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Nurses' Knowledge and Attitude regarding Evidence-Based Practices in Intensive Care Unit

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Abstract

Background: Nurses are increasingly requested to apply evidence into practice. Nurses need to have a positive attitude, adequate knowledge and applicable research utilization to employ evidence-based practices, promote quality of care effectively. **Aim:** The aim of the study was to assess nurses' knowledge and attitude regarding evidence-based practices in intensive care unit. **Research design: A** descriptive exploratory research design was used to achieve the aim of this study. **Setting:** This study was conducted at three intensive care units affiliated to Teba specialized hospital in Esna. **Subjects**: A convenient sample of all available nurses (ninety nurses) working at intensive care units were included in this study. **Tools**: Tool (I): Self-administered questionnaire. Part (1): Demographic and work-related characteristics of the nurses: Part (II): Nurses' knowledge regarding evidence-based practices questionnaire. Tool (II): Nurses' attitude regarding evidence-based practices scale. **Results:** more than two third of the nurses had bachelor's degree and about two third occupied staff nurse position. The majority of the studied nurses had total unsatisfactory level of knowledge, while only minority of them had total satisfactory level of knowledge regarding evidence-based practices. The majority of the studied nurses had total positive attitude scores, while minority of them had total negative attitude scores regarding evidence-based practice. **Conclusion:** this study concluded that the majority of nurse had unsatisfactory level of knowledge regarding evidence-based practices while the majority of them had positive attitude regarding evidence-based practices. **Recommendations:** Structured programs focusing on evidence-based practices principles, definitions, and practical applications should be introduced.

Keywords: Attitude, Evidence-based practices, Intensive care unit, Knowledge

Introduction

Evidence-based practice (EBP) has become a cornerstone in modern healthcare, particularly in nursing, where it is used to enhance patients' outcomes and streamline care processes. EBP refers to the integration of the best available evidence, clinical expertise, and patients' preferences in making decisions about patient care **(Connor et al., 2023).** The adoption of EBP in nursing is crucial because it fosters a culture of continuous learning and improvement, ensuring that nurses are equipped with the knowledge to provide the highest standard of care in increasingly complex healthcare environments **(Melnyk et al., 2023).**

The importance of EBP in nursing can't be overstated. It has been shown to significantly improve patients' outcomes, reduce healthcare costs, and improve the overall quality of care **(Connor et al., 2023)**. By integrating research findings into clinical practice, nurses are able to make informed decisions that are based on sound scientific evidence, which enhances patient safety and ensures that interventions are up to date **(Gunawan, 2023).** Nurses proficient in EBP contribute to a healthcare system that is responsive to the latest advancements in medical science, further highlighting the importance of continuous education and EBP integration **(Avraham et al., 2023).**

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Statistics on EBP implementation in critical care reveal both progress and challenges. A 2022 study indicated that while approximately 60% of nurses at critical care units reported familiarity with EBP, while only 30% consistently applied these practices in their daily work **(Gunawan, 2023).** This gap between knowledge and practice is often due to barriers such as limited access to resources, lack of institutional support, and insufficient time for research and implementation **(Connor et al., 2023).** Nevertheless, the need for comprehensive training and EBP resources continues to grow, especially as more institutions acknowledge the benefits of EBP in improving patients' care **(Melnyk et al., 2023).**

In critical care settings, EBP plays a particularly important role due to the complexity and urgency of patients' needs. Nurses working in these environments frequently make high-stakes decisions, and EBP offers a structured approach to ensure that these decisions are supported by the best available evidence (**Wischmeyer et al., 2023)**. Research has shown that implementing EBP at critical care units can lead to improved patients' outcomes, such as reduced mortality rates, fewer complications, and shorter hospital stays (**Arons et al., 2020**). Therefore, integrating EBP into the daily routines of critical care nurses is vital for ensuring patients' safety and effective care delivery **(Connor et al., 2023).**

Nursing role in EBP is multifaceted, extending beyond bedside care. Nurses are primary caregivers, educators, and patients' advocates, positioning them to influence the integration of EBP into everyday care **(Avraham et al., 2023).** By fostering a culture of inquiry and critical evaluation of existing practices, nurses can challenge outdated interventions and promote evidence-based improvements **(Melnyk et al., 2023).** Furthermore, nurse leaders and educators play a pivotal role by mentoring frontline staff and advocating for institutional support for EBP implementation. Overcoming barriers to EBP requires a concerted effort from all levels of the nursing profession, particularly high-pressure environments like critical care units **(Connor et al., 2023).**

Evidence-based practices is an essential aspect of modern nursing practice, offering a framework for improving patient outcomes and ensuring high-quality care. Although challenges remain in its implementation, particularly in critical care settings, the role of nurses in driving the adoption of EBP is critical. Through continuous education, strong leadership, and institutional support. Nurses can overcome these challenges and ensure that evidence-based care is delivered consistently. The future of nursing hinges on its ability to embrace EBP as a means of enhancing care and advancing the profession **(Hult et al., 2023; Ferreira et al., 2022).**

Significant of the study

Evidence-based practice has been considered as critical element to improve quality of health services. The implementation of EBP in clinical environments has been challenging. In nursing profession, EBP has gained its importance by influencing the knowledge and practice of nurses. the implementation of EBP has been associated with improved health outcomes, decreased healthcare expenditure and increased nursing staff satisfaction, (**Poyato, et al ,2022**) EBP serves as an approach for problem- solving and a framework for decision making to answer emerging clinical questions, while, considering the patient's values and practitioner's own views. Therefore, EBP is considered as critical element to improve quality of health services and achieving excellence in patients' care **(El-Sheikh, et al 2019)**

Studies reported that 20–25% of patients are exposed to interventions that are ineffective or potentially harmful. The national health care quality and disparities report, released by the agency for health care research and quality (AHRQ), demonstrated that evidence-based care is delivered only 70% of the time with an improvement of EBP use only 4% since 2005. This problem demonstrates the gap between the availability of evidence-based practice recommendations and the use of these practices at the point of care delivery **(Cassidy, et al, 2021).** In a study that was conducted in Oman; 83% of nurses were moderately successful in searching the internet, while, only 36% of the nurse had adequate searching skills using the data bases. Also, the findings indicated that nurses had lower scores on knowledge and skills, and moderate scores on attitudes regarding EBP **(El-Sheikh, et al, 2019)**

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Nurses are increasingly requested to apply evidence into practice. Nurses need to have a positive attitude, adequate knowledge and applicable research utilization to employ EBP, promote quality of care effectively and encouragement from facilities and their leaders **(Hooge, et al, 2022).** Hence, the current study was conducted to assess nurses' knowledge and attitude regarding evidence-based practices at intensive care unit.

Aim of the study

The aim of the study was to assess nurses' knowledge and attitude regarding evidence-based practices in intensive care unit through the following objectives:

- Assess nurses' level of knowledge regarding evidence-based practices in intensive care unit.
- Assess nurses' attitude regarding evidence-based practices in intensive care unit.

Research questions.

1. What is the nurses' level of knowledge regarding evidence-based practices in intensive care unit?
2. What is the nurses' attitude regarding evidence-based practices in intensive care unit?

Subjects and methods:

The subject and methods for this study were portrayed under the four main items as follows:

I- Technical items:

The technical items include research design, setting, subjects and tools for data collection.

Research design:

A descriptive exploratory research design was used to achieve the aim of this study. Descriptive design involves direct exploration, analysis, and description of a particular phenomenon. Exploratory design does not aim to provide the final and conclusive answers to the research questions, but merely explores the research topic with varying levels of depth **(Hunter, et al., 2019).** An exploratory descriptive design helps the researcher to describe and document aspects of a situation as it naturally occurs, as well; it helps to establish a database for future research **(Claybaugh & Zach, 2020).**

Setting:

This study was conducted at 3 intensive care units affiliated to Teba specialized hospital in Esna. Two intensive care units were located at the second floor of the hospital and one intensive care units was located at the fifth floor of the hospital, these units were surgical ICU which contains 30 nurses, general ICU which contains 31 nurses and Medical ICU which contains 29 nurses.

Subjects:

A convenient sample of all available nurses (90 nurses) working at intensive care units were included in this study.

Tools for data collection:

The following tools were utilized to collect data of this study:

Tool (I): Self-administered questionnaire. this questionnaire was developed by investigator into simple Arabic language based on literature review **(Kozhamberdiyeva, 2020; Nick, et al, 2021; Alakhras et al., 2023).** It included two parts:

Part (I): Demographic and work-related characteristics of the nurses: This part included demographic characteristics of the nurses as age, gender, marital status, educational level and work-related data as position, years of experience at ICU, and attendance of pervious training program related to evidence-based practice.

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Part (II): Nurses' knowledge regarding EBP questionnaire: This questionnaire was used to assess the level of nurses' knowledge about evidence-based nursing practices. It included 22 multiple choice questions with 5 main categories: nurse' knowledge regarding definition of EBP (5 items), nurse' knowledge regarding Importance of EBP (5 items), nurse' knowledge regarding steps of EBP. (6 items), nurse' knowledge regarding source of EBP (3 items) and nurse' knowledge regarding barriers of EBP (3 items).

Scoring system for nurses' knowledge regarding EBP:

Each correct answer had score 1 and the incorrect answer had score zero. Total scores of knowledges ranged from 0 to 22 degrees and were categorized as:

- Satisfactory if the total score is 50% or more.
- Unsatisfactory if the total score is less than 50%. **(AL-khatib et al., 2020).**

Tool (II): Nurses' attitude regarding EBP scale.

It was adapted from (Aarons, 2004; Mokkink, et al, 2010; Rye, et al, 2017), to assess the attitude of nurses regarding EBP. It consisted of (39) items that cover (10) subscales: openness (4 items), divergence (4 items), limitations (6 items), balance (4 items), burden (4 items), job security (3 items), organizational support (3 items), appeal (3 items), requirement (3 items) and fit (5 items).

Scoring system for nurses' attitude regarding EBP:

The tool consists of positively and negatively worded statements, items were scored on 5-point Likert scale from (0= not at all), (1=slight extent) (2= moderate), (3=great extent) and (4=very great extent). And negatively worded statement were reversely scored. Total scores ranged from 0 to 156 degrees and were categorized as:

- Positive attitude if the total score is 50% or more.
- Negative attitude if the total scores less than 50%. **(AL-khatib, et al ,2020).**

Negative worded statements included as the following; research based treatments/interventions are not clinically useful, avoiding use manual interventions (divergence) evidence-based practice decrease communication with patients, evidence-based practice is not useful for patients with multiple problems, evidence-based practice is not useful for families with multiple problems, evidence-based practice is not individualized treatment (limitations) not have time to learn anything new, can't meet other obligations, not knowing how to fit evidence-based practice into administrative work, evidence-based practice will cause too much paperwork (burden)

Validity:

The study tools were tested for validity (face and content validity). Face validity aimed to determine whether the tools measure what were supposed to measure. Content validity was conducted to determine whether the content of the tools cover the aim of the study. It was measured by a jury of 5 experts, three assistant professors and two lecturers of medical surgical nursing at faculty of nursing, Helwan university. The experts reviewed the tool for clarity, relevance, accuracy, comprehensiveness, simplicity and applicability and necessary modifications were done.

Reliability:

Cronbach's Alpha was used to determine the internal reliability of the adapted tools. Reliability of the tools was tested to determine the extent to which the questionnaire items are related to each other. Cronbach's alpha reliability coefficient normally ranges between 0 and 1 with higher values (more than 0.7) denote acceptable reliability. The tools showed good reliability, it was (0.764) for nurses' knowledge regarding EBP, (0.703) for nurses' attitude regarding EBP.

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Ethical considerations:

An official permission to conduct the proposed study was obtained from the scientific research ethics committee. Participation in the study was voluntary and subjects were given complete full information about the study and their role before signing the informed consent. The ethical considerations included explaining the purpose and nature of the study, stating the possibility to withdraw at any time, confidentiality of the information where they were not accessed by any other party. Ethics, values, culture and beliefs were respected.

II- Operational Item:

Preparatory phase: It included reviewing of past, current, national, and international related literature, and theoretical knowledge of various aspects of the study using books, articles, internet, periodicals and magazines to develop tools for data collection.

Pilot study:

The pilot study was done on 10% of the sample (9 nurses) to examine the clarity of questions and time needed to complete the study tools. Subjects included in the pilot study weren't excluded from the study sample as necessary modifications were done.

Field Work:

- Data were collected within 6 months in the period from the beginning of September 2023 to the end of February 2024.
- The investigator visited the intensive care units two days per week (Sunday – Wednesday) during the morning shifts (8:00 Am to 2:00 pm). Each day the investigator interviewed 1 or 2 nurses.
- The aim of the study was explained to nurses. Before any data collection
- The investigator obtained the nurses' consent for participating in the study.
- The study tools were completed and filled in by the nurses within an average time of 40-50 minutes as following: regarding demographic and work-related characteristics of nurses; it took about 5 minutes as well nurses' knowledge questionnaire took about 15-20 minutes, and nurses' attitude scale took about 20-25 minutes.
- Some nurse filled in data collection tools through a google form (https://docs.google.com/forms/d/1l2bsrH5aQOPjT0N0UboLUCN7O3ZAd5edBO6oEX6tUNY/edit?usp=forms_home&ths=true).

III-Administrative item:

After explanation of the study aim and objectives, an official permission was obtained from the dean of faculty of nursing and the director of Teba Hospital asking for cooperation and permission for data collection.

IV-Statistical Item:

Upon completion of data collection, collected data were organized, tabulated, and analyzed using Statistical Package for Social Science (SPSS), version 24 for analysis. For quantitative data, numbers, percentage, mean, and standard deviation (SD) were used to describe results. For qualitative data which describe a categorical set of data, frequency and percentage of each category were calculated.

Appropriate significance was adopted at $P < 0.05$ for interpretation of results (Siregar, 2021). The observed0 associated differences were considered as not significant if $p>0.05$ and significant if $p<0.05$. Appropriate inferential statistics such as chi square and Pearson correlation “r” test were used as well.

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Result

Table (1): Frequency and percentage distribution of the studied nurses according to their demographic and work-related characteristics (N = 90)

Nurses' characteristics		No	%
Age (in years)	20 – 30	٨٥	**٩٤.5**
	31 – 40	4	4.4
	41 – 50	1	1.1
	Mean **25.80 ± 2.28**		
Gender	Male	52	**57.8**
	Female	38	42.2
Marital status	Single	63	**70**
	Married	27	30
Educational level	Technical institute	21	23.3
	Nursing bachelor	64	**71.1**
	Postgraduate	5	5.6
Position	Staff nurse	59	**65.6**
	Charge nurse	19	21.1
	Head nurse	9	10
	Nurse supervisor	3	3.3

Table 1: shows that 94.5% of the studied nurses aged from 20 – 30 years. 57.8% of them were male and 70% of them were single, as well, 71.1% of the nurses had bachelor's degree and 65.6% occupied staff nurse position.

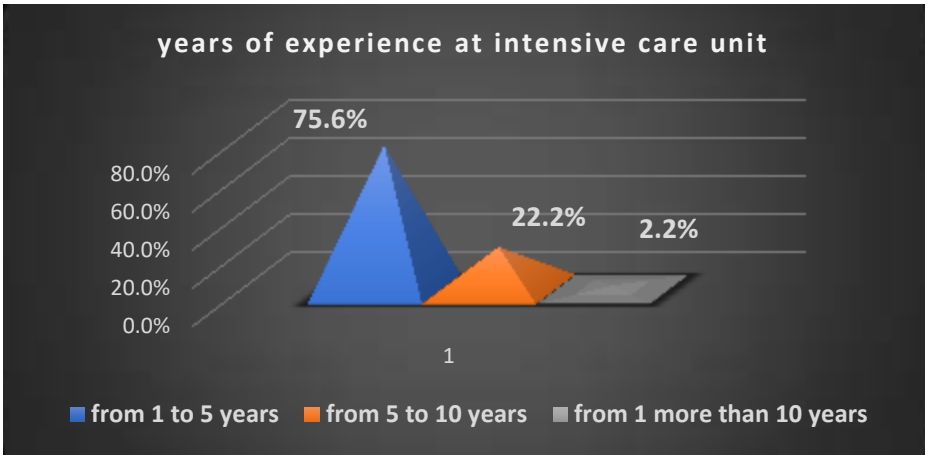

Figure (1): Percentage distribution of the studied nurses according to years of experience at intensive care unit. (n = 90)

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Figure (1): illustrates that 75.6% of the studied nurses had experience of less than 5 years at ICU, while, only 2.2% of them had more than 10 years of experience at the intensive care unit.

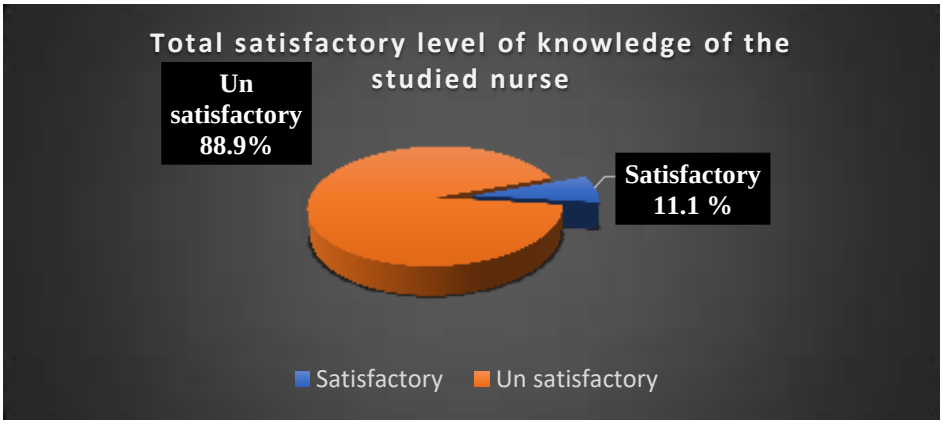

Figure (2): Percentage distribution of the studied nurses according to their total satisfactory level of knowledge (n = 90)

Figure (2): shows that the 88.9% of the studied nurses had total unsatisfactory level of knowledge regarding EBP. While only 11.1% of them had total satisfactory level of knowledge regarding

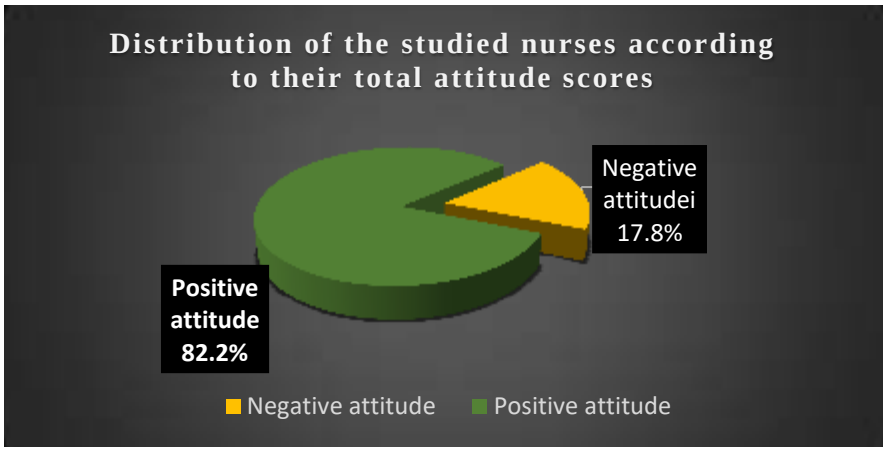

Figure (3): Percentage distribution of the studied nurses according to their total attitude scores (n = 90)

Figure (3): shows that 82.2% of the studied nurses had total positive attitude scores regarding evidence-based practice. While 17.8% of them had total negative attitude scores regarding evidence-based practice.

Table (2): Correlation between total satisfactory knowledge of the studied nurses and their attitude (n=90).

Items	Contingency Coefficient	P value
Tota knowledge and attitude	.964	.000**

**** High significant at P ≤ 0.001**

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Table (2): demonstrate that there was high statistically significant positive correlation between total knowledge scores of studied nurses and their attitude ($p < 0.01$).

Discussion

Regarding the demographic characteristics of the studied nurses, the current study revealed that the most of the studied nurses' age was between 20 to less than 30 years. From an investigator's point of view, this may be due to the critical care unit is a place of hard work, so, newly graduated students are engaged into ICU. This results are consistent with **Ferrer, et al, (2023)** in their study entitled "evidence-based practice among clinical nurses in bahrain" and showed that half of the nurses' age from 22 - 29 years.

Additionally, the present study showed more than half of the studied nurses were males and the majority of them were single and had baccalaureate nursing degree. From investigator's perspectives, these findings could be explained by the age of the majority of nurses being less than 30 years reflecting that they were newly graduated. The current study agrees with **Eladawi & Abdelhady, (2020)** who conducted study about "Knowledge, attitude and practice of resident physicians towards evidence-based medicine in Mansoura, Egypt" and reported that more than half of participant were males. Further, this finding is consistent with **Shazly, et al, (2018)** in their study title about" nurses' beliefs and barriers toward evidence – based practice" and reported that half of the studied nurse were single and the majority had baccalaureate nursing degree

In relation to studied nurses' work-related characteristics, the current study indicated that two third of them were staff nurses and the majority of them had experience of less than 5 years at ICU. This result agrees with **Shazly, et al., (2018)** who reported that the majority of the studied nurses had baccalaureate nursing degree. While, this result agrees with **Ahmed, et al, (2020)** in their study titled "effect of evidence-based nursing training program on head nurses' knowledge, practice and attitudes" and showed that one third of the studied nurse had 8 years and more of experience.

As regards attending previous training courses, the present study showed that most of the nurses had no previous training courses related to EBP. These results go in line with **Shazly, et al, (2018)** who reported that more than half of the studied nurses had no previous courses about EBP. This may be due to shortage of nursing stuff and workload at ICU.

By assessing the total satisfactory level of knowledge for the studied nurses, the current study revealed that the majority of the studied nurses had total unsatisfactory level of knowledge regarding EBP. While the minority of them had total satisfactory level of knowledge regarding EBP. This is consistent with **Dahal, (2019)** who conducted a study titled "Knowledge and attitude toward evidence-based practice among nurses of a tertiary care teaching hospital" and found inadequate knowledge of participant regarding EBP.

Regarding total attitude scores of the studied nurses, the results of the study, reveals that shows that the majority of the studied nurses had total positive attitude scores regarding evidence-based practice. While the minority of the studied nurses had had a total negative attitude scores regarding evidence-based practice. This is consistent with **Atakro et al., (2020)** in their study entitled "Knowledge, attitudes, practices and perceived barriers of evidence-based practice among registered nurses in a Ghanaian teaching hospital" and found that there was high level of attitude of EBP between nurses.

The results of the current study revealed that there was a high statistically significant positive correlation between total knowledge scores of studied nurses and their attitude. From investigator point of view a positive attitude towards EBP likely reflects an openness to adopt and integrate best practices in patient care. However, without sufficient knowledge, nurses may be unable to fully implement these practices in their clinical environments.

This finding agrees with **Elfeshawy et al., (2022)** who illustrated that there was positive significant correlation between total knowledge and attitude scores among studied nurses towards evidence-based practice. As well, the current study is supported by **Alqahtani et al., (2020)** who conducted study about "Nurses'

evidence-based practice knowledge, attitudes and implementation: A cross-sectional study" and found there was a correlation between knowledge and attitude.

Conclusion

This study concluded that the majority of the studied nurse had a bachelor's degree and were stuff nurse. The majority of nurse had total unsatisfactory level of knowledge regarding evidence-based practices. while the majority of them had positive attitude regarding evidence-based practices. There was statistically significant positive correlation between total knowledge scores of studied nurses and their attitude.

Recommendation

- Structured programs focusing on EBP principles, definitions, and practical applications should be introduced.
- Institutions need to invest an information technology infrastructure to facilitate EBP access. Providing nurses with time and resources, such as online databases to ease EBP integration into daily practice.
- Regular assessment of EBP knowledge and attitudes should be conducted to measure progress and identify areas needing further intervention.

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