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Perceived Benefits of Student-Led Tutorial Program on Success in a Pharmacy School

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Background

The Accreditation Council for Pharmacy Education (ACPE) is recognized by the US Department of Education as the national agency for the accreditation of professional degree programs in pharmacy. ACPE requires Doctor of Pharmacy (PharmD) degree programs to include teaching and learning methods that encourage innovation in pharmacy education while emphasizing learning outcomes for students. With decreasing faculty-to-student ratios, universities worldwide have implemented student-led tutoring programs in order to give students another space for academic development outside of the classroom. Student-led tutoring is a teaching and learning method that has been more recently used in pharmacy schools to promote academic success as well as social enhancement [1,2].

There are many benefits that have been observed in utilizing a student-led tutoring program. Many tutees have reported feeling more comfortable with student tutors, and that they can relate better to the material and difficulty of the courses. Student tutors may also be able to apply more creative learning methods and increase students' motivation. A student-led tutoring program can also be beneficial to the tutors themselves, reinforcing learned concepts and building confidence [3-6].

There have been many reviews on the effects of peer tutoring, but there is a lack of studies that directly assess student's satisfaction with peer tutoring programs and their respective success in pharmacy school. This study seeks to assess the impact of student-led tutorial programs on success in a pharmacy school [7].

Methods

Subjects

Participants of the study were first year professional pharmacy students enrolled in a drug informatics course.

Survey

A survey was developed using Qualtrics and administered to 77 first-year PharmD students to determine the effectiveness of student-let tutoring for courses. The survey was conducted as part of a drug informatics course and consisted 11 Likert-scale questions. Students were asked to rate their experience with student-led tutoring on a five-point scale, with 1 = strongly disagree to 5 = strongly agree. (See Table 1) for the Likert-scale questions. .

Statistical methods

Data analysis was performed with SPSS version 26.0 (IBM, Armonk, NY). Two-tailed p-values less than 0.05 were considered statistically significant. Success of student-led tutoring is measured by Likert-scale ratings from 1 to 5; a rating of 1 for strongly disagree and 5 for strongly agree. Analysis of the data used Pearson's Correlation test to assess the relationship between variables.

Results

Students responded to questions regarding their satisfaction with their tutors and the effects that the student-led tutoring program had on them. Students' ratings for the questions ranged from strongly agree to disagree (Table 1). Approximately 63.6% of students said that their grades in select classes improved since attending student-led tutoring while 77.9% agreed that they benefited from the tutorial program (Fig. 1). Students also reported that their test taking confidence improved (57.1%) and that they were more motivated to attend class (54.5%). However in regards to the structure of the tutorial program, 6 to 8% did recommend making changes. Pearson's Correlation test was used to determine the relation between student's satisfaction with the tutorial program and the impact of the program on their academic performance (Fig. 2).

	All tutorial programs are very helpful to me	The students who lead the tutorial program are knowledgeable and caring for students	My test taking confidence has improved since attending student-led tutoring	I feel comfortable engaging in student-led tutoring	I feel the material covered in our tutoring is in alignment with class lectures	Students leading the tutorials are understandable and easy to reach out to	Student-led tutorials inspire me to be a student tutor as well	Since the tutorial program is structured well, I do not recommend making any changes at this time	Student-led tutoring has motivated me to attend class	I benefited a lot from the tutorial program	My grades in select classes have improved since attending student-led tutoring
Strongly Agree:	15	17	9	18	24	29	17	12	16	23	19
Somewhat Agree:	30	32	35	34	35	40	29	18	26	37	30
Neither Agree nor Disagree:	4	15	21	15	9	13	15	9	20	9	17
Somewhat Disagree:	22	8	7	9	9	2	9	23	10	6	8
Strongly Disagree:	6	5	5	1	0	2	7	15	5	2	3

Table 1: Response rate in number using Likert scale.

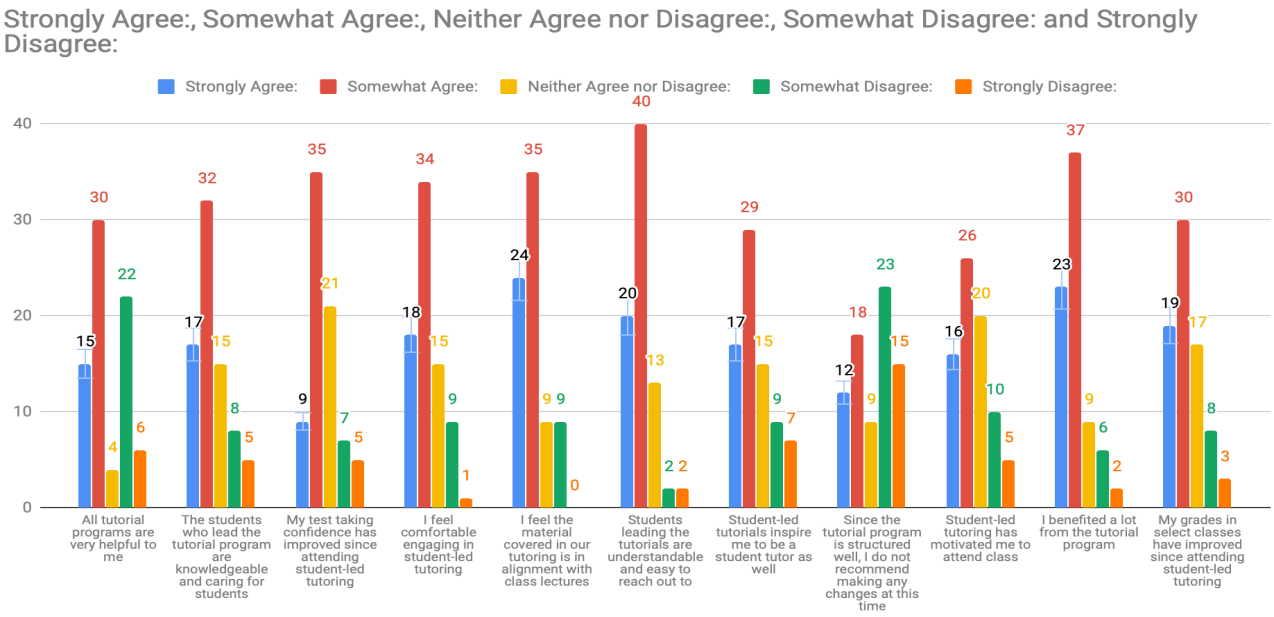

Figure 1: Bar charts displaying frequencies of survey ratings.

Correlations

		BENF	STRC	MOTV	TSTK	GRDE
BENF • I benefited a lot from the tutorial program	Pearson Correlation	1	.359**	.474**	.347**	.481**
	Sig. (2-tailed)		.001	.000	.002	.000
	N	77	77	77	77	77
STRC • Since the tutorial program is structured well, I do not recommend making any changes at this time	Pearson Correlation	.359**	1	.413**	.312**	.375**
	Sig. (2-tailed)	.001		.000	.006	.001
	N	77	77	77	77	77
MOTV • Student-led tutoring has motivated me to attend class	Pearson Correlation	.474**	.413**	1	.444**	.480**
	Sig. (2-tailed)	.000	.000		.000	.000
	N	77	77	77	77	77
TSTK • My test-taking confidence has improved since attending student-led tutoring	Pearson Correlation	.347**	.312**	.444**	1	.659**
	Sig. (2-tailed)	.002	.006	.000		.000
	N	77	77	77	77	77
GRDE • My grades in select classes have improved since attending student-led tutoring	Pearson Correlation	.481**	.375**	.480**	.659**	1
	Sig. (2-tailed)	.000	.001	.000	.000	
	N	77	77	77	77	77

**. Correlation is significant at the 0.01 level (2-tailed).

Figure 2: Pearson Correlation test.

Discussion

General success of the tutoring program in P1 students was determined by five questions related to student benefit, attendance, test-taking skills, and grade improvement. The goal of this study was to assess the impact of a student-led tutorial program on students' success in pharmacy school. Results from the survey indicate that first-year professional students' performance was positively impacted by student-led tutorial programs. The majority of students felt that the tutoring program was beneficial to them, motivated them to attend class, improved test-taking confidence, and also helped increase grades in select courses.

The study showed a relation between advantages of the tutoring program and increased grades in select courses, all of which were significant at $p \leq 0.01$. The strongest correlation values correspond to motivation to attend class, grades, test taking skills, and the benefit of the program. Class attendance had more association with the students' belief that the program was beneficial to them and that their grades improved ($r=0.474$; $r=0.480$, $p \leq 0.01$). Students' credence to better test taking skills had the highest relation to increased grades and motivation to attend classes ($r=0.444$; $r=0.659$, $p \leq 0.01$). Whether the students felt the program was beneficial to them also had a significant impact on class progress ($r=0.481$, $p \leq 0.01$). Furthermore, students were asked if they could make any recommendations to change the structure of the program. This had the smallest relation to the benefit of the program and any reported increase in test taking skills ($r=0.347$; $r=0.312$, $p \leq 0.01$). Structure of the program did not seem to have a large effect on the students' opinions ($r=0.312$, $r=0.375$), but were still significant to the other ratings ($p \leq 0.01$). The results of this study also support reviews that peer-teaching has an impact on academic improvement and enhanced confidence. Roughly 58% of students said that all tutorial programs were helpful to them. Many of the students said that they felt comfortable engaging in student-led tutoring (67.5%) and that their tutors were understandable (77.9%). Approximately 59.7% of students said that they were inspired to become a student tutor as well. Although students seem to be satisfied with the program, most of them still agreed that some changes could be made to the structure (61.0%).

A limitation of this study is that findings gathered from this survey cannot be applied to every pharmacy student. More research will need to be done at other universities in order to truly assess the effect of student-led tutoring in professional pharmacy programs and apply generalizations to a more heterogeneous group of students. There are also many factors that contribute to students' success. To reduce confounding factors and selection bias, a randomized study and follow-up survey could be used. Further research may also aim to look at the effects of student-led tutoring on all pharmacy students including the tutors.

Conclusion

Peer tutoring is essential to successful matriculation in a professional pharmacy program, especially with growing student-to-faculty ratios. With respect to student attitude toward the program, student-led tutoring had a positive impact on first-year professional pharmacy students.

A perceived improvement in grade and test taking skills was most related to students' belief that the program was beneficial to them and increased motivation to attend class. Students' opinion on the structure of the program did not have a negative impact on academic performance, but was still considered significant. More research is needed to be able to generalize this information to another group of students. Future studies will need to assess all pharmacy students involved, while also adjusting for confounding factors and any potential bias. Other factors including faculty support, tuition and program curriculum should also be investigated in order to apply any findings to other groups of students.

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