

Expertise and insight for the future

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What educational interventions can be used to promote teamwork in perioperative nursing?

A Literature Review

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The objective of this thesis was to find out what interventional tools could be used to promote teamwork improvement in perioperative nursing and determine the benefits as well as possible detriments of implementing the found tools in operating room based on previous research studies and literature analyzing teamwork in perioperative environment. The aim of the thesis was to make use of the results in perioperative nursing for promoting teamwork.

This thesis was written using descriptive literature review as a research method. Data was collected from Medline and CINAHL databases in accordance with the set inclusion and exclusion criteria for the thesis. Educational tools, nursing, perioperative, teamwork and teamwork improvement were used as search terms. Definitive material utilized in the thesis consisted of twelve (n=12) research articles published during 2004-2019. The data was analyzed using inductive content analysis and described in qualitative manner.

Efficient teamwork has been acknowledged as an indispensable element contributing to patient safety and delivering high-quality care in a fast-paced and high-risk medical-surgical environment. Numerous factors including multidisciplinary collaboration, professional expertise and good non-technical skills consisting of communication, decision-making, leadership skills, situational awareness help to ensure smooth teamwork. Conversely, inadequate teamwork operation room can increase the risk of preventable adverse events, as well as negatively impact team's performance and job satisfaction.

The findings in the thesis underline various interventional tools that can be beneficial in promoting teamwork in perioperative nursing. Briefings, good communication, adequate planning, team training and implementation of surgical checklists such as the WHO's Surgical Safety Checklist (SCC) were determined to improve operation room team functioning as well as improve safe patient care. Both advantages of good teamwork and impact of flawed teamwork have been thoroughly researched in earlier studies. However, the material on the effective tools promoting teamwork as well as the possible negative impacts of implementing them remains limited. Therefore, further investigation would need to be conducted on the matter.

Keywords	Educational Tools, Nurse, Perioperative, Teamwork, Teamwork Improvement
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Tämän opinnäytetyön tarkoituksena oli tutkia interventionaalisia metodeja, joilla voitaisiin edistää tiimityön paranemista perioperatiivisessa sairaanhoidossa. Lisäksi, opinnäytetyössä haluttiin määrittää löydettyjen työkalujen edut ja mahdolliset haitat leikkaussalissa perustuen aiemmin tehtyihin tutkimuksiin ja kirjallisuuteen analysoimalla tiimityötä perioperatiivisessa ympäristössä. Opinnäytetyön tarkoitus on, että löydettyjä tuloksia hyödynnetään perioperatiivisessa sairaanhoidossa tiimityön edistämiseksi.

Tutkimusmenetelmäksi opinnäytetyöhön valittiin kuvaileva kirjallisuuskatsaus. Tiedot kerättiin Medline ja CINAHL tietokannoista opinnäytetyötä varten määriteltyjen sisäänotto ja poissulkukriteerien mukaan. Käytettyjä termejä etsinnässä olivat opetuksellinen työkalu, sairaanhoito, perioperatiivinen, tiimityö ja tiimityön parantaminen. Opinnäytetyössä käytetty materiaali muodostui kahdestatoista (n=12) tutkimusartikkelista, jotka on julkaistu vuosina 2004-2019. Tiedot analysoitiin käyttämällä induktiivista sisältöanalyysia ja kuvailtiin laadullisella tavalla.

Tehokas tiimityö tunnustetaan korvaamattomaksi elementiksi, joka vaikuttaa sekä potilasturvallisuuteen että korkealaatuisen hoidon antamiseen nopeatempoisessa ja korkean riskin perioperatiivisessa ympäristössä. Monia tekijöitä mukaan lukien moniammatillinen yhteistyö, ammattillinen asiantuntemus ja hyvät ei-kliiniset taidot kuten kommunikaatio-, päätöksenteko- ja johtamistaidot sekä tilannetaju auttavat varmistamaan tiimityön saumattoman toteutumisen. Päinvastoin, riittämätön tiimityö leikkaussalissa voi lisätä estettävissä olevien haittatapahtumien riskiä sekä vaikuttaa negatiivisesti tiimin suoriutumiseen ja työtyytyväisyyteen.

Opinnäytetyössä löydetyt tulokset tuovat esille erilaisia interventionaalisia työkaluja(metodi), jotka voivat olla hyödyllisiä tiimityön edistämisessä perioperatiivisessa sairaanhoidossa. Raportointi, laadukas kommunikaatio, riittävä suunnittelu, tiimiharjoittelu ja leikkaustiimin tarkastuslistan, kuten WHO:n Surgical Safety Checklist, käyttöönoton huomattiin parantavan leikkaussalin tiimin toimintaa sekä parantavan turvallista potilashoitoa. Sekä hyvän tiimityön hyötyjä että puutteellisen tiimityön vaikutuksia on tutkittu paljon aikaisemmissa tutkimuksissa. Kuitenkin materiaali tehokkaista työkaluista tiimityön edistämiseen sekä niiden soveltamisen mahdollisista negatiivisista vaikutuksista on rajattua. Sen vuoksi lisätutkimukset olisi tarpeellista toteuttaa aiheeseen liittyen.

Avainsanat	Opetukselliset	menetelmät,	sairaanhoitaja,	perioperatiivinen,
	tiimityö, tiimityö	on edistäminer	ו	



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1 Introduction

Within the perioperative environment, a team consisting of health care specialists from multidisciplinary backgrounds works together on a regular basis to provide quality care for patients undergoing a surgical procedure. Previous research has shown that as a result of the fast-paced and high-risk nature of perioperative environment, efficient communication, teamwork and situational awareness are essential for delivering high quality and safe care (Wauben et al, 2011: 159). Failure to strenuously practice those behaviors, however, has been linked to potential risk for medical errors in surgical environments, which can ultimately result in serious harm or even a death of the patient. (Kertesz, Walker & Maliwat-Bandigan, 2019: 21).

Teamwork has been widely recognized as a crucial component for ensuring patient safety and deliverance of quality care in medical-surgical settings. (Bogdanovic et al, 2015). The notion of teamwork and health care professionals from different backgrounds working and learning together as a high-functioning multidisciplinary team is not a new concept in health care and has, in fact, been studied for years. Despite both benefits of efficient and adverse effects of inadequate teamwork for both health care professionals and patients having been generally well explored, research on the significance of teamwork and the educational means to refine teamwork within the perioperative environment is limited. (Rahn, 2016: 262). Additionally, previous studies on improving teamwork via traditional educational methods such as lectures have only produced moderate results (Peckler et al, 2012: 27).

It has been well established that adept teamwork and adept communication skills not only increase both patient and health care personnel satisfaction, but also help to minimize the risk of preventable adverse events linked to perioperative care (Sonoda, Onozuka & Hagihara, 2018: 67). For instance, past studies suggest that effective teamwork leads to improved patient safety, reduced mortality and serious complications, decreased length of hospital stays, as well as lowered costs to health care. For staff, on the other hand, it means higher job satisfaction and staff retention. On the contrary, flawed teamwork has been found to escalate conflicts, negatively affect performance and decrease employee satisfaction. (Polis, et al, 2017: 20). Additionally, a substantial amount of current traditional lecture or presentation-based effort put towards improving perioperative team collaboration has resulted in average outcomes. Consequently, there is a need for improved traditional educational tools as well as modern, active methods such as role play, which when used together could yield improved results. (Peckler et al, 2012: 27). The purpose of this thesis was to find educational interventions that could be used to promote teamwork in perioperative nursing.

2 Main concepts

2.1 Educational intervention

Educational intervention is an umbrella term for the various tools and strategic methods used to teach a new skill, develop fluency in a skill or ability to apply existing knowledge to new situations or settings. In perioperative nursing, successfully implemented educational interventions for promoting teamwork can improve team efficiency and patient safety (Robson, 2017: 27).

2.2 Perioperative nursing

Perioperative setting is a quick-paced, production driven and high-risk environment, which involves stages from planning of the surgery to the period that immediately follows the surgery. Perioperative period is therefore a word used to outline three specific phases of a surgical operation – the preoperative phase, the intraoperative phase and the post-operative phase. In perioperative nursing, registered nurses work closely with the patients undergoing or having undergone a surgical procedure, and that practice heavily relies on the cooperative work with other health care professionals. The multidisciplinary team working in a perioperative environment, in which nurses have an integral role, consists of various health care professionals, including surgeons, anesthesiologist, nurse anesthetists and operating room nurses. (Wauben et al., 2011: 159).

2.3 Teamwork

Teamwork is defined as a set of competencies essential for working in a team setting in any position, to guarantee that shared tasks have been efficiently completed and to ensure work satisfaction of members of the perioperative team. In order to guarantee safe patient care, effective collaboration, and lay down shared goals for improvements in team performance, perioperative teams need to be unified and have similar understandings of the concepts of teamwork and communication (Wauben et al, 2011: 160).

3 Purpose, aim and study question

The purpose for this thesis was to find out what are interventional tools that could be used to promote teamwork in perioperative nursing. The aim is to use this knowledge when developing teamwork in perioperative nursing. The study question is to describe what is known about educational interventions to promote teamwork in perioperative nursing.

4 Data collection method, data collection and data analysis

4.1 Descriptive literature review

A literature review is a method to present the reader with the latest research and studies carried out on a certain topic, in order to possibly inspire to carry forward other studies on the topic. A literature review is planned following various stages. The first stage includes the research of the specific topic of interest. There are many difficulties at the beginning, for example where to start, how many articles to include and what to include in the final work. (Timmins and McCabe cited in Cronin et al). The following stage consists of selecting the literature useful for the work. Nowadays most of the literature can be found also using electronic databases (Younger cited in Cronin et al, 2012 :40). Once the literature material has been selected it is important to read what has been preferred for the work, for example using the abstract that most articles present in the start, to understand what they talk about. In this case we talk about analysis. After this initial approach to the articles, it is necessary to read them again thoroughly and with a critical review. It is necessary also to summarize in general the results have been found and doing this it will be easier to focus on the content and to retrieve parts of most interest and utility. Once the analysis and review is done, the material found needs to be written in the work. The sentences must contain information from various sources, must be written correctly and contain only few personal tendencies. (Cronin et al, 2012 :38). The thesis will be written as a descriptive literature review.

4.2 Data Collection

The search words used in data search included "teamwork", "teamwork improvement", "nurse", "educational tools" and "perioperative nursing". The detailed description of the data collection process in terms of the search terms for each database is shown below in Table 1.

Database	CINAHL	Medline	JBI
Search terms	 Teamwork Educational tools 	 Teamwork Educational tools 	 Teamwork Educational tools Nurse
	 Nurse Teamwork improvement Perioperative nursing 	 Nurse Teamwork improvement Perioperative nursing 	 Teamwork improvement Perioperative nursing
Time con- striction	• 2010 – 2019	• 2010 – 2019	• 2010 – 2019
Other limits	 Academic journals Full-text available English lan- guage Nursing jour- nals 	 Academic journals Full-text available English lan- guage Nursing jour- nals 	 Academic journals Full-text available English language Nursing journals
Number of search hits	89	621	10
Total articles chosen for re- view	10	25	4

Table 1. Database search terms and results

The total number of articles chosen for review from the database search as presented in Table 1 were further subjected to inclusion and exclusion criteria (Table 2).

Inclusion criteria	Exclusion criteria
Studies answering the study question	Studies not answering the study question
Written in English language	Written in any other languages than English
Research article	Other than research article
Content of an article is relevant	Content is not relevant

Table 2: Inclusion and exclusion criteria.

The inclusion and exclusion criteria ensured that relevant articles were considered for further analysis. The summary of the data collection process is presented using a flow chart as shown in Figure 1.



Figure 1. The summary of data collection process.

After the inclusion and exclusion criteria, a total of 1753 articles were found. These articles were systematically examined for relevance to the topic of the thesis. Irrelevant and

duplicated articles were removed. A total number of 17 articles were found relevant; 12 complete articles and 5 abstracts were found in total. These abstracts were excluded. Thus, a total of twelve (n = 12) articles are eligible to be included in this thesis (Figure 1). These articles (n = 12) were used for further analysis.

4.3 Data Analysis

The process of data analysis included the detailed examination of the systematically retrieved articles that were found to be relevant for further analysis. This is aimed at providing answers to the research question posed in the study under consideration. These articles were read, and a more systematic and critical revision of the content was carried out (Cronin et al, 2008: 38). The articles were searched for tools that could be used to improve teamwork, especially in perioperative nursing.

A total of 15 interventional tools were recognized from the 12 eligible articles. These interventional tools were further grouped into 6 categories as shown in Table 3.

Categories	Interventional tools	No of articles
Category I	Briefing protocols	4
Category II	Team training	3
Category III	Communication	1
Category IV	Checklists	3
Category V	Adequate planning	1
Category VI	Assigning roles to team members	

Table 3. Categorization of the interventional tools found in the retrieved articles.

All interventional tools that could be termed educational tools such as training, simulations, use of postal, and others were categorized as team training. Similarly, tools where the nurses record what has been done for other colleagues to be aware of what had been given to the patient were categorized as checklists. Discussion sessions (formal or informal) about the surgery were categorized as briefing protocols. These categories and the number of relevant articles that mentioned them were briefing protocols (4 articles), team training (3 articles), communication (1 article), checklist (3 articles), planning and roles of team members (1 article).

5 Results

5.1 Briefing protocols

Briefing of team members in the perioperative settings ensured that they are properly informed about the surgery to be performed and the possibilities of any potential difficulties. With well-planned briefing sessions, the team members were mentally prepared, planned adequately, and contributed to the decision-making process that were aimed at ensuring successful operations (Weller & Boyd, 2014: 79 - 81). In a study that analyzed aggregated measures to improve surgical quality, it was found that it reduces errors, mortality rates, and improves the overall quality of health (Weller & Boyd, 2014: 79). Similarly, the importance of briefing was reported in a study that examined its impacts in perioperative settings and suggested that the preparedness and response of the team towards safety significantly improved. The team's awareness of the nature and site of the surgery through briefing sessions was also found to mitigate the possible occurrence of wrong-site surgery on the patients. (Defontes & Surbida 2004: 21 - 23). Furthermore, effective and timely communication amongst perioperative team members were reported to improve in a study that evaluated the significance of briefing on team performance (Lingard et al., 2008: 2). The incidence of abrupt break or discontinuation of surgical procedures were reported to reduce greatly in perioperative settings where briefing was part of the routine activities of the team (Henrickson et al 2009: 1115: 6).

5.2 Team training to improve teamwork

Multiprofessional team training was found to improve the patient outcomes due to the positive change in the attitude, commitments, and motivation of the perioperative team members (Weller & Boyd, 2014: 79 - 80). This positive change in attitude was found to minimize the ineffective communication and improve disposition of the team members towards perioperative and nursing safety (Weller & Boyd, 2014: 80). Moreover, the importance of team training was corroborated in a study that emphasized that the communication gap in the perioperative ward was bridged using team training (Awad et al. 2005: 771). Additionally, with improved and well-structured team training, occurrences of perioperative procedural omissions were minimized and adherence to other interventional tools were reported to be enhanced (Awad et al. 2005: 771). Also, it was suggested in a study that team training ensures that members of the team are well-trained on what to

do, thereby reducing delays in the scheduled surgery and increasing the overall operations performed daily (Weller & Boyd, 2014: 80). Based on the importance of team training in enhancing teamwork in perioperative wards, the Team Strategies and Tools to Enhance Performance and Patient Safety (Team STEPPS) was a recommended model in team training (Tibbs & Moss 2014: 477; Weaver et al. 2010: 135). Similarly, simulation and other traditional methods (role play, video modelling) were also suggested as team training methods to enhance teamwork in perioperative settings (Weller & Boyd 2014: 80).

5.3 Importance of communication in teamwork

Numerous preceding studies with the focus on defining and measuring the relationship between the quality of teamwork and the standard of care have determined communication to be one of the most indispensable factors related to the high level of teamwork required in the operation room. Furthermore, the poor communication was found to be one of the main origins of adverse incidents in the operation theatres, highlighting the need for improved quality of communication between the operating team members (Kertesz, Walker, & Maliwat-Bandigan, 2019: 22). A study by Carney et al. (2010) discovered that surgical nurses considered the standard of their teamwork with other nurses to be high, as opposed to the quality of working as a team with surgeons who also worked as a part of the perioperative team, yet surgeons considered the standard of teamwork to be of the same level with both nurses and other surgeons. Persistent differences in perception can lead to poor communication, which in turn can result in crucial information being lost (Kertesz, Walker, & Maliwat-Bandigan, 2019: 22).

A research project conducted suggested that operating room nurses that function as a component of the operating room team ought to take the initiative in analyzing the communication and teamwork in the operating room. The basis for this suggestion is that surgeons, who are heavily concentrated on the technical and physiological elements of the ongoing operation, would be unable to dedicate enough attentiveness to the critical assignment of supervising the quality of communication in the operating theatre. The human element can be a challenge in the operating theatre, but if the communication among the members is strong, a harmonious team with set shared goals can have greater strength and even more essential role in achieving better quality in surgical procedures and care. (Kertesz, Walker, & Maliwat-Bandigan, 2019: 27).

5.4 Distribution of roles in teamwork

The disposal of duties takes place before the surgical operation and it depends on the situation happening during the procedure. Nurses usually hand out roles with one another. During the surgical procedure might happen some changes and there are not always necessarily pre-decided roles. It is important that there is a simple switch in sudden events. Nonetheless, nurses do not necessarily have to perform their assigned role and can be flexible on this. As a case in point being if the circulating nurse is busy, the scrub nurse can also be assisted by an anesthetist (Bogdanovic et al. 2015: 3 -12).

5.5 Planning in teamwork

In general, surgical procedures are planned in advance, and it is good if the preoperative checklist is included. (Bogdanovic et al, 2015: 3-12). The participants in the study conducted by Bogdanovic et al. (2015), underlined how a decision-making plan positively influenced the success of the surgical procedure. During the planning of the operation, as the roles are decided in advance, also the priorities are object of teamwork planning. Those decisions are usually to be made in case of complications, for example the conditions of the patient worsening. The surgeon, who leads the operation, may pause the procedure and consult the team or a more experienced clinician.

Before a surgical operation is a good thing the decisions to be made in case of complications are also planned. This is named decision-making tree. For this method, some complications that can happen are listed and simulated. (Bogdanovic et al. 2015: 3 -12).

5.6 Use of safety checklists for teamwork improvement

Surgical safety checklists are tools created with the intention of improving the quality of communication and teamwork between the surgical team members via making certain that the necessary safety protocols are carried out in the pre-, intra- and postoperative stages (Carney et al., 2010: 723). Preceding the introduction of surgical safety checklists to the surgical field in the last decade, safety checklists have been utilized in various other high-risk fields, most notably in the aviation industry, in which a compounded network of intercommunication is needed in order to avert accidents stemming from human errors. The evidence found in earlier research indicated that the use of aforementioned

checklists in an operating room can also have a pivotal role in enhancing the teamwork and communication quality, effectively reducing the adverse events and errors that can be linked to poor quality teamwork skills (Russ et al., 2013: 856; Carney et al., 2010: 723).

The application of surgical safety checklists enabled team members have a coherent idea of how the roles and tasks are divided, provides an open floor for communication prior to the beginning of the surgery as well as enhances teamwork coordination, consequently leading to an improvement of communication between health professionals (Russ et al., 2013: 856-869). One of the most widely recognized surgical checklist examples is Safe Surgery Checklist (SCC) developed and introduced by the World Health Organization (WHO) in 2008 in order to encourage communication and collaboration among operating room team members, along with the objective of reducing adverse events and errors in surgical procedures (Willassen, Jacobsen & Tveiten, 2018: 1-2).

6 Discussion

6.1 Discussion of the results

Based on the findings of this bachelor's thesis, it was apparent that the above-mentioned intervention tools have the potential to improve teamwork in perioperative settings. An important factor that may improve teamwork as mentioned in these interventional tools was improved communication amongst team members (Henrickson et al., 2009: 1115:6; Lingard et al., 2008: 2; Paull et al., 2009: 675; Wadhera et al., 2010: 312 - 313). For instance, during the briefing sessions, the head of the perioperative team usually briefs the team members about the daily activities (goals of the surgery). The members can make instant clarifications and contributions on what was presented by the head of the perioperative team. In this way, there is a clear understanding amongst the team members. Therefore, with improved communication and understanding between team members, operations can be performed efficiently, and the lives of patients can be saved (Tibbs & Moss 2014: 483).

Besides improving teamwork in perioperative settings, these tools also reduce harm to patients (Weller & Boyd 2014: 80; Tibbs and Moss 2014: 482 - 483.). This is because these tools improve the awareness of members to the safety and site of patients' surgery

through training (Defontes & Surbida 2004: 21 - 23). For checklists, the team members self-report what they have done. Other team members can check what has been done. This minimizes possible procedural omissions that can have negative impacts on the patients' health and outcome of the operations. Thus, it offers a unique way of transparency in the activities of the team members. (Weller & Boyd 2014: 80) Similarly, in the case of briefing sessions, there was a relationship between compliance to briefing and possible harm to patients. The higher the compliance to briefing sessions, the lower the possible harm to patients. This relationship was corroborated in the comprehensive and integrated training program that includes briefing, and it was concluded that it could reduce mortality (Neily et al., 2010: 1693).

For improved teamwork in perioperative settings, it is important that team members understand the plan, goals and their respective responsibilities. This is achieved with the use of a training program that includes a briefing session. Likewise, with checklists the team members report the progress of the assigned responsibilities (Tibbs & Moss, 2014: 477 - 481). As the tasks are completed, they are marked on the approved checklist used in the perioperative setting. As such, all members are aware that others have completed their tasks. This approach offers a sense of backup, reduces omissions and errors, and builds mutual trust (Weller & Boyd 2014: 80). Similarly, simulation as an example of team training interventional tool creates a scenario that resembles the actual perioperative theatre where team members can participate in. It allows the team members to practice their communication strategy to improve teamwork in acute situations (Eddy et al., 2018: 5 - 6). Also, integrated training programs that include simulations, role play, and lectures were reported to enhance teamwork and impact immensely on those in the trauma ward (Peckler at al., 2012: 27). Other educational methods may include traditional methods (powerpoint and printed (pamphlets) presentations), modelling and team-building activities.

Of note, interprofessional team (surgeons, anesthesiologists, nurses, technicians) training interventions involve the education given to members of the team to ensure that they improve their respective skills, carry out the assigned duties within the stipulated professional guidelines (ethically and legally), reduce errors, and enhance the patient's life quality. Therefore, leaders in perioperative wards, managers, and team supervisors, is expected to take note of the newly acquired skills by team members. This is necessary to ensure that they are properly inspired on how to apply the newly acquired competence and assign them related tasks accordingly (Eddy et al., 2018: 4-5). These educations are usually in the form of lectures, training sessions, simulations, or demonstration. The duration of the training programs varies widely, from one hour to more than 3 days. The head of the clinical ward leads the exercise and members of multidisciplinary team in the ward are included (Weller & Boyd, 2014: 80). With effective team training, the team's performance is improved and decreases delays in perioperative delays (Wolf et al., 2012: 483).

For any of these tools to be successful, it is important that it targets one or more aspects of essential teamwork (Kertesz et al., 2015: 24-25). Therefore, there is no singular method that is suitable for all perioperative settings. Rather, a multimodal approach (the combination of one or more of these interventions) would seem most likely to be effective. The multimodal approach ensures that the organization, perioperative team, its members and patients benefit from these interventional tools (Babiker et al., 2014: 13).

Despite the reported importance of these educational interventions, it is important to emphasize that there is a high chance that the effects of these interventions start to fadeaway over time (Forse et al., 2011: 776). Also, they are usually not sustained (Nurok et al., 2010: 494). For instance, Halverson et al. reported a decrease in the amount of briefing carried in perioperative settings (Halverson et al., 2009: 110). To this end, it is pertinent to sustain these educational intervention tools to promote teamwork in perioperative settings. This can be achieved through on-going monitoring and evaluation. Additionally, these interventions could also be institutionalized (Neily et al., 2010: 1694).

Several factors affect maintaining functional teamwork in perioperative settings. These include continuous change and overlap in the roles by team members, efficient leadership, and reliable feedback channel (Babiker et al., 2014: 13). A perioperative team may be functioning relatively well. However, an unexpected change in the job by a member of the team or moving to a new role by any of the team members could mark the beginning of reduced performance within the team. This is because it takes some time for the replacing member to adjust to the team's strategy. Also, the feedback received from the current strategy used within the team should be properly analysed and agreed upon by the team. This approach ensures that performance is monitored, possible changes to the strategy are properly analysed before they are adopted by the group (Babiker et al., 2014: 13). Also, the leader in the perioperative team should be energetic, approachable, and ready to encourage and lead the affairs of those in the group (Babiker et al., 2014: 13).

6.2 Ethical considerations

As this bachelor's thesis is a literature review, the data materials obtained were reviewed and selected thus upholding the principle of fair selection. To ensure ethical reliability, The Responsible Conduct of Research Guidelines was used to guide the Bachelor's thesis process.

Furthermore, guidelines given by the Finnish advisory board on research integrity (TENK, 2012) were adhered to during the research process, materials used were properly referenced and necessary acknowledgments were provided. All sorts of research misconduct were avoided, and integrity was maintained (Polit & Beck, 2014: 140-141.). The analysis of the results was explained in detail, and the result from the analysis was done precisely to avoid misinterpretation and falsification of the result.

6.3 Discussion of validity

The research reports used were selected from peer-reviewed scientific journals. Therefore, they are verifiable, reliable and credible. The aim was to gather recent valuable information and research results that can add validity to this literature review. Those articles were gathered from evidence-based databases such as Medline and Cumulative Index to Nursing & Allied Health Literature (CINAHL). The Bachelor's thesis was checked by Turnitin software to check for plagiarism according to the Metropolia University of Applied Sciences standard.

6.4 Utilization of the results

The reason for this Bachelor's thesis was to know what interventional tools could be used to promote teamwork in perioperative nursing. The activities within the perioperative settings are usually a coordinated effort between the various health care professionals in a team. They make use of tools such as effective briefing and communication, training of members, use of safety checklist, even distribution of workload as well as good interpersonal relation to be able to carry-out such tasks (Weaver et al. 2010: 133-134). The results obtained from this Bachelor's thesis would be useful to managers, supervisors, and team leads in any perioperative nursing setting as well as other multi-professional environments that need to enhance how their team members work efficiently.

7 Conclusions and recommendations

The main objective of any perioperative ward or setting is to provide a safe surgical environment, promote patients' safety, and ultimately, improve the overall quality of health of the patient. Several educational interventions have been highlighted in this Bachelor's thesis. Yet, no amount of these interventions would be useful, if the norms of the perioperative settings is such that team members do not do as expected of them. Therefore, all efforts must be in place to ensure that these interventions work as intended. Additionally, a multimodal and multidisciplinary method cold be used needed to support teamwork and, importantly, develop a conducive working environment and culture. This would reduce the surgical errors, possible harm to surgical patients and improve the overall surgical rates.

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Author(s), year, country	Purpose	Study sample	Data collection	Main results
where the research was			method and anal-	
conducted			ysis method	
Awad, Fagan, Be-	Objective was to deter-	Entire surgical	A validated Likert	There was a signifi-
lows, Albo, Rashad, De Ia	mine if communication	staff in the OR,	scale survey with	cant increase in the
Garza, Berger, 2005 -	in the operating room	which includes	questions specific	anaesthesiologist and
Houston, United States.	could be improved	surgeons, an-	to effective commu-	surgeon communica-
	through medical team	aesthesiolo-	nication was ad-	tion composite score
	training (MTT).	gist, and OR	ministered to the	after MTT.
		nurses.	nurses, anesthesi-	
			ologists, and sur-	
			geons 2 months af-	
			ter the MTT to de-	
			termine the impact	
			on communication.	
			Data are presented	
			as mean +/- SEM.	
Bogdanovic, Perry, Gug-	The study aimed to in-	33 clinicians	Qualitative content	The study determined
genheim, Manser, 2015 –	vestigate the coordina-	were included	analysis of semi-	teamwork behaviours
Bonn, Germany; Zurich,	tion behaviours and	in the study,	structured inter-	and adaptive team-
Switzerland	adaptive coordination	and partici-	views with 33 surgi-	work strategies influ-
	strategies utilized by	pants were	cal nurses and phy-	enced by fluctuating
	surgical teams and to	mostly from	sicians from vary-	requirements due to
	determine the signifi-	the Division of	ing specialities and	non-routine events,
	cant situational charac-	Plastic and	hospitals was con-	intraoperative compli-
	teristics affecting those	Reconstruc-	ducted. Qualitative	cations and varying
	strategies.	tive Surgery of	content analysis	levels of experience
		a major Swiss	was done utilizing	among the OR team
		teaching hos-	the MaxQDA Soft-	members. Inter-
		pital.	ware.	viewed participants
				emphasized the im-
				portance of efficient

Appendix 1. Framework for Analysing Research Articles (n =12)

				handling of challeng-
				ing situations and pro-
				moting positive di
				moting positive cir-
			T I O () ()	male in learnwork.
Carney, West, Neily, Mills,	Confirmation of the re-	The project	The Safety Atti-	Results indicate that
Bagian, 2010 - United	ported differences of	study sample	tudes Question-	surgeons evaluate
States	perceptions regarding	consisted of	naire utilizing Likert	the quality of commu-
	teamwork between	690 partici-	scale which	nication and team-
	perioperative nurses	pants (n=690),	measures safety	work with other sur-
	and surgeons as well as	who were di-	culture, as well as	geons high, while
	examining the signifi-	vided into peri-	the communication	perioperative nurses
	cance of these differ-	operative	quality and collabo-	rate the communica-
	ences for improving	nurses	ration between	tion and teamwork
	teamwork in the opera-	(n=378) and	health care profes-	with surgeons low.
	tion room.	surgeons	sionals working to-	Both surgeons and
		(n=312)	gether on a routine	nurses rated team-
			basis was given out	work and communica-
			in 34 medical facili-	tion with nurses high.
			ties. The data was	Results indicated that
			analysed using	the differences in per-
			SAS software and	ceptions should be
			response variables	taken into considera-
			were analysed us-	tion when implement-
			ing t tests.	ing surgical safety
				checklist.
DeFontes, Surbida, 2004 –	Objective was to in-	In Kaiser Per-	The use of human	Employee satisfaction
Anaheim, California	crease patient safety in	manente (KP)	principle factors to	increase, wrong site
	the perioperative set-	Anaheim Med-	develop the periop-	surgeries decreases,
	ting, through improved	ical Centre in	erative Safety Brief-	nursing personnel
	communication, collab-	February 2002	ing for use by surgi-	turnover decreases.
	oration, teamwork and		cal teams with a	
	situational awareness		use of briefing like	
			pre-flight checklist	
			briefing used for six	
			months.	
	1			

Henrikson, Wadhera,	Objective was to de-	Mayo clinic di-	Combination of	Indicates consensus
Elbardissi, Weigmann,	velop, implement and	vision of cardi-	questionnaire and	among surgical staffs
Sundt 3 rd , 2009 -	evaluate a periopera-	ovascular sur-	semi-structured fo-	concerning briefing,
Rochester, Minnesota	tive briefing for cardio-	gery June	cus group ap-	benefit, duration, lo-
	vascular surgery	2009	proach which in-	cation, content and
			volved subspecial-	potential barriers.
			ist of surgical staffs	
			(55)	
Kertesz, Walker, Maliwat-	Objective of this project	The study	Communication	The study findings in-
Bandigan, 2019 – New	was to evaluate the	sample con-	and Teamwork	dicated that commu-
York, United States	communication and	sisted of fifty	Skills Assessment	nication and team-
	teamwork among inter-	(n=50) inter-	Tool (CATS) was	work related team
	disciplinary OR team	disciplinary	used to evaluate	training interventions
	members.	staff members.	the quality of com-	improved both com-
			munication. Team-	munication and team-
			work skills and the	work quality among
			quality of communi-	OR staff and conclu-
			cation was ob-	sively, increased pa-
			served by an inves-	tient safety.
			tigator during sixty	
			(n=60) surgical pro-	
			cedures at an ur-	
			ban teaching hospi-	
			tal in New York	
			City, NY.	
Lingard, Espin, Whyte,	Objective was to de-	University of	94 team members	421 communication
Regehr, Baker, Reznick,	scribe the characteris-	Toronto	participated from	events were noted, of
Bohnen, Orser, Doran,	tics of communication	Teaching Hos-	anaesthesia (16	which 129 were cate-
Grober, 2004 -Toronto,	failures in the operating	pital, Trained	staff, 6 fellows, 3	gorized as communi-
Ontario, Canada	room and classification	observers that	residents), surgery	cation failures. Com-
	of the effects.	recorded 90	(14 staff, 8 fellows,	munication failures in
		hours of ob-	13 residents, 3	the OR exhibited a
			clerks), and nursing	common set of prob-
			(31 staff). Field	lems.
		1		

		servation dur-	notes recording	
		ing 48 surgical	procedurally rele-	
		procedures.	vant communica-	
			tion events were	
			analysed using a	
			framework which	
			considered the con-	
			tent, audience, pur-	
			pose, and occasion	
			of a communication	
			exchange	
Russ, Rout, Sevdalis,	The study aimed to	Twenty (n=20)	315 articles were	The study determined
Moorthy, Darzi, Vincent,	evaluate the effect of	articles were	found and	the safety checklists
2013 – London, United	surgical safety check-	chosen to form	screened from	to be useful for the op-
Kingdom	lists on the quality of	the basis for	MEDLINE, EM-	eration room team-
	teamwork and commu-	the study,	BASE, PsychINFO,	work and communica-
	nication in the operating	which was	Google Scholar,	tion, as well as the pa-
	room and to determine	done as a sys-	and the Cochrane	tient outcomes. How-
	if the use of checklist	tematic re-	Database for rele-	ever, it was also de-
	does improve these	view.	vant information on	termined that subopti-
	skills.		the safety check-	mal use of safety
			lists and ultimately,	checklists may have a
			20 articles were	negative effect on the
			chosen.	operation room team
				performance.
Tibbs, Moss, 2014 – United	Identify if Team	A 300 days de-	The administration	Decreased turnover
States department of De-	STEPPS combined	scriptive prein-	of Team Strategies	times between proce-
fence	with surgical team pro-	tervention pro-	& tools to Enhance	dures.
	tocol can improve staff	ject, clinicians	Performance and	Better perception of
	member perceptions of	(n=300) in-	patient Safety	teamwork by staff
	teamwork and improve	cluding GYN	(TeamsSTEPPS)	members. Critical ele-
	gynaecological surgical	surgeons,	teamwork percep-	ment in patient safety)
	workflows.	CRNAs, RN	tion questionnaires	

		circulators and		-Insertion of more
		scrub person-		specialized personnel
		nel in a large		in gynaecological sur-
		military hospi-		gery by the OR staff
		tal.		scheduler: this has
				improved teamwork,
				communication, opti-
				mization and patient
				safety.
Weaver, Rosen, Diazgra-	Objective was to find	Department of	The use of mixed	All levels of evaluation
nados, Lazzara, Lyons,	out if teamwork im-	Psychology,	evaluation model	demonstrated posi-
Salas, Knych, Mckeever,	proves the performance	Institute for	design with the	tive results. The
Adler, Barker, King, 2010 -	in the Operating room.	Simulation and	Team STEPPS	trained group demon-
Orlando, Florida		Training, Uni-	training versus no	strated significant in-
		versity of Cen-	training done be-	creases in the quan-
		tral Florida,	tween two groups	tity and quality of pre-
			in different campus.	surgical procedure
				briefings and the use
				of quality teamwork
				behaviours during
				cases
Weller, Boyd, 2014 – Auck-	Objective was to do a	Centre for	Search was con-	Studies of interven-
land, New Zealand	systematic review on	Medical and	ducted in MEDLINE	tions to improve team-
	what works in improving	Health Sci-	database using	work already exist
	teamwork in the operat-	ences Educa-	search words like	and they fell into four
	ing room.	tion, School of	team or interprofes-	main categories
		Medicine, Uni-	sional or multidisci-	which were: briefing
		versity of	plinary or interdisci-	protocols (6 studies),
		Auckland, Au-	plinary, and "oper-	checklists (17 stud-
		gust 15, 2013	ating room" or the-	ies), inter-profes-
			atre or "surgical	sional team training
			suite"	(20 studies), and or-
				ganisational change
				(3 studies).

Willassen, Jacobsen	The objective of the	The research	The research was	The study found the
Tveiten, 2018 – Oslo	study was to evaluate	was carried	carried out as a de-	Safe Surgery check-
Norway	the experiences and	out at a large	scriptive study with	list to have mixed ef-
	impressions of OR	university hos-	the qualitative data	fect on teamwork in
	nurses and nursing stu-	pital in Norway	collected in six fo-	the operating room,
	dents regarding imple-	and included	cus group discus-	as well as on the pa-
	mentation of and com-	nineteen	sions, with three	tient safety.
	pliance with the surgical	(n=19) opera-	groups being inter-	
	safety checklists.	tion room	viewed twice for ap-	
		nurses as well	proximately one to	
		as two (n=2)	two hours. Qualita-	
		operation	tive content analy-	
		room nurse	sis was used by the	
		students.	three authors for	
			analyzing the text.	