EVALUATING EXAMINATION ACHIEVEMENT THROUGH THE DISEASES IN RESPIRATORY, URINARY AND CARDIOVASCULAR COURSE

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Background: A problem-based learning course has been implemented at Phramongkutklao College of Medicine since 2015. The diseases in respiratory, urinary, and cardiovascular course was given to third-year medical students since 2017. According to the policy of conducting as few exams as possible to provide students time to comprehend, however the complexity of the three systems structured within three weeks is rather intensive. As a result, there were two tests in the 2017 while three exams in each system were administered in 2018. The aim of this study was to determine whether students who took the two and three tests had significantly different passing proportion.

Methods:

1. Data Collection

This research is a cross-sectional analytical study. The data was collected from students' examination results in the diseases in respiratory, urinary and cardiovascular course examination in the academic year 2017–2018 from the Department of Pharmacology, Phramongkutklao College of Medicine, which enrolled a total of 204 medical students.

2. Data analysis

The following data are analyzed in this study using IBM SPSS Statistics Version 23.0.

2.1 Descriptive Statistics employ utilization of frequency and percentage to describe the student's exam data.

2.2 Inferential Statistics employs survival analysis to determine the survival function, median survival, survival duration, hazard ratio, and hazard rate in student examinations through the Kaplan-Meier technique and to compare survival time in student examinations via the log-rank test method.

Results:

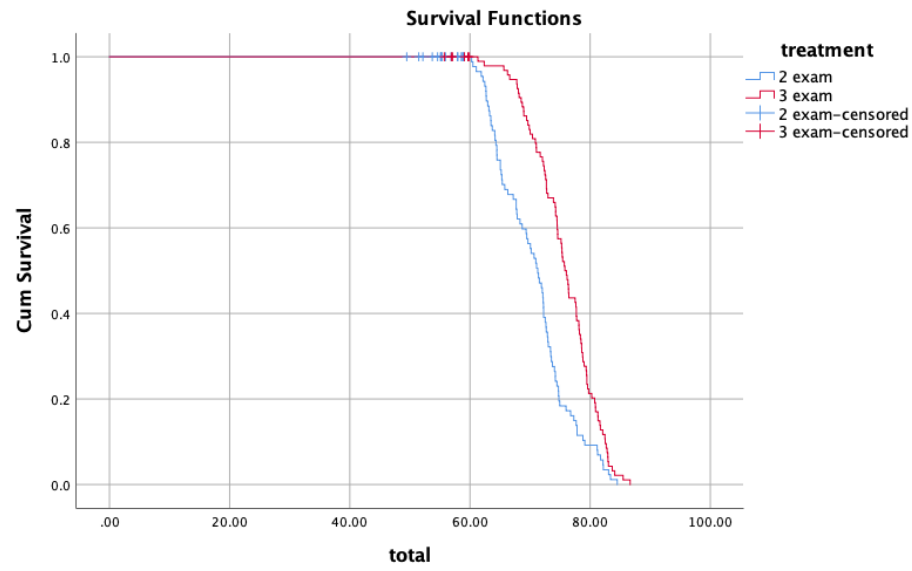
Table 1: The Frequency, Percentage, and Median of Examination Students' Survival Time

Treatment	Total n	Percent	Median survival	Std. Error	95% CI
2 Exam	104	50.98	71.28	1.02	69.29 – 73.27
3 Exam	100	49.02	75.80	0.55	74.73 – 76.87
Overall	204	100.00	73.41	0.58	72.27 – 74.55

Table 2: Life table of the students who took the exam

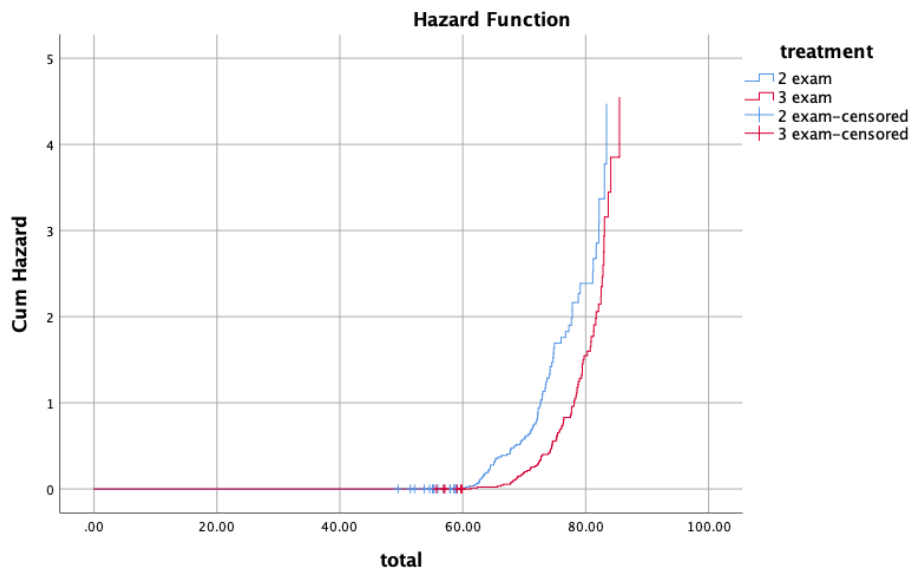
Treatment	Mean survival	Survival function	Survival time	Hazard ratio	Hazard rate
2 Exam	70.62	83.70 %	87	0.16	0.84
3 Exam	75.66	94.00 %	94	0.06	0.94

Figure 1. Survival function estimation in student exams using Kaplan-Meier method.



As seen in Figure 1, students who took the 3 exams will have a greater probability of passing the exam than students who took the 2 exams when the passing score is 60 points and the hazard rate of passing is 0.94.

Figure 2. Probability of failure for students using the Kaplan-Meier approach.



As seen in Figure 2, students who took the 2 exam had a larger likelihood of failing than students who took the 3 exam, with a hazard ratio of 0.16 for not passing.

Table 3 Comparison results of survival time of students taking 2 Exam and 3 Exam by log-rank test

	Chi-square	df	p-value
Log-rank	20.36	1	< 0.001

According to Table 3, students' chances of passing the 3 exam were substantially different from those of passing the 2 exam at the 0.001 level (*p-value* < 0.001).

Discussion and Conclusion:

It is critical that medical students who took examinations three times statistically outperformed those who took exams twice. Later on, an in-depth interview was conducted, which yielded the similar result, indicating that each test covers the contents of a specific system, which is not confused with the contents of others.

Take home message:

Examination focusing on student's educational achievement is essential.