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Abstract

Purpose: The aim of this study was to explore the perceived meaning of traumatic brain injury (TBI) over the first-year postinjury among older adults and to explore if and how meaning changes.

Design: A longitudinal multiple-case study design was used.

Methods: Semistructured face-to-face interviews were completed at 1 week and 1, 3, 6, and 12 months postinjury. Transcripts were analyzed using inductive thematic analysis.

Results: Fifty-five interviews were conducted with 12 participants. Four themes were identified: gratitude, vulnerability and dependence, slowing down and being more careful, and a chance for reflecting on life. Most participants' perceptions of their TBI remained either consistently positive or negative over the first-year postinjury.

Clinical Relevance: Nurses should elicit and support patients' positive illness perceptions regarding their brain injury, which can contribute to a higher quality of life. For those patients with negative illness perceptions, nurses should provide resources in order to support coping and resilience following brain injury.

Conclusions: This study is the first study to explore individual perceptions over time of the meaning made from experiencing TBI among older adults. Findings can serve as a foundation for tailored supportive interventions among older adults following TBI to maximize quality of life.

Keywords: Perception of illness; geriatric; traumatic brain injury; recovery.

Introduction

Traumatic brain injury (TBI) is a sudden damage to the brain that can be an unexpected and devastating event. In

the United States, older adults aged 75 years or older have the highest rate of hospitalization and death, experiencing 32% of TBI-related hospitalizations and 28% of TBI-related deaths, despite representing only 13% of the population in the United States (Centers for Disease Control and Prevention, n.d.). Falls are the main mechanism of TBI in older adults, and the majority experience mild TBI (Silverberg et al., 2020). However, TBI in older adults is considered to be a global public health issue. The incidence of TBI in older adults has been increasing as well (Gardner et al., 2018). Depending on the severity, type, and mechanism of TBI, recovery varies from a few days to several months to years (Tenovuo et al., 2021). Because of the natural effects of aging, higher number of comorbidities, and possible preexisting cognitive impairment, older adults are more likely to have a complicated recovery following TBI compared to younger adults (Gardner et al., 2018).

Older adults who sustain a TBI can experience many life changes related to functional outcomes (Thompson et al., 2020) and quality of life (Hunt et al., 2019). How individuals perceive their injury and integrate the experience into their lives can influence TBI-related recovery. In general, a number of studies demonstrate that an individual's perception of their illness influences their health outcomes (Bonsaksen et al., 2015), the ability to cope with the illness

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Methods

Research Design

A longitudinal multiple-case study design was used to explore the meaning of TBI and to describe if and how the perceived meaning changes in the first year following brain injury in older adults. The study used secondary analysis of previously transcribed interviews. The parent study, which generated the transcript analyzed in the present study, aimed to compare recovery trajectories for younger and older adults following TBI (Thompson et al., 2020).

Settings and Participants

Full detailed information on the setting, participants and recruitment procedures can be found elsewhere (Thompson et al., 2020). In brief, participants in the parent study were aged 65 years or older who were diagnosed with mild-moderate TBI. Participants were recruited from a Level I trauma center located in Seattle, Washington. Inclusion criteria for participants were (a) aged 65 years and older, (b) arrival in the emergency department within 24 hours of injury, (c) primary diagnosis of TBI, (d) initial Glasgow Coma Scale score of 9–15, and (e) having more than one transcript available for analysis. The study protocol was approved by the university’s institutional review board.

Data Collection

Following written informed consent, demographic and injury data were obtained from the individual, and injury-related data were obtained from the electronic health record. Participants were interviewed face-to-face at 1 week and 1, 3, 6, and 12 months postinjury (Figure 1). Semistructured interviews were conducted in the participants’ personal residences or in a mutually agreed upon place that was private. During each interview, the participant was asked questions pertaining to the meaning of TBI and the differences in life after TBI over time (Supplemental Digital Content 2, <http://links.lww.com/RNJ/A48>). To ensure confidentiality, each study participant was assigned a numerical identifier.

Data Analysis

Each interview was digitally recorded and then transcribed verbatim. All transcripts were reviewed independently by

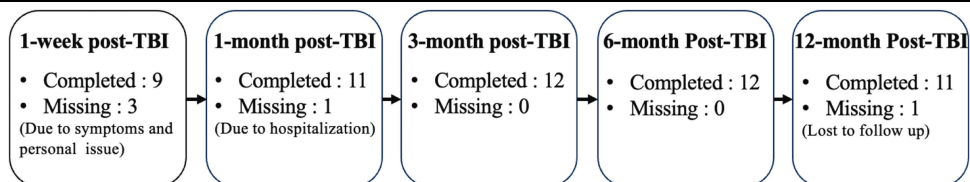


Figure 1. Flowchart of data collection through the study time points.

to 40 minutes, averaging 17 minutes in length. The demographic and clinical characteristics of the participants are shown in Table 2.

Qualitative Findings

Perceived Meaning of TBI in Older Adults

Based on interviews, four different themes regarding the perceived meaning of TBI were identified: gratitude, vulnerability and dependence, slowing down and being more careful, and a chance for reflecting on life. For exemplars, the quotes attributed to participants are identified with the participant number followed by the timing of interview: 1 week (T1), 1 month (T2), 3 months (T3), 6 months (T4), and 12 months (T5).

Gratitude

Gratitude was one of the most prominent themes identified for the meaning of TBI among participants (P1, P2, P6, P7, P8, P9, P13). The participants described how thankful and lucky they were to be alive even though their brain was injured (see Table 1 for example quotes). They felt gratitude that they were still alive and the injury was not serious and did not get worse:

It has opened my eyes to be more grateful, appreciative. Things that I used to take for granted, I don't. It's precious...the thing that's the most meaningful to a person's life. (P7, T2)

Also, they described gratitude for the recovery from the injury:

Well, to me it meant that it couldn't be too bad, and this too will pass. It occurred and it was a difficult one, but it has improved very much and I'm living a satisfactory life. (P2, T3)

It means that since I've recovered to this point, that I'm probably the most fortunate person on earth because I could have very well have ended it right there. (P8, T4)

Some participants expressed gratitude to social support from formal and informal caregivers for how good they were:

I think that the caregiver, the one I have, is very good. She just comes right in and starts to work. (P10, T2)
I am most grateful that...nurses once a week and physical therapists that came, department of labor and industries, there was another two guys that came and started me out on all these exercises to get going, get your muscles and brain connected again and so I really appreciate all that. (P8, T5)

Vulnerability and Dependence

Another distinct theme was vulnerability and dependence. Seven participants (P3, P5, P6, P7, P10, P11, P12) reported negative perceptions of TBI related to their vulnerabilities

Results

Demographics

A total of 12 individuals provided 55 interviews over the 12-month study. The length of interviews ranged from 8

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<p>"It did bring me into touch with my mortality a little bit because when my head hit, I thought that was it...I hate the limitations that I feel." (P11) "At my age I'm not gonna get too much better. I'm too old to get like I was 40 again." (P12)</p>	<p>"I don't even remember that at all, which I find kind of confusing... It's been a headache." (P5) "Inconvenience. I'm just not able to do what I want to do...I'd probably be outside doing something." (P5)</p>	<p>"I used to go to [the name of the place] by myself and I was told by my daughter that I can't do that anymore." (P3) "It means to me damn... it's been a big pain. I would rather it not happen." (P11)</p>	<p>"I couldn't do everything I wanted to do, that I was able to do before." (P5)</p>
<p>Slowing down and being more careful</p>	<p>"It means to slow down and be careful." (P9)</p>	<p>"It means to be very more careful." (P9) "It sure slowed me down." (P10)</p>	<p>"It means I might not be the same as I was, and it means that I have to be extra careful." (P12)</p>
<p>A chance for reflecting on life</p>	<p>"I mean what really came into focus is when I had my crisis back in, well ancient history, but anyway I want to know what I'm gonna be facing." (P7)</p>	<p>"It was an awakening, total awakening. A new path, new life and new experiences." (P13)</p>	<p>"I guess in some ways it is making me reflect on where am I going and what am I going to do." (P11)</p>

Table 2 Demographic and Clinical Characteristics of the Participants at Injury

Subject No.	Age	Gender	Self-Identified Race	GCS	Marital Status	Living Situation
P1	77	M	White	12	Married	With others
P2	94	F	White	15	Widow	Alone (ALF)
P3	82	F	Asian/Pacific Islander	15	Widow	Alone
P5	82	M	White	15	Married	With others
P6	84	F	White	10	Partnered	With others
P7	65	M	White	14	Married	With others
P8	87	M	White	15	Married	With others
P9	68	M	White	14	Single/divorced	Alone
P10	86	F	White	15	Widow	Alone
P11	67	F	White	15	Did not answer	Alone
P12	73	F	White	15	Single/divorced	Alone
P13	65	F	White	15	Single/divorced	Alone

Note. GCS = Glasgow Coma Scale score; M = male; F = female; ALF = assisted living facility.

I used to go to [place name] by myself and I was told by my daughter that I can't do that anymore. (P3, T4)

Limitations were related to their age and symptoms including headache and posttraumatic amnesia (Table 1):

Something happened in there that I don't remember, and that bothers me. (P3, T4)

TBI also impacted daily function for some participants. They articulated complaints about their life changes because of their poor functional outcomes from TBI:

If it's going to affect my driving, I'm going to have to go into early retirement...I'm going to be checking on that. (P7, T2)

Slowing Down and Being More Careful

Five participants (P3, P6, P9, P10, P12) noted the TBI was a warning sign for needing to be more careful and to slow down (Table 1):

It means two things. It means I should be careful and try not to fall again. And it means to me personally, just to take things slower. (P6, T4)

A Chance for Reflecting on Life

Through the experience following TBI, four participants (P7, P8, P11, P13) reported they were able to be reflective (Table 1):

It means that I have had time to look into myself and into my way of life and my lifestyle and the word personality. (P8, T5)

The Meaning of TBI Over the First-Year Postinjury for Older Adults

Overall, most participants perceived meaning of their TBI remained consistent over the first-year postinjury (Table 3). Five of the participants (P1, P2, P7, P8, P13) consistently noted appreciation for being alive after their TBI and expressed gratitude that the TBI was not worse. The consistent

positive meaning over the year postinjury presented in many different ways. During the year older adults spent time for recovery, they thought of their TBI as a chance to look into their lives and expressed gratitude for support from family and healthcare providers such as doctors and nurses.

On the other hand, six participants (P3, P5, P9, P10, P11, P12) articulated that TBI had a negative meaning to them across the year. For the most part, participants struggled with independent life with their physical limitations. Also, participants wondered why it happened to them and how the injury itself and life changed following TBI. Most participants did not experience a change in how they perceived their TBI. They either consistently viewed it positively or negatively.

In contrast, one participant (P6) had different insights related to the meaning of TBI over time. At the baseline interview, the participant had a negative view of the meaning of TBI and complained about symptoms related to injury:

It's not a good thing to do and I don't know if I fell, and a pole wrapped itself around my head or if I fell and my head wrapped itself around a pole. Something happened in there that I don't remember, and that bothers me. (P6, T1)

As time went by, the participant accepted the injury itself, although there was no dramatic recovery in relation to physical symptoms and had a positive view through another individual's brain injury experience:

My life did not change dramatically since the injury.... It means that things can happen so suddenly...but as far as it being an injury, it seems to have healed. (P6, T3) I still want my legs to get more strength, but I'm working on that and they're getting better...it will take time. There's a woman in my art group that had three head injuries. I said "how long did it take you to get back to normal?" and she said it takes a year. And see I have several months yet to go before...I think I'm doing quite well. (P6, T4)

Table 3 Themes of the Meaning of Traumatic Brain Injury Over the First-Year Postinjury for Older Adults

	1 Week	1 Month	3 Months	6 Months	12 Months
P1	• Gratitude	• Gratitude	• Gratitude	• Gratitude	• Gratitude
P2	• Gratitude	• Missed interview	• Gratitude	• Gratitude	• Gratitude
P3	• Missed interview	• Slowing down and being more careful	• Vulnerability and dependence	• Slowing down and being more careful	• Slowing down and being more careful
P5	• Vulnerability and dependence	• Vulnerability and dependence	• Vulnerability and dependence	• Vulnerability and dependence	• Vulnerability and dependence
P6	• Vulnerability and Dependence	• Vulnerability and dependence	• Gratitude	• Gratitude • Being more careful	• Gratitude
P7	• Gratitude	• Gratitude • Vulnerability and dependence	• Gratitude	• Gratitude	• Gratitude
P8	• Gratitude	• Gratitude	• Gratitude	• Gratitude	• A chance for reflecting on life
P9	• Missed interview	• Slowing down and being more careful • Gratitude	• Slowing down and being more careful	• Slowing down and being more careful	• Missed interview
P10	• Vulnerability and dependence • A chance for reflecting on life	• Vulnerability and dependence	• Vulnerability and dependence	• Vulnerability and dependence • Slowing down and being more careful	• Vulnerability and dependence
P11	• Vulnerability and dependence	• Vulnerability and dependence	• Vulnerability and dependence	• Vulnerability and dependence	• Vulnerability and dependence
P12	• Missed interview	• Vulnerability and dependence • Slowing down and being more careful	• Slowing down and being more careful	• Vulnerability and dependence • Slowing down and being more careful	• Vulnerability and dependence • Slowing down and being more careful
P13	• A chance for reflecting on life	• A chance for reflecting on life	• A chance for reflecting on life	• A chance for reflecting on life	• Gratitude

One good thing that has come out of it is how people do care about me. It is very heartwarming.... There's always someone to say, "can I help you?" (P6, T2) My partner took good care of me. Very good. (P6, T5)

Discussion

The findings of this study discuss what TBI meant to older adults and how their perceived meaning changed over the year. This study fills an important gap in the literature as few studies have explored the longitudinal patterns of perceived meaning of TBI in older adults. Four main themes were revealed by analysis: (1) gratitude, (2) vulnerability and dependence, (3) slowing down and being more careful, and (4) a chance for reflecting on life. Among the four themes, the most prominent were gratitude and vulnerability and dependence. Consequently, the vast majority of participants had either positive or negative feelings about their brain injury, and the balance of those feelings tended to stay consistent over time.

For those viewing the TBI as a positive event, participants were thankful that they survived and symptoms were not getting worse. Also, participants felt they had gained a chance to look back on their lives and reflect on them. These findings are consistent with prior studies that revealed that people's illnesses or injuries brought them to see their lives in a new way (Jumisko et al., 2005) and bring appreciation for being alive and recovering (Jones et al., 2021). Other investigators have found that living with TBI means struggling to achieve a "new normal" (Jumisko et al., 2005). In the process of finding a new way of life, individuals following TBI have sought to understand why and how the injury happened and they felt surviving from TBI was a miracle (Jumisko et al., 2005). In studies of persons experiencing cancer (Kugbey et al., 2020) and other chronic diseases (Bonsaksen et al., 2015), participant comments reflected how bad it could have been and that they developed a greater appreciation for being alive. According to Frias et al. (2011), people develop a deep appreciation when they are confronted with life-threatening circumstances, which create awareness of their own mortality, and when life cannot be taken for granted, people experience enhanced gratitude for the life they are able to live. As shown

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potential association.

In terms of the trajectory of the meaning of TBI in older adults, most participants had perceptions of their injury that remained consistent over the first-year postinjury. Only one participant's view changed from negative to positive over the 12 months as the individual accepted and integrated the sequelae of injury over time. This finding is consistent with the theory of posttraumatic growth (PTG) developed by Tedeschi and Calhoun (1996). The PTG theory states that people can begin to see the positive aspects of life after they endure psychological struggles after trauma (Tedeschi & Calhoun, 1996). Powell et al. (2007) also found that attitude changes continued to occur in survivors who sustained a brain injury. In their cross-sectional study, the survivors who had sustained their brain injury for 10–12 years prior had a higher level of PTG; however, they noted living a richer and fuller life in some ways compared to those whose TBI was more recent (Powell et al., 2007).

Our findings demonstrate how older adults with mild–moderate TBI view their injury and over the first-year postinjury. These results indicated that a nuanced pattern of illness perception exists in older adults following TBI, depending on the individual's lived experience. There is now a need in TBI research to explore associations between one's illness perception about TBI with the lived experience and health outcomes in older adults. In addition, people have various views of their illness although they have the same medical conditions or injury. It would be beneficial to assess if there are differences in illness perception associated

Key Practice Points

- Older adults with mild–moderate TBI view their injury as (1) gratitude, (2) vulnerability and dependence, (3) slowing down and being more careful, and (4) a chance for reflecting on life.
- Most older adults' perceptions of their TBI remained either consistently positive or negative over the first-year postinjury.
- During the rehabilitation period, nurses should evaluate and address factors that positively or negatively affect older adults' illness perceptions.
- Nurses can provide resources such as mindfulness, problem-solving therapy, and positive reappraisal to support coping and resilience for older adults following brain injury.

and more representation from ethnic minority groups and various cultures for a richer understanding of the process of making meaning following a TBI.

Implications for Nursing Practice

This study provided an opportunity to better understand older adults' lived experiences and thoughts regarding TBI. Most participants' perceptions of their TBI remained either consistently positive or negative over the first-year postinjury. To better support recovery, it is important to understand the perceived meaning ascribed to TBI and how that influences the overall quality of life after TBI in older adults. With this knowledge, nurses can elicit perceptions of brain injury during the rehabilitation period. For those older adults who have a positive perception of their brain injury, nurses can endorse and leverage these perceptions to support a better quality of life. In those older persons with negative illness perceptions, nurses can evaluate and address factors that negatively affect their illness perceptions. Nurses can also use techniques like mindfulness, problem-solving therapy, and positive reappraisal in order to support coping and resilience.

Conclusion

The current study is the first study to explore the longitudinal changes in the perceptions regarding TBI among older adults. Evaluation of interviews from older adults following mild–moderate TBI provided a nuanced understanding of several different patterns in the perceived meaning of TBI. We believe that this study can contribute to understanding older adults' beliefs about their brain injury at the first-year postinjury. Findings will inform future research and can serve as a foundation for individualized intervention among older adults who have sustained a TBI.

Conflicts of Interest

The authors declare no conflicts of interest.

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Limitations and Areas for Future Research

This study has several potential limitations. First, most study participants self-identified as non-Hispanic White. As a person's cultural and ethnic identity has a potential impact on how one perceives injury, future research should include a diversity of perspectives. Second, there was a limitation in fully addressing the trajectory of the perceived meaning of TBI in older adults. Some participants were lost to follow-up on the interviews, which could have affected interpretation of data. It has been recommended to initially oversample in the longitudinal qualitative studies of older adults because of expected attrition for various reasons such as health problems and mortality (Nevedal et al., 2019). Finally, 12 months of follow-up period would be considered a relatively short time to observe particularly PTG. TBI survivors who sustained TBI for more than 10 years prior showed high levels of PTG in a previous study (Powell et al., 2007). Therefore, future studies should include longer follow-up periods, additional participants,

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PROVIDER ACCREDITATION

Lippincott Professional Development will award 2.5 contact hours for this nursing continuing professional development activity.

Lippincott Professional Development is accredited as a provider of nursing continuing professional development by the American Nurses Credentialing Center's Commission on Accreditation.

NCPD Nursing Continuing Professional Development

This activity is also provider approved by the California Board of Registered Nursing, Provider Number CEP 11749 for 2.5 contact hours. Lippincott Professional Development is also an approved provider of continuing nursing education by the District of Columbia, Georgia, West Virginia, New Mexico, South Carolina, and Florida, CE Broker #50-1223. Your certificate is valid in all states.

Payment: The registration fee for this test is FREE for members and \$12.5 for nonmembers.

1. ARN members can access the discount by logging into the secure "Members Only" area of <http://www.rehabnurse.org>.
2. Select the Education tab on the navigation menu.
3. Select Continuing Education.
4. Select the Rehabilitation Nursing Journal article of your choice
5. You will appear at nursing.CEConnection.com.
6. Log in using your Association of Rehabilitation Nursing username and password. The first time you log in, you will have to complete your user profile.
7. Confirm the title of the CE activity you would like to purchase
8. Click start to view the article or select take test (if you have previously read the article.)
9. After passing the posttest, select + Cart to add the CE activity to your cart.
10. Select check out and pay for your CE activity. A copy of the receipt will be emailed.