the criteria used were: D1 (0–12 very weak teaching, 13–24 teaching is perceived more negatively, 25–36 teaching is perceived more positively, 37–48 highly thought teaching); D2 (0–11 bad organization, 12–22 needs some recycling, 23–33 moving in the right direction, 34–44 model teacher in regards to the course organization); D3 (0–8 feelings of total failure regarding academic results, 9–16 many negative aspects about academic results, 17–24 feeling more positive about academic results, 25–32 confident about academic results); D4 (0–12 a bad environment, 13–24 there are many issues about the environment that need to be changed, 25–36 a more positive environment, 37-48 a good environment); and D5 (0-7 socially weak environment, 8–14 not a pleasant place for social relations, 15–21 average place for social relations, 22–28 socially strong environment) (McAller & Roff 2001).

Statistical Analysis

The data were entered twice in Microsoft Office Excel 2010, with a consistency check, and processed in STATA 12.0. Categorical variables were expressed as frequencies and percentages, and continuous variables as mean and standard deviation or median and percentile (25–75). A significance level of 5% was adopted for all analyses. The analysis of normality of continuous variables was performed using the Shapiro-Wilk test. Comparisons between students, enrolled or not enrolled in the university through affirmative actions, were performed using Fisher's exact test – qualitative variables, the Wilcoxon test (Rank-Sum Test) – ordinal variables, or Student's t test (normal distribution)/Wilcoxon (non-normal distribution) – quantitative variables. Cronbach's alpha test (classified from 0 to 1) was used to analyze the internal consistency of DREEM responses, and the alpha had to be greater than 0.7 to be acceptable.

Ethical Aspects

This work was submitted to the UFG Research Ethics Committee and approved under Opinion: 1,144/2015. This research maintains the ethical standards contained in Resolution No. 466, of December 12, 2012, of the National Health Council of Ministry of Health (Brazil 2012). All research subjects answered the questionnaires after signing the Free and Informed Consent Form (ICF). The data remains archived by the researchers involved, preserving anonymity.

3. Results

Student Profile

The research participants were mostly female (96%, n = 135), with an average age of 23 (± 3.10) years, were mostly white skin color (61%, n = 86), lived with others (86%, n = 122), and did not work (114%, n = 81). About three-fourths of the students had fathers with a higher education than elementary school, and just over a third (n = 48) were enrolled in affirmative actions (AA). When considering these characteristics between participants of (AA) or not (NAA), it was observed that the largest portion of black skin color students was found among AA, with a significant difference between groups (63% x 32%, $p < 0.01$). Paternal education was found to be less than or equal to an elementary education among AA students, and higher than an elementary education in the NAA group (46% x 80%, $p \leq 0.01$) (Table 1).

As for economic characteristics, a significant difference ($p \leq 0.01$) was observed between AA and NAA students for non-owned means of transport (63% x 36%, n = 59) and participation in a student assistance program (67 % x 25%, n = 48). For the per capita income variable, low income was predominant and there was no difference between groups (100% x 95%, n = 136). With regard to quality of life characteristics, it was found that 91% (n = 129) of students have stressors that interfere in academic performance and emotional difficulties that interfere in the academic context (94%, n = 133), with no difference between groups. Students did not use or consume alcohol (89%, n = 125), tobacco (99%, n = 140), prescription drugs (89%, n = 125), or illicit drugs (99%, n = 140), with no difference between groups (Table 1).

Table 1. Sociodemographic, economic and quality of life characterization by trainees in Clinical Nutrition AA and NAA. Goiânia, 2018.

Variables	GENERAL n=141		AA n=30		NAA n=111		*p*
	N	%	N	%	N	%	
Sex							0,342
Male	6	4,26	0	0	6	5,41	
Female	135	95,74	30	100,00	105	94,59	
Age							0,245
20-23 years	103	73,05	19	63,33	84	75,68	
≥ 24 years	38	26,95	11	36,67	27	24,32	
Race							**0,003**
White and yellow	86	60,99	11	36,67	75	67,57	
Black and brown	55	39,01	19	63,33	36	32,43	
Current housing situation							0,240
Live alone	19	13,48	6	20,00	13	11,71	
Live accompanied	122	86,52	24	80,00	98	88,29	
Transportation							**0,012**
Own	81	57,86	11	36,67	70	63,64	
Not-own	59	42,14	19	63,33	40	36,36	
Work							0,601
Yes	27	19,15	7	23,33	20	18,02	
No	114	80,85	23	76,67	91	81,98	
Father's schooling							**0,010**
Lower or equal secondary education	34	24,82	12	46,15	22	19,82	
Higher secondary education	103	75,18	14	53,85	89	80,18	
Per capita income							0,584
Lower	136	96,45	30	100,00	106	95,50	
Intermediary	5	3,55	0	0,00	5	4,50	
Participate in any student assistance							**<0,001**

program							
Yes	48	34,04	20	66,67	28	25,23	
No	93	65,96	10	33,33	83	74,77	
It has stressors that interfere in academic performance							1,000
Yes	129	91,49	28	93,33	101	90,99	
No	12	8,51	2	6,67	10	9,01	
It has emotional difficulties that interfere in academic performance							0,678
Yes	133	94,33	28	93,33	105	94,59	
No	8	5,67	2	6,67	6	5,41	
Alcohol consumption							0,523
Yes	16	11,35	2	6,67	14	12,61	
No	125	88,65	28	93,33	97	87,39	
Tobacco consumption							1,000
Yes	1	0,71	0	0,00	1	0,90	
No	140	99,29	30	100,00	110	99,10	
Consumption of controlled drugs							0,747
Yes	16	11,35	4	13,33	12	10,81	
No	125	88,65	26	86,67	99	89,19	
Consumption of non-licit drugs							1,000
Yes	1	0,71	0	0,00	1	0,90	
No	140	99,29	30	100,00	110	99,10	

AA= students affirmative actions NAA= students non affirmative actions
*p<0,05
OBS: important to consider race, transportation, father's schooling and participate in assistance program.
***Fonte: Formulário de pesquisa – Estudantes de nutrição na pesquisa de ações afirmativas da UFG: caracterização, intervenção e monitoramento (FANUT-UFG).

Educational Environment

The reliability of the DREEM responses was considered good (Cronbach's α coefficient: 0.872), when considering the two groups of students and the five dimensions, both in the general assessment and in all domains. An overall score of 114.78 points was observed, a condition that indicates a more positive than negative environment, but closer to the lower limit of this classification. There was an overall value of 2.29 in relation to the averages, which indicates possible problem areas. It is noteworthy that, among the five dimensions, there was only a difference between groups AA and NAA in D5, perception of social relations (13.40 x 15.30, p = 0.016).

In the analysis of the DREEM by dimension (Tables 2 to 6), a difference between the groups among the statements that refer to the perception of learning (DA) stands out only for the statement, "Teaching is concerned with developing my competence," which indicates that AA students had a more positive perception when compared to those enrolled in the universal system. In regards to the statement, "The teaching adopted is often stimulating," the average perception of students was low, with no significant difference between groups (Table 2).

With regard to students' perceptions of teachers (D2), their academic results (D3), and the general environment (D4), there were no differences between the groups for the evaluated statements. However, a less positive perception occurred regarding the following statements: "Teachers have shown themselves to be patient with patients" and "Teachers give good feedback to students" (D2); "As I studied before, it also works in this course" and "I have good memory capacity for everything I need" (D3); and "The environment is quiet during classes at the infirmary" (D4) (Tables 3, 4, and 5).

Regarding the perception of social relationships (D5, Table 6), there was a difference between the groups for the statements, “I rarely feel alone” and “I live in a comfortable place,” with lower averages among AA students. It is also worth mentioning that the statement “There is a good support program for stressed students” received a reduced score.

Table 2 Evaluation of the educational environment by trainees in Clinical Nutrition AA and NAA, on the perception of learning (Dimension 1). Goiânia, 2018.

Questions	GENERAL n=141		AA n=30		NAA n=111		*p*
	A	*SD*	*A*	*SD*	*A*	*SD*	
D1 Perception of learning (48 points)	27,35	5,95	27,70	7,19	27,26	5,60	0,721*
1. I am encouraged to participate in classes	2,37	0,91	2,33	0,99	2,38	0,89	0,812*
7. The teaching adopted is often stimulating	1,69	0,92	1,60	1,10	1,72	0,86	0,524*
13. Teaching is student-centered	2,08	1,12	2,03	1,19	2,09	1,11	0,806*
16-Teaching is concerned with developing my competence	2,68	0,90	2,97	0,96	2,60	0,88	**0,038****
20-Teaching is very focused and cohesive	2,49	0,84	2,70	0,91	2,43	0,81	0,123*
22-The teaching method is concerned with developing my confidence	2,09	1,06	2,37	1,15	2,03	1,03	0,121*
24-The teaching time is well used	2,01	0,98	1,93	1,17	2,03	0,93	0,644*
25-Teaching places great emphasis on learning memorable facts	1,84	0,97	1,70	1,05	1,87	0,94	0,385*
38-I am sure about the objectives of this course	2,65	0,90	2,83	0,95	2,60	0,89	0,158**
44-Teaching encourages me to pursue my own learning	2,60	0,94	2,40	1,13	2,66	0,88	0,321**
47-The importance of continuing education is emphasized	2,95	0,88	3,07	0,94	2,92	0,86	0,280**
48-Teaching is very teacher-centered	1,89	1,01	1,77	1,22	1,93	0,95	0,440*

* Student t test; ** Wilcoxon test
AA = students participating in affirmative actions; NAA = students not participating in affirmative actions
Significant results are marked in bold
OBS: important to consider number 16 – perception of learning.
***Fonte: Formulário de pesquisa – Estudantes de nutrição na pesquisa de ações afirmativas da UFG: caracterização, intervenção e monitoramento (FANUT-UFG).

Table 3. Evaluation of the educational environment by trainees in Clinical Nutrition AA and NAA, on the perception of teachers (Dimension 2). Goiânia, 2018.

Questions	GENERAL n=141		AA n=30		NAA n=111		*p*
	A	*SD*	*A*	*SD*	*A*	*SD*	
D2 Perception of teachers (44 points)	24,97	5,73	24,50	6,88	25,10	5,41	0,613*
2- It is possible to understand the teachers in their classes	2,60	0,80	2,73	0,98	2,57	0,75	0,316*
6- Teachers have shown themselves to be patients with the sick	1,55	1,14	1,43	1,10	1,58	1,15	0,517*
8- Teachers ridicule students	2,37	1,10	2,26	1,23	2,40	1,07	0,544*
9- Teachers are authoritarian	1,74	1,11	1,50	1,22	1,81	1,07	0,175*
18- Teachers are able to communicate well with patients	2,79	0,95	2,73	1,23	2,80	0,86	0,730**
29- Teachers give good feedback to students	1,82	0,93	1,90	1,06	1,80	0,90	0,612*
32-Teachers give us constructive criticism	2,45	2,29	2,60	1,13	2,41	0,94	0,307**
37- Teachers give very clear examples	2,16	2,01	2,13	1,01	2,16	0,81	0,871*
39-Teachers get nervous in the classroom	2,50	0,97	2,20	1,24	2,58	0,88	0,060*
40-Teachers are prepared for classes	2,75	0,94	2,70	1,29	2,76	0,83	0,654**
50-Students annoy teachers	2,23	1,14	2,30	1,05	2,21	1,16	0,693*

* Student t test; ** Wilcoxon test
AA = students participating in affirmative actions; NAA = students not participating in affirmative actions
Significant results are marked in bold
***Fonte: Formulário de pesquisa – Estudantes de nutrição na pesquisa de ações afirmativas da UFG: caracterização, intervenção e monitoramento (FANUT-UFG).

Table 4. Evaluation of the educational environment by trainees in Clinical Nutrition AA and NAA, on the perception of academic results (Dimension 3). Goiânia, 2018.

Questions	GENERAL n=141		AA n=30		NAA n=111		*p*
	A	*SD*	*A*	*SD*	*A*	*SD*	
D3 Perception of academic results (32 pontos)	19,95	4,19	19,87	4,84	19,97	4,02	0,902*
5-As I studied before it also works in this course	1,68	1,28	1,36	1,40	1,76	1,24	0,131*
10-I am confident that I will pass this course	3,34	0,86	3,40	0,93	3,32	0,84	0,448**
21-I feel that I have been well prepared for the profession	2,57	0,91	2,73	0,98	2,53	0,89	0,284*
26-The teaching of the previous year prepared me well for this year	2,39	0,95	2,30	1,18	2,41	0,88	0,761**
27-I have good memory capacity for everything I need	1,77	1,15	1,60	1,22	1,82	1,13	0,354*
31-I learned a lot about personal relationship in this profession	2,89	0,98	3,20	0,76	2,80	1,02	0,061**
41-The search for solutions has been developed in this course	2,28	0,98	2,23	1,19	2,29	0,92	0,786*
45-Much of what I have seen seems important for Nutrition	3,03	0,70	3,03	0,81	3,03	0,68	0,769**

* Student t test; ** Wilcoxon test
AA = students participating in affirmative actions; NAA = students not participating in affirmative actions
Significant results are marked in bold
***Fonte: Formulário de pesquisa – Estudantes de nutrição na pesquisa de ações afirmativas da UFG: caracterização, intervenção e monitoramento (FANUT-UFG).

Table 5. Evaluation of the educational environment by trainees in Clinical Nutrition AA and NAA, on the perception of the general environment (Dimension 4). Goiânia, 2018.

Questions	GENERAL n=141		AA n=30		NAA n=111		*p*
	A	*SD*	*A*	*SD*	*A*	*SD*	
D4 Perception of the general environment (48 points)	27,62	7,12	26,43	9,11	27,94	6,49	0,303*
11-The environment is quiet during classes at the infirmary	1,98	1,13	1,73	1,05	2,05	1,15	0,170*
12-This Faculty is very punctual in the disciplines	2,40	1,02	2,43	1,25	2,39	0,95	0,861*
17-The practice of pasting on tests is common in this Faculty	1,60	1,27	1,46	1,33	1,64	1,25	0,510*
23-The atmosphere is quiet during classes	2,47	0,85	2,46	1,04	2,48	0,79	0,910**
30-I have the opportunity to develop personal relationship practice	2,67	0,98	2,50	1,01	2,71	0,97	0,266**
33-I feel comfortable in class	2,56	0,85	2,50	0,97	2,58	0,81	0,685**
34-The environment is quiet during the theoretical-practical or practical classes	2,48	1,02	2,30	1,09	2,53	1,00	0,189**
35-I have found my experience here disappointing	2,71	1,05	2,70	1,15	2,71	1,03	0,896**
36-I have good concentration skills	2,11	1,08	1,93	1,14	2,16	1,07	0,306*
42-Satisfaction is greater than the stress of studying Nutrition	2,18	1,16	2,13	1,28	2,19	1,13	0,816*
43-The environment encourages me to learn	2,27	1,00	2,23	1,13	2,28	0,96	0,824*
49-I feel free to ask what I want in class	2,18	1,25	2,03	1,37	2,22	1,21	0,479*

* Student t test; ** Wilcoxon test
AA = students participating in affirmative actions; NAA = students not participating in affirmative actions
Significant results are marked in bold
***Fonte: Formulário de pesquisa – Estudantes de nutrição na pesquisa de ações afirmativas da UFG: caracterização, intervenção e monitoramento (FANUT-UFG).

Table 6 Evaluation of the educational environment by trainees in Clinical Nutrition AA and NAA, on the perception of social relationships (Dimension 5). Goiânia, 2018.

Questions	GENERAL n=141		AA n=30		NAA n=111		*p*
	A	*SD*	*A*	*SD*	*A*	*SD*	
D5 Perception of social relationships (28 points)	14,89	3,86	13,40	4,81	15,30	3,47	**0,016***
3- There is a good support program for stressed students	0,74	0,94	0,70	1,02	0,75	0,92	0,594**
4-I have been too tired to take this course	1,27	1,12	1,27	1,11	1,27	1,13	0,969**
14-I rarely feel discouraged in this course	1,50	1,14	1,60	1,19	1,48	1,13	0,615**
15-I have good friends at the College	3,31	0,92	3,17	1,11	3,35	0,86	0,525**
19-My social life is good	2,50	1,28	2,07	1,51	2,62	1,20	0,078**
28-I rarely feel alone	2,17	1,24	1,70	1,29	2,30	1,19	**0,018***
46-I live in a comfortable place	3,40	0,83	2,90	1,21	3,53	0,63	**0,005****

* Student t test; ** Wilcoxon test
AA = students participating in affirmative actions; NAA = students not participating in affirmative actions
Significant results are marked in bold
***Fonte: Formulário de pesquisa – Estudantes de nutrição na pesquisa de ações afirmativas da UFG: caracterização, intervenção e monitoramento (FANUT-UFG).
OBS: important to consider number 28, 46 – perception of social relationships.

4. Discussion

The aim of this study was to evaluate the perception of the educational environment by clinical nutrition trainees enrolled or not enrolled by affirmative actions (AA and NAA). The results confirmed our initial hypothesis that there was a

difference between the perceptions of the educational environment among the students evaluated. Specific non-favorable conditions were found in groups AA and NAA, including the dimensions of learning, teachers, academic results, general environment, social relations, and socio-demographic, economic, and quality of life factors in the environment.

As verified in the present study, a group of undergraduate students, admitted or not admitted by affirmative action and participants in ENADE, was evaluated. The group was found to be predominantly female and white. The participants also tended to have parents with a low level of education and low average family income, with an even higher percentage of the latter among students who enrolled by AA and those who were black skin color (Lopes 2016). Such results confirm the typical profile of affirmative action students regarding socio-economic status, race, parental education, and family income (Lopes 2016).

The AA students with parents with lower schooling and family income allow higher grades for the quality of education; students become less critical of the quality of their education as the educational level of parents increases (Brave 2016). Similarly, as the family income increases, satisfaction with the quality of education becomes even higher and improves the performance of students in the teaching environment (Valente 2016). Thus, AA trainees perceive their experiences differently, thanking the teachers for their merit and feeling grateful for the opportunity to have access to quality higher education; this perception is intensified when students have a slightly higher family income.

In the present study, the majority of affirmative action students participated in some student assistance program, and the main means of transportation was “not their own.” This finding reveals the importance of public policies existing at the university, which support and assist in the permanence of affirmative action students in undergraduate courses (Silva 2019). On the other hand, the students not enrolled by affirmative actions minimally participated or depended on this assistance. This fact can be explained by the slightly higher monthly income from those with NAA tickets, which allows for a certain financial comfort regarding essential daily activities, such as food, transportation, or housing.

Universities of renown can be institutions that offer free conditions for teaching, like public institutions, and these maintain quality education. However, their entry requirements are higher and relatively more competitive due to the high demand among students (Schwartzman 2016). Those coming from affirmative actions do not have a strong and consolidated educational base; therefore, the AA policy is the only opportunity for students to be included and enter higher education in an equal and equitable way with other AA students. It allows for the possibility of the participation and growth of these students in a higher education environment, opportunities they did not have before; such policies also strengthen the social, economic, and ethnic aspects of the institution (Medeiros 2017).

To assess the educational environment at graduation, the well-regarded and validated DREEM tool was applied at national and international levels. The results revealed a “more positive than negative” environment in the Nutrition course at the Federal University of Goiás (114.78 points). As a condition closer to the lower limit, it is similar to the score and classification found in other student population samples from Turkey (117.63) (Demiroren et al. 2017) and Chile (113.90–118.80) (Veliz et al. 2016; Herrera 2010), thus revealing educational environments with problems and in need of intervention.

The variation in DREEM scores is the result of several factors, including the cultural differences between the regions, the differentiated form of teaching, and whether the curriculum is defined as more traditional or integrated/innovative in the institution (Kohli and Dhaliwal 2013). It appears that institutions with traditional curricula show lower overall scores by DREEM, whereas those with integrated or innovative curricula have higher scores, and institutions with traditional curricula but who use other innovative methodologies show intermediate scores (Kohli and Dhaliwal 2013). This curricular categorization can thus be classified in terms of points: scores below 120 indicate more traditional teaching systems; scores between 120 and 130 indicate student-centered teaching; and scores above 130 indicate more pleasant environments (Abdulla 2014). These results also suggest that the traditional curriculum in the Nutrition course is centered on the teacher and not on the

student or trainee, and that perhaps the strategy of using other methodologies that enable greater student participation by the Course Pedagogical Project is not occurring or being perceived effectively.

When considering the dimensions of DREEM, the perception of learning (D1) proved to be "more positive than negative," with an average score of 27.35. This score is lower than that found in samples from the student population in Pernambuco (33.10) (Guimarães et al. 2012) and China (32.60) (Lwin et al. 2017). The main reason for the variation of these indexes is whether or not different strategies in learning were used throughout the students' academic life (Farajpour 2017). During the teaching process in institutions with a more traditional or modern curriculum, it is possible to present simple or critical thinking methods to students so that they form either more closed or open mindsets toward solving different metacognition problems (Farajpour 2017).

The results of this research suggest that teaching in the Nutrition course was largely concerned with developing students' skills at the time of learning in both groups (AA and NAA). However, it appears that the AA group had a more favorable view toward "Teaching is concerned with developing my competence" (D1) and less favorable toward "Adopted teaching is often stimulating" (D1). A possible explanation for this fact is that AA students tend to have a greater appreciation and confidence regarding the opportunities they have gained from entering the university; this is reflected in their more positive perception of the process of developing learning competencies by the institution despite the fact that teaching adopted by the institution was not considered stimulating for either group (AA and NAA).

The students' perception of teachers (D2) was the most homogeneous in classifying it as "moving in the right direction" (average 24.97), as also observed in other samples of the student population in Spain (25,10) (Veliz et al. 2016) and Pakistan (25.76-27.13) (Rehman et al 2016; Sarwar and Tarique 2016). The main reason suggested for the variation in the indices of this dimension is related to the posture and skill of the teacher in the classroom and the relationship he establishes with the students, the way he dominates and passes on knowledge, whether or not he allows communication and expression of these, directing their learning (Altemani and Merghani 2017). The results found here show that the institution's professors still maintain a traditional stance, with a focus not yet totally centered on the student, or explained also by the possible academic overload of teachers that is not limited only to teaching, additionally developing research, extension and / or management and administration.

Low scores are observed in the present study for the statements "teachers have shown themselves to be patient with patients" (D2) and "teachers give good feedback to students" (D2), for both groups (AA and NAA). For the first statement, it can be deduced that, since teachers are not constantly with students during the clinical nutrition internship period, but rather the preceptors of the hospital environment, perhaps this question may have been misinterpreted by students, when evaluating preceptors as teachers of the institution. In the second statement, it is possible to infer that teachers are unable to give feedback to students due to the overload of tasks within the teaching environment, the same that is perceived by students as an excessive burden of academic work, although this feedback is essential in training. structural teaching-learning through the teacher-student relationship.

Academic results (D3) were understood in the present study as "more on the positive side than the negative," with an average score of 19.95. Similar results were found in samples from student populations in Kuwait (18.40) (Karim 2015) and Iran (18.00) (Farajpour 2017). The results found here revealed a low evaluation by students regarding the statements, "How I used to study also worked in this course" (D3) and "I have good memory capacity for everything I need" (D3) for both groups (AA and NAA), and an even more negative view among AA students. Likewise, low average scores were also observed for these two statements among undergraduate students in medical schools in Chile (Herrera 2010).

The need to have a good memory capacity and effective methods of studying are essential pillars to achieve the expected academic results, regardless of the more traditional or modern curriculum. In the Nutrition course, it was noticed that

the students used other forms of studying in addition to those acquired in previous learning settings such as memorization, which allowed for better academic results. As evidenced in this study, however, the lack of organization and planning, the absence of teachers, and the existence of classes that don't meet as frequently for various reasons all seemed to be obstacles to achieving adequate learning in the teaching environment. This was especially the case among students in the AA group; in addition to their deficient educational basis as a result of their parents' low levels of education, the stressors and emotional difficulties they face reduced their ability to perform well academically by negatively interfering with their memory capacity.

The perception of the general environment (D4), which was established in this study as a "more positive environment" (mean 27.62), was also found in other student samples in São Paulo (33.20) (Placa et al. 2015) and Nigeria (32.10) (Idon 2015). Among the factors that may have contributed to the positive perception of Nutrition students regarding the general environment include the high averages of the statements, "I feel comfortable in class" (D4) and "I have the opportunity to develop personal relationship practice" (D4). However, low averages were seen in "The environment is quiet during classes in the wards" (D4) for both groups (AA and NAA).

The diagnosis suggests that the general environment of the institution was safe and comfortable, and helped to facilitate personal relationship between students; in the hospital environment during the internship phase, however, it was not considered peaceful due to several factors such as the constant flow of individuals entering and leaving the wards, frequent communication between healthcare professionals and patients, and other common daily activities within the hospital environment. On the other hand, high averages for the statement, "I have found my experience here disappointing" (D4) for both AA and NAA students suggests that, because of their excessive workloads, the routine in the institution did not fit with what they expected in the teach work environment.

The perception of social relations (D5) obtained the lowest averages among the five dimensions (14.89), with an unsatisfactory classification of the institution as "a place that is not pleasant." When analyzing the literature, it was observed that some institutions presented the same classification among students in population samples in India (14.18) (Kohli and Dhaliwal 2013), Iraq (13.61) (Abdulla 2014), and Korea (13.57) (Kim et al. 2016). In the present study, the low scores for the statements, "There is a good support system for stressed students" (D5) and "I am too tired to enjoy the course" (D5) possibly indicate that students were unable to enjoy what they are learning and improve their well-being at the university because they were already at their emotional limit, and had no tools available or were unable to seek help to manage or deal with their stress and exhaustion (Enns 2016). The difficulties became even greater for students in both groups (AA and NAA) when they show signs of anxiety, depression, excessive shyness, fear/panic, insomnia and eating problems, as evidenced in the study.

At a medical university in Karachi, Pakistan (2016), the statement, "I have good friends at school" (D5) received the best score among undergraduate students. Similarly, in the present study, a median score for "my social life is good" (D5) was found in both groups (AA and NAA) (Rehman et al. 2016). Therefore, is it noteworthy to mention that although students have frequent stress and fatigue, and AA students have a lower socio-economic income, the support of friends at the university and a balanced social life help overcome difficulties.

One limitation that needs to be considered from the present study is related to the reduced number of students who participated in affirmative actions in relation to the total number of students in the sample. Since the process of reserving 50% of spots in institutions for AA students was only implemented in 2016, there are few studies that focus on the perception of AA and NAA students in nutrition courses to compare and discuss differences regarding socioeconomic, demographic, cultural, and quality of life variables. It is suggested that new studies be developed to assess the educational environment and students' perception of affirmative actions in other courses in the health field, in conjunction with various undergraduate institutions or individually, to better elucidate the existing condition between policies from affirmative actions in teaching students from the universal system and the inserted educational environment. Such studies will help facilitate future interventions.

5. Conclusion

The profile of students enrolled through affirmative actions is different from those enrolled in the universal system, especially in regards to race/ethnicity, means of transportation, participation in student assistance programs, and paternal education.

The perception of nutrition students regarding the educational environment was “more positive than negative.” In general, students’ perception of affirmative actions in all dimensions assessed translated into lower scores than those of students who entered through the universal system. By dimension, aspects related to learning (D1) and social relationships (D5) revealed that interventions are necessary in the teaching environment. On the other hand, scores regarding the dimensions of students’ perception of teachers (D2), academic results (D3), and the general institutional environment (D4), suggest the need for improvement in the educational environment. Such results are compatible with international research reports, which show similar weaknesses and potential.

In view of the findings, it is suggested that the assessment of the educational environment in the context of affirmative actions is an important tool for investigating the student-teacher relationship and for proposing short-, medium-, and long-term solutions for educational projects. Additionally, this strategy helps to prevent and/or change the behavior, emotional affective profile, learning capacity, and social relationships between subjects involved in the teaching-learning dynamic.

Finally, it is important that further studies be carried out on the educational environment theme, public policies such as affirmative action and the perception of students in the most diverse areas of teaching, allowing the identification of the student's learning environment, around them and among students in the college education.

References

Abdulla, M. A. (2014). Validation of dundee ready education environment measure (DREEM) in Basrah College of medicine. *The Medical Journal of Basrah University*, 32(2), 63-69.

Altemani, A. H., & Merghani, T. H. (2017). The quality of the educational environment in a medical college in Saudi Arabia. *International Journal of Medical Education*, 8, 128-132.

Brasil. Lei nº. 12.711, de 29 de agosto de 2012. Dispõe sobre o ingresso de estudantes nas universidades federais e nas instituições federais de ensino técnico de nível médio. Diário Oficial da União 29 ago 2012; Seção 1.

Brasil. Lei nº 13.409, de 28 de dezembro de 2016. Altera a Lei nº 12.711 (2012) para dispor sobre a reserva de vagas para pessoas com deficiência nos cursos técnico de nível médio e superior das instituições federais de ensino. Diário Oficial da União 28 dez 2016; Seção 1.

Cruz, L. F. F. M. (2011). Ações afirmativas e o princípio da igualdade. São Paulo: Faculdade de Direito, Universidade de São Paulo; 2011. 127p.

Demiroren, M., Kemahli, S., Palaoglu, O., Ozyurda, F., & Ayhan, I. H. (2017). Perceptions of students in different phases of medicai education of educational environment: Ankara University Facuity of Medicine. *Medical Education Online,* 13(8), 1-6.

Enns, S. C., Perrota, B., Paro, H. B., Gannam, S., Peleias, M., Mayer, B., Santos, I. S., Menezes, M., Senger, M. H., Barelli, C., Silveira, P. S. P., Martins, M. A., & Tempski, P. Z. (2016). Medical students perception of their educational environment and quality of life: is there a positive association? *Academic Medicine,* 91(3), 409-417.

Farajpour, A., Raisolsadat, M. A., Moghadam, S. S., & Mostafaviam, Z. (2017). Perception of educational environment among undergraduate students of health disciplines in an Iranian university. *International Journal of Medicine Education,* 8, 300-306.

Fonaprace. (2011). Perfil socioeconômico e cultural dos estudantes de graduação das universidades federais brasileiras. ANDIFES - Associação Nacional dos Dirigentes das Instituições Federais de Ensino Superior, 11-41.

Genn, J. M. (2001). AMEE Medical Education Guide No. 23 (Part 2): Curriculum, environment, climate, quality and change in medical education – a unifying perspective. *Medical Teacher*, 23(5), 1-10.

Guimaraes, A. C., Falbo, C. H., Menezes, T., & Falbo, A. (2015). Percepção do estudante de medicina acerca do ambiente educacional utilizando o Dreem. *Revista Brasileira de Educação Médica,* 39(4), 317-326.

Herrera, C., Pacheco, J., Rosso, F., Cisterna, C., Aichele, D., Becker, S., Padilla, O., & Riquelme, A. (2010). Evaluación del ambiente educacional pre-clinico en seis escuelas de medicina en Chile. *Revista de Medicina Chile,* 138, 677-684.

Idon, P. I., Suleiman, I. K., & Olasoji, H. O. (2015). Students’ perceptions of the educational environment in a new dental school in Northern Nigeria. *Journal of Education and Practice,* 6(8), 139-147.

Junior, A. A. F. M. J. (2014). Uma análise da progressão dos alunos cotistas sobre a primeira ação afirmativa brasileira no ensino superior: o caso da Universidade do Estado do Rio de Janeiro. *Ensaio: Avaliação e Políticas Públicas em Educação*, 22(82), 31-56.

Karim, J., Al-Halabi, B., Marwan, Y., Sadeq, H., Dawas, A., & Al-Abdulrazzaq, D. (2015). The educational environment of the undergraduate medical curriculum at Kuwait University. *Advances in Medical Education and Practice*, 6, 297-303.

Kim, H., Jeong, H., Jeon, P., Kim, S., Park, Y. B., & Kang, Y. (2016). Perception study of traditional Korean medical students on the medical education using the Dundee Ready Educational Environment Measure. *Evidenced-Based Complementary and Alternative Medicine*, 1-7.

Kohli, V., & Dhaliwal, U. (2013). Medical students' perception of the educational environment in a medical college in India: a cross-sectional study using the Dundee Ready Education Environment questionnaire. *Journal of Educational Evaluation for Health Professions*, 10(5), 1-7.

Lopes, A. C. (2016). Affirmative action in Brazil: how students field of study choice reproduces social inequalities. *Studies in Higher Education*, 1-17.

Lwin, T., Aslam, S., & Mukhate, P. N. (2017). International students perception of their learning environment in graduate programs at one normal university in China. *Journal Medicine Practical*, 8(9), 229-233.

McAleer, S., & Roff, S. (2001). A Practical Guide to using the Dundee Ready Education Environment Measure (DREEM), (Tailored for use on Swindon/Bath DRC, Bill Irish & Michael Harris). https://www.researchgate.net/publication/288791256_A_practical_guide_to_using_the_Dundee_Re ady_ Education_Environment_Measure_DREEM#:~:text=Dundee%20Ready%20Education%20Environment%20Measure%20(DREEM)%20is%20a%20validated %20tool,in%2020%20countries%2C%20including%20Nepal.

Medeiros, H. A. V., Neto, R. D. M., & Catani, A. M. (2017). Educational democracy in graduate education: public policies and affirmative action, 252-274.

Miles, S., Swift, L., & Leinster, S. J. (2012). The Dundee Ready Education Environment Measure (DREEM): A review of its adoption and use. *Medical Teacher*, 34(9), 620-634

Placa, R. V., Zangrando, R., Santan,a A. C., Greghi, S. L. A., Rezende, M. L. R., & Damante, C. A. (2015). Evaluation of a Brazilian Postgraduate dental program by the Dundee Ready Educational Environment Measure. *International Education Studies*, 8(11), 34-39.

Rehman, R., Ghias, K., Fatima, S. S., Hussain, M., & Alan, F. (2016). Students perception of educational environment of Aga Khan University Medical College, Karachi, Pakistan. *Pakistan Journal of Medical Sciences*, 33(3), 719-724.

Roff, S., McAller, S., Harden, R. M., Al-Qahtani, M., Uddin-Ahmed, A., Deza, H., Groenen, G., & Primparyon, P. (1997). Development and validation of the Dundee Ready Education Environment Measure (DREEM). *Medical Teacher*, 19(4), 295-299.

Sarwar, S., & Tarique, S. (2016). Perception of educational environment: does it impact academic performance of medical students? *Journal of Pakistan Medical Association*, 66(10), 1210-1214.

Schwartzman, L. F., & Paiva, A. R. (2016). Not just racial quotas: affirmative action in Brazilian higher education 10 years later. *British Journal of Sociology of Education*, 37(4), 548-566.

Silva, G. H. G (2017). Educação matemática e ações afirmativas: possibilidades e desafios na docência universitária, 47(163), 820-848

Silva, G. H. G (2019). Um panorama das ações afirmativas em universidades federais do sudeste brasileiro. *Caderno de Pesquisa*, 173(49), 184-207

Troncon, L. E. A. (2014). Ambiente educacional. *Revista de Medicina*, 47(3), 264-271.

Valente, R. R. (2016). The vicious circle: effects of race and class on university entrance in Brazil. *Race Ethnicity and Education*, 19(52), 1-14.

Veliz, G. D., Mora S., & Escanero, J. F. (2016). Percepción del ambiente educacional em dos escuelas de medicina com currículo tradicional: estúdio longitudinal. *Revista de Medicina do Chile*, 144, 1479-1485.