# ORIGINAL RESEARCH

## Healthcare Professionals' Insights Regarding the **Applicability of the STEADI Falls Prevention Program** Among Neurology Patients: A Qualitative Study

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Aim: Falls are common among hospitalized patients especially those with neurological health conditions. This highlights the need to implement evidence-based, comprehensive fall prevention programs. However, certain barriers hinder successful implementation of fall prevention programs in hospitals. The aim of this study was to explore the insights of healthcare professionals regarding the implementation of an interdisciplinary falls prevention program among patients with neurological health conditions.

Methods: A qualitative, descriptive design was used to conduct this study. Healthcare providers at two neurology units from two hospitals were invited to attend interdisciplinary workshops on fall prevention using the Stopping Elderly Accidents, Deaths, and Injuries (STEADI) program. Reflective journals were used to collect the data. A total of 23 healthcare providers returned their completed journals and thematic analysis was performed to extract the main themes.

Findings: Thematic analysis revealed a total of four main themes: (1) The STEADI program provides an interdisciplinary approach to identifying fall risks, (2) The STEADI program improves patient safety and facilitates recovery, (3) The STEADI program fails to accommodate all neurology patients, and (4) Time and space constraints hinder success.

**Conclusion:** Responses to the reflective journals revealed that the participants were able to identify the advantages of using the STEADI program for both healthcare professionals and patients with neurological conditions. The comprehensive and evidence-based approach, coupled with its interdisciplinary nature, was highly appraised by the participants.

**Keywords:** falls, falls prevention, interdisciplinary care, qualitative research, neurology, neurosurgery

#### Introduction

Falling down is considered one of the main threats for both community dwelling populations and hospitalized patients. Falls often lead to severe injury and increased healthcare costs, with evidence showing that falls and associated injuries are considered one of the most commonly reported adverse events in hospitals.<sup>1</sup> Each year approximately 684,000 people die as a result of falls, making it the second-highest cause of unintentional injury mortality.<sup>2</sup> In addition, many people must spend at least a year rehabilitating in a long-term care facility, adding to the physical and emotional suffering after falling. Falling down is considered the most important risk factor for traumatic brain injury and some people will never be able to live on their own again after falling.<sup>3</sup>

While many hospitalized patients face the risk of falling, those with neurological health problems are more susceptible due to the diverse range of conditions they experience, including traumas, tumors, strokes, neuralgia, and functional disorders.<sup>4-6</sup> Confusion, vertigo, imbalance, and dizziness contribute to neurology patients' increased risk of falls.<sup>7-9</sup> Neurology patients, including those undergoing neurosurgery, also have additional risk factors such as low awareness, limited movement, orthostatic hypotension, vesical or intestinal disturbances, sensory problems, and muscle weakness.<sup>9–11</sup> Therefore, healthcare providers are in dire need for implementing evidence-based falls prevention programs among hospitalized patients especially those with neurological conditions.

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2591

cc 0 S © 2024 Rababah et al. This work is published and licensed by Dove Medical Press Limited. The full terms of this license are available at https://www.dov epress.com/terms or we have a set of the set of th Despite the importance of the role of healthcare providers in preventing falls, implementing evidence-based programs in acute care settings has many barriers. Some studies showed that healthcare providers' awareness and utilization of falls prevention programs vary due to such factors as time constraints and inconsistent staff training.<sup>12,13</sup> Another reported barrier is healthcare providers' beliefs about falls in acute care settings, where many healthcare providers do not prioritize falls prevention.<sup>14–16</sup> In addition, lack of effective communication between healthcare providers has a negative impact on implementing falls prevention programs.<sup>13,16</sup> Staff shortage, low adherence to safety protocols, and lack of understanding of the different roles of healthcare providers in preventing falls are other barriers reported in the literature.<sup>17,18</sup>

Many of these identified barriers could be overcome through holding interdisciplinary training for healthcare professionals. This study was conducted to explore healthcare professionals' insights regarding the implementation of an interdisciplinary falls prevention program among patients with neurological conditions. The interdisciplinary program implemented was Stopping Elderly Accidents, Deaths, and Injuries (STEADI).<sup>19</sup> STEADI is a well-established, evidence-based program that has strong evidence regarding its applicability in community and acute care settings.<sup>20,21</sup> However, evidence regarding its application among patients with neurological conditions is lacking. By conducting a research study in this context, valuable insights can be gained to enhance healthcare practices, improve patient outcomes, and inform future research and policy decisions.

## **Materials and Methods**

#### Design and Setting

This study was conducted using a qualitative, descriptive design. The participants were recruited from different neurology units at two hospitals in Jordan. These units are specialized in treating different neurosurgical and neuromedical health conditions like brain hemorrhage, stroke, brain tumors, neurodegenerative disorders, spinal cord injury, and epilepsy.

## Participants

Interdisciplinary workshops to train healthcare providers on the STEADI program were first conducted between March and May 2023. The workshops were offered to all healthcare providers in the neurology units. They were offered to neurology specialists and resident physicians, registered nurses, pharmacists, physical therapists, and occupational therapists. These workshops were interactive and involved a PowerPoint presentation, short videos, case discussions, and hands on tasks to get trained on using the STEADI falls prevention assessment tools. Each workshop lasted for two hours. Convenience sampling was used to recruit healthcare providers in this study. All healthcare providers in the neurology units were invited to participate in the neurology units and a total of 34 neurology healthcare providers agreed to participate. The healthcare providers were divided into three groups to hold the workshops at times that fit the healthcare providers schedules. Healthcare providers were then asked to implement the STEADI program on the patients assigned to them. After implementing the STEADI program in the neurology units on their assigned patients, the participants were then invited to complete paper-based reflective journals. Each participant was invited to complete one reflective journal. A total of 23 participants completed and returned the reflective journals.

## Data Collection

Data collection was performed using reflective journals that included a series of structured questions. The participants were invited to answer questions about identifying aspects of the STEADI program they found most interesting, assessing its perceived effectiveness in neurological units, and exploring strategies among healthcare providers in applying the program. The reflective journal questions investigated personal experiences with patient falls and the potential role of the STEADI program in preventing such incidents. Examples of the reflective journal questions include:

- 1. What did you find most interesting about the STEADI program?
- 2. Do you think the STEADI program is an effective way to prevent falls among patients in the neurology unit? Why or why not?

- 3. Have you ever experienced an incident of a patient's fall? If so, do you think the STEADI program could have helped preventing it?
- 4. In your opinion, should the STEADI program be applied to patients in the neurology unit? Why or why not?
- 5. What are the potential benefits of implementing the STEADI program in the neurology unit?
- 6. What are the potential challenges of implementing the STEADI program in the neurology unit?

This approach aimed to capture rich healthcare providers' perspectives on the program implementation and its impact on fall prevention strategies in neurology units. The participants took 15–20 minutes to complete reflective journals. Besides the reflective journal, a simple demographic questionnaire was used to describe the sample characteristics. The demographics questionnaire was paper-based and included basic information about the participants' age, gender, and profession.

## Data Analysis

Data analysis was completed using thematic analysis where themes and sub-themes were identified and recorded. NVIVO (version 12) was used to manage qualitative data. Thematic analysis was carried out by JR and MA who worked independently and then met to discuss the resulting themes and reach 100% agreement.

## **Ethical Considerations**

This study was reviewed and approved by the institutional review board at Jordan University of Science and Technology. Participation in this study was entirely voluntary and the participants had the right to withdraw from the study at any time. Written informed consent was obtained from participants that included a statement about participants' agreement to publish anonymized responses.

## Results

The average age of participants in this study was 34.7 years (SD = 10.6). There were four neurology specialist physicians, five resident neurology physicians, eight registered nurses, two physical therapists, two pharmacists, and two occupational therapists. Most participants (60.87%) were male healthcare professionals.

Thematic analysis revealed a total of four main themes: (1) The STEADI program provides an interdisciplinary approach to identifying fall risks, (2) The STEADI program improves patient safety and facilitates recovery, (3) The STEADI program fails to accommodate all neurology patients, and (4) Time and space constraints hinder success. The first two themes were about the positives of implementing the STEADI program, whereas the last two were about the negatives. Sub-themes emerged under each of the main themes and the following presentation summarizes the themes and sub-themes supported with examples from the reflective journals. Table 1 provides a summary of the results with the themes, sub-themes, and representative quotes.

## The STEADI Program Provides an Interdisciplinary Approach to Identifying Fall Risk

The participants reported that implementing the STEADI program was effective in providing comprehensive, interdisciplinary falls prevention management. Three sub-themes emerged under this theme.

#### Encourages Shared Decision Making and Promotes Interdisciplinary Collaboration

Implementing the STEADI program facilitates making decisions by individual healthcare providers. The decisions made are supported with the evidence gathered through the systematic application of fall risk assessment. For example, a resident physician made the following statement:

Full screening for falls assists in making appropriate decisions faster.

The participants also reported that the STEADI program facilitates making decisions by healthcare teams. They believed that sharing knowledge and experiences facilitates this process. The following statements support this sub-theme:

Table I	Summary	of the	Study	Results
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Theme	Sub-Theme	Quote
The STEADI program provides an interdisciplinary approach to identifying fall risk	Encourages shared decision making and promotes interdisciplinary collaboration	"Full screening for falls assists in making appropriate decisions faster".
	Suggests evidence-based exercise interventions that can be customized to patients	"The emphasis of STEADI on identifying and addressing individual fall risk factors is very interesting".
	Increases awareness of individual roles in preventing falls	"STEADI increases the awareness of the different healthcare providers regarding the individual roles in preventing falls among neurosurgery patients".
The STEADI program improves patient safety and facilitates recovery	Maximizes patient safety, decreases risk for falls	"STEADI is expected to maximize patients' safety"
	Achieves smoother recovery and decreased hospitalization	"I strongly support applying the STEADI program to our patients because it improves rehabilitation and contributes to improved patient safety".
The STEADI program fails to accommodate all neurology patients	-	"STEADI is not applicable to all neuro patients. It doesn't seem to be helpful for unconscious patients"
Time and space constraints hinder success	-	"Using the STEADI program will need additional staff training and commitment of time by healthcare providers".

All data about medications, diseases and other factors that contribute to falls will be available to all healthcare providers. (Pharmacist)

I think that STEADI promotes interdisciplinary collaboration and shared decision making to prevent falls by all team members. (Registered nurse)

Another advantage of implementing the STEADI program was fostering interdisciplinary communication and collaboration.

Healthcare providers can work together by sharing assessment findings, progress notes, and fall prevention plans. Regular communication is done through using the STEADI program. (Registered nurse)

One of the specialist physicians agreed with the previous statement:

STEADI also helps integrating and coordinating healthcare services.

Making appropriate decisions pave the road for providing interdisciplinary, quality care to prevent falls. The participants agreed that interdisciplinary care is the key for implementing a successful falls prevention program. The following statement was made by a resident physician:

Regular case conferences and sharing of patient progress can help us coordinate efforts and continuously improve our teamwork strategies.

#### Suggests Evidence-Based Exercise Interventions That Can Be Customized to Patients

The responses showed that the participants valued specific components of the STEADI program such as the comprehensiveness of the program, individual-centered fall risk assessments, and evidence-based falls prevention approach. One of the registered nurses stated:

The emphasis of STEADI on identifying and addressing individual fall risk factors is very interesting.

A neurosurgeon added:

Integration of neurological assessments is valuable. As a neurosurgeon, STEADI helps me understand the unique neurological risks associated with falls in our patients.

The program comprehensive and interdisciplinary approach was acknowledged as innovative and relevant to patients with neurological conditions as supported by the following statement made by a resident physician:

The interdisciplinary approach of the STEADI program is what impressed me.

#### Increases Awareness of Individual Roles in Preventing Falls

Implementing the STEADI program helps team members understand the different roles assumed by other healthcare providers. A registered nurse made the following statement:

STEADI increases the awareness of the different healthcare providers regarding the individual roles in preventing falls among neurosurgery patients.

A pharmacist added:

STEADI training opened my eyes regarding the importance of making changes to patient medications decreases the risk for falls.

## The STEADI Program Improves Patient Safety and Facilitates Recovery

The second theme highlighted the importance of implementing the STEADI program in improving neurology patients' health outcomes. The responses to the reflective journals suggested that there were two sub-themes under this them.

#### Maximizes Patient Safety, Decreases Risk for Falls

Even though falls are common among patients with neurological conditions, the participants realized the effectiveness of the STEADI program in improving patients' outcomes. This sub-theme highlights the practical relevance of the STEADI program and its potential impact on patient outcomes. The participants reflected that implementing the STEADI program has promising impact on improving the two main patients' outcomes: improving safety and decreasing the risk for falls. Conducting thorough patients' assessment and intervening accordingly, through applying the STEADI program, facilitates improving safety and preventing injury. The following statements demonstrate support for this sub-theme:

STEADI is expected to maximize patients' safety. (Neuromedicine resident)

Using this approach decreases the risk for falls and prevents complications. (Registered nurse)

The participants recognized the usefulness of implementing the STEADI program in assessing neurology patients' risk for falls as well as intervening to prevent falls. Compared to routine care, implementing the STEADI program gives the opportunity to establish active management of falls. The following statements made by the participants support this sub-theme:

The program focuses on evidence-based exercise interventions .... and enables me to design individualized exercises to improve my patients' balance. (Physical therapist)

#### Achieves Smoother Recovery and Decreased Hospitalization

The participants also reported that implementing the STEADI program could have a positive impact on patients with neurological conditions by facilitating recovery and reducing healthcare costs. An occupational therapist stated:

I strongly support applying the STEADI program to our patients because it improves rehabilitation and contributes to improved patient safety.

A neurosurgeon added:

Preventing falls achieves smoother recovery and decreased hospitalization.

## The STEADI Program Fails to Accommodate All Neurology Patients

Many participants raised a valid point regarding the applicability of the STEADI program to patients with neurological disorders in acute care settings. For example, physical and cognitive function of patients with neurological conditions might also affect implementing the STEADI program. A physical therapist reported:

STEADI is not applicable to all neuro patients. It doesn't seem to be helpful for unconscious patients.

Potential rapid changes in neurology patients' condition formed another challenge. For example, a neuromedince resident reported:

One of the potential challenges is the fast-paced nature of changes in health condition of my patients.

## Time and Space Constraints Hinder Success

Another group of challenges identified by the participants was linked to healthcare professionals. Examples of such challenges included the need for training healthcare professionals and resistance to change by healthcare professionals. This sub-theme is supported by the following statements that shows the need for Requires continued staff training and buy-in:

Using the STEADI program will need additional staff training and commitment of time by healthcare providers. (Neurosurgery specialist)

Resistance to change current practices by healthcare providers is a challenge for adopting the STEADI program (Registered nurse)

At the organizational level, the responses showed that the participants identified a few factors that could hinder utilizing the STEADI program in neurology units. These challenges included time constraints, and physical space limitations. A physical therapist reported:

There is no enough space in the neuro unit to perform all balance and gait assessments.

A registered nurse added:

The neurosurgery unit is always busy. It is important to consider finding time to complete the assessment tasks and documentation on time.

## Discussion

There are different risk factors that increase hospitalized patients for falls in acute care settings. Patients who have neurological health conditions are considered at higher risk for falls due to their underlying physical and cognitive status. Falls in acute care settings can lead to serious complications including unintentional injury, fractures, traumatic brain injury, and death.<sup>2,3</sup> It is necessary, therefore, to implement evidence-based programs to prevent falls in acute care settings. However, healthcare providers' beliefs and responsibilities often affect implementing falls prevention programs negatively with many healthcare providers do not prioritize falls prevention.<sup>14–16</sup> Thus, the authors conducted this study to explore healthcare professionals' insights regarding the implementing the STEADI falls prevention program for patients with neurological health conditions.

Thematic analysis of the reflective journal revealed a total of four main themes. The first theme was regarding the impact of the STEADI program on decision making and interdisciplinary collaboration. Participants' reflections showed that the STEADI program has the advantage of improving communication among healthcare professionals. It can also increase awareness about the different roles of healthcare professionals. Furthermore, the STEADI program can be used to guide clinical decision making at the individual and interdisciplinary levels. These advantages address the barriers reported in the literature regarding the lack of effective communication and lack of understanding of other healthcare professionals' roles in mitigating falls in acute care settings.<sup>13,16,18</sup> Overcoming all these barriers will have a significant,

positive influence on the quality of care provided to patients in neurology units. Ultimately, patients' outcomes could be improved by preventing injuries and facilitating care and recovery. That is because interdisciplinary cooperation often improves patients' outcomes.<sup>22</sup>

The second emerging theme demonstrated that implementing the STEADI program improves patient safety and facilitates recovery of patients with neurological health conditions. There was consistency across responses about the healthcare providers' belief in the effectiveness of the STEADI program in preventing falls among neurosurgical patients. The participants' reflective journals showed that the STEADI program has positive impact on the procedure of conducting a systematic, evidence-based assessment of risk for falls. The participants believed that the STEADI is a comprehensive framework for not only identifying the risk for falls but also for providing timely interventions to patients with neurological health conditions. This major advantage fits well with the fundamental principles of developing the STEADI program.<sup>19,21</sup>

The participants acknowledged how implementing the STEADI program positively impacts the quality of care provided to prevent falls among patients with neurological health conditions. It was clear that participating in the training workshops and implementing the STEADI intervention assisted healthcare providers in discovering effective solutions to the barriers identified earlier in the introduction of this manuscript. In the reflective journals, healthcare providers reported that the STEADI program offers the opportunity to provide comprehensive assessment and active management of falls for their patients. The assessment and management of falls were described as evidence-based, indicating that participating in this study promoted healthcare providers' awareness and utilization of valid resources to prevent falls.<sup>12,13</sup> In addition, improving healthcare providers' awareness facilitates mitigating another barrier which is making falls prevention one of the top priorities in providing care to patients with neurological health conditions.<sup>14-16</sup>

The third theme in this study showed that the STEADI program fails to accommodate the needs of all patients with neurological health conditions. Although the STEADI program is considered a comprehensive, multifaceted falls prevention approach, it might not be applicable to certain neurology patients (eg, unconscious patients). This challenge necessitates further research to modify the STEADI program to address the health status of different patients with neurological health conditions. Researchers are also encouraged to investigate the possibility of expanding the scope of the screening and assessment tools used in the STEADI program. Adding other falls screening and assessment tools to meet the needs of all patients with neurological conditions could help mitigating this challenge.

Regarding the last theme, the participants highlighted that implementing the STEADI program could be limited by the need for training healthcare professionals, time constraints, and physical space limitations. Such challenges are not unique to the STEADI program and are inherent in different healthcare strategies. Addressing them will require an integration of the efforts by healthcare professionals and healthcare administration. Despite identifying it as a challenge, the authors believe that the need for training healthcare professionals could be regarded as a solution to other challenges. For example, the time constraint challenge could be minimized through attending further individual-paced and interdisciplinary training. Consequently, healthcare professionals' competence with utilizing the STEADI program could be enhanced over time and frequent training and practice.

#### Implications for Healthcare Professionals and Policy

The findings of this study have crucial implications for healthcare professionals working in neurology units. The positive impact of the STEADI program on patient care and falls prevention emphasizes the importance of adopting evidencebased programs tailored to the unique needs of patients with neurological health conditions. Healthcare providers should recognize the STEADI program as a comprehensive framework capable of not only identifying fall risks but also providing timely and evidence-based interventions. The program positive influence on communication among healthcare professionals suggests an opportunity for improved interdisciplinary collaboration and a better understanding of each healthcare professional's role in mitigating falls. To maximize these benefits, healthcare professionals should actively engage in training workshops to enhance their awareness, competence, and utilization of the STEADI program.

The study findings have broader implications for healthcare policy. This study showed that there is a need for strategic initiatives to integrate evidence-based falls prevention programs into standard care practices in neurology units. The administration in healthcare settings and healthcare policymakers should recognize the positive impact of the STEADI

program on patient outcomes and consider endorsing its implementation as part of a standardized falls prevention protocol. Investing in training programs for healthcare professionals and addressing time and space constraints is necessary to overcome the reported implementation challenges. By adopting falls prevention programs like STEADI, healthcare policy can contribute to a safer environment for patients, ultimately reducing the burden of fall-related complications, hospital stays, and healthcare costs.

## Limitations

Although having a large sample size is not common in qualitative studies, the findings reported in this study are limited by the small sample size. Another limitation of this study is the use of reflective journals to collect the data. Conducting in-depth interviews might provide a better understanding of healthcare professionals' insights regarding the applicability of the STEADI program in neurology units. Recruiting healthcare providers using nonprobability sampling is another limitation of the current study.

## Conclusion

The findings of this qualitative study highlight the constructive insights reported by healthcare providers regarding the implementation of the STEADI program in neurological care. Responses to the reflective journals revealed that the participants were able to identify the benefits of using the STEADI program as an interdisciplinary approach to identify the risk for falls among patients with neurological conditions. Implementing the STEADI program was reported as a strategy that encourages shared decision making and promotes interdisciplinary collaboration among healthcare providers. It was also appraised as a program that provides evidence-based exercise interventions that could be customized to meet the unique needs of different neurology patients. The reflective journals also showed that implementing the STEADI program has a positive impact on patients' outcomes including maximization of safety, decreasing the risk for falls, and facilitating recovery. The comprehensive and evidence-based approach, coupled with its interdisciplinary nature, was highly appraised by the participants. However, challenges related to patients' applicability, healthcare professionals, and the healthcare system must be addressed for successful implementation of the STEADI program in neurology units. Future research should focus on strategies to overcome these challenges and further refine falls prevention programs in neurology acute settings to achieve optimal patient outcomes and professional collaboration.

## **Ethical Approval**

The researchers obtained approvals from Jordan University of Science and Technology (JUST) and the host hospital Institutional Review Boards to ensure adherence to ethical guidelines (Ref:35/157/2023). Participants were provided with informed consent, emphasizing their right to voluntary participation in and withdrawal from the study.

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## Disclosure

The authors report no conflicts of interest in this work.

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