

Effect of Entrepreneurial Leadership on Team Climate and Innovative Work Behavior among Staff Nurses

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Abstract

Background: Staff nurses must be adequately aware about the importance of entrepreneurial leadership that directly influence on their team climate and innovative work behavior. **Aim:** To assess the effect of entrepreneurial leadership on team climate and innovative work behavior among staff nurses. **Design:** A descriptive correlational design. **Setting:** The study conducted at Main Sohag University Hospital. **Subjects:** A convenient sample of staff nurses (n=150) working at pre-mentioned setting. **Tools:** Three tools used for data collection. **Tool I** consists of two parts namely, personal characteristics form and entrepreneurial leadership questionnaire. **Tool II** is team climate questionnaire and **Tool III** is innovative work behavior questionnaire. **Results:** More than half of staff nurses agreed that leaders have high level of entrepreneurial leadership, more than one third of staff nurses have a high level of team climate and innovate work behavior. **Conclusion:** More than half of nurse leaders had a high level of entrepreneurial leadership at Sohag University Hospital, more than one third of nurse staff had high level of team climate, also more than one third of them have high level of innovate work behavior. In addition there was highly statistically significant relation between entrepreneurial leadership, team climate, and innovative work behavior as reported by staff nurses. **Recommendations:** Implement a management strategy that addresses importance of adopting entrepreneurial leadership behaviors for nurse leaders. A reward system should be made to the staff nurses who exhibit innovative work behaviors. Creating encouragement environment for the staff nurses to promote their performance and create positive team climate.

Keywords: *Entrepreneurial leadership, Innovative work behavior, Staff nurses & Team climate*

Introduction:

By fostering participation in decision-making and organizing nursing responsibilities to deliver high-quality patient care, leadership styles developed to boost productivity. One of these leadership types is entrepreneurial leadership (Aboelenein, & Mostafa, 2023). A crucial phenomenon that has recently drawn more attention in both study and practice is entrepreneurial leadership. Developing entrepreneurial leadership abilities is a dynamic and complex social process. Participating in a range of team-based learning activities, such as peer observations, self-regulated learning, and team learning, can help entrepreneurial leaders acquire knowledge and abilities (Ahmed, & Harrison, 2022).

Entrepreneurial leaders focus on creating a conducive climate for the employees by promoting an autonomy-focused supportive environment (Bilal, et al., 2021). Related concepts like team effectiveness, efficiency, and dynamics all of which may be measured in a number of ways, including communication, shared knowledge, participative decision-making, and personnel stability invoke team climate (Abrams, et al., 2023).

In addition to psychosocial elements like trust, team climate include the processes of teamwork, including common views of organizational rules, practices, and procedures. It is thought to be something that team leaders may readily modify to increase output. Supervisors who felt more supported by their colleagues were more inclined to return the favor, and staff members perceive a better team climate when professionals around the team collaborate more positively.

Job satisfaction and well-being are correlated with the team climate. The leadership style of a team has an impact on its climate. For example, by being transparent and encouraging team members to contribute ideas and criticism (Lokman, et al., 2023). Team climate implicated through related concepts such as team effectiveness, efficiency and dynamics, each measured in a variety of ways; for example communication, shared understanding, staffing stability and participatory decision making. It is considered something that is easily manipulated by team leaders to promote productivity (Abrams, et al., 2023).

Innovative behavior aids businesses in coming up with fresh concepts and providing cutting-edge goods and services. If their supervisors provide for their needs and provide them rewards, staff nurses' creativity will be fostered. To ensure successful organization and economic growth, nurses must possess the creativity to handle and resolve challenges including acquiring supplies, managing a variety of patients, and managing medications and medical equipment (Aboelenein, & Mostafa, 2023). Entrepreneurial leadership guide and influence team members' performance to accomplish organizational objectives. Conflicts could arise and cause the team to disband in the absence of effective leadership. An effective entrepreneurial leader can spot opportunities at the ideation phase and turn them into a productive project. The majority of innovative and entrepreneurial leadership initiatives are developed in a collaborative setting. The success of the team is significantly influenced by the team atmosphere. A team's entrepreneurial leadership must not only guide the group to a successful innovation outcome but also maintain a positive team environment (Kah, 2019).

Significance of the Study:

Gathering and inspiring followers who share the vision for strategic value generation is the goal of entrepreneurial leadership. In order to find and seize company opportunities through entrepreneurial actions and influence, the entrepreneurial leader must articulate a vision for growth outcomes and motivate followers to take action toward achieving this vision (Ahmed, & Harrison, 2022). An essential component of improved performance and team innovation is a positive team environment. Prior studies have examined the connection between team climate and leadership, and organizational leadership has been suggested as a critical element impacting how individuals view the climate within organizations (Orekoya, 2023). In today's competitive and dynamic workplace, innovation is essential for success. Nurses' innovative work behavior initiatives will fail if they don't feel that their superiors are supporting and guiding them (Korku & Kaya, 2023).

According to a national study on the topic specifically in nursing, staff nurses' innovative work practices and entrepreneurial leadership were correlated (Elewa & El Banan, 2022). Internationally Bagheri & Akbari (2018) explored partially this topic in nursing who noted that nurses' innovative work behavior was significantly improved by entrepreneurial leadership. This study was also conducted in social science. There was association between team climate and innovative work behavior. At last, this topic was examined in new business (Listyanti, & Hendarman, 2023). Team atmosphere and creative work practices were strongly correlated

with entrepreneurial leadership. Since there hasn't been any research on this topic in the nursing industry, either nationally or globally Kah, (2019). So the present study will carry out this study to find out how entrepreneurial leadership affects the team environment and innovative work practice of nurses at Main Sohag University Hospital.

Aim of the Study:

The aim of the current study was to investigate how staff nurses' innovative work behavior and team climate were affected by entrepreneurial leadership.

Research Questions:

The following research questions were developed to achieve the goal of the current study:

1. Does entrepreneurial leadership have an affect on the team climate?
2. Does entrepreneurial leadership effect staff nurses' innovative work behavior?
3. What is the level of entrepreneurial leadership among nurse leaders?
4. What is the level of team climate among staff nurses?
5. What is the level of innovative work behavior among staff nurses?

Subject and Methods:

- 1- Technical design.
- 2- Administrative design.
- 3- Operational design.
- 4- Statistical design.

Technical design

Included study design, setting, subjects and data collection tools.

Study design:

A descriptive correlational study approach was used to conduct the current study.

Setting:

The current study was carried out in the Main Sohag University Hospital, which has 515 beds total, including 270 medical and 245 surgical units.

Subjects:

All 150 nurses of Main Sohag University Hospital made up the handy sample. There are 108 nurses in medical units and 42 in surgical units.

Data Collection Tools:

Data was collected by using self-administrated three tools:

Tool (I) : Entrepreneurial Leadership Questionnaire

It includes two parts:

Part (1): Personal characteristics data sheet as age, gender, marital status, years of experience, and educational background were among the information gathered on the nursing staff.

Part (2): Entrepreneurial leadership scale. The scale was developed by Bagheri & Harrison, (2020) adopted by Akeel et al., (2023) and adapted by the researcher by editing statements from leader questionnaire to assess of the leader by the staff

nurses to measure entrepreneurial leadership. It includes (forty three items) divided into eight dimensions include framing challenges (five items), absorbing uncertainty (four items), underwriting (five items), building commitment (six items), defining gravity (five items), opportunity identification and exploitation (ten items), orientation towards learning (five items), and creative collective self-efficacy (three items)

Tool (II): Team Climate Questionnaire:

Thirty-nine items total, divided into four dimensions: vision (twelve items), participative safety (twelve items), support for innovation (eight items), and task orientation (seven items). The scale was created by **Anderson & West (1996)**, adopted by **Ouwens et al. (2008)**, and modified by the researcher by changing questionnaire questions to statements.

Tool (III): Innovative Work Behavior Questionnaire:

The scale was created by **Waltz et al. (2005)** and modified by the researcher by changing the questionnaire's questions to statements. It measures innovative work behavior among staff nurses and has ten items that are broken down into four categories: idea generation (three items), idea championing (two items), idea implementation (three items), and idea exploration (two items).

Scoring system for the three tools:

A five-point Likert scale, with 1 denoting strongly disagreed, 2 disagreed, 3 neutral, 4 agreed, and 5 strongly agreed, was used to gauge the responding mechanism. The sum of the scores for innovative work behavior (50), team climate (190), and entrepreneurial leadership (215). Levels would be classified as low if the score was less than 60%, moderate if the score was between 60% and 75%, and high if the score was greater than 75%.

Administrative design

The dean of Sohag University's faculty of medicine, the hospital director, the directors of the nursing administration departments, and the heads of the departments in the aforementioned setting at Main Sohag University Hospital have all formally granted authorization to gather the required data.

Ethical considerations:

The Ethical Committee of Assiut University's Faculty of Nursing has approved the research proposal No (1120240794) on (25-3-2024) and Faculty of Medicine Sohag University in (13-5-2024), and department heads of previous mentioned setting at Main Sohag University Hospital. Before the study began, the researcher gave the participants an explanation of its aim, and nature. Participants in the study were not at danger while the research was being applied. Participants in this study were asked to verbally consent. The Cronbach's alpha test results for

the entrepreneurial leadership questionnaire showed a reliability of 0.977 for the study instruments, team climate questionnaire 0.977 and finally it was 0.910 for innovative work behavior questionnaire. Participants in the study were free to decline participation, withdraw from the study at any time, and/or give no explanation. Anonymity and confidentiality were guaranteed when the privacy of study participants was taken into account when data was being collected. Common ethical guidelines for clinical research were adhered to in this investigation.

Operational design

Preparatory, pilot, and field work were the three primary stages of the study.

Preparatory phase:

- From early November 2023 to mid-May 2024, this phase took seven months to complete the study proposal.
- The study tools were translated into Arabic following an assessment of the body of literature on the research issue.
- A jury expert committee comprising five experts four professors from Assiut University's nursing faculty and one associate professor from Sohag University's nursing faculty performed face validity in order to evaluate accurate understanding of the study instrument.

Pilot study:

To evaluate the study instruments' applicability, clarity, understandability, and reliability as well as to gauge how long it would take to complete the questionnaires, a pilot study was conducted. Additionally, to pinpoint issues that might arise throughout the actual data collection process. It was carried out prior to the June 2024 data collection. It was used on 10% (n=15) of the staff nurses in the entire study. The nurses who participated in the pilot study were included in the study sample because the data gathered for the study was examined and the study instruments were left unchanged.

Field work:

Each nurse meeting with the researcher to discuss the goal of the study and solicit participation. Following consent, self-administered questionnaires were used to present the study tool to the participating nurses. It took roughly thirteen minutes for each participant to complete the questions. The entire time frame for gathering data in July and August of (2024).

Statistical design

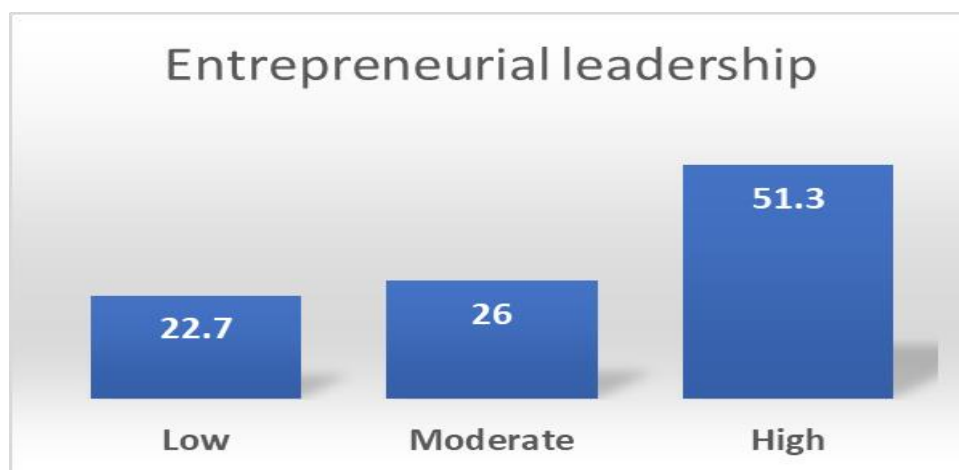
The Statistical Software Package for Social Science (SPSS-26) was used for data entry and statistical analysis. Frequencies, percentages, averages, standard deviations and Pearson correlation test were used to compute descriptive variables. Statistical significance was considered at P-value < 0.05.

Results:**Table(1): Distribution of study sample personal data (n = 150)**

Variables		No.	%
Age	20-<30	98	65.3
	30-<40	47	31.3
	40 and more	5	3.4
	Mean \pm Std. Deviation	27.81 \pm 5.506	
Gender	Male	48	32.0
	Female	102	68.0
Marital status	Married	91	60.7
	Unmarried	59	39.3
Educational qualification	Secondary school diploma in nursing	19	12.7
	Diploma certificate from technical nursing institutes	68	45.3
	Bachelor of nursing science	63	42.0
Years of experience	< 5 year	93	62.0
	5-<10	16	10.6
	10-<15	25	16.7
	15-<20	9	6.0
	20 and more	7	4.7
	Mean \pm Std. Deviation	5.95 \pm 5.991	

Table (2): Mean scores of entrepreneurial leadership dimensions among study sample (n = 150)

Variables	Range	Mean \pm Std. Deviation
Framing challenges dimension	20	16.96 \pm 5.230
Absorbing uncertainty dimension	16	12.97 \pm 4.252
Underwriting dimension	20	16.34 \pm 5.402
Building commitment dimension	24	20.61 \pm 6.055
Defining gravity dimension	20	17.12 \pm 5.296
Opportunity identification and exploitation dimension	40	32.37\pm10.058
Orientation towards learning dimension	20	16.62 \pm 5.169
Creative collective self-efficacy dimension	12	10.38\pm3.563
Total entrepreneurial leadership	186	156.35\pm44.295

**Figure (1): Percentage distribution of entrepreneurial leadership level among study sample (n= 150)****Table (3): Mean scores of team climate dimensions among study sample (n = 150)**

Variables	Range	Mean \pm Std. Deviation
Vision dimension	44	40.44\pm9.902
Interaction dimension	32	29.55 \pm 7.446
Safety and influence dimension	16	13.88\pm4.163
Support for innovation dimension	32	27.57 \pm 8.304
Task orientation dimension	28	24.98 \pm 6.892
Total Team Climate	152	136.42\pm33.961

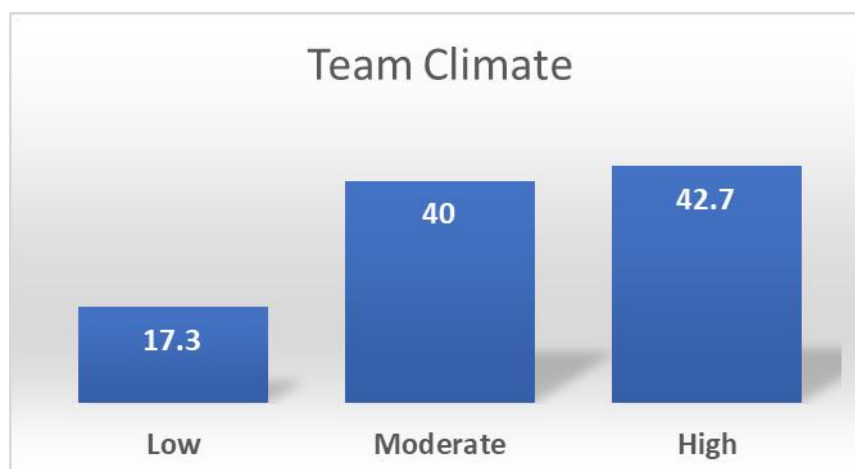


Figure (2): Percentage distribution of team climate level among study sample (n = 150)

Table (4): Mean scores of innovative work behavior and its dimensions among study sample (n = 150)

Variables	Range	Mean \pm Std. Deviation
Idea exploration dimension	8	6.37 \pm 1.888
Idea generation dimension	12	10.82 \pm 3.105
Idea championing dimension	8	7.36 \pm 2.034
Idea implementation dimension	12	11.19 \pm 3.034
Total Innovative Work Behavior	40	35.75\pm8.830

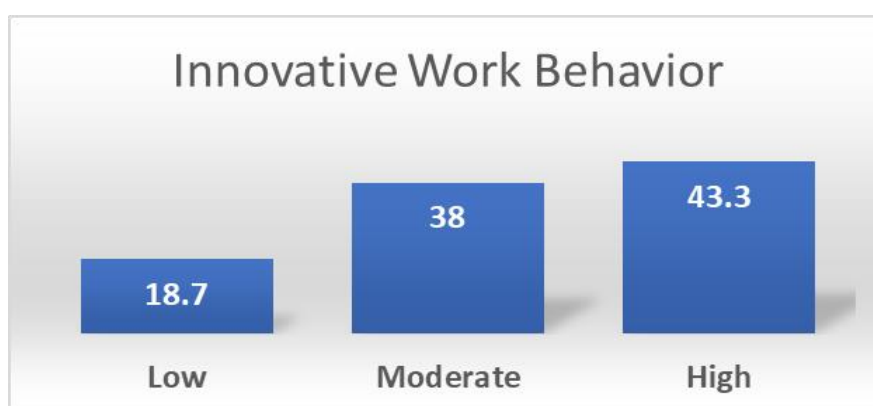


Figure (3): Percentage distribution of innovative work behavior level among study sample (n = 150)

Table (5): Pearson correlations between entrepreneurial leadership, team climate and innovative work behavior among study sample (n = 150)

	Variables		1	2	3
1	Entrepreneurial leadership	r.	1		
		p.			
2	Team Climate	r.	.742**	1	
		p.	0.000		
3	Innovative Work Behavior	r.	.477**	.641**	1
		p.	0.000	0.000	

* Significant at $P < 0.05$ and **Highly Significant at $P < 0.01$

Table (1): Shows that women made up the great highly percentage of the study participants (68%) and that interpretation (60.7%) of them were married also (45.3%) of them obtained of Diploma degree from technical nursing institutes. The high percent of them

had less than five years of experience (62%) and about (65.3%) of them aged range between 20-< 30 years.

Table (2): Illustrates that the overall mean score for the characteristics of entrepreneurial leadership was

(156.35 ± 44.295), the highest mean score was opportunity identification and exploitation dimension (32.37 ± 10.058), and the lowest mean was creative collective self-efficacy dimension (10.38 ± 3.563).

Figure (1): Indicates that from the point of view of staff nurses (51.3%) have high a level of entrepreneurial leadership, and about (22.7%) have low level of entrepreneurial leadership.

Table (3): Demonstrates that the overall mean ratings for the team climate dimensions were (136.42 ± 33.961), the highest mean score was related to vision (40.44 ± 9.902). While the lowest mean was safety and influence dimension (13.88 ± 4.163)

Figure (2): Illustrates that (42.7%) of staff nurses have high level of team climate, while about (17.3%) have low level of team climate.

Table (4): Reveals that the highest mean score component for staff nurses was connected to concept implementation (11.19 ± 3.034), while the overall mean score for innovative work behavior was (35.75 ± 8.830). The idea exploration dimension, on the other hand, had the lowest mean (6.37 ± 1.888).

Figure (3): Shows that about (43.3%) of staff nurses have high level of innovative work behavior, and only (18.7%) of them have low level of innovative work behavior.

Table (5): Demonstrates that entrepreneurial leadership were extremely statistically significantly positively correlated with team climate and innovative work behavior also there was highly statistically significant positive correlation between innovative work behavior and team climate ($P=0.000$).

Discussion:

By engaging in entrepreneurial endeavors, entrepreneurial leaders serve as role models. Because of their leadership position within the firm and their ability to employ organizational tools like incentives to promote favorable behaviors and create a creative atmosphere, leaders are a significant source of role modeling, according to study. Entrepreneurial behavior also results in new technologies and competitiveness (Eltayeb, 2021).

In terms of personal characteristics, the current study showed that most of the participants were female, half were married, and over one-third had graduated from technical nursing schools with a diploma. More than half of them were in the 20–30 age range, and most had less than five years of experience. These results may be due that nursing profession has been portrayed as a feminine occupation as nurses are humble, gentle, subordinate, and compassionate, and in Egypt males associated this profession recently. Moreover many of them had diploma certificate from technical nursing institutes.

These findings aligned with Getaneh et al. (2024) & Zappalà et al. (2021), who noted that over half of respondents were women, under 35, and had one to five years of experience. In contrast to Hafeez et al. (2024), who found that most of the research participants were men and more than one-third of them had master's degrees.

Regarding to dimensions of entrepreneurial leadership present study revealed that the highest mean score was for opportunity identification and exploitation, and the lowest mean was for creative collective self-efficacy perception. From the researcher point of view this may be due to the leader frequently points out and try to explore work weakness and recognizes existing market opportunities. This aligned with Awad, et al., (2024) who said that the highest mean score was for opportunity identification and exploitation, while inconsistent with Naushad, (2021) who illustrated that the highest mean score was for defining gravity. And disagreed with Bagheri, & Harrison, (2020) who founded that the item which obtained the highest mean score for staff nurses was creative collective self-efficacy.

More than half of nurse leaders, in the perspective of nurses, exhibit high levels of entrepreneurial leadership, while roughly one-fifth of them exhibit poor levels. This is attributed that to their continues desire to pioneering and improving their performance. These results consistent with Sarwoko, (2020) & Zijlstra, (2014) who found that more than half of employees had high level of entrepreneurial leadership in their organization while in conflict with Getaneh, et al., (2024) who illustrated that respondents had neutral level of entrepreneurial leadership.

As regards team climate dimensions according to the current study, vision had the highest mean score. That could be because staff nurses feel that the organization must have a clear vision to guide leaders and subordinates to achieve desired success. These were in harmony with Antino, et al., (2014) and Koivunen, et al., (2015) who addressed that the item which obtained the highest mean of team climate was related to vision while Carmo et al. (2024) said that task orientation was associated with the item that had the highest mean score, which contradicted this finding in addition disagreed with Listyanti, & Hendarman, (2023) who showed that support for innovation is the highest mean score.

According to the current study, it showed that more than two fifths of staff nurses have a high level of team climate, and less than one fifth have low level of team climate. Staff nurses' great communication and relationships with one another, or their effective entrepreneurial leadership style, may be the cause of

this. This was aligned with **Agreli, et al., (2017)** and **Listyanti, & Hendarman, (2023)** who stated that subjects had high level of team climate.

The current study's innovative work behavior dimensions showed that concept implementation had the greatest mean score for staff nurses, whereas idea exploration had the lowest mean. The researcher attributed that to this may be due to idea implementation ensures the availability of healthcare and related services, improves health disparities, and improves quality of life. These findings were consistent with those of **Sorour et al. (2024)** who found that the highest mean score after idea generation was idea implementation while **Bagheri, & Akbari, (2018)** inconsistent with the present study who stated that the highest mean score for staff nurses was idea exploration.

More than two-fifths of staff nurses exhibit high levels of innovative work behavior, whereas less than one-fifth exhibit low levels, according to the current study. This might be because nurses have a supportive work environment which facilitates their creativity. This was agreed with **Atalla, et al., (2024)** and **Ma, et al., (2023)** who demonstrated that nurses have high level of innovative behaviors while disagreed with **Zhang, et al., (2024)** who mentioned that nurses have lower level of innovative behavior. According to staff nurses, the study revealed a very statistically significant favorable association between innovative work behavior, team climate, and entrepreneurial leadership. Moreover, there was a highly statistically significant positive correlation between creative work practices and team climate. The researcher attributed this to the leadership behaviors of entrepreneurs have a significant effect on creating an environment that promotes innovative behavior among employees in health care sectors as general and entrepreneurial leaders are more likely to create personal and team innovative outcomes. These findings were in line with **Neo (2019)**, who showed that innovative work behavior, team climate, and entrepreneurial leadership were significantly positively correlated. They were also in harmony with **Malibari & Bajaba (2022)**, who found that employees' innovative behavior was positively correlated with entrepreneurial leadership, and **Listyanti & Hendarman (2023)**, who illustrated that team climate and innovative work behavior were statistically significantly positively correlated.

Conclusion:

According to the current study's findings show that over half of nurse leaders under investigation exhibited a high level of entrepreneurial leadership at Sohag University Hospital. Also, a high degree of team atmosphere is present in almost one-third of the

nursing workforce. Furthermore, almost one-third of all staff nurses exhibit a high degree of innovative work behavior, and staff nurses indicated a highly statistically significant relationship between innovative work behavior, team climate, and entrepreneurial leadership.

Recommendation:

1. Implement a management strategy that addresses importance of adopting entrepreneurial leadership behaviors for nurse leaders.
2. A reward system should be made for the staff nurses who exhibit innovative work behaviors.
3. Creating encouragement environment for the staff nurses to promote their performance and create positive team climate.

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