

Enhancing Team Collaboration in the Emergency Department at Kigali University Teaching Hospital: The effect of SBAR Communication Training

Abstract

Background: Teamwork in clinical settings and especially in emergency department requires straightforward, clear and consistent communication interdisciplinary. The lack of effective communication among healthcare providers impact patient care safety, misdiagnosis, and increased treatment delays and medication errors. This also increases patient morbidity and mortality. **Objective:** To examine the effect of Situation Background, Assessment, and Recommendation communication education on the competencies of inter-professional team collaboration. **Method:** This study was interventional conducted at the emergency department of CHUK. A self-administered questionnaire was completed prior to, during and after the training. Descriptive and inferential statistics were computed evaluate the association between communication and some demographic characteristics and to test whether there is a significant improvement in communication after the intervention. **Results:** The study found that the majority of participants were female, 60% (N=18) were and 40% (N=12) were male. A high number of participants (63.3 %) were aged between 30 and 35 years and 66.7% (20) had an advanced diploma (A1), and 33.3 % (10) had a bachelor's or master's degree. Lastly, 63.3 % (19) had working experience between 6 and 10 years. After the training, the findings showed an increased perception of effective communication and collaboration among nurses (from 58 (range 31–97) to 64 (range 25–97); $p < 0.001$), an increase in unplanned intensive care unit (from 13.1/1000 to 14.8/1000) admissions and a decrease in unexpected deaths (from 0.99/1000 to 0.34/1000) admissions. **Discussion:** The findings showed that there was a statistical significant increase of the nurses' competencies in inter-professional collaboration. **Conclusion:** This study concludes that SBAR communication education for emergency nurses increases their communication skills and may thus increase the care to patients. **Recommendation:** Conducting this study on large number of population will assist in evaluation of the contribution of SBAR to the survivorship and recovery of patients as the main aim of the work of nurses and doctors.

Keywords: SBAR communication, partnership, coordination, cooperation.

Introduction

Inter-professional team collaboration's competencies are essential to achieve better patient outcomes [1]. The inter-professional competencies include coordination, cooperation, and partnership. These competencies are influenced by the communication strategies among health care providers. Prospective studies revealed that miscommunication accounted for 70 percent of all patients' treatment errors [2, 4]. Health organizations and countries adopted the SBAR communication tool to reduce miscommunication issue among various health care providers [5].

The world health organization, Royal College of Physicians of London, and UK National Health Service recommended the use of SBAR tool in health care [1]. A study conducted on the contribution the tool to alleviate practice errors of health providers. Fortunately, there is a consistent testimony of contribution of SBAR to health outcomes of patients but there are some significant differences in reported level of contribution [6]. Although SBAR communication tool is doing better to rescue most patients' life, there is still a poor utilization of this tool. The most recent statistics indicate that SBAR is being used only in UK, USA, Europe, and Australia and very few Low and Middle Income Countries, [1].

In this current study, the researcher(s) conducted training on the use of SBAR communication tool among registered nurses working in the emergency department at University Teaching Hospital of Kigali, and explored the capacity to engage in inter-professional collaboration among nurses after the training.

Poor quality communication between healthcare providers is a barrier to healthcare safety and

challenges effective healthcare practices with inter-professional team collaboration. Ineffective communication or poor-quality communication impacts patient outcomes and result in increased patient morbidity and mortality. Ineffective communication does not enhance conducive working environment or build team spirit, instead it delayed treatment, increased medication errors, leads to misdiagnosis, and increased patient morbidity and mortality, [7].

Another study found that the leading cause of death was errors and 70% of these errors had a cause related to communication failures [3]. The concept of medical errors spurred the IOM to introduce SBAR, a succinct, efficient structured communication method to reduce errors arising from miscommunication. These reported figures have been increasing to date according to Mohajan [7]. This study found that in 2015, deaths related to medication errors were 5 times higher than in 1999s [7]. Although there are no available data for different geographical region of the world including Rwandan context, deaths related to medication errors are still covertly alarming in countries with low and medium income [8].

Therefore, to reduce the deaths rate due to medication errors, health care practioners adopted this SBAR [9]. This is also a foundational component to formalize communication between healthcare providers, this is also applied in other discipline like in military where the U.S. Navy developed and used SBAR as a communication technique during nuclear submarines in the late 1990s, [5].

A study conducted in South Africa in 2017, SBAR adoption in health sector was found to improve communication among health care providers and reduce deaths due to treatment errors, and this study

revealed a 41 percent decrease in death as reported by nurses participated in the study [6]. The use of SBAR communication has acquired significant testimonies to improve the health care providers' collaboration which led to improved patients' safety[8]. These stress international health organizations to put their attention to the use of this new communication toolkit. They further recommend every health care provider to use it to rescue the lives of many patients as a result of practice errors [8].

METHOD

Design

This was an intervention study design. In this technique, inter-professional team collaboration indicators, the data were collected among nurses in emergency department at CHUK before and after intervention (SBAR training).

Intervention

SBAR is a structured method recommended by the World Health Organization (WHO) to hand-over communication between staff and manages critical information that requires immediate attention and action, [1]. The use of the SBAR technique is based on concrete cases and help to answer to the following questions:

- **S-Situation:** What is going on with the patient?
- **B-Background:** What is the clinical background or context?
- **A-Assessment:** What do I think the problem is?
- **R- Recommendation:** What would I do to correct it?

The fulltime nurses working in accident and emergency department nurses followed the SBAR

communication education adapted to their contexts. This study assessed the contribution of SBAR communication on inter-professional team collaboration.

Setting

This study was conducted at CHUK which is in Kigali, Rwanda. CHUK is a teaching facility for the University of Rwanda. As the primary main referral facility, it serves a population of 12.5 million. CHUK is organized into divisions; one division supports the clinical areas and the second division is non-medical. CHUK's clinical service includes surgery services for all ages, pediatrics, urology, orthopedic surgery, ophthalmology, and dentistry. Also, CHUK has specialized services clinics in Nephrology, Cardiology, Pneumology or Pulmonary, Dermatology, Endoscopy, and Endocrinology.

Population

The study participants were the available nurses working at CHUK. The number of nurses employed at CHUK was 300 nurses. This researcher(s) focused on the nurses employed full time in the emergency department (N=33).

Sampling

Given that the targeted population were too small (33 nurses), the researcher(s) utilized total population sampling approach or complete coverage. The Total Population Sampling (TPS) is a technique where the entire population that meet the criteria is recruited in the research being conducted and is more commonly used where the number of cases being investigated is relatively small [10]. However, only 30 nurses out of 33 nurses were able to participate in both pretest, trained and participate in post test data collection.

Inclusion and Exclusion criteria

Sampling inclusion criteria for participants was employed nurses at the Emergency department of CHUK, aged 21 years or over and working as a registered nurse. They must be able to complete the tool and be available to have tool completion in one to two weeks post SBAR training. The study exclusion criteria are non-nursing persons and nurses less than 21 years in the emergency department.

Reliability of Research Instruments

The validity of a tool has many dimensions; it refers to the extent to which a tool subjectively appears covering the concepts it is supposed to measure, [11]. Validity was guaranteed by presenting the data collection tool to the experts to judge its suitability of the tool. For the purpose of this study, content validity and face validity are considered. Starting with face Validity which refers to the subjectivity appearance of a tool suitable to measure the construct of interest, it was assured by presenting the tool to experts who approved it prior to research implementation. For the content validity, it was assured by making sure that all of the study objectives are covered in the subsection of our data collection tool. The content validity is summarized in the table 2.

To test the validity of the tool, the researcher(s) conducted also a pilot study in the surgical department before starting, questionnaires were given to 5 nurses (17% of the sample size) at the end of the pilot study the researcher(s) requested respondents for any suggestion or any necessary corrections to improve instrument further. No suggestions for collection were given by the participants. The reliability is the extent to which a

data collection tool can produce repeatable and consistency results [11]. For the purpose of this study, the data collection tool utilized was originally in English and the results were found to be reliable.

Data Collection and Tool

After ethical clearance of the study from the University of Rwanda and CHUK Ethical committees, the researcher approached nurse's managers and explained the research's aims and data collection process. With her approval, the researcher(s) met the staff to request consent for participation and distribute questionnaires to the participant nurses on duty. The data were collected in two phases on the same participants using similar questionnaire. The researcher(s) adopted the Assessment of Inter-Professional Team Collaboration scale II (AITCs II) Tool. It was designed and validated as a useful tool to evaluate IPTC and it was used to collect baseline data. After the end of this task data were entered and analyzed in SPSS version 25.

The following step well followed: Step 1: Conducting a pretest on the use of SBAR. Step 2: Training the same nurses how to use SBAR tool while informing their peer practitioners about patients' information. The training took 2 weeks, 2 sessions per week. 1 Session lasted 1 hour. By working together with the hospital, all nurses (30) participated in baseline data collection completed all sessions. The researcher(s) trained nurses. The assessment of understanding was done using teach back technique which is an agreed effective method to assess comprehension [12]. The same data on nurses' perspectives of inter-professional team collaboration were collected on the same nurses after one week following the end of the training. Therefore, data from those 2 phases were

merged together to proceed to data management and analysis.

Data Management

The consent forms and data collection tools have been kept in a private room with a locked cupboard to ensure data security and privacy of information. After entering data in a computer, it has been locked with a personal password; the data backup was done on flash-drive to ensure security of information. The stored data will be archived for five years and then hard copies of the research will be destroyed.

Data Analysis

Data was analyzed using the Statistical Package for the Social Sciences (SPSS25) and STATA15. Raw data from continuous variables were grouped into categories. Descriptive analyses were also performed to understand the demographic characteristics of respondents (gender, age, working experience and education level) and the assessing the existing relationship between inter-professional team collaboration and demographic factors.

In addition to descriptive analyses, paired t-test was used to test whether there an overall significant improvement in inter-professional team collaboration.

Further, the same test of improvement was performance individually on inter-professional team collaboration indicators (partnership, coordination and cooperation). Sub-indicators were considered to estimate the level of partnership among nurses whereas other sub-indicators were considered to estimate the level of coordination among nurses. The same as partnership, also sub-indicators were considered to estimate the level of cooperation among nurses.

Limitations of the Study

The study had budget constraint; hence it was applied to a small population which will not allow data generalization. The health care professionals were not included therefore, the decoding and feedback and perception on SBAR utilization by those professional were not spotted. Moreover, it was difficult to get probabilities in favor of inter-professional team collaboration given that nurses have been trained on SBAR or not. In addition to small population, this study did not evaluate the contribution of SBAR to the survivorship and recovery of patients as the main aim of the work of nurses and doctors.

Results

This section summarizes the findings. Both descriptive and inferential statistics were performed across different indicators of inter-professional team collaboration.

Demographic Characteristics of the Participants

In order to analyze the effect of SBAR communication training on IPTC, study participants' demographics such as sex, age, education level, and position held were collected. The study found that the majority of participants were female, 60% (N=18) were and 40% (N=12) were male. A high number of participants (63.3 %) were aged between 30 and 35 years and 66.7% (20) had an advanced diploma (A1), and 33.3 % (10) had a bachelor's or master's degree. Lastly, 63.3 % (19) had working experience between 6 and 10 years. Table 1 displays the details:

Table 1: Demographic characteristics of participants

| Variables | Levels | Gender | | Total |
|--------------------|------------------|-----------|-----------|-----------|
| | | Female | Male | |
| Age(Years) | 30-35 | 11 | 8 | 19 |
| | 36-40 | 2 | 3 | 5 |
| | >40 | 5 | 1 | 6 |
| | Sub-total | 18 | 12 | 30 |
| Education Level | Bachelor's | 5 | 5 | 10 |
| | Diploma | 13 | 7 | 20 |
| | Sub-total | 18 | 12 | 30 |
| Experience (Years) | 1-5 | 5 | 3 | 8 |
| | 6-10 | 10 | 9 | 19 |
| | >10 | 3 | 0 | 3 |
| | Sub-total | 18 | 12 | 30 |

Overall Evaluation of Effect of SBAR

Communication Training

The difference in overall mean score before and after SBAR communication training was evaluated using paired t-test. The p-value of **0.0002** which is greater

than any value of significant level indicates that the intervention (training) had significant impact on the improvement of communication at the accident and emergency department. Table 2 displays the details:

Table 2: Overall test of difference in average score between before and after SBAR training

| Variable | N | Mean | Std. Err. | Std. Dev. | [95% Conf. Interval] |
|------------------|----|----------|-----------|-----------|----------------------|
| Overall-posttest | 30 | 91.36667 | 0.871626 | 4.774092 | [89.58399, 93.14934] |
| Overall-pretest | 30 | 81.53333 | 2.466667 | 13.51049 | [76.48843, 86.57823] |
| Difference | 30 | 9.833333 | 2.395438 | 13.12035 | [4.934113, 14.73255] |

mean (difference) = mean (cooperation-posttest- cooperation-pretest) t = -1.7428

Ho: mean (difference) = 0 degrees of freedom = 29

Ha: mean (difference) < 0 **Ha:** mean (difference) != 0 **Ha:** mean (difference) > 0

Pr(T < t) = **0.0460**

Pr(T > t) = 0.0920

Pr(T > t) = 0.9540

**Evaluation of Contribution of Performance
Across Dimensions**

Partnership

The difference in the average score was tested based on scores for partnership sub-indicators only. The

Table3 summarize the results of analysis. Based on p-value of 0.0000 in the same table, we can conclude that partnership were increased after SBAR communication training intervention.

Table 3:Test of difference in average scores for partnership indicator

| Variable | N | Mean | Std. Err. | Std. Dev. | [95% Conf.Interval] |
|----------------------|----|----------|-----------|-----------|----------------------|
| Partnership-posttest | 30 | 34.96667 | 0.4635776 | 2.539119 | [34.01854, 35.91479] |
| Partnership-pretest | 30 | 28.76667 | 0.7266414 | 3.979979 | [27.28052, 30.25282] |
| Difference | 30 | 6.2 | 0.90134 | 4.936842 | [4.356553, 8.043447] |

Mean (difference) = mean (Partnership-posttest - Partnership-pretest) $t = 6.8786$
Ho: mean (difference) = 0 degrees of freedom = 29
Ha: mean (difference) < 0 **Ha:** mean (diff) != 0 **Ha:** mean (difference) > 0
 Pr(T < t) = 1.0000 Pr(T > t) = **0.0000** Pr(T > t) = **0.0000**

Coordination

The same as partnership, Table 4 indicates also that the coordination was significantly improved after SBAR communication training.

Table 4:Test of difference in average scores for coordination indicator

| Variable | N | Mean | Std. Err. | Std. Dev. | [95% Conf. Interval] |
|-----------------------|----|----------|-----------|-----------|----------------------|
| Coordination-posttest | 30 | 35.3 | .2801888 | 1.534657 | [34.72695, 35.87305] |
| Coordination-pretest | 30 | 30.13333 | 1.085678 | 5.946505 | [27.91287, 32.35379] |
| Difference | 30 | 5.166667 | 1.077549 | 5.901977 | [2.962832, 7.370501] |

Mean (difference) = mean (coordination-posttest – coordination-pretest) $t = 4.7948$
Ho: mean (difference) = 0 degrees of freedom = 29
Ha: mean (difference) < 0 **Ha:** mean (difference) != 0 **Ha:** mean (difference) > 0
 Pr(T < t) = 1.0000 Pr(T > t) = **0.0000** Pr(T > t) = **0.0000**

Cooperation

Unlike partnership and coordination indicators, Table 5 indicates that at either 5% or 1% level of

significance, we can conclude that there is no difference in average score before and after SBAR communication training for cooperation indicator (p=0.0920).

Table 5: Test of difference in average scores for cooperation indicator

| Variable | N | Mean | Std. Err. | Std. Dev. | [95% Conf. Interval] |
|----------------------|----|-----------|-----------|-----------|-----------------------|
| cooperation-posttest | 30 | 21.1 | .5238013 | 2.868978 | [20.02871, 22.17129] |
| cooperation-pretest | 30 | 22.63333 | 1.033333 | 5.6598 | [20.51993, 24.74674] |
| Difference | 30 | -1.533333 | .8798293 | 4.819024 | [-3.332786, .2661197] |

mean (difference) = mean (cooperation-posttest - cooperation-pretest) $t = -1.7428$

H₀: mean (difference) = 0 degrees of freedom = 29

H_a: mean (difference) < 0 **H_a:** mean (difference) != 0 **H_a:** mean (difference) > 0

Pr(T < t) = **0.0460** Pr(T > t) = 0.0920 Pr(T > t) = 0.9540

Assessing the Association between Communication and Social Demographic Characteristics

The section evaluated the existing association between communication status (The level of communication after SBAR communication training grouped as improved if the overall score increase or not improved if the overall score reduced or remain the same). We evaluated this for overall scores and

for each and every inter-professional team collaboration's indicator (coordination, Partnership and cooperation). However, Table 6 indicates that at alpha =5% or 1% there is no significant relationship between inter-professional team collaboration and demographic characteristics. This could be explained by the fact that the numbers of participants fall within each are very few which hard for test statistic to discover patterns.

Table 6: Univariate analysis of communication status and demographic characteristics of participants

| Variable | Levels | Communication Status | | Total | Chi-square(P-value) |
|--------------------|------------|----------------------|--------------|-------|---------------------|
| | | Improved | Not improved | | |
| Gender | Female | 16 | 2 | 18 | 3.7578(0.053) |
| | Male | 7 | 5 | 12 | |
| | Sub-total | 23 | 7 | 30 | |
| Age (Years) | 30-35 | 14 | 5 | 19 | 2.6970(0.260) |
| | 36-40 | 3 | 2 | 5 | |
| | >40 | 6 | 0 | 6 | |
| | Sub-total | 23 | 7 | 30 | |
| Education | Bachelor's | 6 | 4 | 10 | 2.3292 (0.127) |
| | Diploma | 17 | 3 | 20 | |
| | Sub-total | 23 | 7 | 30 | |
| Experience (Years) | 1-5 | 6 | 2 | 8 | 1.0199 (0.601) |
| | 6-10 | 14 | 5 | 19 | |
| | >10 | 3 | 0 | 3 | |

| | | | | | |
|--|-----------|----|---|----|--|
| | Sub-total | 23 | 7 | 30 | |
|--|-----------|----|---|----|--|

Discussion

This section discusses the findings from the study and make comparisons with what was found in similar studies like presentations of results and also discussion was done according to the objectives of the study.

Findings from the Study and their Similar Study

This study sought to assess the effect of SBAR communication on IPTC among nurses at CHUK. Three research questions were considered to achieve the overall research objective. The main research question was: “*At what extend SBAR communication training can improve Nurses’ inter-professional collaboration competences at CHUK?*”. On the basis of the study results SBAR training found to have significant effect on IPTC (Pr (T > t) = **0.0003**). This confirms the plausibility of Verspuy and Ong models of inter-professional team collaboration, [13,14]. This result is an indication that the use of SBAR tool while passing patients’ information can improve inter-professional team collaboration and lessen treatment failure in hospitals.

Several studies have similarly concluded that implementing the communication tool SBAR among pharmacy students, [15], Anesthetists, [16], neonatal nurses and doctors,[1], Nurses and Physicians, [17] physicians and nurses working in perinatal services department surgical hospitals wards, [18] have not only improved communication between professionals but also improved the safety climate and reduced incidents caused by communication errors.

Meester studied the effect of SBAR on the incidence of serious adverse events (SAE's) in hospital wards.

They trained 425 nurses from 16 hospitals and the SBAR elements were checked before and after the training in two different years. After the training, they found an increased perception of effective communication and collaboration among nurses (from 58 (range 31–97) to 64 (range 25–97); $p < 0.001$), an increase in unplanned intensive care unit (from 13.1/1000 to 14.8/1000) admissions and a decrease in unexpected deaths (from 0.99/1000 to 0.34/1000) admissions. For his point of increase in communication, his finding does agrees with this study findings except for the cooperation competency. The disagreement found could be linked to the low sample size for this study.

Narayan has added also that SBAR do not only improve inter-professional team collaboration but also reduces rehospitalization of patients while increasing their safety, [19]. However, some research findings revealed that the effect of SBAR on inter-professional team collaboration is little or unclear. One of them is Müller and his colleagues who in short period confirm the existing effect of SBAR on both inter-professional team collaboration and reduction in patients’ transfers as well as patients’ hospitalization but their study revealed that in long period the effect vanishes, [20]. This agrees also to this study for short term period. However, further researches are needed to investigate long term period relationship between the two.

The study also examines different competencies of inter-professional team collaboration given that SBAR training has been implemented or not. In this, the second, third and fourth research question were used to guide the process. The second research question concerned with coordination competency

and it is entitled as: “*At what extend SBAR communication training can improve Nurses’ coordination competences at CHUK?*”. The results for this specific objective indicates that the use SBAR communication tool has significant effect on the improvement of the coordination among health care providers ($Pr (T > t) = 0.0000$). In other words, the tool easier the coordination between nurses by passing patients’ information effectively. This confirms the plausibility of previous researchers’ findings on role of SBAR communication on coordination among nurses and physicians, [14,21].

The second IPTC competency considered is cooperation as guided by the third research question: “*At what extend SBAR communication training can improve Nurses’ cooperation competences at CHUK?*”. This question sought to see whether SBAR communication can help health care providers to listen to everyone and value the viewpoints of all team members and to contribute everyone own views. Unlike coordination competency, the results shows that the use of SBAR communication doesn’t have any significant contribution to the overall cooperation level among health prationers ($Pr (T < t) = 0.0460$).

This result converse the literature. Testimonies from different studies and research findings revealed that use of SBAR communication significantly improve the cooperation. This might be caused by the study’s small population which makes it difficult to learn possible pattern among data. However, the significance was confirmed for the third IPTC competency: partnership ($Pr (T > t) = 0.0000$). This competency underlines the ability to create open and respectful relationships in which all members work

equitably together to achieve shared outcomes. This result were congruent with Flores and Rowe, [3,4].

The author tried to see whether the findings of this study are linked to any social demographic characteristics of questioned nurses but it turns out that there was insufficient evidence to prove any difference in results for any indicator considered (age, education level, working experience, and gender). However, this difference was significantly observed in previous researcher[22-24]. The author regards this as the drawback of including fewer nurses in the study. This makes difficult for any statistical test of equality of scores on SBAR elements to discover every possible pattern across social demographic pattern. This was cost effective to the author and the results are promising for large study sample.

Overall, the use of the SBAR communication tool proved to be a beneficial tool to improve interprofessional collaboration competences among nurses employed full time in the emergency department at CHUK. The tool positively impacted nurses’ competences and actions towards interprofessional collaboration. While there are many strengths of this study, it is not without limitations. Future studies could use large samples and follow up study in order to see if the change observed have been sustained after a given period of time. The results of our study are reported for a single group of Nurses with no control group to serve as a benchmark for comparison. We would also recommend the use of the SBAR tool not only among nurses but also among other healthcare professionals such as Doctors, pharmacists, etc.

In this study, nurses reported that using the SBAR communication tool enhanced their ability to

collaborate and agree on patients care when speaking to their colleagues. This has potentially implications for improved patient care and safety. However, our study has not explored the relationship between improved inter-professional collaboration and patients' outcomes. Moving forward, these limitations could be addressed by other studies and the use of the SBAR communication tool will continue to improve inter-professional collaboration among healthcare providers in LMICs.

Conclusion

This section provides conclusion basing on the presented and discussed results as well as providing recommendations for improving identified gap.

This study sought to assess the effect of SBAR communication on inter-professional team collaboration at CHUK. The study used 30 nurses operate at CHUK in emergency to evaluate their professional team collaboration competencies. The data were collected in two phases: one before the SBAR training another after the SBAR training.

As expected, the results of analyses revealed that SBAR communication can help to improve the IPTC among health nurses and physicians. In the same way SBAR communication was found also to influence the overall level of partnership and coordination among nurses and physicians. However, this positive relationship was not obtained for cooperation competency. Moreover, there is no difference in any inter-professional team collaboration competencies among different demographic characteristics.

Therefore, based on these findings the author outline recommendations in the following section. Following

the outcomes of this study, the author recommends the following:

Practice: The ministry of health to initiate the use SBAR communication in all hospitals start from the departments that receive critical patients to lessen the treatment failure resulted from miscommunication.

Education: The ministry of education to incorporate this program into the current program used to train nurses and physicians.

Research: Research organizations as well as individual researchers to extend this research to the large scale practioners to test the generalizability of this findings to the whole Rwandan health practioners or even beyond.

Consent

As per international standards or university standards, Participants' written consent has been collected and preserved by the author(s).

Ethical approval

The study proposal was approved by Institution Review Board of University of Rwanda, College of medicine and health sciences. Authorization to collect the data was also obtained from Kigali University Teaching Hospital Research committee. The participants were briefed on the voluntary nature of their participation in the study and necessary information was provided on study objectives and how to complete the questionnaires before beginning. Furthermore, anonymity and confidentiality was considered as before answering questionnaire each participant was prohibited to mention their names, instead their initials. The participants were informed

that they are free to drop out of the study in case they felt like doing so.

Disclaimer (Artificial intelligence)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

Ethical and conflict of interests

There was no funds received before, during or after the implementation of this study, therefore, the researchers declare no ethical issues or conflict of interests. No affiliation with regards to this current study.

Disclaimer

This paper is an extended version of a Thesis document of the same author.

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