ISRCTN62680352 https://doi.org/10.1186/ISRCTN62680352

Effect of desktop virtual reality preoperative handover communication

Submission date
26/05/2023

Recruitment status
No longer recruiting

Registration date
30/05/2023

Overall study status
Completed

Last Edited
21/12/2023

Condition category
Other

[_] Prospectively registered
[X] Protocol
[_] Statistical analysis plan
[X] Results
[_] Individual participant data

Plain English summary of protocol

Background and study aims
The aim of this study is to investigate whether second-year undergraduate nursing students practising the Identification-Situation-Background-Assessment-Recommendation (ISBAR) communication approach in a desktop virtual reality (VR) application had a non-inferior learning outcome compared with the traditional paper-based method when sorting patient information correctly based on the ISBAR structure.

Who can participate?
Second-year undergraduate nursing students enrolled in the nursing study program at the participating universities with no or limited experience in supervised clinical practice in somatic hospitals.

What does the study involve?
Participants are randomly allocated to one of two groups.
The intervention group practice using a desktop VR simulation called the Preoperative ISBAR Desktop VR Application, developed specifically for nursing students to practice the ISBAR approach during handover in an acute preoperative setting. The desktop VR application was created as part of a larger VR research project called VirSam (Virtual Collaboration) in healthcare education.
The participants in the traditional paper-based group meet in person and are placed around a table in groups of three. They are given printed papers with the same explanation and tasks, including an explanation of the ISBAR approach and a list of suggestions for correct sorting.

What are the possible benefits and risks of participating?
Participants may benefit from increased knowledge of desktop VR to learn preoperative communication approaches for undergraduate nursing students.

Where is the study run from?
1. University of Agder (Norway)
2. Norwegian University of Science and Technology (Norway)

When is the study starting, and how long is it expected to run for?
February 2021 to April 2023

Who is funding the study?
1. University of Agder (Norway)
2. Norwegian University of Science and Technology (Norway)
3. Research Council of Norway (Norway)

Who is the main contact?
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Contact information

Type(s)
Principal Investigator

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Additional identifiers

EudraCT/CTIS number
Nil known

IRAS number

ClinicalTrials.gov number
Nil known

Secondary identifying numbers
RCTPDVR

Study information

Scientific Title
The effect of using desktop virtual reality to practice preoperative handovers with the ISBAR approach: a randomized controlled trial

Acronym

RCTPDVR

Study objectives
The aim was to investigate whether second-year nursing students self-practising the ISBAR approach during handovers in a preoperative setting in a desktop virtual reality (VR) application experienced a non-inferior learning outcome compared with self-practising the traditional paper-based (TP) method to sort patient information.

Ethics approval required
Old ethics approval format

Ethics approval(s)
Approved 11/08/2021, the Service Provider for the Education Sector (SIKT; no postal address; +47 (0)73 98 40 40; postmottak@sikt.no), ref: 305866

Study design
Non-inferior parallel-group assessor-blinded randomized controlled trial

Primary study design
Interventional

Secondary study design
Randomised controlled trial

Study setting(s)
Internet/virtual, Training facility/simulation, University/medical school/dental school

Study type(s)
Other

Participant information sheet
Not applicable

Health condition(s) or problem(s) studied
Communication during presurgery handover

Interventions
Self-practice the ISBAR approach for 45 minutes in groups of three using an interactive desktop VR application (intervention)

Randomization considered the logistical arrangement of students participating in different batches of 9, 12, or 15 students. Consequently, different randomization lists were created using the Microsoft Excel RAND function for each batch. These lists were utilized to generate stickers containing identification (ID) numbers and allocation codes. The stickers containing identification numbers and allocation codes were placed in separate containers corresponding to each batch.

The intervention group practiced using a desktop VR simulation called the Preoperative ISBAR Desktop VR Application, developed specifically for nursing students to practice the ISBAR

approach during handover in an acute preoperative setting. The desktop VR application was created as part of a larger VR research project called VirSam (Virtual Collaboration) in healthcare education.

The participants in the traditional paper-based group met in person and were placed around a table in groups of three. Due to uneven numbers, two groups comprised four students. As the desktop virtual reality group, they were given printed papers with the same explanation and tasks, including an explanation of the ISBAR approach and a list of suggestions for correct sorting.

Intervention Type
Behavioural

Primary outcome measure
The proportion of nursing students who sorted all 11 statements of patient information into the correct ISBAR order on a written test. The statements with patient information were presented in random order, numbered and provided on paper. The students were instructed to "write the number on the patient information in the correct order and write the letter where the information belongs." This outcome variable was based on earlier research and had been tested during the pilot study. Time frame: 5 minutes. Measured at a single timepoint.

Secondary outcome measures
Measured at a single timepoint:
1. The proportion that placed the correct patient information within each ISBAR category provided additional information on the primary outcome by identifying the category that was best understood, as determined by the highest proportion of correct patient information placements. The outcome variable was based on prior research and was tested during the pilot study. Time frame: 5 minutes.
2. The proportion that arranged the ISBAR words correctly using an online questionnaire. The students were presented with the five words that comprised ISBAR, sorted in the following order "Recommendation-Background-Identification-Situation-Assessment." They will be instructed; "Sort in correct order." A similar outcome was used in earlier research and tested during the pilot study. Time frame: 5 minutes.
3. The proportion that sorted five statements of patient information (one for each ISBAR category) correctly based on ISBAR using an online questionnaire. The students were presented with the patient information sorted in the following order: "AIRBS" and were asked to "sort the patient information correctly based on what you have learned today." This outcome was made for this study and tested during the pilot study. Time frame: 5 minutes.
4. Students' experiences with the self-perceived learning outcome on five questions from the online questionnaire: "To which degree did you think: 1. the video about ISBAR gave you enough knowledge before you started to practice; 2. you had enough time to practice; 3. the practice method was likable; 4. the teaching activity (introduction and practice) were a good way to learn the ISBAR approach; and 5. you are confident in conducting communication in the ISBAR approach." Five answer options will be provided: 1 (completely disagree); 2 (disagree); 3 (neither disagree/agree); 4 (agree); or 5 (completely agree). The proportion answering agree/completely agree will be reported. These outcomes were used in earlier research and tested during the pilot study. Time frame: 5 minutes.
5. The proportion of complete practice runs from the online questionnaire. The students were asked to type the number of complete runs of the practice. A similar outcome was used in earlier research and tested during the pilot study. Time frame: 5 minutes.
6. The simulation method's perceived usability from the online questionnaire using the System

Usability Scale (SUS). The SUS has ten open-ended items, with five answer options ranging from 1 (strongly disagree) to 5 (strongly agree). The score has been created by adding responses and converting it to a 0 to 100 scale, which can be translated into a curved grading scale from A-F. The SUS is viewed as a reliable test of educational technology usability, and the validated Norwegian version will be used. Time frame: 5 minutes.

Overall study start date
01/02/2021

Completion date
20/04/2023

Eligibility

Key inclusion criteria
Second-year undergraduate nursing students enrolled in the nursing study program at the participating universities who have no or limited experience in supervised clinical practice in somatic hospitals

Participant type(s)
Learner/student

Age group
Adult

Sex
Both

Target number of participants
175

Total final enrolment
175

Key exclusion criteria
Does not meet the inclusion criteria

Date of first enrolment
02/03/2022

Date of final enrolment
20/04/2022

Locations

Countries of recruitment
Norway

Study participating centre
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Study participating centre
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Sponsor type
University/education

Website
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Funder(s)

Funder type
University/education

Funder Name
Universitetet i Agder

Alternative Name(s)
University of Agder, UiA

Funding Body Type
Private sector organisation

Funding Body Subtype
Universities (academic only)

Location
Norway

Funder Name
Norges Teknisk-Naturvitenskapelige Universitet

Alternative Name(s)
Norwegian University of Science and Technology, The Norwegian University for Technology an Sciences, Universidad Noruega de Ciencia y Tecnología, NTNU

Funding Body Type
Government organisation

Funding Body Subtype
Universities (academic only)

Location
Norway

Funder Name
Norges Forskningsråd

Alternative Name(s)
Forskningsrådet, Norwegian Research Council, Research Council of Norway

Funding Body Type
Government organisation

Funding Body Subtype
National government

Location
Norway

Results and Publications

Publication and dissemination plan
Planned publication in a high-impact peer-reviewed journal.

Intention to publish date
20/04/2024

Individual participant data (IPD) sharing plan
The datasets generated and analyzed during the current study will be available in the Service Provider for the Education Sector (SIKT, reference 305866) repository at https://sikt.no/veiledning-bestille-data.
The type of data stored: SPSS dataset.
The process for requesting access (if non-publicly available): send a request to https://sikt.no/veiledning-bestille-data.
Dates of availability: No limit.
Whether consent from participants was required and obtained: Due to the data being anonymous, no consent for making the data available was needed.
Comments on data anonymization: All data are anonymous.

IPD sharing plan summary
Stored in non-publicly available repository

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Protocol file			30/05/2023	No	No
Results article		20/12/2023	21/12/2023	Yes	No