Clinical Trial Protocol
Iranian Registry of Clinical Trials

08 Nov 2026

Effects of implementation of Drug Calculation Educational Program on Nursing Students' Mathematical Anxiety and Skill

Protocol summary

Study aim

Determination of the Effect of Implementation of Drug Computing Curriculum on Nursing Students' Mathematical Anxiety and Skills

Design

This study is a quasi-experimental study before and after. Initially, the student training groups in the first semester of the year 1398-1399 will be assigned to the control group through census and this process until the completion of the sample to 66 people in the second semester of the year. After completing the sampling in the control group, the sampling of the students in the intervention group will continue in the census to examine a total of 132 students in the study.

Settings and conduct

The drug computing curriculum will be implemented during the clinical pharmacology training. On the first day of the internship, this training program will be taught and lectured. Then, on the second day, a practical workshop on pharmaceutical computing will be conducted, followed by training sessions in clinical pharmacology and in the hospital setting. The description of this intervention will be as follows. ten days and One month after this training, all the questionnaires completed on the first day of intervention will be completed again by the intervention group. Completion of these questionnaires in the control group will be the same as the intervention group.

Participants/Inclusion and exclusion criteria

The sample of the study will be 132 undergraduate nursing students who are undergoing clinical pharmacology training during the study period. These students will be excluded if they are out of college or enrolled in Pharmacy Computing courses or are retraining or do not consent to study.

Intervention groups

Intervention Group : Nursing Students Receiving the Drug Calculation Curriculum Control Group : Nursing Students Receiving the Routine Curriculum

Main outcome variables

Math Anxiety - Skill In Nursing Students

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20190727044341N1**
Registration date: **2019-09-05, 1398/06/14**
Registration timing: **prospective**

Last update: **2019-09-05, 1398/06/14**
Update count: **0**

Registration date

2019-09-05, 1398/06/14

Registrant information

Name

Amin Hosseini Sooreh Bargh

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 21 7701 1942

Email address

ahosseinis@razi.tums.ac.ir

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2019-09-14, 1398/06/23

Expected recruitment end date

2020-06-19, 1399/03/30

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date
empty

Scientific title
Effects of implementation of Drug Calculation Educational Program on Nursing Students' Mathematical Anxiety and Skill

Public title
Drug Calculation Educational and Nursing Students' Mathematical Anxiety and Skill

Purpose
Education/Guidance

Inclusion/Exclusion criteria

Inclusion criteria:
Undergraduate Nursing Students of Tehran School of Nursing who are undergoing Pharmacology training. Consent to participate in the study

Exclusion criteria:
These students will be excluded if they are out of college or enrolled in Pharmacy Computing courses or are retraining or do not consent to study.

Age
No age limit

Gender
Both

Phase
N/A

Groups that have been masked
No information

Sample size
Target sample size: **132**

Randomization (investigator's opinion)
N/A

Randomization description

Blinding (investigator's opinion)
Not blinded

Blinding description

Placebo
Not used

Assignment
Other

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee
Institutional research ethics committee school of nursing and midwifery & rehabilitation

Street address
School of Nursing Midwifery ,Tehran University of Medical Sciences Nosrat st. Tohid sq. Tehran I.IRAN

City
Tehran

Province
Tehran

Postal code
141973317

Approval date
2019-07-13, 1398/04/22

Ethics committee reference number
IR.TUMS.FNM.REC.1398.082

Health conditions studied

1

Description of health condition studied

ICD-10 code

ICD-10 code description

Primary outcomes

1

Description
Math Anxiety

Timepoint
Baseline, 10 and 30 days after baseline

Method of measurement
Betz Math Anxiety Questionnaire

2

Description
drug calculations skill

Timepoint
Baseline, 10 and 30 days after baseline

Method of measurement
drug calculations skill questionnaire

Secondary outcomes

empty

Intervention groups

1

Description
Intervention group: Includes undergraduate nursing students who are undergoing a pharmacology internship in the second semester of the academic year 1399-98. The intervention will be described as follows. On the first day of this training program (which will be at the School of Nursing and Midwifery) and in the first two hours all students will receive a demographic questionnaire, mathematical anxiety and skills questionnaire (math and pharmaceutical calculations).) Will complete. Students will be given 30 minutes to complete the questionnaires and students will be allowed to use the calculator. It is noteworthy that while obtaining the consent of the students, all of them will be informed that the scores obtained from these questionnaires will in no way affect their grade point average. Then lecture using whiteboards, boards, and calculators (mobile-mounted) on decimal numbers; first, second and third decimal

places, percentages, and basic math skills and how to use the speaking calculator will be. The different units used and their conversion methods, weight-based drug calculation, ideal weight calculation, oral drug and injectable drugs will also be discussed. After a break for the next two hours, students will be explained about the different formulas in pharmaceutical computing, pharmaceutical forms, and how to calculate different pharmaceutical forms (injectable, non-injectable). Practical exercises on pharmaceutical calculations will also be provided and methods of calculating them will be explained and student bugs will be resolved. At the end of the day, the Pharmacy Computing textbook will be delivered to students. The second day will be dedicated to practical work. On this day, by forming smaller groups of students (5 or 6 in each group) and using several scenarios (providing a brief history of different patients, along with physician instructions); students can make appropriate drug calculations with the physician's prescription. Process. Each group will be offered at least four different practice exercises, including oral medication (oral, gastrointestinal, or gastrostomy), injectable (intradermal, subcutaneous, intramuscular, intravenous), vaginal or anal suppositories. , Will be ointments or topical creams. The calculation requirements for injectable drugs (vial of potassium, magnesium and bicarbonate; heparin ampoules, dopamine, dobutamine, etc.) will be provided for the practical work of injectable drugs. It will also be introduced to the students in order to familiarize the students with the pharmaceutical calculations of the infusion devices, serum infusions and medications (perfuser and the only method of adjusting the calculated dosage on this device. After completing the practical training in small groups The students will have a short rest for two hours and controlled by the research team, then the next hour will be shared with each group on the pharmacy calculus and asked to learn more if the lines There is a calculation to be made, and then the students enter the clinic (internship) At the end of the internship (end of ten days) all questionnaires completed by the beginning of the first day of the workshop will be completed again by the students. One month after this training, all the questionnaires completed on the first day of the intervention will also be completed by the intervention group.resolved. At the end of the day, the Pharmacy Computing textbook will be delivered to students. The second day will be dedicated to practical work. On this day, by forming smaller groups of students (5 or 6 in each group) and using several scenarios (providing a brief history of different patients, along with physician instructions); students can make appropriate drug calculations with the physician's prescription. Process. Each group will be offered at least four different practice exercises, including oral medication (oral, gastrointestinal, or gastrostomy), injectable (intradermal, subcutaneous, intramuscular, intravenous), vaginal or anal suppositories. , Will be ointments or topical creams. Given that the third day is for the workshop and practical work. The calculation requirements for injectable drugs (vial of potassium, magnesium and bicarbonate; heparin ampoules, dopamine, dobutamine, etc.) will be provided for the practical work of injectable drugs. It will also be introduced to the students in order to familiarize the students with the pharmaceutical calculations of the infusion devices, serum infusions and medications (perfuser and the only method of adjusting the calculated dosage on this device. After completing the practical training in small groups The students will have a short rest for two hours and controlled by the research team, then the next hour will be shared with each group on the pharmacy calculus and asked to learn more if the lines There is a calculation to be made, and then the students enter the clinic (internship) At the end of the internship (end of ten days) all questionnaires completed by the beginning of the first day of the workshop will be completed again by the students. One month after this training, all the questionnaires completed on the first day of the intervention will also be completed by the intervention group.

Category

Other

2

Description

Control group: The control group will receive only routine pharmacology training but will receive the math anxiety and pharmaceutical computing skills questionnaire as the intervention group.

Category

Other

Recruitment centers

1

Recruitment center

Name of recruitment center

School of Nursing Midwifery ,Tehran University of Medical Sciences

Full name of responsible person

Alireza Nikbakht Nasrabadi

Street address

School of Nursing Midwifery ,Tehran University of Medical Sciences Nosrat st. Tohid sq. Tehran I.IRAN

City

Tehran

Province

Tehran

Postal code

1419733171

Phone

+98 21 6692 7171

Email

fnm@tums.ac.ir

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Tehran University of Medical Sciences

Full name of responsible person
Dr Mohamad Ali Sahraeiyan
Street address
Deputy of Research and Technology, Sixth Floor, Central Organization ofTehran University of Medical Sciences, Ghods St, Keshavarz Blvd
City
Tehran
Province
Tehran
Postal code
1419733171
Phone
+98 21 8163 3619
Email
nmcrc@tums.ac.ir

Grant name

Grant code / Reference number

Is the source of funding the same sponsor organization/entity?
Yes

Title of funding source
Tehran University of Medical Sciences

Proportion provided by this source
100

Public or private sector
Public

Domestic or foreign origin
Domestic

Category of foreign source of funding
empty

Country of origin

Type of organization providing the funding
Academic

Person responsible for general inquiries

Contact
Name of organization / entity
Tehran University of Medical Sciences
Full name of responsible person
Amin Hosseini Soorehbargh
Position
MS Student
Latest degree
Bachelor
Other areas of specialty/work
Nursery
Street address
School of Nursing Midwifery ,Tehran University of Medical Sciences Nosrat st. Tohid sq. Tehran I.IRAN
City
Tehran
Province
Tehran
Postal code
1419733171
Phone
+98 21 6192 7171
Email
ahosseinis@razi.tums.ac.ir

Person responsible for scientific inquiries

Contact
Name of organization / entity
Tehran University of Medical Sciences
Full name of responsible person
Leila Sayadi
Position
Assistant Professor
Latest degree
Ph.D.
Other areas of specialty/work
Nursery
Street address
School of Nursing Midwifery ,Tehran University of Medical Sciences Nosrat st. Tohid sq. Tehran I.IRAN
City
Tehran
Province
Tehran
Postal code
1419733171
Phone
+98 21 6105 4322
Email
l-sayadi@sina.tums.ac.ir

Person responsible for updating data

Contact
Name of organization / entity
Tehran University of Medical Sciences
Full name of responsible person
Amin Hosseini Sooreh Bargh
Position
MS Student
Latest degree
Bachelor
Other areas of specialty/work
Nursery
Street address
School of Nursing Midwifery ,Tehran University of Medical Sciences Nosrat st. Tohid sq. Tehran I.IRAN
City
Tehran
Province
Tehran
Postal code
1419733171
Phone
+98 21 6692 7171
Email
ahosseinis@razi.tums.ac.ir

Sharing plan

Deidentified Individual Participant Data Set (IPD)
No - There is not a plan to make this available

Justification/reason for indecision/not sharing IPD
There is not more informattion.

Study Protocol

No - There is not a plan to make this available

Statistical Analysis Plan

Not applicable

Informed Consent Form

No - There is not a plan to make this available

Clinical Study Report

Not applicable

Analytic Code

Not applicable

Data Dictionary

Not applicable