

# Stakeholder Recommendations for Sports-Focused Undergraduate Nursing Curriculum: A Qualitative Study

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**Background:** Growing demand for nurses in the sports medicine field has raised awareness in preparing prospective nurses with the basic concepts of sports nursing. Recognizing this need, nursing study program need to continue to evolve and the first step begin with the analysis of the major concepts related to various domains involved in the curriculum. Stakeholders are the most important people to get involved in the curriculum development process.

**Objective:** The purpose of this paper is to explore stakeholders' recommendation for establishing a strategy that would best enable the development of sports-focused undergraduate nursing curriculum.

**Methods:** We conducted a focus group discussion using a series of open-ended questions. Nineteen stakeholders participated in this study. Data was analyzed using a thematic analysis.

**Results:** The results of this study found three themes consisting of sports nursing, advanced sports nursing, and sports in the discipline of nursing. On the theme of sports nursing, several sub-themes were obtained, the concept of sports nursing, the basics of sports physiology, adaptation of physiology to sports, psychology and sports injuries, problems in sports, education in sports, pathology in sports, and assistance in sports injuries.

**Conclusion:** Identifying, understanding, and managing Stakeholder involvement in curriculum development is the main driver for creating nursing study programs that focus on sports nursing. Nursing can contribute to sports and create more specific areas of expertise. Sports nursing.

**Keywords:** nurse's role, education, nursing, baccalaureate, focus groups, prospective studies, nursing curriculum

## Introduction

Study programs with a university-based concentration mostly take place within certain disciplines, often operating independently from one another. Although this technique is appropriate for teaching many professional skills, it has limitations in adequately preparing undergraduate students for the practical aspects of working in clinical specialties. Given that 70% of adverse occurrences in healthcare are caused by innovations in nursing education at the undergraduate level,<sup>1</sup> it is crucial to prioritize the development of concentration and professional collaboration abilities. The utilization of sports-focused nursing education has been acknowledged as a pioneering method to address the issue of limited or lacking healthcare professionals working together.<sup>2</sup> Interprofessional education refers to the process in which two or more professions engage in mutual learning to enhance collaboration and the standard of care.<sup>3</sup>

The inception of sports nursing efforts may be traced back to the 2000s, as documented by Liu et al.<sup>4</sup> The impetus behind the push to prioritize sports in the context of health has gained traction following Government inquiries into fatal incidents involving professional sports in the Malang district, resulting in the loss of numerous lives (156 individuals). These incidents

were mishandled by inexperienced personnel who were not qualified health professionals.<sup>5</sup> Consequently, the inclusion of the sports nursing credential has become a prominent aspect of nursing education at the undergraduate level, including training for all health and social care professions in Indonesia. It is recommended by the Indonesian Nursing Council that every health sciences program at universities have a course on exercise. In addition, nursing in Indonesia is already governed by a national curriculum that is mandatory for all nursing education institutions in the country. The national curriculum may encompass the attributes and qualities expected of those who have successfully completed their education at that particular institution.

In Indonesia, there are government policy papers and independent assessments that explicitly recommend the incorporation of sports health into health professions education programs.<sup>6,7</sup> The efficacy of implementing this advice and the availability of data to support sports nursing activities are still uncertain. Additionally, it is important to note that there is currently no established national curriculum for sports nursing. The literature evaluation categorized the different methodologies in nursing, characterizing the levels as “insipid”, “mediocre”, and “exemplary”.<sup>8</sup> This model delineates the additional advantages of each specific activity, but demonstrates that it is feasible to adopt a comprehensive sports nursing strategy that emphasizes collaborative learning within the framework of authentic sports-related clinical issues.<sup>9</sup> Although there is considerable support for the deployment of sports nursing, substantial scientific data to support this trend has been lacking until now. The latest systematic reviews have not yet identified any controlled studies in the field of sports nursing.

An example of sports-oriented healthcare that shows promise in Indonesia and ASEAN is the high incidence of injuries during football matches, making Indonesia the second most affected country globally. As a response, FIFA has plans to construct the only stadium in Indonesia and ASEAN that meets FIFA’s standards. Stakeholders include nursing professional groups, educational institutions, health institutions, and nursing colleges. Stakeholder involvement is a fundamental aspect of a novel and progressive education approach known as competency-based education.<sup>10,11</sup> According to the “sport training” model, it is important for universities to include stakeholders in the creation and improvement of the curriculum. This helps to ensure that stakeholders are accountable and have a shared understanding of expectations and standards for education, assessment, and regulation.<sup>12</sup> However, while several research have examined the viewpoint of stakeholders in nursing,<sup>13,14</sup> only a few studies have studied The stakeholder viewpoint in baccalaureate nursing is centered around sports nursing. This represents a deficiency in the existing body of literature that needs to be investigated. Stakeholder viewpoints can provide valuable insights. From a stakeholder standpoint, ensuring ethical behavior is crucial, as the impact of education quality extends beyond what the evaluators first considered. Within Prior to developing a sports nursing-based undergraduate nursing curriculum, it is crucial to understand the viewpoints of stakeholders. This is essential as it enables the creation of a more accurate and higher quality curriculum that considers the perspectives of various actors involved, including nurses, academics, patients, educators, managers, and students.

Curricular changes consistent with more effective teaching are theoretically one strategy that can be used, because all professional nurses have been students in the nursing curriculum. Today, nursing is experiencing rapid growth in institutional specialty with high-level goals related to knowledge development. In addition, there is ongoing dialogue regarding the inclusion of an appropriate curriculum for the baccalaureate degree, which is considered the foundation of entry-level practice.

Given the lack of evidence for the short or long term establish an exercise-focused undergraduate nursing curriculum, we strive explore stakeholder reflections on the experiences they had during their work. They spend up to two years working in a clinical environment, recent graduates will do well placed to provide insight into value sports nursing opportunities they have, and suggested approaches to increase these opportunities in undergraduate program.

## Method

This study is a component of a broader research endeavor (undergraduate nursing with a specific focus on sports nursing) that employs focus groups as an element of the interpretive research design to provide insights for other facets of the research. Stakeholders from other domains are welcomed to partake in the focus group session. Recruitment of participants was conducted via posters placed at each location, as well as through the coordinator who sent invitations to eligible stakeholders at each site.

Focus group talks are conducted in a semi-structured manner, employing a set of open-ended questions specifically tailored to investigate participants’ preparedness for clinical work and their suggestions for nursing readiness in sports and clinical settings. The debate also examined the participants’ experiences working with health and sports teams as part of their clinical responsibilities. The interview schedule is derived from the objectives of the overarching project.<sup>15</sup> Every focus group is

guided by a proficient facilitator in accordance with the predetermined methodology. Each talk had a duration of around one hour and was recorded and transcribed in audio format. The data were further examined by iterative thematic analysis, wherein a researcher creates an initial collection of themes and engages in an iterative process with two other researchers (CG and SO) to debate and refine the sub-themes. The data is subsequently encoded based on agreed-upon topics and sub-themes. This procedure is founded upon the theme analysis technique introduced by Malterud<sup>16</sup> and demonstrated to be efficacious.<sup>17</sup> Approval was received from the University and the Health Services Human Research Ethics Committee.

The first stage is to create a curriculum based on the national curriculum in Indonesia, then the second stage is to include program excellence in each course and create new courses, the last is to conduct an FGD to review the specifics of sports nursing.

## Participant

Nineteen stakeholder health professionals from east java, Indonesia participated in focus groups. The average age of nursing graduates is 34.6 years old (range 28–61), Indonesian nurse association member 43 (range 38–45) and clinical and community nurse 29.4 (range 21–39). Based on the gender, 9 (47%) of participants were female, 10 (53%) were male. The average respondent has 10 years of experience. These differences broadly reflect demographic differences across university programs. Relatively considering small sample size and qualitative nature of the study, no statistical investigation of demographic differences was done.

## Data Analysis

The transcribed information obtained from the focus groups and interviews was gathered as unstructured text and examined as a unified data set using a single code book. We employ a blend of open and selective coding techniques. Following the initial focus group and the first three interviews, the two developers (STS and VP) created a collection of open codes. We utilized this scratch codebook to autonomously encode all transcripts, employing a peer-debriefing framework to implement iterative modifications and address discrepancies in coding. We categorize our codebook according to themes. Furthermore, with the open coding process, we concurrently implement Ratnapalan and Hilliard's framework.<sup>18</sup> To assess the learning requirements in graduate medical education, a comparative needs assessment is conducted. The data is coded selectively based on identified needs, including deficiencies in current educational programs as expressed by program directors or faculty, expressed needs as stated by residents, and unperceived needs that students are unaware of but are communicated by educators. The coding procedure was conducted using NVivo, a program for qualitative data analysis developed by QSR International Pty Ltd. The specific version used was 10, released in 2014. Subsequently, the code book was converted to word processing software. Ultimately, by employing fundamental constructivist theory, we utilize our data to describe the preferences for content, organization, and timing of educational intervention. We utilize the sports curriculum framework to present a curricular model that can be customized for undergraduate nursing.

## Result

The results of this study found three themes consisting of sports nursing, advanced sports nursing, and sports in the discipline of nursing. On the theme of sports nursing to [Table 1](#), several sub-themes were obtained, the concept of sports nursing, the basics of sports physiology, adaptation of physiology to sports, psychology and sports injuries, problems in sports, education in sports, pathology in sports, and assistance in sports injuries according to [Table 2](#). Meanwhile, on the theme of advanced sports nursing, several sub-themes were obtained, physical examination in general head to toe, special physical examination: musculoskeletal, cardio, dan pulmo, fitness examination, nutrition and fluid needs and calculations, the role of nurses in the training period, the role of nurses in doping management, the role of nurses in post-match /tournament, sports nursing care, the role of nurses in prescribing in sports.

## Theme I: Sports Nursing

This sports nursing theme focuses more on basic learning study materials in understanding sports nursing. Furthermore, sports nursing only covers the basic and general aspects that students must understand regarding sports nursing.

**Table 1** Overview of the Themes and Sub-Themes

| Theme                                 | Subtheme   |
|---------------------------------------|--|
| Sports Nursing                        | The Concept of Sports Nursing<br>Fundamentals of Exercise Physiology<br>Adaptation of Exercise Physiology<br>Sports Psychology<br>Problems in Sports<br>Education in Sports<br>Pathology in Sports<br>First Aid for Injuries in Sports   |
| Advanced Sports Nursing               | General Physical Examination Head to Toe<br>Special Physical Examination: musculoskeletal, cardiopulmo<br>Needs and Calculation of Nutrients and Fluids<br>The Role of The Nurse in the Periodization of the Exercise<br>The Role of Nurses in Doping Management<br>The Role of the post-match/tournament nurse<br>Sports Nursing Care |
| Sports Nursing in Nursing Disciplines | The Role of Nurses in Prescribing in Sports<br>The Integration of Physical Activity in Nursing   |

**Table 2** Interviewees' Socio-Demographic and Professional Characteristics

| Participant Number | Coding | Gender | Age (Years) | Nursing Educational Level | Years of Experience |
|--------------------|--------|--------|-------------|---------------------------|---------------------|
| 1                  | P1     | Male   | 60          | Professor                 | 33                  |
| 2                  | P2     | Male   | 61          | Professor                 | 33                  |
| 3                  | P3     | Female | 45          | PhD                       | 19                  |
| 4                  | P4     | Male   | 38          | PhD                       | 11                  |
| 5                  | P5     | Male   | 30          | Master of Nursing Science | 7                   |
| 6                  | P6     | Female | 40          | Master of Nursing Science | 15                  |
| 7                  | P7     | Male   | 33          | Master of Nursing Science | 10                  |
| 8                  | P8     | Male   | 31          | Master of Nursing Science | 8                   |
| 9                  | P9     | Female | 36          | Master of Nursing Science | 14                  |
| 10                 | P10    | Female | 30          | Master of Nursing Science | 11                  |
| 11                 | P11    | Male   | 42          | Nurse Profession          | 14                  |
| 12                 | P12    | Female | 38          | Nurse Profession          | 17                  |
| 13                 | P13    | Male   | 33          | Nurse Profession          | 10                  |
| 14                 | P14    | Female | 36          | Nurse Profession          | 17                  |
| 15                 | P15    | Female | 40          | Nurse Profession          | 20                  |
| 16                 | P16    | Male   | 42          | Nurse Profession          | 25                  |
| 17                 | P17    | Female | 28          | Nurse Profession          | 7                   |
| 18                 | P18    | Female | 40          | Nurse Profession          | 13                  |
| 19                 | P19    | Male   | 42          | Nurse Profession          | 15                  |

### Subtheme 1: The Concept of Sports Nursing

The stakeholders stated that sports nursing is a new subdiscipline of nursing, so a concept is needed that discusses sports nursing so that there are clear boundaries. This is indicated by the following stakeholders statement:

...as a subdiscipline of the new nursing sciences we must formulate its main concepts so as to minimize the gray areas of this new science. (P1, P2, P3, P4, P16)

...to clarify the boundaries between nursing and other professions, for example physiotherapy, we must structure, shape, and affirm this concept of sports nursing. (P6, P7, P8, P9, P10, P11)

### Subtheme 2: Fundamentals of Exercise Physiology

The stakeholders involved stated that in the development of sports nursing, students should also understand the physiology of sports. This is because stakeholders state that there are differences in physiological conditions in the normal body and when doing sports. This is illustrated in the statement of stakeholders as follows:

In my opinion, one of the basic sciences that must be mastered is the physiology of exercise because it has different conditions in normal individuals or who do not perform strenuous activities such as sports (P18, P19)

Yes, physiology must also be studied, because currently sports science has also developed, and maybe from teachers / lecturers must also take part in training experts in sports faal science (P1, P2, P5, P6, P7, P8, P9, P10, P11, P12, P13)

### Subtheme 3: Adaptation of Exercise Physiology

The physiological adaptation of exercise is the agreement of stakeholders who consider that as a professional nurse must be able to predict the impact of exercise performed by athletes. In addition, stakeholders also argue that the science of physiological adaptation of exercise is studied separately, noting that the physiological basics of exercise have a fairly wide scope. This is so that later there will be no overlap between the two discussions.

...after understanding the basics, I think we must also understand how the body's physiological process of adapting during sports, because in the future as a sports nurse must also be able to predict what will happen to athletes if they do certain training methods. (P12, P13, P14, P15)

...between the basics of exercise physiology and the adaptation of exercise physiology is better separated, because if I were a student, it would probably be difficult to understand (P6, P7, P8, P9, P10, P11, P12, P13, P14)

I also agree with the previous statement, considering that in the lecture process, there will be many courses so it is better for the two things to be separated (P1, P2, P19)

### Subtheme 4: Sports Psychology

Sports psychology is a psychological science that aims to explore and develop a person's behavior, especially sportsmen or professional athletes, while exercising. In addition, for an athlete psychology factors or mental conditions are closely related to the performance of sports, regular exercises, and daily physical activity that athletes do and if athletes want to continue to improve physical abilities also need to pay attention to psychological aspects. Several stakeholders explained that sports psychology is divided into three, namely clinical sports psychology, education, and sports training. In addition, the psychological aspect is one of the aspects that must be present in nursing so that it must also be studied specifically regarding sports psychology.

I totally agree, to elevate nurses as health workers to have a holistic principle that must understand the bio-psycho-socio-spiritual aspects or we call them holistic (P1, P19)

...From earlier we have discussed from the physiological or physical aspect, but we must also not forget the psychological aspect. (P7, P8, P9, P10, P18, P19)

...There are three main points in sports psychology, namely clinical, educational, and exercise (P14, P15, P16, P17)

Clinical sports psychology focuses more on treating mental problems in athletes, such as depression, anxiety, or eating problems. Educational sports psychology prioritizes how to teach and direct athletes to manage mental problems and maximize their potential independently. And the psychology of exercise is more about how we encourage someone to make exercise a part of their habit, including helping someone start a sports habit and maintain it. (P19)

### Subtheme 5: Problems in Sports

At a match, an athlete will sometimes feel nervous, anxious, or unprepared before competing. In addition, at a game sometimes athletes are so excited that they cannot control their emotions. Even during games it is frustrating because of the difficulty of scoring or because of falling behind in numbers. In addition, the problem that will inevitably occur is injuries, either during competitions or even during training. These are problems in sports that can interfere with the performance of athletes. A nurse is expected to be able to know and overcome the problem, thus achieving a holistic principle.

...Sports issues should also be included in the study material as these issues can affect the performance of athletes. (P1, P2, P3, P4, P5)

...maybe this problem has to do with preparation issues such as anxiety, lack of motivation and it can also be during the game such as excess enthusiasm so that emotions (P1, P2, P3)

...Frustration also becomes a problem during sports, such as not scoring after attacking continuously or even when the team is always in goal. (P8, P9, P10, P11, P12, P13, P14, P15, P16, P17, P18, P19)

...and the main problem is injuries, where they can occur during a match or even during training. (P1, P2, P3, P4, P5, P6, P7)

### Subtheme 6: Education in Sports

Along with the Indonesian National Health Insurance (Jaminan Kesehatan Nasional/JKN) program that prioritizes promotion and prevention, education in all aspects of health, including sports, must be intensified. This aims to be able to know how to do good and correct sports, including how the stages of doing sports are carried out. In addition, specifically for the general public, the existence of sports education is to change the mindset that sports are hard to do.

...education in sports should also be the main study, given the concern with JKN that promotive and preventive measures in health aspects (P1, P2, P3, P4, P13, P14, P15, P16, P17, P18, P19)

In my opinion, apart from being in accordance with JKN, the most important thing is how the lay community and athletes know how to do the right business. (P17, P18, P19)

...For example, how long to warm up, how long to move or process the core is, how long to cool down and how to do it. (P1, P2, P3, P4, P5, P6, P7)

### Subtheme 7: Pathology in Sports

Sports pathology stakeholders are dismissed as to how the injury process occurs and the healing process occurs. This is because basically in understanding the mechanism and principle of each injury is different. Moreover, it cannot use one principle to cope with various kinds of injuries.

The study of pathology should also be the main topic, because as with diseases, sports injuries must also be understood the mechanism. (P1, P2, P17, P18, P19)

...In line with my previous opinion, I agree, especially in sports, there are so many injuries that can be experienced that it must be understood one by one. (P13, P14, P15, P16, P17, P18, P19)

Yes, each injury basically has a different management principle and one principle cannot be used for all kinds of injuries (P1, P2, P3, P4, P5, P6)

### Subtheme 8: First Aid for Sport Injuries

Sports will never be separated from injury, so as a sports nurse must be able to understand and provide first aid for the injury. An understanding of the types of injuries and how the main principles of injury prevention are very important to be the subject of learning and practice. This is like the statement said by the participants

...Following up on sports problems in the form of injuries, it should also be given special study materials on the management of sports injuries. (P1, P2, P3, P4, P5, P16, P17, P18, P19)

...for the management of sports injuries must be given in the material as well as practice, especially the principles of first aid so that students are better off. (P1, P2, P13, P14, P15, P16, P17, P18, P19)

## Theme 2: Advanced Sports Nursing

This theme focuses on sports nursing study materials that have a special relationship with athletes, so that students have special abilities that characterize sports nursing. In addition, the existing focus on advanced sports nursing is a sports nursing approach for athletes to achieve achievements.

### Subtheme 1: General Physical Examination Head to Toe

Stakeholders are well aware that physical examination is an important study in advanced sports nursing. This is because every sport must pay attention to the general posture of each part of the body. Furthermore, stakeholders also said that anthropometry is the main basis for physical examination, from which it will be known how the athlete's body proportions can determine the training program for the athlete.

I think physical examination is the main point of nursing which is very important in assessing the condition of athletes (P9, P10, P11, P12, P13, P14, P15, P16, P17, P18, P19)

...It is very clear that the ideal or not of an athlete can be seen from the proportions of his body. So, a physical examination is very important. (P1, P2)

...From a medical point of view, maybe we know anthropometry only measures height and weight, but furthermore this is very useful for athletes, especially in determining what to improve, for example muscle mass or even losing weight. (P1, P2, P3, P4, P5, P6, P7, P8, P9, P10, P11, P12, P13, P14, P15, P16, P17, P18, P19)

...That's right, especially since there are sports that adjust to weight. So, physical examination, especially antropometry, is very important. (P1, P2, P3, P4,)

### Subtheme 2: Special Physical Examination: Musculoskeletal, Cardio and Pulmo

Basically, there is a classification of human organs in the field of sports called ergosistema. Ergosistema is divided into three, where ergosistema 1 is the musculoskeletal system, ergosistema 2 is the cardiovascular and respiratory system, and other organs enter into ergosistema 3. Stakeholders also agreed that as sports nurses, they must have special knowledge and skills in conducting physical examinations that are directly related to the performance of athletes.

...If you look at the science of sports science, the ergosistema of the body is divided into 3, so that this can be the basis for how nurses perform examinations on the ergosistema. (P1, P2, P3, P4, P5, P6, P7, P8, P9, P10, P11, P12, P13, P14, P15, P16, P17, P18, P19)

Following up on the previous opinion, perhaps the main thing is to conduct a special physical examination of these organs (P14, P15, P16, P17, P18, P19)

...maybe just be more specific, for example, special physical examinations musculoskeletal, cardiovascular and pulmu or respiration, especially those related to exercise, for example muscle strength, VO2Maks, and others (P1, P2, P3)

...In addition, it is also necessary to understand the intpretation of the physical examination results, including recommendations for athletes. (P19)

### Subtheme 3: Fitness Examination

Fitness is an indicator of a person's ability to carry out daily activities, including for an athlete. Fitness is one of the determining factors for health and endurance. For a fitness athlete, it is an important indicator to determine the condition of the body and assess the athlete's readiness for a game. Therefore, stakeholders agree that the ability to assess fitness is one of the important points in advanced sports nursing specifically for athletes.

...In general, the condition of the human body, including athletes, must be very volatile so it needs a fitness assessment. (P1, P2, P3, P4, P5, P6, P7, P8, P9, P10, P11, P12, P13, P14, P15, P16, P17, P18, P19)

...From fitness checks we are able to assess whether the athlete is ready to train or compete. (P17, P18, P19)

...so I think the competence of fitness assessment must be understood and mastered by students later (P1, P2, P3, P4, P5, P6, P7, P8, P9, P10, P11)

### Subtheme 4: Needs and Calculation of Nutrients and Fluids

The need for nutrition and fluids in athletes has different provisions, so it becomes one of the important points in advanced sports nursing. It is well known that the training program is not only from physical training but also how to fulfill nutrition, both of which will support the performance and achievement of athletes. In addition, at the stage of preparing for the match, nutritional and fluid needs also need to be considered, for example, what can be consumed in the day before or even a few hours before the game. Therefore, an understanding of the needs and calculations of nutrients and fluids is very important to master.

...In addition to physical problems, the athlete also needs nutrition to achieve optimal performance. (P1, P2, P3, P4, P5, P17, P18, P19)

...yes, I agree, especially for athletes who after the holidays there must be some who have gained weight, so they should be lowered to be ideal. (P1, P2, P3, P18, P19)

Altet must also be prepared before the game, for example, you can only eat foods that are easy to digest and you have to eat a lot of carbohydrates, for example (P1, P2)

...Don't forget that the hydration of an athlete must also be considered during training, especially when competing, not to mention that the weather also has an effect (P18, P19)

### Subtheme 5: The Role of the Nurse in the Periodization of the Exercise

Exercise periodization is the setting of planning and long-term stages of an exercise program where each exercise process has a different purpose. The main basis of exercise periodization is the change in exercise variables including training load, volume and intensity of exercise. In addition, with the development of sports nursing, it is necessary to know the role of the nurse in the periodization of the exercise, for example conducting an examination of vital signs before and after training, conducting a general physical examination when a team returns from the rest phase of the competition, assessing the presence of athletes who are sick or exhausted including in carrying out their treatment.

...All I know is the team's preparation for that competition is long and there are various exercises, for example physical, weights for muscle mass and others (P8, P9, P10, P11, P12, P13, P14, P15, P16, P17, P18, P19)

...so here it is very important to find and determine what the role of nurses is in those preparation periods. (P1, P2, P3, P4, P5, P6, P7, P8, P9, P10)

...Perhaps the easy thing is to check the athlete's vital signs before and after training and to do it regularly every day, including reviewing whether any athletes are sick and injured. (P17)

yes, I also agree that way. In addition to studying, it may include how to perform treatment on sick and injured athletes. (P17, P18, P19)



### Subtheme 6: The Role of Nurses in Doping Management

Doping is a prohibited substance in sports to enhance the performance or appearance of an athlete in sports competitions. In addition, the use of doping has become an integral part of sports. Sports nurses are expected to be able to find out what drugs include doping so as not to harm athletes, including providing education in the use of other drugs during sports matches.

...regarding doping this has become part of the sport, maybe it can be seen at the Indonesian Anti-Doping Institute as a reference in providing material because the website is very complete related to information on the development of doping internationally (P1, P2, P3, P19)

...In addition to knowing drugs in general, sports nurses must also be able to master the drugs included in doping. (P1, P2, P3, P4, P5)

...perhaps, the role of nurses here is included in doping education in athletes and does not rule out the use of placebo as doping. (P1, P2, P18, P19)

### Subtheme 7: The Role of the Post-Match/Tournament Nurse

Not only in the training periodization phase, sports nurses must also be actively involved in the post-match or tournament phase. This is inseparable because athletes can have injury-prone conditions. Furthermore, some stakeholders mentioned that the role of nurses here is not only involved in sports injury management, but also involved in how to restore athlete fitness. Other stakeholders mentioned that nurses must know and be able to how the post-match recovery process is carried out.

I think nurses also have an important role post-game (P1, P19)

...Because there are not a few post-match Athletes that have many injuries, especially sports with physical contact, for example martial arts, rubber, boxing and others (P15, P16, P17, P18, P19)

...not only in dealing with injuries, but also how to be able to participate in providing recovery to athletes. (P10, P11, P12, P13, P14, P15)

### Subtheme 8: Sports Nursing Care

Sports nursing care that has been stated by stakeholders is more likely to be applied to athletes and to the setting of places such as sports clinics. In addition, the main focus in sports nursing care includes athletes with sports injuries, injury recovery phases and being able to get back on the field. Stakeholders also argue that in sports nursing care also focuses on the study of physical activity.

I think, that sports nursing care is more focused on athletes (P1, P2, P3)

...So, later the practice of the profession can be done in sports clinics (P1)

...The nursing care provided will probably include the injury first aid phase, the injury recovery phase, until the athlete returns to normal training again. (P1, P2, P3, P19)

### Subtheme 9: The Role of Nurses in Prescribing in Sports

Sports prescribing is part of the periodization of exercise. Stakeholders stated that just like prescribing drugs, the prescribing exercises can be given from the lowest dose and then increased slowly until the optimal dose (as recommended). We can see that improving the program (progression) is something that needs to be mastered also in providing training prescribing. Therefore, the role of nurses in sports prescribing must be clarified so that there is no overlap with other professions.

...the same with the drug, in that exercise there is also prescribing and it is included in the exercise program (P1, P2, P3, P4, P5, P6, P7, P8, P9, P10, P11, P12)

So, if I understand this prescribing is gradual, from a low dose then increased (P2, P3, P4, P5, P6, P7, P8, P9, P10, P11, P12, P13, P14, P15, P16, P17, P18, P19)

...As a sports nurse, it is very necessary to know her role in sports prescribing. (P1, P19)

...The role of the nurse in the prescribing of exercise may be like determining the frequency of exercise, because it can be calculated from the pulse and matched with the desired frequency. (P1)

## Theme 3: Sports Nursing in Nursing Disciplines

### Subtheme 1: The Integration of Physical Activity in Nursing

Sports nursing that is a subdiscipline of nursing can stand alone and can be integrated with existing nursing subdisciplines. The stakeholders agreed that in every existing subdiscipline of nursing science, sports should be inserted. Examples of stakeholder statements such as the existence of special exercise for patients with diabetes mellitus, kidney failure, fractures, pediatric patients, and even patients with mental and psychosocial disorders. In addition, stakeholders agree that the term physical activity is more appropriate to be used to replace sports terminology for patients with physical impairments or others.

...the existence of sports nursing will be better if every patient with physical, metabolic or psychosocial disorders and others also have sports. (P1, P2, P3, P4, P5, P6, P7, P8, P9, P10, P11, P12, P13, P14, P15, P16, P17)

...It is interesting, when the concept of exercise is integrated with the existing sciences of nursing and this will become its own distinctive feature. (P19)

...maybe this is more appropriate to use the word physical activity, because the term sports is more towards competition and achievement (P1, P19)

## Discussion

The results of this study explained the dynamics of healthcare needs in sports nursing and recommended study materials that would be integrated into the development of a nursing curriculum that focused on sports nursing. In addition, this research was the result of stakeholders' views, experiences, and expectations. Stakeholders put forward the level of material study and competencies that must be mastered by nursing graduates, which included basic sports nursing and advanced sports nursing.

Specialization is the most important in designing new nursing program curricula.<sup>19</sup> Stakeholders emphasized the importance of clear boundaries between sports nursing and other professions so that there is no overlapping role. This to understand the role of both sports nurses and to acquire the attitudes, knowledge, and skills needed to treat medical issues related to exercise and sport,<sup>20,21</sup> Therefore, input from stakeholders includes special studies and strengthening of the concept of sports nursing. What is often a problem is that the health profession is never static regarding the discipline's boundaries. This blurring of boundaries in the healthcare workforce may see different professions taking on practices previously "owned" by others, thus shifting the focus from the professions themselves to better meet the health needs of the service user.<sup>22</sup>

Another thing that was highlighted during the discussion was the study materials that must be mastered by nursing graduates who specialize in sports nursing and must be included in the curriculum, including fundamentals of exercise physiology,<sup>23</sup> physiological adaptation during exercise, pathology in sports, and first aid for sports injuries. This study material is by the need assessment of each stakeholder according to their fields.<sup>24</sup> It aims to prepare competent nurses with expertise in the field of sports nursing.<sup>25</sup> Therefore, basic nursing education needs to be sound enough to meet the health care system's demanding needs,<sup>26</sup> including in sports medicine. In addition, there are not many specificities in nursing education that carry the advantages of sports nursing. Therefore, equipping prospective nurses with the basic concept of sports nursing is very important due to the competition and growing demand for nurses in the sports medicine field.<sup>27</sup>

The second theme is related to a more specific focus: equipping nursing students with advanced sports nursing learning, which must be integrated into the nursing education curriculum. It is characteristic of being more specific in caring for and treating athletes (providing comprehensive patient care).<sup>28</sup> It has positive implications for nurses and providers to collaborate and build an understanding of each provider's scope of training and role in athlete care.<sup>29</sup> The results of the Focus Group Discussion from stakeholders stated that graduates must master physical examination head to toe, special physical examination: musculoskeletal and cardiopulmonary, fitness examination, needs and calculation of nutrients and fluids, and sports nursing care. Mastery of this competency, combined with evidence-based care, is expected to make nurses have an open mind to look for and try new methods scientifically supported by the literature, and it asks the interventions to be scrutinized and proven effective. It can also encourage more clinically related research and enhance the scientific foundation of treating athletes.<sup>30</sup>

In addition, to strengthen understanding of the role of nurses in the sports medicine field, stakeholders recommend study materials that emphasize The role of the nurse in the periodization of the exercise, The role of nurses in doping management, The role of the post-match/tournament nurse, The role of nurses in prescribing in sports. This theme emerged from the needs of nurse graduates in the sports nursing field. There is a growing interest among healthcare professionals regarding substituting physicians with nurses to overcome the challenges of limited healthcare resources,<sup>31</sup> one of which is a nurse practitioner in sports medicine. The external stakeholders want to send messages to this upcoming nursing study program related to expected knowledge and skills to encourage higher education institutions to adjust and develop their curriculums. In reality, the messages from the external stakeholders centre mainly, but not exclusively, on employability and the intended establishment of the knowledge and skills necessary for students to obtain a future position in the business sector.<sup>32</sup>

Based on the researcher's view, no research has been conducted to prepare a nursing education curriculum with advantages in the sports field. So that the results of this research can be novelty and input for curriculum developers to include recommendations for study materials that stakeholders have submitted, the next study must include athletes' trainers' perceptions so it can help improve their interactions with other healthcare professionals, including sport medicine nurses. Limitations The present study is constrained by its limited sample size, thereby diminishing the extent to which the results can be extrapolated to the broader populace, particularly in island regions.

## Conclusion

University curriculum development is a complex sub-process. The findings of this research can be a basis for universities in developing nursing study programs that focus on sports nursing. Stakeholder involvement provides a guarantee that the learning process that will be followed by students can take place according to the objectives and that an effective process will create outcomes that meet the demands of health services. Nursing has developed widely, including contributing to the field of nursing. With this research, the boundaries of authority and direction of sports nursing in the future will become clearer.

## Declarations Ethics

The acquisition of authorisation and approval to participate All participants in this study, as well as the legal guardians of each participant, granted written consent to participate. The participants informed consent included publication of anonymized responses. The present study has undergone evaluation by the Ethics Committee of STIKes Kepanjen, as indicated by the reference number 272/S.Ket/KEPK/STIKesKPJ/VI/2021, which is affiliated with the regional review board. The present investigation adhered to the principles outlined in the Helsinki Declaration and Good Clinical Research Practice.

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## Disclosure

The authors report no conflicts of interest in this work.

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