OPEN ACCESS

Saudi Journal of Nursing and Health Care

Abbreviated Key Title: Saudi J Nurs Health Care
ISSN 2616-7921 (Print) |ISSN 2616-6186 (Online)
Scholars Middle East Publishers, Dubai, United Arab Emirates
Journal homepage: https://saudijournals.com

Original Research Article

Exploring the Learning Needs of Nurses Work in a Tertiary Hospital in Saudi Arabia

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DOI: https://doi.org/10.36348/sjnhc.2026.v09i05.005 | **Received:** 04.03.2026 | **Accepted:** 29.04.2026 | **Published:** 07.05.2026

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Abstract

Learning Needs Assessment (LNA) is a fundamental component of professional nursing development, especially in tertiary care settings where nurses require specialized clinical and non-clinical competencies. King Fahad Specialist Hospital–Dammam (KFSHD), a major tertiary center in Saudi Arabia, provides advanced services across oncology, transplant, neurosciences, medical, surgical, critical care, and emergency departments. Due to the complexity of these specialties, assessing nurses' learning needs is essential for guiding targeted continuing education activities. Aim: This study aimed to identify nurses' learning needs across four components of continuing education, determine preferred locations and durations for learning activities, identify preferred learning methods, examine perceived barriers, evaluate satisfaction with current programs, and compare results across different years of experience. Methods: A cross-sectional survey was conducted in a tertiary hospital across all different levels of nursing. Sample was collected using quota sampling across inpatient and outpatient nursing departments at KFSHD. An online questionnaire consists of six domains was distributed to all nurses, supported by automated reminders to enhance participation. Data were analyzed using SPSS 2024 through descriptive statistics, chi-square testing, and content analysis. Results: A total of 903 nurses participated. The highest reported learning needs were related to emergency response (40.5%), crash cart and defibrillator use (34.6%), and medication courses (29.3%). Most participants (74.3%) preferred continuing education activities lasting no longer than one day, and nearly half indicated a preference for session durations of 15–30 minutes. Lecture-based presentations were the most preferred learning method (47.2%), while work schedule conflicts were the primary barrier to attendance (42.3%). Experience-based differences were evident, with less experienced nurses up to 5 years expressing higher learning needs for medication-related courses, while nurses with more than 15 years of experience showed greater needs for documentation training. Additionally, nurses with mid-level experience of 6-10 years demonstrated increased interest in nursing informatics. Conclusion: Nurses at KFSHD value continuing education and benefit most from short, experience-tailored training sessions. Educators should adopt micro learning and create level-specific pathways focused on high-priority clinical skills. Administrators must address workload barriers by providing flexible learning time and ensuring programs align with learning needs and operational realities.

Keywords: "Nursing" "Nurses" "Learning Needs" "Educational Assessment" "Saudi Arabia" "Tertiary Care".

1. INTRODUCTION

Learning Needs Assessment internationally, recognized as a foundational component of professional nursing development. The literatures consistently, emphasize that nurses work in tertiary care require targeted educational preparation encompassing both clinical and non-clinical competencies, as they encounter unique clinical and educational challenges (Bloomer *et al.,* 2020) [1].

King Fahad Specialist Hospital – Dammam (KFSHD) is a tertiary hospital operating under the Eastern Health Cluster in Dammam, Saudi Arabia. It serves as a major healthcare provider for the Eastern Province, offering specialized services in Oncology/Palliative, Multi Organ Transplant/Surgical, Neurosciences/Medical, Critical Care, and Emergency. The hospital holds Magnet® recognition and has been awarded the International Certificate of Nursing Excellence by the American Nurses Credentialing Center (ANCC), reflecting its commitment to nursing leadership

and quality. Thus, the hospital offers advanced nursing care to meeting the needs of specialized services. Nurses work in specialized clinical practice units encounter unique clinical and educational challenges. Therefore, conducting targeted Learning Needs Assessment (LNA), within these areas, are essential for addressing competency gaps guiding educational-specific activities of professional development (Fukada, 2018) [2].

The LNA internationally, recognized as a foundational component of professional nursing development. The ANCC Magnet® Model highlights learner assessment and the alignment of education with identified needs as a critical element of structural empowerment (ANCC, 2023) [3]. Literatures indicate that a rigorous learning needs assessment (LNA) is a crucial step in the educational and training process (Pilcher, 2016) [4]. Therefore, in KFSHD, LNA is systematically conducted across all nursing levels and clinical practice areas. These assessments are not only ongoing but are also embedded within the hospital's annual education planning, shared governance initiatives, and strategic objectives—such as improving quality indicators, patient experience, and workforce engagement.

The literatures consistently, emphasize that nurses work in specialized clinical practice require targeted educational preparation encompassing both clinical and non-clinical competencies. For example, critical care nurses must possess advanced expertise in areas such as hemodynamic monitoring, ventilator management, and ethical decision-making in end-of-life care. According to Bloomer *et al.,* in 2019 Critical care nurses need specialist knowledge, technical and interpersonal skills to meet the needs of the critically ill, with commensurate recognition of their specialist role (Bloomer *et al.,* 2020) [1]. Similarly, oncology nurses are expected to demonstrate proficiency in chemotherapy administration, patient education, and the provision of psychosocial support (Oncology Nursing Society, 2022) [5].

Despite these complex demands, a persistent gap exists between formal nursing education and the realities of clinical practice. Keating (2020) [6] argues that, in the absence of systematic learning needs assessments, continuing professional development (CPD) programs often remain overly generalized and insufficiently responsive to the specific demands of specialty practice areas. As a result, CPD initiatives may fail to equip nurses with the specialized knowledge and skills required for safe, effective, and context-specific care.

In KFSHD, nursing education is strategically designed to address the diverse and evolving learning needs of nurses across specialties. This is achieved through three integrated approaches: competency-based education, CPD, and research- and evidence-based skills development. CPD is a continuum throughout their professional career, and keeping their knowledge and skills up to date is important. The goals, motivations and needs that nurses may have to lead and participate in their CPD may vary according to their age and position. Organizations should consider nurses' particular professional situations as well as their real needs–support for access to CPD, CPD opportunities and balance between their professional and personal lives–to boost their participation in CPD. (Vázquez-Calatayud *et al.,* (2020) [7]. Competency-based education provides a structured framework for learning assessment particularly within tertiary care settings. In alignment with this framework, KFSHD offers a broad range of CPD activities, including courses and workshops, annual reflective practice sessions, and a variety of e-learning opportunities via the Elsevier platform.

Harb *et al.,* (2020) [8] conducted a learning needs assessment among nurses at KFSHD using an online Survey Monkey tool covering nine educational domains. The study found significant gaps in research utilization, evidence-based practice, and leadership skills, highlighting the need for targeted, role-specific educational programs. Despite a modest response rate, the study demonstrated the value of online assessment tools and recommended considering timing, duration, and learning preferences when designing in-service training. In response to Harb *et al.,* study's limitations and recommendations, this study aimed to explore nurses' learning needs in KFSHD, through the following objectives:

- To identify nurses' learning needs through four components of continuing education activities* (general activities, supported activities, soft skill activities),
- To identify nurses' preferred location, and duration to attend continuing education activities,
- To identify nurses' preferred methods of learning,
- To identify nurses' perceived barriers to attend continuing education activities,
- To explore nurses' satisfaction with current provided continuing education activities, and
- To compare nurses' responses by their different years of experience.

*Term "Activities" in this study, refers to all educational activities such as teaching sessions, courses, workshops, and simulations, practical and clinical sessions.

2. METHODS

2.1 Study Design

A cross-sectional survey was under-taken for this study across in-patient and out-patient nursing departments in KFSHD in the Eastern Province of Saudi Arabia. One key advantage is that surveys can gather data from a large number of participants quickly and cost-effectively (Polit & Beck, 2021) [9]. Surveys also use

standardized questions, ensuring that all participants respond to the same items, which enhances the reliability and comparability of data (Creswell & Creswell, 2018) [10]. Moreover, because responses were anonymous, participants could express their learning needs more honestly—reducing the likelihood of bias caused by fear of judgment

2.2 Setting and Participants:

This study was conducted in KFSHD, to include in-patient departments of all medical-neuroscience, surgical-organ transplant, critical care, and oncology-palliative units. While the out-patient departments included emergency, and family-primary and specialty clinics. In addition, this online survey included nursing administration departments.

2.3. Sample and Sampling Technique:

The study sample included of staff nurses working in both in-patient and out-patient departments. A quota sampling method was used, as it allowed the researchers to guarantee balanced representation from key nursing subgroups, including nurses from various clinical specialties and different years of experience. This method was particularly appropriate for the study's objectives, which required sufficient representation across these categories to meaningfully examine differences in learning needs and satisfaction levels. Quota sampling is acknowledged in the literature as an effective method when researchers must ensure proportional inclusion of predefined strata while working within practical limitations (Battaglia, 2008) [11]. In addition, this method allowed the researchers to set demographic and departmental targets and recruit participants online until each quota was filled, ensuring better representation of nurses across all departments at KFSHD (Wright, 2005) [12].

2.4 Inclusion and Exclusion Criteria:

Inclusion Criteria:

- Staff nurses work in KFSHD were included in the study.
- Staff nurses work in nursing departments, either in-patient or out-patient units were included.

Exclusion Criteria:

- Other healthcare providers work in KFSHD, were excluded.
- Staff nurses work in non-nursing departments, were excluded.

2.5 Data Collection:

Data collected through online survey. A link was emailed to all nurses work in KFSHD, to include in- and out-patient nursing departments, with an auto reminder after two weeks for certain intervals in order to improve response rate.

2.6 Tool Development:

Members of professional development leadership developed the study tool to meet the scope of all hospital services located within the umbrella of Eastern Health Cluster. A panel of experts validated the tool by reviewing the tool contents stated under each domain and provided feedback for some improvement, which was considered and added. A piloting process on twenty nurses was conducted to ensure contents clarity and feasibility to answer. All twenty nurses were able to answer all contents stated under each tool's domains.

The tool consisted of six domains (1- demographic data, 2- learning needs, 3- location, and duration preference, 4- methods of learning preference, 5- barriers to continuing education, 6- satisfaction with current continues education. The learning needs domain included three components of continuing education (general activities, supported activities, soft skill activities). Numbers of activities were stated under each component of continuing education. Each stated course linked with a tick-off box to be ticked, as needed. In addition, a question of "specify" or "others" followed with a small space to be filled-out, as needed was stated under each component of continuing education. The other domains such as (location, and duration preference), (methods of learning preference), and (barriers to continuing education), stated certain items to be answered by using tick-off boxes. While the (satisfaction with current continuing education) domain stated question-items to be answered by using a 5-likrt scale of Strongly Agree, Agree, Neutral, Disagree, Strongly Disagree.

3 Data Analysis

The data was analyzed quantitatively, by using Statistical Package for the Social Sciences (SPSS) 2024, performing descriptive analysis, and chi-square test, in addition to content analysis. Brazzoli (2023) [13] explained two main types of quantitative content analysis: manifest and latent. Manifest content analysis involves counting and categorizing the visible or surface-level content of a text such as the frequency of specific words, themes, or topics. In contrast, latent content analysis involves interpreting the underlying meaning or messages conveyed by text, such as attitudes, values, or emotions implied by the language used. In this study, manifest content analysis was performed to categorizing courses' topics that additionally specified by the participants, under each component of continuing education.

The data analysis included participants' demographics, participants' responses to each domain, and participants' responses by years of experience, only for the learning needs of continuing education domain.

4. Ethical Considerations:

Ethical approval and permission to access the participants were obtained from KFSHD IRB committee.

The purpose of the study was explained in the cover sheet of the online survey with clarification on voluntary and anonymous participation. Completing and submitting the online survey indicated the consent of participation in the study.

5. RESULTS

Nine hundred and three (n= 903) nurses participated in the study. The study indicated high response rate, from each core-specialty of KFSHD: critical care and emergency (92%), surgical and transplant (87%), medical and neuroscience (72%), oncology and palliative (65%), to include in- and out-patient departments/units. As explained by Qualtrics (2020) [14], high response rate increases the study data reliability and representativeness. Participant Demographics

5.1. Descriptive Analysis Across Different Survey Sections:

5.1.1. Demographic Section:

- ***Employment Title:*** The demographic data reflected that the majority of the participants were staff nurses (n= 754, 83.5%), with only four (n= 4, 0.4%) were midwives, and one (n= 1, 0.1%) was wound care nurse. While the other participants were nurse leaders (n= 94, 10.40%) and nurse educators (n= 20, 2.21%) with only twenty-four participants (n= 24, 2.7%) did not report their employment title.
- ***Departments/Units:*** The demographic data reflected that the participants were located in the major departments/units of the tertiary hospital, as (n= 322, 35.7%) of the participants were in critical care units, (n= 244, 27.0%) were in the surgical and transplant units, (n= 162, 17.9%) were in the medical and neuroscience units, and (n= 148, 16.4%) were in oncology units. While only (n= 16, 1.8%) were in the education and research department, with only (n= 4, 0.4%) were in the nursing quality department.

- **Years of Experience**

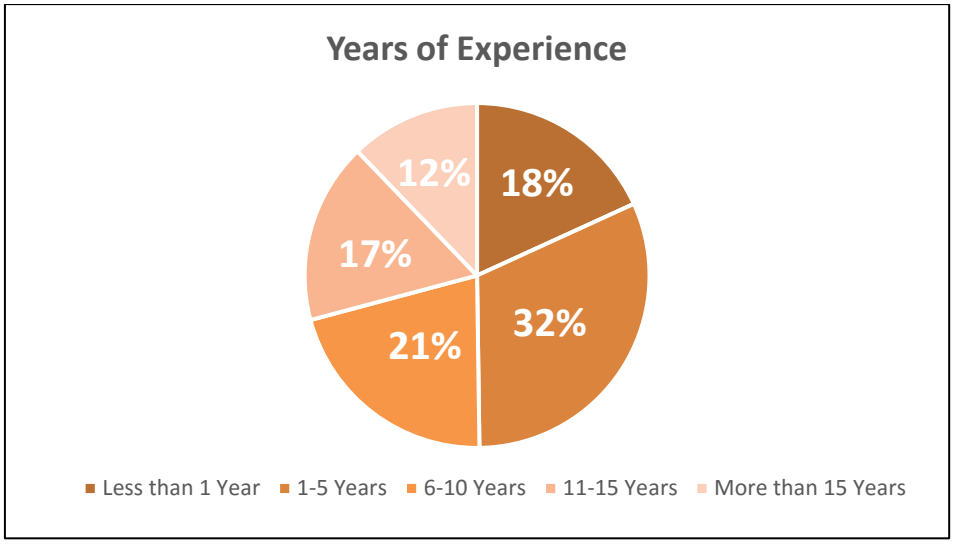

Figure 1: Distribution of Participants by Years of Experience

As shown in Figure 1 the demographic data reflected that the participants had different years of experience to represent: (n= 164, 18.2%) of participants with less than one year of experience, (n= 285, 31.6%) with one to five years of experience, (n= 190, 21.0%) with six to ten years of experience, (n= 153, 16.9%) with eleven to fifteen years of experience, and (n= 110, 12.2%) with more than 15 years of experience.

5.1.2. Participants' Responses to the Survey Domains:

Participants' Responses to their Learning Needs through three Components of Continuing Education activities:

Table 1: Participants' Responses to the General Activities Domain

General activities	Frequency	Percent (%)
Medication	265	29.3
Physical assessment	135	15
Laboratory and investigations	111	12.3
Equipment	196	21.7
Documentation	160	17.7

General activities	Frequency	Percent (%)
Treatment protocols	281	31.1
Medical Terminology	81	9
IV access Device	152	16.8
CLABSI	156	17.3
Pressure ulcer prevention and management	138	15.3
Specimen Collection	94	10.4
IVF Therapy, Blood & Blood Products Administration	143	15.8
Oxygen Therapy	68	7.5
Emergency Response	366	40.5
Crash Cart & Defibrillator	312	34.6

1- *General Activities:*

As shown in Table 1 the data reflected more participants reported a learning need for emergency response course (n= 366, 40.5%), and for crash cart and defibrillator course (n= 312, 34.6%), and for medication course (n= 265, 29.3%), in contrast to medical terminology (n= 817, 9.0%), and oxygen therapy (n= 68, 7.5%) courses.

Table 2: Participants' Responses to the Support Activities Domain

Support activities	Frequency	Percent (%)
Nursing Quality	495	54.8
Nursing research and evidence-based	298	33
Nursing informatics	228	25.2

2- *Support Activities:*

In table 2 the data reflected more than half of the participants reported learning need for nursing quality course (n= 495, 54.8%), in contrast to only (n= 228, 25.2%) participants reported a learning need for nursing informatics.

The participants specified leadership and management, patient and family education and patient safety and satisfaction as additional support courses that needed.

Table 3: Participants' Responses to the Soft-Skill Activities Domain

Soft-Skill activities	Frequency	Percent (%)
Demonstrate effective Communication skills - verbal and written	296	32.8
Apply Conflict resolution skills	174	19.3
Demonstrate Project Management skills including time management	107	11.8
Utilize effective Computer skills such as Excel, PowerPoint, and Microsoft Outlook	223	24.7
Demonstrate Data Management skills	98	10.9
Demonstrate Problem Solving and Decision-Making skills	156	17.3
Demonstrate Critical Thinking skills	171	18.9
Assess and influence the culture of the work environment	77	8.5
Understand and utilize patient safety and quality assurance principles	113	12.5
Understand and Apply Health (Nursing) Informatics	87	9.6
Facilitate group meetings and conferences	70	7.8
Collaborate with other professionals and disciplines	71	7.9
Apply knowledge to clinical situations	121	13.4
Effectively empower nurses, patients and families to improve health	125	13.8
Team Building and act as a team player	167	18.5
Use of Stress Management techniques	243	26.9
Enhance Self Confidence	124	13.7

3- *Soft-Skill Activities:*

As shown in Table 3 the data reflected more participants reported a learning need for: effective communication skills course (n= 296, 32.8%), effective computer skills course (n= 223, 24.7%), and stress management techniques course (n= 243, 26.9%). In contrast, less participants reported learning need for the following courses: assess and influence the culture of work environment (n= 77, 8.5%), collaboration skills with other professionals and disciplines (n= 71, 7.9%), and facilitate group meetings and conferences (n= 70, 7.8%).

5.1.3. Participants' Responses to Preferred Location and Duration to Attend Continuing Education activities:

The data reflected slight variation among participants' preferred locations to attend continuing

education courses, as most of the participants reported classrooms (n= 305, 33.8%), skills lab (n= 279, 30.1%), and staff lounge (n= 256, 28.3%) are all suitable places for continuing education courses. While, few of participates (n= 59, 6.6%) reported other preferred locations such as bedsides, nurse station, conference rooms, zoom to indicate preferences to receive continuing education courses inside their units/departments for faster access and shorter time travelling.

The data reflected the majority of participants (n= 671, 74.3%) preferred continuing education courses to be no longer than one day. Additionally, nearly half of the participants (n = 442, 48.9%) preferred the courses' sessions lasting between 15 to 30 minutes.

5.1.4. Participants' Responses to Preferred Methods of Learning:

The data reflected nearly half of the participants preferred lecture presentation as best method of learning (n= 426, 47.2%), with (n= 359, 39.8%) participants preferred workshop, (n= 354, 39.2%) preferred bed-side teaching, (n= 262, 29.0%) preferred equipment demonstration, (n= 234, 25.9%) preferred simulations, (n= 232, 25.7%) preferred demonstration, and (n= 197, 21.8%) preferred group discussion.

5.1.5. Participants' Responses to Barriers to Attend Continuing Education Activities:

The data reflected that more participants reported work schedule as the main barrier to attend continuing education courses (n= 382, 42.3%), with (n= 200, 22.1%) participants reported shortage of staff is another main barrier.

5.1.6. Participants' Responses to their Satisfaction with Current Continuing Education Activities:

The data reflected that more than half of the participants agreed that the continuing education courses and training provided by the professional development department help them to maintain and enhance their nursing skills (n= 534, 59.1%), and to prepare them for future positions (n= 529, 58.6%). In addition, more than half of the participants agreed that the work environment supports them to apply what they learn from the continuing education courses (n= 537, 59.9%).

5.2. Participants' Responses to their Learning Needs by Years of Experience:

A Pearson's chi-square test performed to compare participants' response rate by their years of experience.

Table 4: Participants' Responses to General Activities by Years of Experience

General activities by Years of Experience	Less than 1 Year		1-5 Years		6-10 Years		11-15 Years		More than 15 Years		Total	P Value
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent		
Medication	54	20.38	97	36.60	55	20.75	24	9.06	35	13.21	265	0.001
Physical assessment	19	14.07	42	31.11	32	23.70	21	15.56	21	15.56	135	0.453
Laboratory and investigations	25	22.52	44	39.64	18	16.22	11	9.91	13	11.71	111	0.060
Equipment	44	22.45	69	35.20	34	17.35	29	14.80	20	10.20	196	0.153
Documentation	24	15.00	56	35.00	35	21.88	20	12.50	25	15.63	160	0.198
Treatment protocols	56	19.93	81	28.83	60	21.35	42	14.95	42	14.95	281	0.267
Medical Terminology	14	17.28	28	34.57	22	27.16	10	12.35	7	8.64	81	0.420
IV access Device	21	13.82	52	34.21	40	26.32	21	13.82	18	11.84	152	0.215
CLABSI	25	16.03	42	26.92	47	30.13	25	16.03	17	10.90	156	0.050
Pressure ulcer prevention and management	25	18.12	49	35.51	34	24.64	15	10.87	15	10.87	138	0.233
Specimen Collection	12	12.77	37	39.36	17	18.09	15	15.96	13	13.83	94	0.351
IVF Therapy, Blood & Blood Products Administration	34	23.78	45	31.47	31	21.68	19	13.29	14	9.79	143	0.276
Oxygen Therapy	12	17.65	28	41.18	16	23.53	5	7.35	7	10.29	68	0.160
Emergency Response	58	15.85	117	31.97	86	23.50	66	18.03	39	10.66	366	0.266
Crash Cart & Defibrillator	64	20.51	106	33.97	71	22.76	45	14.42	26	8.33	312	0.032

5.2.1. General activities by Years of Experience:

Table 4 presents participants' responses to the General Activities domain across different years of experience:

1. *Medication course:* Learning needs for medication courses were highest among staff with <5 years and >15 years of experience, with a significant association between experience and needs (P = 0.001).
2. *Physical Assessment:* Learning needs for physical assessment were highest among staff

with >15 years of experience and lowest among those with <1 year, with no significant association by experience (P > 0.05).

3. *Laboratory and Investigations:* Learning needs for laboratory and investigations were higher among staff with <5 and >15 years of experience, with no statistically significant association (P> 0.05).
4. *Medical Equipment Use:* Although response rate of participants with less year of experience reflected more needs to courses related to medical equipment use, statistical results indicates that there is no significant association between years of experience and learning needs for medical equipment use courses (P> 0.05).
5. *Documentation:* Learning needs for documentation were highest among staff with >15 years of experience, with no statically significant association between experience and needs (P > 0.05).
6. *Treatment Protocols:* Regarding the response rate to need of various treatment protocol ,statistical results indicates there is no significant association between years of experience and learning needs for treatment protocol courses (P> 0.05).
7. *Medical Terminology:* The response rate among all participants reflected minimum learning needs to medical terminology courses, indicating no statistically significant association (P> 0.05).
8. *Intravenous (IV) Access Device:* Response rate to learning needs for IV access device courses refelect that there is no significant association between years of experience and learning needs for IV access device courses (P> 0.05).
9. *CLABSI prevention:* The response rate of participants with six – ten years of experience reflected more learning needs to CLABSI prevention courses (24.74%), in contrast to the all other participants, indicating no statistically significant association (P> 0.05) between years of experience and CLABSI prevention courses .
10. *Pressure Ulcer Prevention and Management:* indicating no statistical significant association (P > 0.05) between years of experience and pressure ulcer prevention and management need.
11. *Specimen Collection:* Statistically, the results indicating no significant association (P> 0.05) between need for specimen collection course and years of experience.
12. *Intravenous fluid Therapy, Blood and Blood Product Administration:* Statistically, the results indicating no significant association (P> 0.05) between such course and years of experience.
13. *Oxygen Therapy:* The response rate among all participants reflected minimum learning needs to oxygen therapy courses, indicating no statistically significant association (P> 0.05).
14. *Emergency Response:* Statistically, the results indicating no significant association between years of experience and learning needs for emergency response courses (P> 0.05).
15. *Crash Cart and Defibrillator:* The response rate reflected slight variation, suggesting high learning needs for crash cart and defibrillator courses, among most of the participants. Statistically, the results indicating significant association between years of experience and learning needs for crash cart and defibrillator courses (P= 0.032).

Table 5: Participants' Responses to Support Activities by Years of Experience

Support activities by Years of Experience	Less than 1 Year		1-5 Years		6-10 Years		11-15 Years		More than 15 Years		Total	P Value
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent		
Nursing Quality	100	20.20	164	33.13	110	22.22	77	15.56	44	8.89	495	0.005
Nursing research and evidence-based	35	11.74	102	34.23	60	20.13	53	17.79	48	16.11	298	0.002
Nursing informatics	31	13.60	74	32.46	56	24.56	39	17.11	28	12.28	228	0.251

5.2.2. Support Activities by Years of Experience:

Table 5 presents participants' responses to the Support Activities domain across different years of experience:

1. *Nursing Quality:* The response rate reflected slight variation, suggesting high learning needs for nursing quality courses, among most of the participants Statistically, the results indicating significant association between years of experience and learning needs for nursing quality courses (P= 0.005).
2. *Nursing Research and Evidence-Based:* The response rate reflected slight variation among most of the participants regarding the learning needs for nursing research and evidence-based courses. Statistically, the results indicating significant association between years of

experience and learning needs for nursing research and evidence-based courses (P= 0.002).

3. *Nursing Informatics:* Statistically, the results indicating no significant association between years of experience and learning needs for nursing informatics courses (P> 0.05).

Table 6: Participants' Responses to Soft-Skills Activities by Years of Experience

Soft-Skill activities by Years of Experience	Less than 1 Year		1-5 Years		6-10 Years		11-15 Years		More than 15 Years		Total	P Value
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent		
Demonstrate effective Communication skills - verbal and written	52	17.57	90	30.41	74	25.00	47	15.88	33	11.15	296	0.376
Apply Conflict resolution skills	20	11.49	49	28.16	47	27.01	32	18.39	26	14.94	174	0.023
Demonstrate Project Management skills including time management	13	12.15	38	35.51	23	21.50	18	16.82	15	14.02	107	0.499
Utilize effective Computer skills such as Excel, PowerPoint, and Microsoft Outlook	25	11.21	48	21.52	57	25.56	59	26.46	34	15.25	223	<0.001
Demonstrate Data Management skills	8	8.16	42	42.86	21	21.43	13	13.27	14	14.29	98	0.019
Demonstrate Problem Solving and Decision-Making skills	20	12.82	53	33.97	38	24.36	27	17.31	18	11.54	156	0.358
Demonstrate Critical Thinking skills	28	16.37	57	33.33	41	23.98	25	14.62	20	11.70	171	0.707
Assess and influence the culture of the work environment	11	14.29	27	35.06	19	24.68	12	15.58	8	10.39	77	0.761
Understand and utilize patient safety and quality assurance principles	14	12.39	32	28.32	29	25.66	21	18.58	17	15.04	113	0.269
Understand and Apply Health (Nursing) Informatics	14	16.09	27	31.03	24	27.59	15	17.24	7	8.05	87	0.470
Facilitate group meetings and conferences	12	17.14	29	41.43	13	18.57	9	12.86	7	10.00	70	0.456
Collaborate with other professionals and disciplines	7	9.86	25	35.21	16	22.54	15	21.13	8	11.27	71	0.383

Soft-Skill activities by Years of Experience	Less than 1 Year		1-5 Years		6-10 Years		11-15 Years		More than 15 Years		Total	P Value
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent		
Apply knowledge to clinical situations	21	17.36	45	37.19	26	21.49	19	15.70	10	8.26	121	0.501
Effectively empower nurses, patients and families to improve health	13	10.40	42	33.60	31	24.80	27	21.60	12	9.60	125	0.071
Team Building and act as a team player	27	16.17	51	30.54	40	23.95	32	19.16	17	10.18	167	0.625
Use of Stress Management techniques	41	16.87	63	25.93	59	24.28	51	20.99	29	11.93	243	0.074
Enhance Self Confidence	24	19.35	42	33.87	23	18.55	21	16.94	14	11.29	124	0.928

5.2.3. Soft-Skills Activities by Years of Experience:

Table 6 presents participants' responses to the Soft-Skills Activities domain across different years of experience:

A. *Effective Communication Skills:* The response rate reflected slight variation among most of the participants. The results suggesting learning needs for effective communication skills across different years of experience, with statistically no significant association (P> 0.05).

B. *Conflict Resolution Skills:* The response rate reflected more learning needs to conflict resolution skills courses among participants. Statistically, the results indicating significant association between years of experience and learning needs for conflict resolution skills courses (P= 0.023).

C. *Project Management Skills:* The response rate reflected less leaning needs to the project management skills course among all participants of different years of experience, with statistically no significant association (P> 0.05).

D. *Effective Computer Skills:* The response rate of participants with more years of experience reflected more learning needs on effective computer skills courses. Statistically, the results indicating significant association between years of experience and learning needs for effective computer skills courses (P< 0.001).

E. *Data Management Skills:* There was a significant association between years of experience and learning needs for data management skills (P = 0.019).

F. *Problem Solving and Decision Making Skills:* Participants across all experience groups showed similar learning needs for problem-solving and decision-making skills, with no significant association between experience level and learning needs (P > 0.05).

G. *Assess and Influence Work Culture Skills:* Participants showed minimal learning needs for assess-and-influence work culture skills, with no statistically significant association (P > 0.05).

H. *Facilitate Group Meetings and Conferences Skills:* Participants showed minimal and slightly varied learning needs for facilitating group meetings and conferences, with no statistically significant association (P > 0.05)

I. *Collaboration Skills with other Professionals and Disciplines:* Participants showed only slight variation and overall minimal learning needs for collaboration skills with other professionals and disciplines, with no significant association by years of experience (P > 0.05).

J. *Stress Management Technique:* Participants showed varying but generally modest learning needs for stress-management techniques across experience groups, with no significant association between experience level and learning needs (P > 0.05).

K. *Enhance Self-Confidence Skills:* Participants showed only slight variation and overall minimal learning needs for enhancing self-confidence skills, with no significant association across experience levels (P > 0.05).

5.3. Others:

Open-ended responses regarding additional courses were analyzed using content analysis. The main themes identified included: oncology and chemotherapy (e.g., brain tumor, Wilms tumor, neuroblastoma, BMT protocols), transplant care, leadership and professional

development, patient/family education, and trauma and critical care skills, technology and equipment training (e.g., PCA, ICD devices, Excel), medication management, and infection control and safety standards. These findings illustrate perceived educational needs but were not central to the study's primary outcomes.

6. DISCUSSION

General Activities: the findings of this study reflected a robust demand for general activities reported by nurses work in KFSHD, especially those directly related to emergency preparedness and patient safety. Courses on emergency response, crash cart and defibrillator training, and medication had the highest reported learning needs. These priorities indicating the unique clinical needs and high-acuity environments of tertiary care, where prompt, skilled intervention can be lifesaving. These findings align with those of Pasay-an and Alsrour (2022) [15] who reported that Saudi nurses prioritized training that directly enhances clinical readiness, including emergency protocols and quality management system.

Notably, courses such as medical terminology and oxygen therapy were infrequently reported as learning needs, which may indicate that these competencies are learnt through routine practice or covered in basic nursing education. According to Lindsay *et al.,* (2017) [16], nurses frequently prioritize specialized or high-stakes competencies over fundamental or frequently used skills.

When exploring variations by years of experience, this study found significant associations between experience level and learning needs for certain general continuing education activities, such as medication courses and crash cart and defibrillator training These differences indicated that nurses at different career stages may have distinct learning priorities—novice nurses focusing on fundamental yet high-risk procedures, while experienced nurses seek to update or refresh critical emergency skills. Kol *et al.,* (2017) [17] also emphasized the importance of tailoring training to professional stage, recommending a mixed approach that balances reinforcement of basic competencies with advanced skill development.

The focus on critical and emergency response training in this study corresponds with the findings of Lee *et al.,* (2020) [18], who emphasized the significance of scenario-driven and simulation-based training for building both technical competence and confidence in decision-making. This suggests that including these high-priority courses in continuing education activities is likely to possess a substantial beneficial effect on the safety of patients and the quality of care, particularly when considering the complexity and unpredictability of tertiary care.

Overall, this study suggested that general continuing education activities should be strategically prioritized to reflect both the operational realities of tertiary care and the developmental needs of nurses at different career stages. This approach, supported by evidence from both national and international contexts, would enhance not only individual clinical competence but also the collective readiness of healthcare team in high demand setting.

Support Activities: the study identified a multifaceted set of learning needs among participants, with nursing quality courses emerging as the primary area requiring development. A significant association was found between years of experience and the need for training in nursing quality, indicating that professional tenure influences perceptions of required competencies. This finding aligns with the study by Pasay-an and Alsrour (2022) [15] in Saudi Arabia, which similarly identified quality management systems as the most critical training area for practice improvement. The researchers noted that the increasing number of hospitals pursuing accreditation has intensified the focus on quality management as a core requirement for meeting accreditation standards. This congruence suggests that quality-focused education is a consistent need across various healthcare settings in Saudi Arabia, likely driven by national healthcare reforms and widespread efforts toward accreditation preparedness.

In addition to quality, leadership and management courses were also reported by participants as essential supportive training. This aligns with a previous study conducted in the same hospital, which revealed substantial gaps in leadership and management development—particularly in succession planning and leadership skill enhancement across nursing career pathways (Harb et al., 2020) [8].

Furthermore, participants in the present study identified patient and family education as a key supportive course. This contrasts with the findings of Sundah *et al.,* (2019) [19], in which patient and family education ranked as the lowest learning priority. The discrepancy may be attributed to contextual differences such as healthcare delivery models, patient demographics, and cultural expectations. In the Saudi Arabian context, the heightened emphasis on patient and family education may reflect the growing recognition of patient engagement as a driver of treatment adherence, patient satisfaction, and improved health outcomes. Additionally, institutional policies and national healthcare strategies may have strengthened the role of patient education, thereby increasing its perceived importance among nurses.

Soft Skills Activities: the study reflected a clear learning need for enhanced communication skills among nurses, emphasizing their essential role in ensuring safe and effective patient care—particularly within culturally

and linguistically diverse work environments. This finding aligns with the results of Sundah *et al.,* (2019) [19], who identified communication skills as the third-highest priority among nurses' learning needs. The consistency between both studies reinforces the critical role of effective communication in strengthening teamwork, minimizing misunderstandings, and ultimately improving healthcare outcomes.

In parallel, this study found that a substantial number of participants expressed a need for training in stress management techniques, highlighting the importance of this competency in daily nursing practice. This result is consistent with Kol *et al.,* (2017) [17], who underscored nurses' need for training in stress and crisis management, as well as Sundah *et al.,* (2019) [19], who ranked stress management as the highest priority among nurses' learning needs. The alignment across these studies underscores the vital importance of equipping nurses with effective stress management skills to preserve their well-being, enhance job performance, and ensure the delivery of high-quality patient care in demanding healthcare environments.

Preferred Location and Duration to Attend Continuing Education Activities: the findings of this study indicted an updated perspective on nurses' preferences for continuing education within the same hospital where a similar investigation was conducted by Harb *et al.,* (2020) [8]. A consistent pattern emerges regarding preferred locations for educational activities. In both studies, classrooms and skills laboratories ranked among the top choices, while staff lounges also remained notable learning spaces. These recurring preferences highlight the importance of offering flexible, accessible, and familiar learning environments that are adequately equipped with educational resources.

Regarding preferred session duration, Harb *et al.,* (2020) [8] reported that nearly half of their participants favored sessions lasting 15–30 minutes, with a preference for a maximum duration of 45 minutes. The present study shows a similar trend, with almost half of participants preferring 15–30-minute sessions and most indicating that the overall course should not exceed one day. This alignment suggests a common inclination among nurses toward concise, focused educational interventions—likely influenced by demanding clinical workloads and limited time availability during shifts.

The study emphasizes that nurse educators and nurse leaders should take these preferences into account to enhance attendance, engagement, and the practical application of newly acquired skills in clinical settings. Overall, the stability of preferences over the five-year period indicates that nurses' educational needs within this hospital have remained relatively consistent. This underscores the importance of maintaining accessible learning locations, concise session structures, and consideration of workload pressures when planning continuing education programs. These findings further reinforce the value of longitudinal monitoring of staff preferences to ensure that educational strategies remain responsive, relevant, and effective over time.

Barriers to Attend Continuing Education Activities: the study indicated work schedules and staff shortage as the primary barriers preventing nurses from participating in continuing education activities. These findings closely align with those of Wehabe *et al.,* (2024) [20], who similarly reported that time constraints and work-related commitments were major factors limiting nurses' engagement in continuing education.

Staff shortage appears to be a critical underlying issue, as they restrict scheduling flexibility and reduce opportunities for nurses to attend educational programs during regular working hours. Addressing these challenges at the institutional level—through improved staffing levels, the adoption of flexible scheduling models, and the integration of continuing education into routine clinical workflows—could significantly enhance nurses' participation in professional development. Such efforts have the potential to not only strengthen workforce competence but also improve the overall quality of patient care.

Preferred Methods of Learning: understanding nurses' preferred learning methods is essential for designing effective and engaging continuing education activities, particularly in high-demand environments such as tertiary hospitals. In the present study, nearly half of respondents identified lecture-based presentations as their most preferred learning method, followed closely by workshops and bedside teaching. Other approaches—including equipment demonstrations, simulations, and group discussions—were also reported, though less frequently. These findings suggest a strong preference for structured, interactive, and clinically relevant educational strategies, aligning with both regional and international literature. For example, Sundah *et al.,* (2019) [19] found that lectures remained the most preferred method among nurses participating in continuing education activities, supporting the results of this Saudi Arabian context. Likewise, Kol *et al.,* (2017) [17] emphasized the need for in-service training that reflects nurses' preferences, endorsing a blend of didactic and hands-on approaches to enhance engagement and retention. International studies, such as Lindsay *et al.,* (2017) [16], also highlight the popularity of unit-based in-service education and computer-based tutorials, pointing to a growing appreciation for blended learning that combines flexibility with practical application.

This study further indicated that although traditional lectures remain popular, there is a meaningful shift toward practice-based methods such as workshops, simulations, and bedside teaching. This trend is consistent with international evidence showing that

simulation-based learning can significantly improve nurses' communication skills, self-efficacy, satisfaction, and clinical performance compared with traditional classroom methods (Cheng *et al.,* 2014; Mishra *et al.,* 2023) [21] [22]. Kim and Choi (2019) [23] similarly reported that over a quarter of nurses preferred simulation as a primary learning method, underscoring its potential to enhance clinical preparedness. The shift toward practice-oriented strategies may be shaped by the complex and rapidly evolving nature of tertiary hospital settings, where nurses require immediate, applicable knowledge.

A key practical implication of the study is the strong preference for brief learning sessions. Most nurses favored training lasting no longer than one day, and half preferred sessions of just 15–30 minutes. This suggests that microlearning—brief, focused, and repetitive learning episodes—may be highly effective for maintaining engagement while minimizing disruptions to clinical duties.

Satisfaction with Continuing Education Activities: nurses' satisfaction with continuing education activities is a critical indicator of the effectiveness, relevance, and practical applicability of continuous professional development program. In this study, most participants expressed satisfaction with the continuing education activities offered in KFSHD. Many reported that these activities helped them maintain and enhance their nursing skills, while others felt better prepared for future professional roles as a result. Additionally, a substantial number of participants confirmed that their work environment supports the application of newly acquired knowledge in clinical practice. These findings suggest that nurses are generally satisfied with the impact of continuing education activities on their professional growth, knowledge development, and clinical competence. This high level of satisfaction aligns with global evidence demonstrating the positive influence of lifelong learning on clinical outcomes and professional capability. Dalagkozi *et al.,* (2024) [24], for example, found that nurses participating in lifelong learning programs expressed strong satisfaction with the benefits gained, particularly in relation to improvements in everyday nursing practice.

The results of the study also support the findings of Harb *et al.,* (2020) [8], who emphasized that timely, relevant, and well-designed continuing education activities—coupled with an organizational culture that facilitates the application of learning—contribute significantly to higher levels of nurse satisfaction. In this study, the comparatively high satisfaction levels may be attributable to the hospital's efforts to deliver training through convenient and accessible formats, such as in-unit sessions, brief workshops, and hands-on demonstrations. However, despite more than half of the nurses reporting satisfaction, a notable proportion expressed neutrality or lower satisfaction levels, warranting further consideration. One potential contributor may be the barriers to attending continuing education activities identified in this study, including demanding workloads and staff shortages. These operational challenges can limit access to learning opportunities and may therefore influence satisfaction level. Furthermore, nurses' preferences for specific teaching methods—particularly interactive approaches such as bedside teaching, workshops, and simulations—may affect their evaluations of continuing education activities. When training is delivered primarily through lecture-based methods that do not align with preferred learning styles, perceived effectiveness and overall satisfaction may be diminished, even when the content itself is relevant and valuable.

This study has some limitations that should be acknowledged. It was conducted in a single tertiary hospital, which may limit the generalizability of the findings to other healthcare settings. Additionally, the data were collected through self-reported questionnaires, which may introduce response bias, including social desirability or inaccurate recall. Finally, the cross-sectional design captures perceptions at one point in time and does not reflect potential changes in learning needs over time. Despite these limitations, the study reflects meaningful insights into nurses' learning needs within this context.

7. Practical Implications

Based on the study findings, several implications for practice are recommended. For nurses, the results reflect the importance of engaging in short, focused educational sessions—preferably 15–30 minutes—and selecting training activities that align with their individual learning needs, which differ across experience levels.

For nurse educators, the study reflects the need to adopt microlearning approaches and prioritize high-demand topics such as emergency response, crash cart and defibrillator use, and medication courses. Developing level-specific learning pathways based on years of experience, and integrating structured lectures with interactive strategies, may further enhance learning effectiveness.

For hospital administrators, the findings reflect the importance of addressing operational barriers, particularly workload and scheduling constraints, by offering flexible or protected time for education. Supporting online or self-paced modules, ensuring the availability of essential clinical trainings, and fostering an organizational culture that values continuous professional development will help sustain engagement and maximize the impact of educational initiatives.

8. CONCLUSION

In conclusion, continuing education activities are generally perceived as beneficial and satisfying by

nurses work in KFSHD at Saudi Arabia. To further enhance these outcomes, educational planners and hospital administrators should address operational barriers, broaden teaching approaches to accommodate diverse learning styles, and continue fostering a culture that supports ongoing education and the application of new knowledge in clinical practice. Sustaining engagement and maximizing the benefits of professional development will require continuing activities that are tailored not only to nurses' learning needs but also to the logistical and motivational factors that influence their participation.

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