

## BRIEF REPORT

## Analysis of the study skills of undergraduate pharmacy students of the University of Zambia School of Medicine

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### Abstract

It aimed to compare the study skills of two groups of undergraduate pharmacy students in the School of Medicine, University of Zambia using the Study Skills Assessment Questionnaire (SSAQ), with the goal of analysing students' study skills and identifying factors that affect study skills. A questionnaire was distributed to 67 participants from both programs using stratified random sampling. Completed questionnaires were rated according to participants study skill. The total scores and scores within subscales were analysed and compared quantitatively. Questionnaires were distributed to 37 students in the regular program, and to 30 students in the parallel program. The response rate was 100%. Students had moderate to good study skills: 22 respondents (32.8%) showed good study skills, while 45 respondents (67.2%) were found to have moderate study skills. Students in the parallel program demonstrated significantly better study skills (mean SSAQ score,  $185.4 \pm 14.5$ ), particularly in time management and writing, than the students in the regular program (mean SSAQ score  $175 \pm 25.4$ ;  $P < 0.05$ ). No significant differences were found according to age, gender, residential or marital status, or level of study. The students in the parallel program had better time management and writing skills, probably due to their prior work experience. The more intensive training to students in regular program is needed in improving time management and writing skills.

**Key Words:** *Motivation; Pharmacy Students; Time management; Writing; Zambia*

### INTRODUCTION

The available evidence suggests that a sizable proportion of undergraduate health sciences students lack good study skills and habits [1,2], and that introducing a study skills program could significantly improve students' confidence and academic achievement [3]. The undergraduate pharmacy degree programs of the University of Zambia comprise a regular five-year Bachelor of Pharmacy (B. Pharm.) degree that primarily admits young high school graduates who have little or no clinical experience, and a parallel program that mostly enrolls mature students with a diploma in pharmacy and clinical experience, or similar qualifications. Such students are admitted di-

rectly to level 3 of the B. Pharm program. Diploma in Pharmacy is obtained after 3 years of post-secondary education. Candidates with diploma in Pharmacy or first degree qualifications in relevant fields could be admitted to advanced standing in the B. Pharm programs. In light of the different student demographics and differences in academic achievement that have been observed between these two programs, this study was designed to analyse the study skills of undergraduate pharmacy students of the School of Medicine of the University of Zambia, with the goal of identifying areas of deficiency in the domains of time management, note taking, test/examination preparation, motivation, concentration/memory, information processing, reading, and writing skills. The results of this study may help in the design of tailor-made study skills intervention courses to assist individual students.

The design of the study was descriptive, cross-sectional, and quantitative. The study population consisted of undergraduate Bachelor of Pharmacy students in years 3, 4, and 5 of both the

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Received: August 12, 2015; Accepted: September 24, 2015;

Published: September 25, 2015

This article is available from: <http://jeehp.org/>

regular and parallel programs of the School of Medicine, University of Zambia, Lusaka, Zambia. Since the parallel program has no year 1 and year 2 students, these levels were omitted from the study. A sample size of 66 was calculated according to Yamane formulae based on a total student enrolment of 243 in both programs for the years studied [4]. A demographic questionnaire was used to gather demographic information, while hard copies of the Study Skills Assessment Questionnaire (SSAQ) developed by Houston University Counselling Services was used to collect data on study skills from the eligible students using a simple random sampling technique [5]. The SSAQ instrument contains 64 items grouped into the following eight domains: time management/procrastination; concentration/memory; study aids/note taking; test strategies/test anxiety; organizing/processing information; motivation/attitude; reading/selecting the main idea; and writing. Each domain contains eight items. This instrument uses a four-point Likert scale (“always,” “usually,” “sometimes,” and “never”) to gather respondents’ views. Participants’ responses were rated as follows: 4, always; 3, usually; 2, sometimes; and 1, never. Thus, each domain has a maximum of 32 points and a minimum of 8 points. The minimum overall score was 64, while the maximum score was 256. Participants’ study skills were rated using the following rubric: 1) *Poor study skills*\_Less than 50% in each domain (< 16 points) or less than 128 points overall; 2) *Moderate study skills*\_50%-75% in each domain (16-24 points) or 128-192 points overall; and 3) *Good study skills*\_

More than 75% in each domain (> 24 points) or more than 192 points overall. Each consenting student was allowed sufficient time to independently complete the questionnaire and to return it at his/her convenience. The completed and returned questionnaires were scored as described above, and results were analysed using SPSS version 21 (IBM Corp., Armonk, NY, USA). The results were expressed as mean ± standard deviation. The mean scores were compared using the Student’s t-test; P-values < 0.05 were considered to indicate statistical significance. The reliability of the SSAQ among these participants was determined by calculating Cronbach’s alpha coefficient for internal consistency. Ethical approval for this study was obtained from the University of Zambia School of Medicine Research Ethics Committee (UNZASOMREC Ref #: IRB00001131 of IOR G0000774).

The demographics of the participants are summarised in Table 1. The SSAQ results showed that overall, the study skills of the participants were moderate, with a total mean score of 179.7 (range, 138-223). Forty-five participants (67.2%) had moderate study skills, and 22 participants (32.8%) had good study skills. Tables 1 and 2 showed that scores in the subscales varied from moderate to good in the subscales of information processing and test strategies for both regular and parallel participants. Although students in the parallel program demonstrated significantly better study skills (mean, 185.4 ± 14.5) than students in the regular program (mean, 175 ± 25.4) (P < 0.05), the overall rating for both groups was moderate. Statistically

**Table 1.** Demographics of the 67 study participants from the regular and parallel programs

	Mean age (years)	Sex		Marital status		Residential status		Financial support	
		M	F	Single	Married	On-campus	Off-campus	Not-supported	Supported
Total participants (N=67)	26.8±3.1	44	23	51	16	43	24	32	35
Regular (N= 37)	22.9±2.05	23	14	34	3	24	13	6	31
Parallel (N= 30)	30.6±4.2	21	9	17	13	0	30	26	4
P-value	0.000								

**Table 2.** Study Skills Assessment Questionnaire (SSAQ) scores for the 67 participants in the study

Total SSAQ	Minimum 138.00	Maximum 223.00	Mean 179.7313	Standard deviation 21.71341	Rating moderate
Subscales:					
1. Time management/ procrastination	12.0	30.0	20.851	3.6691	Moderate
2. Concentration/memory	12.0	28.0	22.522	3.2068	Moderate
3. Study aids/note-taking	11.0	32.0	21.493	4.5239	Moderate
4. Test strategies/test anxiety	15.0	31.0	25.388	3.0795	Good
5. Information processing	18.0	36.0	24.388	3.5588	Good
6. Motivation/attitude	11.0	31.0	22.746	4.0875	Moderate
7. Selecting main ideas/self-testing/reading	13.0	35.0	23.970	4.2103	Moderate
8. Writing	10.0	31.0	20.239	4.1013	Moderate

**Table 3.** Total and subscale scores of the Study Skills Assessment Questionnaire (SSAQ) for regular and parallel program participants

	Program	No.	Mean	Standard deviation	Rating	P-value
Total SSAQ	Regular	37	175.0	25.4	Moderate	0.041
	Parallel	30	185.4	14.5	Moderate	
Subscale						
Time management/procrastination	Regular	37	19.703	3.6505	Moderate	0.003
	Parallel	30	22.267	3.2156	Moderate	
Concentration/memory	Regular	37	21.892	3.5884	Moderate	0.064
	Parallel	30	23.300	2.5072	Moderate	
Study aids/note-taking	Regular	37	21.054	5.1367	Moderate	0.366
	Parallel	30	22.033	3.6434	Moderate	
Test strategies/test anxiety	Regular	37	25.216	3.2756	Good	0.611
	Parallel	30	25.600	2.8599	Good	
Information processing	Regular	37	23.784	3.7869	Moderate	0.117
	Parallel	30	25.133	3.1594	Good	
Motivation/attitude	Regular	37	22.162	4.3749	Moderate	0.188
	Parallel	30	23.467	3.6458	Moderate	
Selecting main ideas/self-testing/reading	Regular	37	23.946	4.9774	Moderate	0.959
	Parallel	30	24.000	3.0962	Moderate	
Writing	Regular	37	19.000	4.1833	Moderate	0.004
	Parallel	30	21.767	3.4907	Moderate	

significant differences in the ratings within the subscales of time management ( $P = 0.003$ ) and writing skills ( $P = 0.004$ ) were found between the two programs (Table 3). The SSAQ scores did not significantly vary according to gender, age, year of study, marital status, residence status, or financial support. Cronbach's alpha coefficient for the measure of internal consistency was 0.822.

The results of this study indicated that a majority of the students in both the regular and parallel programs had only moderate study skills, a finding that is consistent with reports from other similar studies in the field of medical and health sciences education [3]. Students in the parallel program appear to have had better study skills than regular students. This was prominent in the domains of time management and writing skills. Although this discrepancy did not affect the overall rating of the two groups, it may be due to the fact that most of the parallel participants were employed salary earners and more mature, both chronologically and in terms of work experience, than the regular participants. However, the study failed to demonstrate any effect of age or financial support on study skills. Therefore, one can only speculate that clinical experience may have contributed to the difference. Some studies have found that gender differences affected the academic achievement of both male and female secondary school and undergraduate students, and that such differences may be discipline-specific [6]. Such differences have been attributed to behaviour regulation and its association with study skills. This study did not find any differences in the study skills of male

and female pharmacy students, nor did it show any significant effects of residence status, marital status, or financial support on study skills. Since these findings differed from those of Dardarloo and Khalkhali's study of Iranian students of health science programs [3], it seems likely that other factors were involved in the outcomes of their study.

The external validity of these results may be limited by several factors. First, only pharmacy students were studied, so the results can only reasonably be applied to similar programs. Additionally, the study setting was localised and only a limited number of participants were enrolled. A cross-sectional design implies that internal validity is difficult to assess, and since the answers to the questionnaire were self-reported, it would also be difficult to estimate reporting bias. Despite these limitations, the findings of this study significantly contribute to the literature on this topic, and the areas of weakness that were identified may become focal points for designing intervention program to improve study skills in Zambia and countries with similar cultures. In conclusion, since time management and writing skills were significantly lower in the regular program pharmacy students than those in the parallel program students, the more intensive training should be done to regular program students to overcome those shortness.

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## CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

## SUPPLEMENTARY MATERIAL

Audio recording of the abstract.

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