**IMPROVING SIMPLE INTERRUPTED SUTURES SKILLS WITH HOME ASSIGNMENT FOR MEDICAL STUDENTS**

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|  | | **Abstrak** |
| Received:  Revised :  Accepted: |  | Keterbatasan waktu praktik selama praktikum menjadi kendala bagi mahasiswa untuk memiliki keterampilan bedah yang baik. Tugas rumah melakukan jahitan, seperti teknik jahitan terputus sederhana diharapkan bisa menjadi solusi. Sebuah studi eksperimen semu dilakukan pada sampel 20 siswa, dibagi menjadi dua kelompok. Kelompok A yang terdiri dari 10 siswa mendapatkan tutorial teknik jahitan terputus sederhana dan diberi tugas untuk melakukan jahitan di rumah setiap hari dan pembimbing akan memeriksa tugasnya keesokan harinya, selama tujuh hari. Kelompok B yang terdiri dari 10 orang siswa lainnya hanya mendapatkan tutorial teknik jahitan terputus sederhana dengan kesempatan untuk praktik mandiri selama praktikum di laboratorium keterampilan. Setelah satu minggu, dilakukan penilaian berdasarkan waktu yang dibutuhkan setiap siswa untuk membuat teknik jahitan terputus sederhana. Data dianalisis dengan independent T-test. Ada perbedaan yang signifikan antara sebelum dan sesudah praktik dalam waktu yang digunakan selama penjahitan pada kelompok A (p<0,05). Waktu rata-rata untuk kelompok A adalah 533 detik pada hari pertama dan 335 detik setelah tugas rumah dalam seminggu. Waktu rata-rata kelompok B adalah 493 detik pada hari pertama dan 450 detik pada hari evaluasi. Tidak ada perbedaan bermakna pada kelompok B (p>0,05). Tugas rumah dapat meningkatkan kecepatan keterampilan jahitan. Tugas rumah efektif meningkatkan keterampilan jahitan bagi mahasiswa kedokteran, terutama untuk kondisi waktu praktikum yang terbatas di laboratorium keterampilan.  **Kata kunci**: Tugas Rumah, Meningkatkan Keterampilan Jahitan. |
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|  | | ***Abstract*** |
|  | | *The limited-time to practice during practicum becomes a problem for students to have a good surgical skill. The home assignment of performing sutures, such as a simple interrupted sutures technique is expected to be a solution. A quasi-experimental study was carried out on a sample of 20 students, divided into two groups. Group A, consisting of 10 students, received a tutorial of a simple interrupted sutures technique and was given the assignment to do the sutures at home every day and the supervisor would check their assignment the next day, for seven days. Group B, consisting of 10 other students, only received a tutorial of a simple interrupted sutures technique with the opportunity to practice independently during practicum at skills laboratory. After one week, an assessment was made based on the time it takes for each student to make a simple interrupted sutures technique. The data were analyzed with an independent T-test. There were significant differences between pre and post practices in time consumed during suturing in group A (p<0,05). The average time for group A was 533 seconds on the first day and 335 seconds after the home assignment in a week. The average time for group B was 493 seconds on the first day and 450 seconds on evaluation day. There were no significant differences in group B (p>0,05). Home assignments could improve the speed of sutures skills. The home assignment effectively improves sutures skills for medical students, especially for the limited time of practicum conditions at skills laboratories.*  ***Keyword****s: Home Assignment, Improving Sutures Skills* |

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**INTRODUCTION**

The ability to suture a wound as a general practitioner is 4A competency. It means that a doctor after graduation can diagnose and carry out an independent and complete self-management [1]. Learning the skills to suture a wound in the operating room is a challenge for a medical student. Thus, a lecture requires many approaches using simulation so that students can develop the skills that are needed [2].

Research on the Objective Structured Assessment of Technical Skills (OSATS) delivered to medical students showed that students need clinical simulations to practice suturing believed to increase their confidence when working in the future [3]. Training is a means of surgical simulation and practicing necessary suturing skills before applying them to real patients. It is done to reduce the number of complications in order to maintain patient safety [4].

There are various kinds of suturing techniques for wounds, for example the simple interrupted technique, mattress, and baste. The type of suture depends on the pressure and tension of the wound and the thickness of the tissue [5]. The wound’s anatomical location also considers how and what techniques are needed to perform suturing [6].

Researchers wanted to determine whether there was a difference in the ability and speed of suturing with simple interrupted techniques among medical students who were assigned to practice suturing the wound at home every day and those who were not assigned.

**RESEARCH METHOD**

Based on the research conducted, this research design is in the form of a quasi-experimental study. Quasi-experimental is an experiment that has a treatment, measuring the impact of the experimental unit but does not use random assignments to create comparisons to infer changes caused by the treatment [7].

The population taken in this research were all medical students of class 2016 at the Faculty of Medicine and Health Sciences, Universitas Muhammadiyah Yogyakarta (FKIK UMY). In this research, 20 people were chosen randomly from the population as a sample. It was based on the limited availability of equipment (minor set). In the population, there were 21 minor sets available. Furthermore, the researcher took 10 of them to be the sample of the intervention group research, and 10 other sample as the control group were taken randomly.

The inclusion criteria included students having sewing sets. Meanwhile, the exclusion criteria were students who had registered as a medical assistance team or had a good suture skill by showing the certificate that mentioned the students had experience in suturing the wound.

The dependent variable in this research was the sewing time speed in seconds. Meanwhile, the research’s independent variable was a "home assignment” or a home assignment to practice suturing the wound independently.

This research was located in the FKIK UMY skill lab room in November 2019. First, all students were given a review on how to make a suture with simple interrupted techniques then they were divided into two groups randomly. Group A as many as ten students were given the assignment to practice at home to make a suture on a suture media in the form of a sponge and then the supervisor collected the results as a time keeper in the next day. Group B, consisting of 10 students, was not given an assignment but was given the opportunity to practice every time in the skill lab. An evaluation was conducted in the form of a suture with a simple interupted technique by comparing each group’s speed using the second measure after seven days. The research data was analyzed to determine whether there were time differences between the two groups using statistical tests.

This study had submitted an application for ethical clearance to the Ethics Commission of the Faculty of Medicine and Health Sciences of UMY and had been approved with No.091/EC-KEPK FKIK UMY/III/2019.

**RESULTS AND DISCUSSIONS**

**Tabel 1** Karakteristik Responden

|  |  |  |
| --- | --- | --- |
| **KARAKTERISTIK RESPONDEN** | **FREKUENSI** | **PRESENTASE (%)** |
| **USIA**  18-25 Tahun  26-45 Tahun | 21  39 | 35.0  65.0 |
| **TINGKAT PENDIDIKAN**  SD  SMP  SMA  D3/S1/S2 | 1  3  39  17 | 1.7  5.0  65.0  28.3 |
| **JENIS KELAMIN**  Laki-laki  Perempuan | 30  30 | 50.0  50.0 |
| **STATUS PERNIKAHAN**  Sudah Menikah  Belum Menikah | 39  21 | 65.0  35.0 |

Berdasarkan tabel 1 di atas, karakteristik berdasarkan umur responden lebih banyak pada kelompok umur 26-45 (65,0%). Kemudian tingkat pendidikan sebagian besar terdiri dari siswa SMA (65,0%) dan minimal lulusan SD (1,7%). Pria dan wanita sama-sama terwakili di sini. Berdasarkan status perkawinan, lebih banyak orang yang menikah (65,0%).

**Hasil Analisis Bivariat**

**Tabel 2** Hasil Analisis Univariat

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Variabel** | **Kejadian ISPA** | | | | ***P-Value*** | **OR (95 %CI**) |
| **Kasus** | | **Kontrol** | |
| **N** | **%** | **N** | **%** |
| **Kepadatan Hunian Kamar**  Tidak Memenuhi Syarat  Memenuhi Syarat | 20  10 | 66,7%  33,3% | 14  16 | 46,7%  53,3% | 0,192 | 2,286 (0,804-6,495) |
| **Jenis Lantai**  Tidak Memenuhi Syarat  Memenuhi Syarat | 27  3 | 90,0%  10,0% | 9  21 | 30,0%  70,0% | 0,001 | 21,000 (5,047-87,373) |
| **Jenis Dinding**  Tidak Memenuhi Syarat  Memenuhi Syarat | 24  6 | 80,0%  20,0% | 14  16 | 46,7%  53,3% | 0,015 | 4,571 (91,452-14,389) |
| **Langit-Langit Rumah**  Tidak Memenuhi Syarat  Memenuhi Syarat | 26  4 | 86,7%  20,0% | 11  19 | 36,7%  53,3% | 0,001 | 11,227 (3,096-40,714) |
| **Anggota Keluarga Merokok**  Tidak Memenuhi Syarat  Memenuhi Syarat | 30  0 | 100,0%  0,0% | 22  8 | 73,3%  36,7% | 0,005 | - |
| **Polusi Udara**  Tidak Memenuhi Syarat  Memenuhi Syarat | 30  0 | 100,0%  0,0% | 23  7 | 76,7%  38,3% | 0,011 | - |
| **Asap Dapur**  Tidak Memenuhi Syarat  Memenuhi Syarat | 9  21 | 30,0%  70,0% | 8  22 | 26,7%  73,3% | 1,000 | 1,179 (0,383-3,629 |
| **Ventilasi**  Tidak Memenuhi Syarat  Memenuhi Syarat | 21  9 | 70,0%  30,0% | 13  17 | 43,3%  56,7% | 0,037 | 3,051 (1,053-8,839) |
|  |  |  |  |  |  |  |

**PEMBAHASAN**

A total 0f 20 students were involved in the research. The data were collected for one week, from November 8 to November 15 2019. The purposive sampling technique was choosen as a data collection technique. The home assignment was the independent variable while suture speed was the dependent variable of this research.

Before the comparative test was conducted, the normality test was first conducted to determine how the shape of the data distribution was, which could later affect the the comparative hypothesis test selection.

Table 1. Normality Data

|  |  |  |  |
| --- | --- | --- | --- |
| **Variable** | | **Statistic** | **P** |
| **Control** | *Pre-test* | 0,992 | 0,998 |
|  | *Post-test* | 0,941 | 0,563 |
| **Intervention** | *Pre-test* | 0,979 | 0,961 |
|  | *Post-test* | 0,868 | 0,095 |

Table 1 above is the result of the normality test to determine the distribution of data. This test used Shapiro-Wilk as the number of samples in the research was less than 50 people. The results obtained in all pre-test and post-test groups had a normal distribution of data due to P > 0,05.

Table 2. Speed of suturing in pretest and posttest (in seconds)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Respondent** | **Control Group** | | **Intervention Group** | |
| **Pre-Test** | **Post-Test** | **Pre-Test** | **Post-Test** |
| 1 | 419 | 435 | 528 | 359 |
| 2 | 639 | 486 | 505 | 460 |
| 3 | 530 | 464 | 281 | 217 |
| 4 | 453 | 514 | 838 | 370 |
| 5 | 357 | 392 | 664 | 350 |
| 6 | 436 | 481 | 384 | 205 |
| 7 | 550 | 534 | 468 | 375 |
| 8 | 542 | 391 | 575 | 371 |
| 9 | 508 | 425 | 423 | 221 |
| 10 | 488 | 380 | 752 | 430 |

Table 2 above shows the speed of suturing in both the control and intervention groups. It can be seen that all respondents in the intervention group experienced an increase in suturing speed. However, unlike the control group, there were some respondents who did not experience an increase in suturing speed.

Table 3. Description of the speed of suturing for respondents (in seconds)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Variable** | **Group** | **Time Measurement** | **Mean ±SD** | **Modus** | **Median** | **Min** | **Max** |
| Speed | Control | *Pre-test* | 493,2 ± 80,72 | 357,00 | 498 | 357 | 639 |
|  | *Post-test* | 450,2 ± 53,95 | 380,00 | 449,5 | 380 | 534 |
| Intervention | *Pre-test* | 533,1 ± 172,79 | 281,00 | 516,5 | 281 | 838 |
|  | *Post-test* | 335,8 ± 90,3 | 205,00 | 364,5 | 205 | 460 |

Table 3 above shows that both the control and intervention group experienced an increase in the average suturing speed.

Table 4. Control Group Data Analysis

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Variable** | **Mean (SD)** | **Paired Difference**  **Mean (SD)** | **CI** | | **P** |
| **Lower** | **Upper** |
| Speed when *pre-test* (n=10) | 493,2 (80,72) | 43 (80,6) | -14,7 | 100,7 | 0,126 |
| Speed when *post-test* (n=10) | 450,2 (54) |

Table 4 above shows the comparative test of the control group variable speed in this research. The control group consisted of 10 people from the total sample, where the group did not receive the suturing home assessment. This group was not required to practice sewing at home. In this group, the pre-test Mean suturing speed was 493.2 seconds, which then increased to 450.2 seconds at the post-test, indicating that there was an increase in sewing speed, namely 43 seconds. However, after a statistical test was conducted, it was found that p > 0.05 (p = 0.126) which meant that there was no significant effect

Table 5. Intervention Group Data Analysis

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Variable** | **Mean (SD)** | **Paired Difference**  **Mean (SD)** | **CI** | | **P** |
| **Lower** | **Upper** |
| Speed when *pre-test* (n=10) | 533,1 (172,7) | 197,3 (130,2) | 104,17 | 290,4 | 0,001 |
| Speed when *post-test* (n=10) | 335,8 (90,3) |

Table 5 above shows the comparative test of the variable speed of the intervention group in this research. The intervention group consisted of 10 people from the total sample, where in this group students received a home assignment for one week, after the pre-test until before the post-test. This group was obliged to practice suturing at home, equipped with a mannequin to take home and a minor set owned by each respondent in the intervention group. Every day, all group members are reminded by the researcher to do five knots sewing exercises, respondents were asked to report the sewing practice that had been conducted with photo evidence. In this group, the mean pre-test before the intervention given was 533.1 seconds. Then, the post-test assessment was conducted, and the mean was 335.8 seconds. It showed that the suturing speed in the intervention group increased, namely during 197.3 seconds. Furthermore, a statistical test was conducted and the results showed that p <0.05 (p = 0.01), indicating that there was a significant effect that had an impact on increasing the suturing speed of students

**Discussion**

The research conducted showed the effect of home assignment on students’ suturing speed. It is in line with research conducted by Routt et al. (2015), which stated that the control group where no intervention or exposure was given, had a passing rate of 0% which indicated that none of the respondents passed the assessment at the end of the research. It is also in line with research conducted by Vanyolos, et al, (2017), where in similar research in the compulsory class group there was no significant effect on quantity (speed in suturing time) [8].

It supports the research by Routt et al., (2015) in which the group given the intervention in the form of a follow-up test proved to have an increase in suturing speed, and had a passing rate of 91.7% at the end of the research [9]. It is also in line with Preece et al.’s (2015) research that intensive training significantly affected students’ suturing speed. In this research it was also stated that training could increase suturing speed and help increase students’ understanding and confidence and foster interest in surgery [10].

Research conducted by Peyre et al., proved that there was a change in self-confidence in surgical skills previously conducted by 3 weeks of surgical training guidance in medical students [6].

Robb et al., conducted research on medical students in the final year of education by comparing suturing skills two weeks before and two weeks after sewing training under supervision. The results showed a significant improvement in suturing skills. The results of observations that have been conducted in the two groups indicated that there was a significant time difference in suturing. It is in line with two other studies by Peyre, stating that although it was with different methods, it had the same principle, namely intensive practice and under supervision [11]

The evaluation results showed that statistically, there was a significant difference in speed based on the unit of time between group A who received the assignment to practice suturing independently at home compared to group B who did not get an assignment.

**CONCLUSION**

1. Improving the ability to suture wounds in medical student education was proven to be achieved by practicing. Intensive and supervised training was proven to be more effective in obtaining better results.
2. Home assignments had been shown to be effective in improving students ability to suture the wounds.

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