



Clinical Care Needs of Patients with Severe Traumatic Brain Injury in the Intensive Care Unit

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Abstract

Background: Patients with severe traumatic brain injuries (TBIs) need specific clinical care in various dimensions. Therefore, identifying clinical care needs of patients is a key factor to provide nursing care. In this regard, a nurse, as a key member of healthcare team, has the ideal position to identify and meet clinical care needs of patients due to the frequent and close contact with patients.

Objectives: The current study aimed at exploring the clinical care needs of patients with severe TBI during the stay in the intensive care unit (ICU), based on the nurses' perspectives.

Methods: The current qualitative study was conducted from November 2015 to March 2016 using the purposive sampling method and semi-structured, in-depth interview with 14 ICU nurses. The interviews were recorded and analyzed using the conventional content analysis method.

Results: Data analysis revealed 3 main themes and 6 categories. Physical health maintenance and promotion theme with 2 categories of "neurophysiological care needs" and "preventive care needs", maintaining psychosocial integrity theme with 2 categories of "communication needs" and "appropriate therapeutic environment" and spiritual management theme with 2 categories of "maintaining patients' dignity" and "providing spiritual care to patients".

Conclusions: According to the results, patients with severe TBI had several care needs in physical, psychosocial, and spiritual dimensions. Therefore, healthcare teams should identify and meet such needs to improve the health and welfare of this group of patients.

Keywords: Traumatic Brain Injury, Nurse, Intensive Care Units

1. Background

Many people experience severe traumatic brain injuries (TBIs) and the consequent disabilities worldwide (1, 2). About 2 million people annually in the US have TBIs, and approximately 71% of hospitalizations are related to severe TBIs (3).

The process of caring for patients with severe TBI in intensive care units (ICUs) is dynamic, complex, and stressful (4). Therefore, ICU nurses should have specialized skills and knowledge (5). In addition, they have an ideal position to identify and meet care needs of patients due to close and frequent contact with patients (6).

Clinical care needs of patients include any kinds of physical, emotional, and social needs (6). According to Bohm, man is composed of mind, body, and soul inte-

grated in a whole with inseparable components. The maximum health and goodness occurs when all the components are in balance and harmony with each other and in case of imbalance within man, man and another man, and man with the world around him, the personality disorder occurs (7). Therefore, with regard to different aspects of human being, taking care of patients also has various dimensions that should be taken into account to provide a holistic care for patients (8).

Holistic care approach puts special emphasis on maintaining patients' dignity, respectful patient-nurse relationship, spiritual support for patients, and patients' participation in decision-making (9). Also, in this approach, a holistic nurse considers all aspects of patients' lives and the impact of nursing practices on patients' health (10).

Despite constructive effects of care based on the holis-

tic approach, studies reported that in most cases nurses still attempt to solve physical problems of patients based on routine tasks and relying on doctors' orders. As a result, further clinical care needs of patients in other dimensions are neglected in spite of their impact on the health status (11, 12). In the process of taking caring of a patient with severe TBI, complex and high-tech environment of ICU, high workload, patient's critical and unstable conditions, and the importance of patients' survival may cause the priority of physical needs for the patient over the routine given cares (13). Researchers in several studies mentioned various nursing interventions required for patients with TBIs in the physical aspects in details. However, other nursing interventions such as communication support, environmental protection, and spiritual support receive less attention (3, 14, 15). In the literature, 4 reasons are identified with regard to the lack of nurses' comprehensive attention to the care needs of patients with decreased level of consciousness. These reasons consist of inability of patients to respond, high workload in ICU, limited knowledge about the needs of unconscious patients, and lack of understanding about the reasoning and the ways of communication with them (16).

In Iran, the biomedical approach is the dominant caring model in health care settings. Therefore, nurses spend most of their time on meeting the physical needs of patients (17). Authors' experiences in this regard also confirm that in most cases the nursing cares of patients with severe TBI focus on physical needs, while other basics receive less attention. In this regard, different studies conducted in Iran also showed that from the viewpoint of the majority of patients admitted to different units, the quality of care in psychosocial and communicative dimensions is poor or average (18-20). Thus, increasing the knowledge and awareness of nurses about clinical care needs of this group of patients in different dimensions provide the ground to identify and meet such needs.

2. Objectives

The current study aimed at exploring the clinical care needs of patients with severe TBI during ICU hospitalization from the nurses' perspectives.

3. Methods

The current study was conducted using a qualitative, conventional, content analysis method. This approach provides knowledge and understanding of the phenomenon. In this approach, large amounts of text are classified into a number of categories with similar meanings

(21). The study setting was the ICUs in 3 trauma centers of Isfahan, Iran. The study sample consisted of 14 ICU nurses. The purposive sampling method with maximum variation was employed to ensure diversity regarding age, gender, education level, and work experience.

The inclusion criteria were experience in caring patients with severe TBI, and willingness to cooperate and participate in the study. In research environments, the ICU head nurses helped to select the nurses who could supply rich data on the phenomenon under study. The participants were invited to share and express their experiences regarding the need of patients with severe traumatic brain injury during the stay in ICU. Data were collected from November 2015 to March 2016 through in-depth, semi-structured, and face-to-face interviews with 14 participants in a quiet room in the ICU at the trauma centers. The interviewees determined the time and place of interview. The second researcher explained the objectives of the study and invited the participants who met the inclusion criteria to attend the study by phone or by going to their workplace. Besides, to ensure consistency across the interviews, a researcher guided all interviews. The interview began with a main question: "Please tell me about your experience in care needs of patients with severe TBI in ICU". Moreover, probing questions were asked to clarify participants' responses and guide the interview on the right track. Interviews were conducted in 30 to 120 minutes. Data gathering was continued until data saturation when no new data were obtained. Accordingly, after doing 14 interviews with 14 participants, data saturation was achieved in all themes, but 2 other interviews were conducted for more certainty. However, no new data were obtained after the transcription of the interviews. Each interview was recorded using an MP3 recorder. Immediately after each interview, the researcher listened to it several times and then, transcribed it verbatim. The obtained data were analyzed using conventional content analysis approach, based on the Graneheim and Lundman method. Based on this method, the codes and categories are derived directly from text and the researcher allows extracting categories and their names from the collected data (22). The data were analyzed manually.

Two researchers read all the transcribed copy of interviews several times to achieve a sense of the whole. For the first transcription, both researchers specified the meaning units, and condensed meaning units and extracted codes, independently. Any controversy between the researchers were discussed and resolved. For the remaining transcribed copies, one of the authors did the same process. Then, similar codes were classified into subcategories and categories were created through merging subcategories. Finally, themes were generated. In addition,

the process and the formed themes were discussed with the other authors. The process of data analysis, based on the Graneheim and Lundman method, is shown in [Figure 1](#).

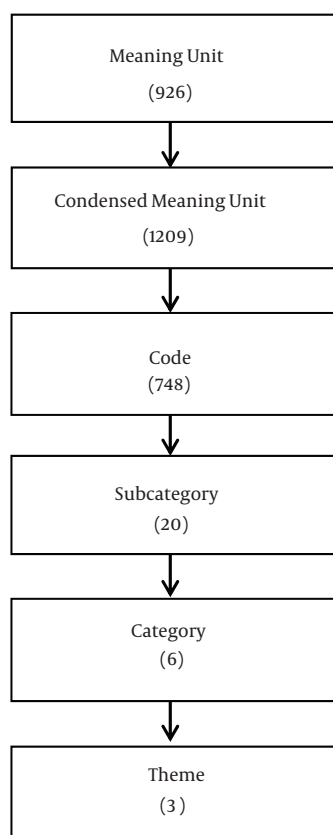


Figure 1. The Data Analysis Process Based on the Graneheim and Lundman Method

To improve the transferability of findings, participants were selected with maximum variation. In addition, the themes and categories were discussed with 3 ICU nurses with characteristics similar to the study participants. They approved the existing themes and categories. To ensure data credibility, 3 nursing researchers (not included in the research team), specialist in intensive care and familiar with qualitative research methods, reviewed the codes, subcategories, and categories.

The current study was approved in the ethics committee of Isfahan University of Medical Sciences (code No. 394447). Before starting the interviews, informed written and verbal consents were obtained from all participants. Participants were free to participate in an interview or withdraw from it at any stage of the study. Furthermore, the time and place of the interviews were determined by

the participants. Participants were assured about the confidentiality and anonymity of data in any stages of the study.

4. Results

Fourteen nurses participated in the current study. The majority of them were female ($n=11$). The age range was 26 to 45, with a mean age of 36 years. The number of married and single participants was equal (both 7). Of the participants, 57.1% had postgraduate degrees. The average working experience in nursing was 13 years. Nurses had approximately 9 years working experience in ICU. The characteristics of the participants are shown in [Table 1](#).

The analysis of data indicated 3 themes and 6 categories ([Table 2](#)).

4.1. Physical Health Maintenance and Promotion

Most clinical care needs mentioned by the participants belonged to the theme of physical health maintenance and promotion. This theme was obtained from 2 categories of neurophysiological and preventive care needs.

4.1.1. Neurophysiological Care Needs

All participants described the regular and accurate monitoring of neurological and physiological parameters as the most basic way for maintaining and promoting neurological stability. They emphasized the need to start nursing practices in an early stage. They believed that correct notification about any changes in the patient's condition and taking punctual practices can reduce the incidence of secondary brain injuries, the length of ICU stay, and the complications. Participants mentioned several clinical care needs for patients including assessing the patient's level of consciousness and vital signs, monitoring the intracranial pressure, cerebral spinal fluid (CSF) drainage, serial laboratory values, and oxygen saturation. Also, nurses described additional care needs such as preparing and transporting patients for magnetic resonance imaging (MRI) and computed tomography (CT) scan, effective suctioning, controlling pain and agitation, keeping the patients in the correct position, administering medications, and recording intake-output. One of the nurses explained:

"What matters for such patients is controlling the level of consciousness and the status of pupils. As soon as it is observed that the pupils' size become large and unequal and the patient is losing the consciousness, it is immediately reported; otherwise, the patient is missed and the consciousness level of 5 or even 7 decreases to 3." [P2]

Table 1. Characteristics of the Study Participants

Information Code	Age	Gender	Education	Marital Status	Experience as a Nurse, y	Experience in ICU, y
P1	43	Female	Bachelor degree	Single	21	14
P2	30	Male	Postgraduate	Single	9	5
P3	35	Female	Postgraduate	Single	14	14
P4	36	Female	Postgraduate	Married	13	8
P5	40	Female	Bachelor degree	Married	16	6
P6	45	Female	Bachelor degree	Married	21	20
P7	35	Female	Postgraduate	Single	12	10
P8	34	Female	Bachelor degree	Married	11	11
P9	30	Female	Postgraduate	Single	4	4
P10	32	Male	Postgraduate	Married	9	3
P11	26	Female	Bachelor degree	Single	3	3
P12	36	Female	Postgraduate	Single	12	9
P13	40	Male	Bachelor degree	Married	18	18
P14	37	Female	Postgraduate	Married	15	5

4.1.2. Preventive Care Needs

Participants believed that patients with severe TBIs usually stay in ICU for a long time due to multiple traumas and loss of consciousness. Therefore, such factors may put patients at risk of various systemic complications such as bedsores, deep vein thrombosis (DVT), muscular atrophy, deformities, and infection of different organs; e.g., pneumonia. Participants emphasized on the prevention of the complications caused by the patient's condition as one of the patients' care needs. They regarded failure to meet this need as the cause for the delay in recovery or prolonged ICU stay. One of the nurses said:

"We should check patients in terms of infections, since they are on complete bed rest, most of them are intubated, and they have urinary catheter and nasogastric tube. They inevitably get infections during hospitalization. Sometimes unfortunately we ourselves exacerbate these conditions because of unsuitable care...when a patient acquires infection, the use of various antibiotics can delay the recovery process or cause prolonged hospital stay even in other wards due to complications came up for him in the ICU" [P10].

4.2. Maintaining Psychosocial Integrity

The maintenance of psychosocial integrity is the 2nd clinical care should be given to the patients, based on the study participants' experiences. This theme has 2 categories naming communication needs and appropriate therapeutic environment.

4.2.1. Communication Needs

Participants reported that patients need respectful communication. They need to be understood by the healthcare team, especially nurses, and be respected. Besides, patients need information about their health status and the treatment process. Proper and respectful communication with patients can play a significant role in improving their conditions. One of the nurses stated:

"Talking to patients and explaining their conditions influence their recovery process. I call my patient by first name. I talk to him and even sometimes read poems for him. I hold his hand. If his relatives call, I will let him know. This is how he feels alive. The use of positive sentences is also important, e.g., "hey, you look better!" [P11]

Some of the nurses highlighted the patients' need to communicate with their family members and close friends. From their perspective, patients need to hear a familiar voice. This makes the patient feel that his family and friends value him. Such relations can improve the treatment process. Indeed, the interviewers deemed it necessary that nurses give the patients' family enough information on how to communicate with coma patients. One of the participants stated:

"We often observe that patients with low GCS become calm as their relatives come to visit them. We can ask the patient's family members to have body contact with him while talking. This way the patient feels that the visitor is there. He can tell some positive issues, e.g., we all are trying to help you feel better and discharge from the hospital. This is how the patient feels he is loved" [P7].

Table 2. Themes, Categories, and Subcategories Obtained From the Analysis of the Interviews

Theme	Category	Subcategory
Physical health maintenance and promotion	Neurophysiological care needs	Monitoring neurological parameters
		Monitoring physiological parameters
		Caring secondary injuries
	Preventive care needs	Preventing respiratory complications
		Preventing cardiovascular complications
		Preventing musculoskeletal complications
		Preventing urinary complications
		Preventing digestive complications
		Preventing skin complications
		Communication needs
Communicating with the family		
Appropriate sensory stimuli as a factor of comfort		
Maintaining psychosocial integrity	Appropriate therapeutic environment	Appropriate sensory stimuli as a factor of enhancing consciousness
		Limiting disturbing stimuli as a factor of comfort
	Considering the patient as a human being	
Spiritual management	Maintaining patient's dignity	Respecting the patient
		Providing patient's privacy
	Providing spiritual care to patient	Paying attention to the religious beliefs of patient
		Providing spiritual care
		Providing religious care

4.2.2. Appropriate Therapeutic Environment

From the perspective of nurses, patients need a quiet and safe therapeutic environment. They emphasized the need to limit environmental stimuli such as visitors, light-

ing, and noise. In addition, participants stressed the importance of creating appropriate, enough, and familiar stimuli that promote patients' health. However, nurses said that in most cases, they neglected these needs. One of the nurses explained:

"These patients are annoyed by the everlasting sound of ventilator or other things. We never turn off the lights at night. We also have to impose painful stimulation on the patient that disturbs his sleep rhythm" [P9].

Another nurse said:

"If the nurse or other family members touch the patient, it can have a positive impact on increasing his level of consciousness and it can be well understood by vital signs that the patient is healing" [P5].

4.3. Spiritual Management

The 3rd theme composing patients' clinical care needs was spiritual management, and it has 2 categories of maintaining patient's dignity and providing spiritual care to patients.

4.3.1. Maintaining Patient's Dignity

Some participants stated that considering the patients as human beings and respecting the patients and their privacy are the parts of spiritual care needs. They also believed that although the patient is unconscious, prior to any care, the nurses need to explain the need for that care. The participants viewed these measures as part of maintaining human dignity. One nurse mentioned:

"Most nurses work as routine. This is maybe due to the low number of nurses and high workload. We should consider the patient as a human and should respect him... we can tell the unconscious patient what we are going to do for him. This leads into much cooperation" [P14].

4.3.2. Providing Spiritual Care to Patient

Most of the participants believed that the need for spiritual care is the missing part of patient care needs. They stated that due to the condition of this group of patients, nurses spend more time meeting the physical needs of the patients, while paying attention to their spiritual needs and providing spiritual care are also necessary. The participants considered paying attention to the religious beliefs and trying to meet them as part of spiritual care. Participants also expressed that providing spiritual care is one of the factors of patients' mental and physical comfort. They believed that promoting knowledge and awareness of nurses and having specific care programs could provide the background to deliver spiritual care to patients. One participant said:

“Actually, care need is whatever necessary for a patient. We think that only the patient’s physical condition is important, whereas we can offer spiritual care to our unconscious patients. For example, it is good to read the Quran for him every day or play adhan (Muslims prayer call) at prayer time. These are supernatural activities so that we cannot deny their impacts” [P1].

Another participant stated:

“I have witnessed when some visitors come to visit their patients; they start to read the Quran and they pray for them. Amazingly, these are effective both to calm the disturbed patients and increase their GCS score. However, neither the nurses have knowledge about this need nor there is specific program for it” [P8].

5. Discussion

The current study identified the clinical care needs of patients with severe TBIs from the perspective of ICU nurses. The results of the current study presented new data on clinical care needs of Iranian patients with severe TBIs during hospitalization in ICU. Recognition of these needs can help the healthcare team to provide high-quality holistic care. The current study explored the clinical care needs categorized into physical health maintenance and promotion, maintaining psychosocial integrity, and spiritual management.

Results of the current study showed that the most important patients’ clinical care needs were promoting neurological stability, preventing and controlling secondary and systemic brain injuries as well as preventing and controlling complications in other organs. Proper and punctual management are crucial in terms of preventing secondary injuries in patients with severe TBIs. Moreover, ICU nurses play a key role in the prevention of such injuries (23). Continuous monitoring of neurological and physiological parameters reduces the occurrence of processes related to secondary injuries (24).

Cypress explored the experiences of patients, families, and nurses in ICU. According to his findings, physical and psychological care needs of patients were the most emphasized needs (15). Puggina et al. also pointed to various aspects of care for patients with loss of consciousness including pain treatment, nutritional status control, cardiovascular and respiratory system functions control, prevention of skin injury, deformations, and muscle spasticity (5). Moreover, Lim and Smith found that the harmful complications in other organs are common following severe TBIs and may lead to increased mortality and disability of patients as an independent factor (25). The results of the current study were consistent with those of aforementioned

researches and emphasized on physical care needs of such patients.

The other findings of the current study revealed that patients also need psychosocial cares. Most of the participants stated that patients need to communicate with medical staff and their family members. Psychosocial support is a vital component of care in ICU, and communication is considered as one of the basic aspects in providing such supports (3, 15). Effective communication is one of the foundations of professional nursing practice. Effective communication is also the art of providing holistic care to patients, and giving them accurate information about their conditions; it results in decreasing the risk of mental disorders and anxiety (16). In addition, patients’ communication with family members raises their awareness and provides necessary psychological support to them (26). The results of the study by Nelson et al. also indicated that patients discharged from ICU expressed communicating with families as one of their needs. They stated that despite being unconscious, they could feel their family presence by their bedside; they viewed it as a factor to increase their spirit and improve their comfort (27). But, the results of some other studies reported that this is being neglected in caring for patients with decreased consciousness level due to patient’s inability to respond, the large amount of work in ICU, limited knowledge about the needs of unconscious patients, and lack of understanding the reasoning and the way to communicate with them (16).

In the current study, the participants also referred to the limited knowledge of nurses, inadequate number of nursing staff, and the large number of complex physical cares in ICU, which causes many nurses spending most of their time on meeting the patients’ physical needs. Furthermore, the visiting hours in ICU are restricted for various reasons such as interference with patient care, increasing the transmission of infection, and making the ward crowded, which may affect patient communication with his family members due to visitors’ comments. While according to the results of some studies, an open visitation policy in ICU can reduce patient anxiety. Besides, stringent hand washing before and after visiting the patient can also reduce the risk of infection (28). Therefore, due to the importance of communicating with unconscious patients, organizing a specific executive action plan, holding constant training courses on the importance and benefits of communication with this group of patients, and providing the necessary facilities to change health center policies based on specified criteria are necessary.

Nurses also emphasized maintaining an appropriate therapeutic environment for patients. These findings supported the results of other studies regarding the effects of audio and touch stimuli especially familiar voice; e.g, fam-

ily members' voices on increasing patients' consciousness level (5, 29-32). Researchers believed that sensory stimuli can play an important role in the early rehabilitation of patients in ICU through direct stimulation of reticular activating system and increasing the patient's level of consciousness (33, 34). Moreover, limiting noise, light, and unnecessary sensory stimulation can reduce the risk of increased intracranial pressure (IICP) and agitation (35). In this regard, Mohta et al. highlighted that monotonous noises should be minimized in ICU and nursing interventions have to be programmed to maintain the patient's sleep-wake cycle (26). Hence, the existence of a clear plan in trauma centers for appropriate sensory stimuli, especially after the injury, and hospitalization in ICU can help to accelerate recovery process.

The other indicated need of the patients, according to the participants' view, was the spiritual management. Most of the participants believed that during the care of the unconscious patient, it is essential to preserve his dignity. They also considered respect for the patient and maintaining patient's privacy and dignity as important factors to preserve his dignity. These findings were consistent with the results of other studies (13, 27, 36). However, the results of the study conducted by Matiti and Trorey revealed that despite the fact that nurses play a key role in maintaining patients' dignity, in many cases it is neglected (36). In the current study, participants confirmed this problem despite their emphasis on preserving the dignity of patients. Due to the importance of this issue, it is essential to familiarize nurses with the situations that lead to maintaining the dignity of patients. The healthcare institutions also need to provide the necessary conditions and facilities to meet the needs of the patients.

Additionally, the currency study findings showed that nurses viewed religious practices such as reading the Quran and playing adhan as important factors in heightening patients' comfort and improving their physical status. They viewed these practices as part of patients' needs in terms of spiritual management. Results of a study by Mueller et al. cited by Sadeghi et al. showed that spirituality and religion were the concepts that overlap each other (37). Lundberg and Kerdonfag stated that patients' spiritual needs could be met by religious assignments such as worship and prayer (38). In this regard, Allah in the Holy Qur'an, Surah Al-Zummar verse 8 says: "And when adversity touches man, he calls upon his Lord, turning to Him [alone]". Religious beliefs acquire much importance during illness and help the patient to accept his conditions (39). In line with the results of the current study, participants in the study by Nelson et al. underlined the power of prayer, especially in crisis (27). The results of the study by Sadeghi et al. indicated that some nurses in the neonatal

intensive care unit (NICU) were praying for their patients (37). In the study by Hupcey, patients also stated that religious beliefs were a source of comfort for them. They prayed in time of fear, and they felt comfortable when they found out that others were praying for them (40).

In the current study, the participants believed that in most cases the religious needs of the patients are not highly emphasized. Abedi et al. identified 2 types of barriers, including personal and environmental, which significantly affect religious care (41). Therefore, given that in the Islamic belief, religious orders and adherence to religious values are the integral parts of life, it is crucial for the treatment team to maintain the religious principles and provide necessary facilities to perform religious practices and meet the religious needs of patients, when they are not capable of doing their most critical functions.

5.1. Limitations

A weak point of the current study was the small sample size; hence, the results cannot be generalized to a similar population. However, it was attempted to use the sampling with maximum variation. As a strong point of the current study, the samples were selected from nurses with maximum variance in terms of age, gender, education level, and work experience.

A limitation of the study was that other people's perspectives, such as family members of the patients, were not included. It is recommend that their perspectives should also be studied, which can be helpful to reveal some aspects of patients' care needs.

6. Conclusions

To the best of authors' knowledge, no prior studies are conducted in Iran regarding the identification of unconsciousness patients' care needs. The findings of the current study provide new insight into specific care needs of Iranian patients with severe TBI hospitalized in ICU in different dimensions. Participants believed that in addition to the importance and necessity of physical care needs in such patients, paying attention to the other dimensions of patients' care needs is useful to improve their conditions. Participants emphasized on communicating with patients, providing appropriate therapeutic environment, maintaining patients' dignity, and paying attention to their religious beliefs. The findings of the current study can help to increase the knowledge and awareness of nurses regarding the clinical care needs of patients with severe traumatic brain injuries. On an institutional level, it can contribute to the development of clinical guidelines in trauma centers in Iran to provide holistic care. One novel

finding of the current study was that the care needs of Muslim patients especially in terms of cultural and spiritual needs were different from those of the patients in other countries with other religions. Therefore, these findings can be also useful for other Muslim countries.

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Footnotes

Authors' Contribution: Study concept and design: Nasrollah Alimohammadi, Marzieh Ziaeirad, Alireza Irajpour, and Bahram Aminmansoor; acquisition of data: Marzieh Ziaeirad; analysis and interpretation of data: Marzieh Ziaeirad and Nasrollah Alimohammadi; drafting of the manuscript: Marzieh Ziaeirad and Nasrollah Alimohammadi; manuscript editing and review: Nasrollah Alimohammadi, Alireza Irajpour, and Bahram Aminmansoor; study supervision: Nasrollah Alimohammadi, Alireza Irajpour, and Bahram Aminmansoor.

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