Socio-economic and Demographic Factors influencing the Academic Performance of the Students of Veterinary Science and Animal Husbandry

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ABSTRACT

This study aimed to identify the socio-economic and demographic factors influencing the academic performance of students of veterinary science. Primary data collected from a sample of 280 students selected from four Veterinary Colleges during March - April, 2016 were analyzed. While most of the students were from rural (37.10%) and semi-rural areas (39.30%), about 44% of them were found to be the first graduates in their families. Age and gender had no significant association ($P > 0.05$) on academic performance. Community, medium of instruction, marks in qualifying examination, educational stream, location of school and board of education all had highly significant associations ($P \leq 0.01$) with academic performance. The type of school management also had a significant ($P \leq 0.05$) association with performance. While mothers' education was significantly associated with academic performance, father's education, his occupation, family's income and location of residence had no significant relationship with it.

Key Words: Students of Veterinary Science, Demographic and Socio-economic Factors, Academic Performance

INTRODUCTION

The students' academic performance plays a key role in producing the quality manpower, responsible for the country's socio-economic development (Ali *et al.,* 2009). Improvement of animal health and wealth depends on the intelligent, interested and enthusiastic professional graduates who can bring out adoptable new technologies suitable to the farmer clientele (Akila, 1997). Sinha *et al.* (2019) found many organizational, communicational, financial, psychological and technological constraints prevailing in Universities and recommended to address these issues for effective research-extension linkage. Thus, for imparting quality veterinary education, TamilNadu Veterinary and Animal Sciences University (TANUVAS) has been taking adequate steps through four of its constituent

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veterinary colleges *viz.,* Madras Veterinary College (MVC) at Chennai, Veterinary Colleges and Research Institutes (VCRIs) at Namakkal, Orathanadu and Tirunelveli, to ensure better teaching – learning processes, so as to produce marketable and field compliant veterinary graduates.

However, despite excellent teaching and learning resources existing, some students perform better than others academically, while others fare dismally poor. In this context, the present study was aimed to explore and identify the socio-economic and demographic factors that influence the academic performance of students.

MATERIALS AND METHODS

Out of 851 students available in different professional years (second to fifth year) in the calendar year 2016, a total of 280 students from four Veterinary Colleges of TANUVAS were selected through stratified random sampling technique for data collection and analysis.

The sample size was determined using the following formula:

$$\text{Sample size } (S) = \frac{\chi^2 NP(1-P)}{d^2(N-1)+\chi^2 P(1-P)}$$

where N - Population size, P - Population proportion (assumed to be 0.50), d - Degree of accuracy (assumed to be 0.05), and table value of χ^2 for one degree of freedom relative to the desired level of confidence. The χ^2 value (3.481) is significant at 95 per cent confidence level. Based on the formula, the required sample size was determined to be S = 247.252. Average number of sample size per class was estimated to be required sample size divided by number of classes in colleges, which was equal to 247.252 / 14 = 17.6609 ≈ 18. As per sampling guide, minimum number of respondents to be selected was 18 per class at 95 per cent confidence interval. Hence, in this study, 13 - 24 students (on an average, 20 students) were selected per class and overall 280 students were selected from four colleges with greater than 95 per cent confidence interval.

Primary data were collected from the selected respondent students by personal interview method using structured, pre-tested interview schedules. For pre-testing, a pilot study was conducted among 30 students other than the sampled elements. The reliability of the interview schedule was assessed based on Cronbach alpha value, which was 0.697 (≈0.70). Secondary data (OGPA and marks scored by the students) were collected from Education Cells and Student Co-ordination Sections of the Colleges concerned. The period of data collection was March to April, 2016.

The collected data were tabulated and analyzed using the Statistical Package for Social Sciences (SPSS Version 17).

Descriptive statistics were used to obtain frequency counts and percentages of various coded responses. Chi-square (χ^2) test was used to assess whether socio-economic and demographic attributes are associated with academic performance of the sample students.

RESULTS AND DISCUSSION

The results of the descriptive statistics and the associations of socio-economic and demographic factors and the academic performance of sample students are described and discussed in this section. More than half of the students sampled (50.06 per cent) scored an OGPA of 7.00 - 7.99, followed by 31.96 per cent of students who scored the OGPA of 5.00 - 6.99 and 17.98 per cent of students scored higher OGPA of above 8.00. These secondary data about academic performance formed the basis for the sampling and selection of students.

The results of demographic features and particulars of schooling background of sample BVSc & AH students are presented in Table 1. Out of the total 280 sample student respondents, 54.29 per cent were males and the rest were females. The percentage of students belonging to different community categories is almost proportional to the community reservation followed in the State for admission to professional courses. While around 52 per cent studied in Tamil medium in their schooling, about 42 per cent studied in English medium.

More than 81 per cent of the students were found to have secured marks above 90 per cent in higher secondary education and 18.57 per cent students below 90 per cent. While more than half (55.71 per cent) studied in Tamil Nadu State Board schools, 40 per cent did their schooling Matriculation schools. An overwhelming majority of the students (95.00 per cent) were from the academic stream of education and rests were from vocational stream, which might be due to the reason that only a number of limited seats are reserved for those who studied vocational subjects in their qualifying examination. While more than 56 per cent of students studied in private schools, 43.57 per cent studied in Government and Government aided schools. Around 57 per cent of the students who joined the BVSc & AH course were from rural and semi rural areas, followed by 43.21 per cent who belonged to urban areas. It might be due to the phenomenal growth and development of livestock and the self employment potential available for the veterinary students in rural areas.

Table – 1. Demographic features and particulars of schooling background of sample students

(n=280)

Attributes	Category	Frequency	Percentage
Gender	Male	152	54.29
	Female	128	45.71
Community	OC	21	7.50
	BC	139	49.64
	MBC	59	21.07
	ST	6	2.14
	SC	40	14.29
	BCM	15	5.36
Medium of instruction	Tamil	145	51.78
	English	117	41.79
	Others	18	6.43
Higher secondary total marks	Below 90%	52	18.57
	Above 90%	228	81.43
Education board	State board	156	55.71
	Matriculation	112	40.00
	CBSE	12	4.29
Educational stream	General	266	95.00
	Vocational	14	5.00
School Management	Government	29	10.36
	Govt. aided	93	33.21
	Private	158	56.43
School location	Rural and Semirural	159	56.79
	Urban	121	43.21

Table 2 shows the socio-economic status of the parents and the financial support available to the sample students. Most of the students' fathers were illiterate (33.57 per cent), followed by 23.21 per cent having collegiate, 17.50 per cent having primary and 15.71 per cent having secondary education. An almost equal number of mothers of students' admitted had primary education (25.36 per cent), followed by having collegiate (24.29 per cent), illiterate (19.29 per cent), secondary (18.21 per cent) and higher secondary (18.21 per cent) education.

More than 56 per cent of sample students belonged to low income group with annual family income of less than Rs.2 lakhs, followed by 28.21 per cent to middle income (Rs.2 to 5 lakhs) and 15.71 per cent to high income (above Rs.6 lakhs) categories. Students from rural (37.10) and semi-rural areas (39.30) were more than that from urban areas (23.60 per cent). The rural background and the interest in livestock production and development might have influenced the students from the rural areas to select this course. The present finding concurs with the report of Akila (1997). About 44 per cent of sample students were observed to be the first graduates in their families, which indicated that students belonging to literate and illiterate family backgrounds equally performed in qualifying examinations and equally preferred the veterinary science course.

To the question to considering the effect of family income on their quality of education, 30.00 per cent of students strongly disagreed, followed by 27.86 per cent who disagreed, 19.64 per cent had no decision, 17.86 per cent did not agree, and 4.64 per cent strongly agreed. Since majority of the students (50.07 per cent) were from low income group, most of the students were willing to avail educational loan to pursue their studies.

Tables 3 portrays the association of demographic profile and schooling background of the students with their academic performance in veterinary education. There was no significant association (P > 0.05) between gender and OGPA, which was similar to the finding reported by Rajandran *et al*. (2015). Similarly the factors such as age, admission under special quota and participating in extra-curricular activities also did not have any significant association (P > 0.05) with academic performance of the students concerned. Non–significant effect of students' age on academic performance was already reported by Mlambo (2011). However, there was highly significant association between community and academic performance, which strongly underlines that fact that the students admitted under SC / ST require rigorous coaching, so as to improve their academic performance.

Table – 2. Socio-economic status of parents and financial support of sample students

(n=280)

Attributes	Category	Frequency	Percentage
Father's education	Primary	49	17.50
	Secondary	44	15.71
	HSc	28	10.00
	Collegiate	65	23.21
	Illiterate	94	33.57
Mothers' education	Primary	71	25.36
	Secondary	51	18.21
	HSc	31	11.07
	Collegiate	68	24.29
	Illiterate	54	19.29
Father's Occupation	Farmer	104	37.14
	Government employees	56	20.00
	Other occupation	120	42.86
Annual income (Rs. in lakh)	Low (< 2)	157	56.07
	Middle (2-5)	79	28.21
	Higher (>5)	44	15.71
Residence	Rural	104	37.1
	Semirural	110	39.3
	Urban	66	23.6
First graduate	Yes	123	43.93
	No	157	50.04
Family income might affect the quality of education	Strongly disagree	84	30.00
	Disagree	78	27.86
	Neutral	55	19.64
	Agree	50	17.86
	Strongly agree	13	4.64
Willing to avail education loan	Strongly disagree	89	31.79
	Disagree	71	25.36
	Neutral	68	24.29
	Agree	37	13.21
	Strongly agree	18	6.43

Table – 3. Association between demographic particulars and academic performance of students

Attribute	Category	OGPA		χ^2 value	p value
		5-6.99 (n = 77)	≥7 (n = 203)		
Gender	Male	46 (59.74)	106 (49.26)	2.46^{NS}	0.12
	Female	31 (40.26)	97 (50.74)		
Age	18-25 years	75 (97.40)	200 (98.52)	0.39^{NS}	0.53
	above 26 years	2 (2.60)	3 (1.48)		
Community	Other than SC/ST	53 (68.83)	181 (89.16)	16.81**	0.01
	SC/ST	24 (31.17)	22 (10.84)		
Special quota	No-Special quota	69 (89.61)	188 (92.61)	0.66^{NS}	0.46
	Special quota	8 (10.39)	15 (7.39)		
Extra curricular activities	Yes	66 (85.71)	167 (82.27)	0.475^{NS}	0.49
	No	11 (14.29)	36 (17.73)		

***Highly significant; ^{NS}Non-significant; Figures in parentheses indicate per cent to total*

As per the Table 4, medium of instruction marks in higher secondary education, educational stream, location of school and board of education had highly significant associations ($P \leq 0.01$) with the students' academic performance in BVSc & AH degree programme. Most of the students (87.68 per cent) who got above 90 per cent marks in their higher secondary education could score higher GPA of 7 - 10, which implied a significant association ($\chi^2 = 12.11$) of higher secondary marks with academic performance in veterinary degree course. Of the total students who secured more than 7.00 OGPA, only a small number of students (1.48 per cent) were from vocational stream in their schooling. Location of school too had a highly significant association with academic performance, with more than 70 per cent of the students could score only less GPA (5 – 6.99) The students from Matriculation and Central Board of Secondary Education (CBSE) performed better (52.71 per cent) than students from State Board (47.29 per cent) system. The type of school management *i.e*. Government and private had a significant ($P \leq 0.05$) association with academic performance in degree course.

Table – 4. Association between school background and academic performance of students

Attribute	Category	OGPA		χ^2 value	p value
		5-6.99 (n = 77)	7 and above (n = 203)		
Medium of Instruction	Tamil and others	62 (80.52)	101 (49.75)	21.72**	0.00
	English	15 (19.48)	102 (50.25)		
Higher secondary marks	< 90 per cent	27 (35.06)	25 (12.32)	12.11**	0.00
	> 90 per cent	50 (64.94)	178 (87.68)		
Educational Stream	General	66 (85.71)	200 (98.52)	21.91**	0.00
	Vocational	11 (14.29)	3 (1.48)		
School location	Rural	54 (70.13)	105 (51.72)	7.707**	0.01
	Urban	23 (29.87)	98 (48.28)		
Education board	State board	60 (77.92)	96 (47.29)	21.22**	0.00
	Others	17 (22.08)	107 (52.71)		
School management	Govt. / Govt. aided	42 (54.55)	80 (39.41)	5.20*	0.02
	Private	35 (45.45)	123 (60.59)		

***Highly significant; *Significant; Figures in parentheses indicate per cent to total*

From Table 5, it could be noted that mothers' secondary level education was significantly ($P \leq 0.05$) associated with the students' academic performance. This finding concurs with Hijazi and Naqvi (2006). However, the level of father's education, his occupation, family's income and location of residence had no significant association with the students' academic performance. As it could be seen from Table 6, there was no significant association of any of the financial support attributes with academic performance of the students, as indicated by the χ^2 values.

The study conducted to identify the socio-economic and demographic factors influencing the academic performance of students of BVSc & AH degree programme indicated that more than half of them studied in Tamil Nadu State Board schools, studied in private schools, belonged to rural and semi rural areas and low income group. About 44 per cent of the students were to be the first graduates in their families. The factors such as age and gender did not have any significant association with academic performance of the students. However, there was highly significant association between community and academic performance, which strongly underlines that fact that the students admitted under SC / ST category require rigorous coaching, so as to improve their academic performance.

Table – 5. Association between socio-economic status of parents and academic performance of sample students

Attribute	Category	OGPA		χ^2 value	p value
		5-6.99 (n = 77)	≥7 OGPA (n = 203)		
Father's education	Yes	35 (45.46)	108 (53.20)	0.25^{NS}	0.240
	No	42 (54.55)	95 (46.80)		
Mothers' education	Yes	30 (38.96)	120 (59.11)	9.12**	0.003
	No	47 (61.04)	83 (40.89)		
Father's occupation	Farmer	30 (38.96)	74 (36.45)	0.25^{NS}	0.920
	Govt. employee	15 (19.48)	41 (20.20)		
	Others	32 (41.56)	88 (43.35)		
Annual income	Low	47 (61.04)	110 (54.19)	1.35^{NS}	0.500
	Middle	18 (23.38)	61 (30.05)		
	Higher	12 (15.58)	32 (15.76)		
Residence	Rural	64 (83.12)	149 (73.4)	2.89^{NS}	0.890
	Urban	13 (16.88)	54 (26.6)		

*** Highly significant; [N]Non-significant; Figures in parentheses indicate per cent to total*

Table – 6. Association between financial support and academic performance of sample students

Attribute	Category	OGPA		χ^2 value	p value
		5-6.99 (n = 77)	≥7 (n = 203)		
Appropriate financial support	Agree	62 (80.52)	172 (80.52)	0.72^{NS}	0.39
	Disagree	15 (19.48)	32 (19.48)		
Willing to avail education loan	Agree	19 (24.68)	33 (24.68)	2.62^{NS}	0.11
	Disagree	58 (75.32)	19 (75.32)		
Family income might affect the quality of education	Agree	28 (36.36)	35 (17.24)	2.00^{NS}	0.16
	Disagree	49 (63.64)	168 (82.76)		

[NS]Non-significant; Figures in parentheses indicate per cent to total

Medium of instruction, marks in HSc, educational stream, location of school and board of education had highly significant associations ($P \leq 0.01$) with the students' academic performance in BVSc & AH degree programme. Most of the students (87.68 per cent) who got above 90 per cent marks in HSc could score higher GPA of 7 – 10. Location of school too had a highly significant association with academic performance. The type of school management *i.e*. Government and private had a significant ($P \leq 0.05$) association with academic performance in degree course. The study has unraveled various socio-economic and demographic attributes of students that influence the academic performance of BVSc & AH students in

terms of their Overall Grade Point Average (OGPA).

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