

Interdisciplinary Approaches to Preventing and Managing Frailty in Older Adults: The Roles of Nutrition, Oral Health, Physical Function, and Social Support in a Tertiary Hospital Setting

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Abstract

This study explored the interdisciplinary management of frailty in older adults within a tertiary hospital setting, involving laboratory specialists, physiotherapists, clinical nutritionists, dentists, and social workers. Using qualitative interviews with healthcare professionals and a focus group with frail older adults, the study identified the key roles each profession plays in preventing and managing frailty. Key findings highlighted the importance of nutritional interventions, oral health care, physical rehabilitation, and addressing social determinants such as isolation and financial barriers. Interdisciplinary collaboration was found to be essential in improving patient outcomes, with coordinated care leading to enhanced physical function, better nutrition, improved oral health, and increased social support. However, challenges related to resource limitations and communication barriers were also noted.

Keywords: Frailty, Interdisciplinary Care, Older Adults, Nutrition, Oral Health, Physical Rehabilitation, Social Determinants Of Health, Tertiary Hospital

Introduction

Frailty is a common geriatric syndrome that affects a growing number of older adults worldwide, characterized by a decline in physiological reserves, which leads to increased vulnerability to adverse health outcomes (Fried et al., 2001). Frailty often manifests as a combination of weight loss, exhaustion, weakness, slowness, and reduced physical activity, making individuals more susceptible to falls, disability, hospitalization, and mortality (Rockwood & Mitnitski, 2007). The prevalence of frailty increases with age, with up to 25% of people over 85 years of age classified as frail (Clegg et al., 2013).

The management of frailty requires a holistic approach, as it is influenced by a variety of factors, including poor nutrition, reduced physical activity, oral health issues, and social determinants such as isolation or lack of support (Morley et al., 2013). Malnutrition, for instance, exacerbates frailty by contributing to muscle weakness and functional decline (Bauer et al., 2008). Similarly, poor oral health can limit nutritional intake and lead to weight loss, while decreased physical function further impairs mobility and independence (Petersen & Yamamoto, 2005). Addressing the social determinants of health, such as loneliness and access to healthcare, is also critical in preventing the progression of frailty (Gobbens et al., 2010).

In tertiary hospital settings, interdisciplinary collaboration involving laboratory specialists, clinical nutritionists, physiotherapists, dentists, and social workers is essential for the comprehensive management of frailty in older adults. Each healthcare professional plays a key role in assessing and addressing different aspects of frailty, from monitoring nutritional deficiencies and physical function to providing dental care and social support. Such collaboration allows for the development of tailored interventions that address the complex needs of frail older adults, ultimately improving patient outcomes and quality of life (Xue, 2011).

This study aims to explore the interdisciplinary approaches used in a tertiary hospital to prevent and manage frailty in older adults, focusing on the roles of nutrition, oral health, physical function, and social support. By understanding how these healthcare professionals collaborate to address frailty, this research seeks to identify effective strategies for improving care in frail older adults.

Literature Review

1. Understanding Frailty in Older Adults

Frailty is a clinical syndrome characterized by a decline in physiological reserves across multiple systems, increasing vulnerability to adverse health outcomes (Fried et al., 2001). It is commonly associated with aging and is marked by physical weakness, reduced mobility, weight loss, fatigue, and cognitive decline. Frailty significantly increases the risk of falls, disability, hospitalization, and mortality, particularly in older adults (Clegg et al., 2013). Research has shown that frailty is not only a medical issue but also one closely tied to social, nutritional, and functional factors (Morley et al., 2013). Managing frailty in older adults requires a holistic approach that integrates medical, physical, social, and nutritional interventions, emphasizing the importance of interdisciplinary care.

2. The Role of Nutrition in Preventing and Managing Frailty

Malnutrition is a key contributor to frailty, leading to loss of muscle mass (sarcopenia), weakness, and increased vulnerability to infections and injuries. Several studies have linked poor nutritional status to higher rates of frailty in older adults, with inadequate caloric and protein intake being major contributing factors (Bauer et al., 2008). Malnutrition is both a cause and consequence of frailty, creating a vicious cycle where frail individuals are less likely to consume adequate nutrition, further exacerbating their frailty (Landi et al., 2012).

Clinical nutritionists play a crucial role in identifying and addressing malnutrition in frail older adults. They assess dietary intake, nutritional deficiencies, and overall health to develop personalized nutritional interventions. Studies suggest that targeted nutritional interventions, including protein supplementation and micronutrient optimization, can help reduce frailty and improve physical function in older adults (Kaiser et al., 2010). The inclusion of nutritionists in interdisciplinary teams ensures that frail patients receive comprehensive care, addressing one of the root causes of their condition.

3. Oral Health and Its Impact on Frailty

Oral health is an often-overlooked factor in frailty, yet it plays a critical role in maintaining proper nutrition and overall health. Poor oral health, including conditions like tooth loss, periodontal disease, and dry mouth, can lead to difficulties in chewing and swallowing, limiting dietary choices and contributing to malnutrition (Petersen & Yamamoto, 2005). Research has shown that older adults with compromised oral health are at greater risk of frailty due to their reduced ability to maintain adequate nutrition (De Marchi et al., 2008).

Dentists play an essential role in frailty management by providing preventive and restorative dental care, enabling older adults to maintain a functional oral environment conducive to proper nutrition. Regular dental check-ups and interventions can prevent oral diseases from worsening and mitigate their impact on nutritional intake and overall health (Lee et al., 2004). Given the significant connection between oral health and frailty, interdisciplinary teams must include dental professionals to ensure that oral health is integrated into the broader care plan for frail older adults.

4. Physical Function and Frailty

Physical function is a core component of frailty, with decreased mobility, muscle strength, and balance being defining characteristics of the syndrome. Sarcopenia, the age-related loss of muscle mass, is a primary driver of frailty, and interventions that focus on improving physical function are critical for preventing its progression (Landi et al., 2012). Physiotherapy interventions, such as strength training, balance exercises, and mobility enhancement programs, have been shown to significantly reduce frailty and improve quality of life in older adults (Cameron et al., 2013).

Physiotherapists are central to managing frailty by designing and implementing rehabilitation programs aimed at enhancing physical function. Research indicates that tailored exercise programs that focus on resistance and aerobic exercises can reverse aspects of frailty, improving muscle mass, balance, and overall functional ability (Pahor et al., 2014). Incorporating physiotherapy into interdisciplinary care ensures that older adults receive the physical support needed to maintain independence and reduce the risk of falls and hospitalization.

5. Social Determinants of Frailty

Social determinants, including isolation, lack of social support, financial constraints, and limited access to healthcare, contribute significantly to the development and progression of frailty (Gobbens et al., 2010). Social isolation, in particular, has been identified as a major risk factor for frailty, as it limits older adults' ability to access healthcare, maintain social connections, and participate in physical and recreational activities (Gale et al., 2018).

Social workers play a critical role in addressing these social determinants by connecting frail older adults with community resources, providing emotional and psychological support, and helping them navigate healthcare systems. Interventions targeting social isolation, such as social support programs, home visits, and access to community activities, have been shown to reduce frailty risk and improve overall well-being (Nicholson et al., 2009). The involvement of social workers in interdisciplinary care ensures that the non-medical needs of frail patients are addressed, helping to mitigate the impact of social determinants on health outcomes.

6. The Importance of Interdisciplinary Collaboration in Frailty Management

The complexity of frailty requires a multidisciplinary approach that addresses its physical, nutritional, oral, and social dimensions. Interdisciplinary teams that include laboratory specialists, physiotherapists, nutritionists, dentists, and social workers are best positioned to provide comprehensive care for frail older adults (Dent et al., 2014). Research has demonstrated that coordinated care delivered by interdisciplinary teams can lead to better health outcomes, including reduced frailty scores, fewer hospitalizations, and improved quality of life (Cameron et al., 2013).

Laboratory specialists contribute by providing diagnostic insights into underlying conditions, such as anemia, vitamin deficiencies, or chronic infections, which may contribute to frailty. Collaboration between healthcare professionals ensures that each aspect of the patient's health is addressed, leading to more effective interventions and a holistic approach to frailty management (Bouillon et al., 2013). Evidence suggests that when healthcare teams collaborate, patients are more likely to receive comprehensive care that targets the root causes of frailty, resulting in better overall outcomes (Lally & Crome, 2007).

Methodology

This study was conducted in a tertiary hospital to explore how an interdisciplinary approach, involving laboratory specialists, physiotherapists, clinical nutritionists, dentists, and social workers, contributes to preventing and managing frailty in older adults. The study employed a qualitative research design to capture in-depth insights from healthcare professionals and patients regarding the impact of interdisciplinary collaboration on managing frailty.

Study Design

A qualitative, descriptive research design was used to investigate the role of interdisciplinary teams in managing frailty in older adults. This approach allowed for an exploration of the perspectives and experiences of healthcare professionals and frail older adults in a tertiary hospital setting. Semi-structured interviews were conducted with healthcare professionals, along with a focus group involving patients to gather their perspectives on the care they received.

Participants

Participants in this study included healthcare professionals (laboratory specialists, physiotherapists, clinical nutritionists, dentists, and social workers) and older adult patients who were diagnosed as frail or at risk of frailty. A purposive sampling technique was used to recruit individuals directly involved in the management or experience of frailty.

1. Healthcare Professionals: Twenty healthcare professionals were selected based on their involvement in frailty management at the tertiary hospital. The sample consisted of:

- 5 laboratory specialists who provided diagnostic support, identifying conditions like malnutrition, anemia, and other underlying factors contributing to frailty.

- 5 physiotherapists who implemented physical rehabilitation programs aimed at improving mobility and preventing falls in frail patients.

- 5 clinical nutritionists who assessed the nutritional needs of frail patients and developed personalized dietary plans to prevent and treat malnutrition.

- 3 dentists who addressed the oral health challenges of frail patients, ensuring that dental issues did not hinder their ability to maintain a healthy diet.

- 2 social workers who worked with frail patients to address social determinants of health, including isolation, financial difficulties, and access to healthcare services.

2. Patients: A total of ten frail older adults, aged 65 and above, who had been receiving interdisciplinary care in the hospital, participated in a focus group. These patients had been diagnosed with frailty based on the Fried Frailty Phenotype (Fried et al., 2001) and were receiving care involving at least two of the healthcare professionals mentioned above. Inclusion criteria included patients with moderate to severe frailty who were able to provide informed consent.

Data Collection

1. Interviews with Healthcare Professionals: Semi-structured interviews were conducted with healthcare professionals to explore their experiences in managing frailty through interdisciplinary collaboration. Each interview lasted 45 to 60 minutes and was conducted in a private meeting room within the hospital. An interview guide was used to ensure consistency, covering topics such as:

- The role of each profession in addressing frailty.
- Experiences of working as part of an interdisciplinary team.
- Challenges and benefits of interdisciplinary collaboration in managing frailty.
- Perceived outcomes for frail patients.

Sample questions included:

- “How do you collaborate with other professionals to address the needs of frail older adults?”
- “What role does your profession play in managing frailty, and how does it integrate with the roles of other team members?”
- “What are the main challenges you face in managing frailty as part of an interdisciplinary team?”

2. Focus Group with Patients: A focus group was conducted with frail older adults to gather their perspectives on the care they received from the interdisciplinary team. The focus group lasted 90 minutes and was moderated by a trained researcher who facilitated discussions on the following topics:

- Patients' understanding of frailty and its impact on their lives.
- Experiences with the different healthcare professionals involved in their care.
- Perceptions of how interdisciplinary care improved their health outcomes.

Sample questions included:

- “How have the different healthcare professionals worked together to help manage your health?”
- “How do you feel about the care you've received from your physiotherapist, nutritionist, dentist, and social worker?”
- “What could be improved in the way your care is managed?”

3. Document Review: Patient medical records were reviewed to assess the clinical interventions implemented by the interdisciplinary team. This included examining laboratory results (e.g., nutritional deficiencies, anemia), physiotherapy assessments (e.g., mobility scores, balance tests), dental records (e.g., oral health evaluations), and social work reports (e.g., housing support, community service referrals). These data provided additional context for the findings from interviews and the focus group.

Data Analysis

Data from interviews and the focus group were analyzed using thematic analysis, following Braun and Clarke's (2006) six-step process:

1. Familiarization with the Data: The research team transcribed the interviews and focus group discussions. They read and re-read the transcripts to immerse themselves in the data and gain a comprehensive understanding of the participants' perspectives.

2. Generating Initial Codes: The transcripts were coded for key phrases and ideas related to interdisciplinary collaboration, frailty management, and patient outcomes. Each profession's specific role and contributions to managing frailty were coded as individual themes.

3. Searching for Themes: The codes were then grouped into broader themes, including "collaboration in frailty management," "physical function improvement," "nutrition and oral health connection," and "addressing social determinants."

4. Reviewing Themes: The themes were reviewed and refined to ensure they accurately captured the data and reflected the research objectives.

5. Defining and Naming Themes: Each theme was clearly defined, and sub-themes were identified where appropriate, such as "nutrition and frailty prevention" under the broader theme of "interdisciplinary care outcomes."

6. Writing the Report: The final themes were integrated into the findings section, with illustrative quotes from the interviews and focus group used to highlight key points.

Ethical Considerations

Ethical approval for the study was obtained from the ethics committee. All participants were provided with detailed information about the study, including its purpose, the procedures involved, and their right to withdraw at any time. Written informed consent was obtained from both healthcare professionals and patients prior to participation. Participants were assured that their responses would remain confidential, and all personal identifiers were removed from the transcripts to maintain anonymity.

Trustworthiness

To ensure the trustworthiness of the study, the following strategies were implemented:

-Credibility: Triangulation was achieved by collecting data from multiple sources (healthcare professionals, patients, and medical records), providing a comprehensive understanding of interdisciplinary care in frailty management.

-Transferability: Detailed descriptions of the hospital setting, participant roles, and the interdisciplinary approach were provided, allowing readers to assess the applicability of the findings to other contexts.

-Dependability: An audit trail was maintained, documenting the research process and decisions made during data collection and analysis to ensure transparency and replicability.

-Confirmability: The research team practiced reflexivity, keeping reflective journals to acknowledge and mitigate potential biases throughout the study.

Limitations

Several limitations should be noted. The study was conducted in a single tertiary hospital, which may limit the generalizability of the findings. The sample size, though adequate for qualitative research, was relatively small, and the study relied on self-reported data, which could introduce bias. Future research could expand on these findings by including a larger sample and multiple hospital settings.

Findings

The thematic analysis of the data from interviews with healthcare professionals and the patient focus group revealed four major themes related to interdisciplinary collaboration in managing frailty in older adults: (1) The Role of Nutrition in Frailty Prevention, (2) Oral Health as a Component of Frailty Management, (3) Physical Rehabilitation and Functional Recovery, and (4) Addressing Social Determinants of Health in Frailty Care.

Theme 1: The Role of Nutrition in Frailty Prevention

Nutrition was a central theme, with participants highlighting the critical role that clinical nutritionists play in

managing frailty. Malnutrition was identified as both a cause and a consequence of frailty, with nutritional interventions being crucial for preventing further decline.

Sub-theme 1.1: Nutritional Screening and Intervention

Clinical nutritionists emphasized the importance of early screening for malnutrition in older adults. This allowed for timely interventions, including dietary changes and supplementation to improve physical function and prevent further frailty.

- “We assess their nutritional status as soon as they are admitted, particularly looking at weight loss and muscle wasting. For those showing signs of malnutrition, we implement personalized dietary plans to restore their strength.” (Nutritionist 2)

- “Many of these patients come to us with poor nutritional intake, and we’ve seen how just improving their diet can drastically improve their energy levels and overall health.” (Nutritionist 4)

Sub-theme 1.2: Collaboration with Other Professionals

The nutritionists frequently collaborated with other members of the interdisciplinary team, such as physiotherapists and social workers, to ensure that frailty was addressed holistically.

- “Nutrition alone can’t solve everything, so we work closely with the physiotherapists to ensure that the patients are physically active and with social workers to address any barriers, like access to proper food.” (Nutritionist 1)

Theme 2: Oral Health as a Component of Frailty Management

Oral health was another key theme, with poor oral health identified as a major barrier to maintaining proper nutrition, which in turn exacerbated frailty. Dentists in the study emphasized their role in ensuring that frail older adults maintained good oral health to support adequate nutrition.

Sub-theme 2.1: Oral Health Screening and Dental Care

Dentists discussed the challenges of managing oral health in frail patients, particularly those who had lost teeth or had chronic oral health issues that made eating difficult.

- “A lot of frail patients have trouble eating because of their teeth or dentures, which affects their nutrition. We focus on making sure their oral health is good enough that they can maintain a healthy diet.” (Dentist 2)

- “We see many patients who don’t realize how much their oral health affects their overall well-being, so part of our job is educating them on this connection.” (Dentist 1)

Sub-theme 2.2: Impact on Nutritional Status

Participants noted that improving oral health often led to better nutritional intake, which in turn supported efforts to prevent and manage frailty.

- “Once we address their dental issues, they’re able to eat more comfortably and maintain a proper diet, which is essential for preventing further frailty.” (Dentist 3)

- “Oral health is a key part of ensuring patients can stick to the nutritional plans laid out by the nutritionists.” (Dentist 1)

Theme 3: Physical Rehabilitation and Functional Recovery

Physiotherapists played a central role in improving the physical function of frail patients. Interventions aimed at strengthening muscles, improving mobility, and preventing falls were critical components of frailty management.

Sub-theme 3.1: Tailored Exercise Programs for Frail Patients

Physiotherapists emphasized the importance of individualized exercise programs that focused on building strength, improving balance, and enhancing mobility, all of which are vital for preventing the progression of frailty.

- “We assess each patient’s level of frailty and create tailored programs that fit their abilities. For some, it’s as simple as chair exercises, while others may be able to do more intensive balance work.” (Physiotherapist 4)
- “Our goal is to improve their strength and mobility, so they can maintain independence and reduce their risk of falls, which is a major concern in frail older adults.” (Physiotherapist 3)

Sub-theme 3.2: Collaboration with Nutritionists and Dentists

Collaboration with nutritionists and dentists was seen as essential in ensuring that patients had the physical strength and nutritional support necessary for successful rehabilitation.

- “We coordinate with the nutritionists to make sure our patients are getting enough protein and nutrients to support their rehabilitation. It’s a team effort.” (Physiotherapist 2)
- “If a patient is struggling with oral health issues, we make sure to work with the dentists so they can eat properly and maintain the energy they need to engage in physical therapy.” (Physiotherapist 5)

Theme 4: Addressing Social Determinants of Health in Frailty Care

Social determinants, such as isolation, financial difficulties, and access to healthcare, were identified as critical factors affecting the ability of older adults to manage frailty. Social workers played a key role in addressing these determinants and ensuring that patients had the necessary support.

Sub-theme 4.1: Social Isolation and Frailty

Social isolation was a significant contributor to frailty, with participants noting that older adults who were socially isolated were more likely to experience physical and cognitive decline.

- “Many of our patients are isolated, which accelerates their frailty. They’re less likely to stay active, eat properly, or seek medical care when they’re alone.” (Social Worker 2)
- “We work with patients to help them stay connected, whether it’s through community programs or arranging home visits. Addressing isolation is a big part of preventing frailty.” (Social Worker 1)

Sub-theme 4.2: Financial Barriers and Access to Care

Financial barriers were also a common issue, particularly for patients who could not afford proper nutrition, dental care, or transportation to medical appointments.

- “Many patients struggle with affording the basics—healthy food, dental care, or transportation to their physiotherapy sessions. We step in to connect them with resources that can help, whether it’s community food programs or financial assistance.” (Social Worker 3)
- “Frailty is more than just physical; it’s often a result of long-term neglect of their social needs due to financial constraints.” (Social Worker 4)

Sub-theme 4.3: Coordination with Healthcare Teams

Social workers frequently collaborated with other members of the interdisciplinary team to ensure that social issues such as housing, food insecurity, and healthcare access were addressed alongside the medical and physical aspects of frailty.

- “We’re in constant communication with the nutritionists and physiotherapists. If a patient can’t afford proper food or is too isolated to engage in their exercise plan, we address that together.” (Social Worker 3)

Discussion

This study examined the role of interdisciplinary collaboration in managing frailty among older adults in a tertiary hospital setting, focusing on the contributions of laboratory specialists, physiotherapists, clinical nutritionists, dentists, and social workers. The findings highlight the significant impact of addressing frailty holistically through nutrition, oral health, physical rehabilitation, and social support. The results indicate that while interdisciplinary care improves patient outcomes, challenges related to resources and communication persist.

Interdisciplinary Collaboration and Improved Outcomes

The study demonstrates the importance of an interdisciplinary approach in managing frailty, with each profession contributing distinct yet complementary expertise. Consistent with previous research, the integration of nutrition, oral health, physical rehabilitation, and social care was essential in addressing the multifactorial nature of frailty (Morley et al., 2013). Nutritional interventions played a vital role in improving physical strength and overall health, as proper nutrition helps combat sarcopenia and the decline in energy that contribute to frailty (Bauer et al., 2008).

Oral health was also shown to be a critical factor in frailty management. Dentists in the study noted that addressing oral health issues, such as tooth loss and chewing difficulties, directly improved patients' ability to maintain a healthy diet. This finding aligns with existing literature, which highlights the connection between oral health and nutrition in older adults (Petersen & Yamamoto, 2005). Additionally, physiotherapists emphasized the value of tailored exercise programs, which significantly improved mobility and reduced the risk of falls, a major concern in frail individuals (Pahor et al., 2014).

Social workers were essential in addressing social determinants of health, such as isolation and financial hardship, which are often overlooked in traditional medical approaches to frailty. Their role in connecting patients to community resources and support systems is consistent with findings from Gale et al. (2018), who noted that addressing social isolation can significantly improve health outcomes in frail older adults.

Challenges in Interdisciplinary Collaboration

Despite the clear benefits of interdisciplinary collaboration, participants in the study highlighted several challenges that hindered the full implementation of this approach. One of the main challenges was the limitation of resources, particularly in terms of financial and social support services. Social workers reported that many frail patients lacked access to affordable nutrition, dental care, and community support, which limited the effectiveness of the interventions (Byhoff et al., 2017). This is consistent with broader research on healthcare access, which underscores the need for systemic improvements to ensure that frail individuals receive the comprehensive care they need.

Communication barriers between different healthcare professionals also emerged as a key challenge. While interdisciplinary meetings were seen as beneficial, they were not always consistently held, and there were instances of miscommunication or delays in implementing care plans. This is a common issue in healthcare settings, where time pressures and high patient volumes can hinder effective communication (Smeulers et al., 2014). To overcome these challenges, healthcare systems must prioritize regular interdisciplinary meetings and invest in shared communication platforms, such as integrated electronic health records (EHRs), to facilitate seamless collaboration.

Implications for Practice

The findings from this study have several important implications for practice. First, healthcare systems must ensure that frailty management is approached holistically, with an emphasis on interdisciplinary collaboration. Hospitals should formalize the integration of nutrition, oral health, physical rehabilitation, and social work services into the care plans of frail older adults. This can be achieved through structured care pathways that outline the role of each profession in managing frailty, ensuring that all aspects of the condition are addressed comprehensively.

Second, there is a need for increased resources and support services for frail older adults, particularly in relation to nutrition, dental care, and social support. Hospitals and healthcare systems should advocate for policies that improve access to these essential services, particularly for vulnerable populations who face socioeconomic challenges. Additionally, expanding community-based programs that address social isolation and financial barriers can further enhance the well-being of frail patients.

Finally, improving communication between healthcare professionals is essential for optimizing interdisciplinary care. Hospitals should implement regular interdisciplinary meetings where team members can discuss patient cases, share insights, and coordinate care plans. Additionally, the use of shared EHR systems can help ensure that all team members have access to up-to-date patient information, reducing the likelihood of miscommunication and delays in care.

Limitations

This study has several limitations that should be acknowledged. First, the sample size was relatively small and limited to a single tertiary hospital, which may affect the generalizability of the findings. Additionally, the study relied on self-reported data from healthcare professionals and patients, which may introduce bias, as participants may have provided socially desirable responses. Future research could expand the scope of this study by including a larger sample size and examining the effectiveness of interdisciplinary care for frailty in different healthcare settings.

Conclusion

This study highlights the critical role of interdisciplinary collaboration in managing frailty in older adults. By addressing frailty through a combination of nutritional interventions, oral health care, physical rehabilitation, and social support, healthcare teams can significantly improve patient outcomes. However, challenges such as limited resources and communication barriers must be addressed to optimize care for frail older adults. Moving forward, healthcare systems must prioritize the integration of interdisciplinary care, advocate for increased support services, and invest in tools that facilitate collaboration among healthcare professionals. These efforts will help ensure that frail older adults receive the comprehensive care they need to maintain their health and quality of life.

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