

Financial Management Activity Process: Qualitative inquiry of adults with acquired brain injury

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Le processus des activités de gestion financière : enquête qualitative
menée auprès d'adultes présentant une lésion cérébrale acquise

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Key words: Craniocerebral trauma; Economics; Grounded theory; Personal financing; Stroke.

Mots clés : Traumatisme craniocérébral; Économie; Théorie ancrée; Finances personnelles; Accident vasculaire cérébral.

Abstract

Background. Little is known about the financial management occupations of people living with brain injury, despite the importance of these to adult autonomy. **Purpose.** This work aims to develop a conceptual framework for financial management after adulthood acquired brain injury. **Method.** This qualitative study used grounded theory methods. Data included semistructured interviews of 10 adults living with brain injury and two close others who assist with financial management occupations. Analysis included initial and focused coding, memo writing, constant comparison, theoretical sampling of questions, and member checking. **Findings.** The Financial Management Activity Process conceptual framework describes a complex action process. This includes accounting for factors influencing financial choices and actions, and identifying and using a trusted personalized process, including using financial management strategies aligned with the constraints of factors. **Implications.** This conceptual framework may be useful to assessment and intervention development. It highlights the between-person and between-activity variability in financial management processes and strategy use.

Abrégé

Description. On sait peu de choses sur les activités de gestion financière des personnes présentant une lésion cérébrale, malgré l'importance de ces occupations pour l'autonomie de l'adulte. **But.** Cette enquête vise à élaborer un cadre conceptuel décrivant les activités de gestion financière d'adultes présentant une lésion cérébrale acquise. **Méthodologie.** Cette étude qualitative était basée sur des méthodes d'analyse par théorisation ancrée. Les données comprenaient des entrevues semi-structurées menées auprès de 10 adultes présentant une lésion cérébrale et de deux autres personnes qui aident un proche à réaliser ses activités de gestion financière. L'analyse comportait un codage initial et dirigé, la rédaction de mémos, la comparaison constante, l'échantillonnage théorique des questions et la validation des répondants. **Résultats.** Le cadre conceptuel du Financial Management Activity Process (FMAP) décrit un processus d'action complexe. Il comprend la prise en compte des facteurs qui influent sur les choix et actions financières, de même que l'identification et l'utilisation d'un processus personnalisé éprouvé, notamment de stratégies de gestion financière correspondant aux contraintes des facteurs. **Conséquences.** Ce cadre conceptuel peut être utile pour élaborer des évaluations et interventions. Il met en relief le fait que les processus et les stratégies de gestion financière varient d'une personne et d'une activité à l'autre.

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Finances are ubiquitous to life; monetary capital is required to satisfy basic needs, accomplish everyday activities, and participate in chosen life roles. Thus, to meet one's current and future needs and wants, adults must participate in financial management (FM) occupations, such as paying for goods and services, budgeting available resources, and saving for the future. Managing one's finances is a central principle to North American adult life and shapes one's autonomy and independence in other chosen life activities and roles (Edersheim, Murray, Padmanabhan, & Price, 2017; Koller et al., 2016). However, FM errors can have calamitous consequences on the economic prosperity of adults and their dependents (Edersheim et al., 2017; MacLeod, Musich, Hawkins, & Armstrong, 2017). Despite the importance of FM to everyday life, there is a paucity of evidence guiding rehabilitation practice in the area of FM, especially for adults with acquired brain injury (ABI; MacLeod et al., 2017; Marson, 2016). Surprisingly, the everyday FM experiences and the activity processes used to accomplish FM activities by adults with ABI have not been examined. Therefore, the purpose of this study is to develop a conceptual framework regarding FM after ABI that can guide rehabilitation assessment and intervention.

Occupational therapists' role in FM assessment and interventions has been increasing, in both ABI and other diagnostic populations. In many Canadian provinces, occupational therapists are legally able to complete formal FM-related capacity assessments (British Columbia Ministry of Health & Public Guardian and Trustee of British Columbia, 2016), and studies underway have identified that FM is an area of practice being addressed by practitioners.

Survey studies have found 23% to 33% of adults with ABI self-report FM limitations (Corrigan, Whiteneck, & Mellick, 2004; Dawson & Chipman, 1995; Ponsford, Olver, & Curran, 1995). Apart from prevalence data, there is little literature exploring FM following ABI. Existing literature largely focuses on people with traumatic brain injuries (TBI), which we operationalize to be included as a subgroup of ABI (Turner-Stokes, Pick, Nair, Disler, & Wade, 2015). There is a paucity of FM-related data for other ABI subgroups (e.g., people after having a stroke).

Research on FM capacity in laboratory-based tests (i.e., the "ideal" but not real-world setting) has found that after brain injury, FM is correlated with cognitive impairments, specifically impairments in arithmetic and executive functions (i.e., attention, working memory, planning and monitoring actions; Bottari, Gosselin, Guillemette, Lamoureux, & Ptito, 2011; Martin et al., 2012). However, it is unknown how cognitive impairment affects the everyday FM occupations of people with ABI. In other populations with increased prevalence of cognitive impairment (e.g., dementia), cognitive impairment alone is not necessarily predictive of everyday FM functioning, and a person's subjective and individualized experiences in specific contexts shape FM outcomes (Lichtenberg, Stoltman, Ficker, Iris, & Mast, 2015; Marson, 2016; National Academies of Sciences, Engineering, and Medicine, 2016). Yet, there is a dearth of information about the contexts influencing FM in ABI populations.

Unfortunately there is no present conceptualization of FM after ABI. Conceptual frameworks can be a foundation to practice and help guide assessment and intervention development and research. While conceptual frameworks related to FM are available (see Appendix A at <http://journals.sagepub.com/doi/suppl/10.1177/0008417419833839>), few were developed for ABI populations specifically, and none have been developed using the perspective of adults living with ABI. Many of the frameworks for general or non-ABI populations come from a discrete-task perspective that outlines FM as comprising certain tasks that one must complete in a certain way (e.g., Cramer, Tuokko, Mateer, & Hultsch, 2004; Marson et al., 2000; Sousa, Vilar, Firmino, & Simoes, 2015). A few, but not all, acknowledge the role of the context and environment in FM in the real world (e.g., Huston, 2010; National Academies of Sciences, Engineering, and Medicine, 2016). No framework has described the *how*, or the FM actions and processes employed by adults with ABI to accomplish FM activities. Consequently, practitioners and researchers are often unsure of how to assess and intervene in FM in a way that can improve FM actions and activity completion. Further, the perspective of people with first-hand experience of FM post-ABI is important to framing practitioners' and researchers' view of FM in relation to current realities of people living with ABI (Patrick et al., 2011).

The objective of this study was to develop a conceptual framework of FM activity actions and processes by analyzing the semistructured interviews of people with ABI and close others who help people with ABI with FM activities. Our research questions were (a) What are the FM experiences, actions, and processes of people with chronic, adult-onset ABI? and (b) How does ABI shape FM experiences, actions, and processes?

Method

This qualitative inquiry was guided by constructivist grounded theory methods, which is based on the foundation of symbolic interactionism and social constructionism theoretical perspectives (Charmaz, 2014; see Appendix B at <http://journals.sagepub.com/doi/suppl/10.1177/0008417419833839> for research paradigm elaboration). A qualitative research approach provides valuable information about poorly understood situations, like FM after ABI, where there is little evidence available to guide a priori, deductive analysis (Beaton & Clark, 2009; Morse, Barrett, Mayan, Olson, & Spiers, 2002). Grounded theory methods provide a concrete, iterative, and multistep coding process for qualitative analysis and are advantageous to describing actions and processes (Brod, Tessler, & Christensen, 2009; Charmaz, 2014; Creswell, 2003, 2013; Patrick et al., 2011).

This study was approved by the research ethics boards at their respective research institute and university.

Sampling and Participants

We recruited through flyers sent to local ABI-related organizations in Toronto and from a local research institute

Table 1
Demographics of Participants With Brain Injury ($N = 10$)

Variable	N	M (SD)	Median	Range
ABI type				
Stroke	3			
TBI	6			
Self-identified gender				
Woman	6			
Man	4			
Living status				
Living alone in community	4			
Living with family in community	6			
Pre-ABI employment status				
Full-time paid/self-employed	9			
Volunteer	1			
Post-ABI employment status				
Disability funding/volunteering	4			
Disability funding/not volunteer	1			
Full-time paid employment	2			
Intermittent/part-time paid employment	2			
Retired due to age after return to work	1			
Current age range (years)	51.0 (14.4)	54.5	30–69	
Age at injury range (years)	41.8 (16.0)	40.0	23–67	
Time since injury range (years)	9.1 (10.6)	4.0	1–30	
Current formal education (years)	15.4 (4.1)	15.5	9–22	

Note. ABI = acquired brain injury; TBI = traumatic brain injury.

participant database. Initially, purposive sampling was used to recruit people with ABI of varied self-reported gender (woman, man), age at injury (young adulthood [20–30 years], older adulthood [>60 years]), and current age (young adulthood, older adulthood) to capture diversity of FM and ABI experiences (Creswell, 2003; McCann & Clark, 2004a). We chose these purposive sampling variables based on noted gender and age differences in FM (McKay, 2011). Due to our recruitment methods, we did not have access to initial injury severity or functional outcomes data for purposive sampling. No participants were excluded based on purposive sampling; instead, we sought specific participants from the research institute participant database to diversify the recruited sample.

This study included 10 consenting adults living with brain injury (indicated in this article as P1 to P10) who met the following inclusion criteria: They (a) were 18 years of age or older, (2) self-reported ABI at least 1 year ago, inclusive of traumatic and nontraumatic brain injuries (Turner-Stokes, et al., 2015); (c) had conversational English fluency; and (d) could access one of the two offered testing sites to complete cognitive testing.

The demographics of the participants with ABI varied in age at injury, current age, employment status, and education level (Table 1). All participants with ABI were living in the community either alone or with family, were ambulatory (one with gait aid), and independently accessed interview locations by driving or using public transportation. All reported subjective cognitive complaints, such as issues with attention, memory,

and/or executive functions. Participants completed the National Institutes of Health Toolbox Cognitive Battery (NIHTB-CB; described below). Scores across participants varied but did indicate that many of the participants had measurable cognitive impairments per the NIHTB-CB, although a range of cognitive functioning was represented in the sample (see Table 2 and Appendix C at <http://journals.sagepub.com/doi/suppl/10.1177/0008417419833839>). To classify as having measureable cognitive impairment, cut points of one z score or standard deviation below the standardized mean is recommended when interpreting the NIHTB-CB (Casaletto et al., 2015); eight participants fell greater than one z score below age-corrected standard scores on at least one test, and two had test results greater than two z scores below age-corrected standard scores on at least one test. Further, seven of nine participants had fluid cognitive composite scores lower than their crystallized cognitive composite scores (one participant did not complete the test battery and therefore had no composite cognitive scores); as crystallized scores (i.e., test of verbal fluency and oral reading) are hypothesized to be less impacted by brain injury or disease, these results indicate that the majority of the participants experienced ABI-related declines in fluid cognition (i.e., attention, memory, and executive functions; Casaletto et al., 2015).

Close others were recruited via identification by participants who have ABI and were included if they were age 18 years or older, regularly helped the participant who has ABI with FM in some capacity, and had conversational English fluency. Only three participants with ABI identified a close other who regularly helped them with FM. Of these three, we were able to interview two close others (indicated in this article as C1 and C2), and their interviews were used to supplement the discussion from participants with ABI of FM experiences and actions. One was the wife of a participant, and the other was a participant's father; both currently did not live with the adult with brain injury but had been helping with FM activities for more than 15 years. We were unable to contact one of the three identified close others.

Data Collection

Data collection followed three general steps. First, participants with ABI met with the primary researcher (L.E.) at either the hospital or university research institute. Informed written consent was obtained and basic demographic information was collected prior to participants being interviewed using a semistructured interview guide (Appendix D at <http://journals.sagepub.com/doi/suppl/10.1177/0008417419833839>). Second, participants with ABI completed the NIHTB-CB via an iPad app (www.nihtoolbox.org; Weintraub et al., 2014). These quantitative measures of cognitive functions were collected to provide current cognitive functioning description of the participants with ABI. The NIHTB-CB has measurement property evidence for use (Heaton et al., 2014), and the results were compared to the normative data for English-speaking persons of mixed racial backgrounds using age-corrected standard scores (Casaletto et al., 2015). Third, we sought consent from participants who have ABI to contact identified close others, and consenting close

Table 2
Participant Standardized NIHTB-CB Age-Corrected Standard Scores ($N = 10$)

Test	Cognitive area assessed	M (SD)	Median	Range
Picture Vocabulary Test ^a	Language/vocabulary	112.7 (13.6)	115.0	93–133
Flanker Inhibitory Control and Attention Test	Attention, executive functions/inhibition	88.9 (19.0)	88.5	57–118
List Sorting Working Memory Test	Working memory	95.1 (22.9)	93.0	66–126
Dimensional Change Card Sort	Executive functions/set shifting	108.9 (25.3)	118.5	66–146
Pattern Comparison Processing Speed Test	Processing speed	98.5 (22.2)	95.5	73–150
Picture Sequence Memory Test ^b	Episodic memory	103.9 (27.1)	92.0	74–144
Oral Reading Recognition Test ^{a, b}	Language/decoding	109.4 (14.0)	113.0	90–128
Fluid cognition composite score ^b		101.2 (26.3)	99.0	53–143
Crystallized cognition composite score ^b		113.2 (13.2)	116.0	91–131
Total cognition composite score ^b		108.2 (20.5)	109.0	77–134

Note. Based on age-corrected normalized sample ($M = 100$, $SD = 15$; Casalletto et al., 2015). NIHTB-CB = National Institutes for Health Toolbox Cognitive Battery.

^aScores combine to make crystallized cognition composite score; all other tests combine to make fluid cognition composite score. ^b $n = 9$ as one participant declined to complete tests.

others were interviewed either face-to-face or by phone. Data collection was completed between October 2016 and May 2017. Interview length ranged from 35 to 88 min.

Data Analysis and Theoretical Sampling

Interviews were audio recorded, transcribed, and checked for correctness. Coding and conceptual framework development were guided by constructivist grounded theory methods; we used journaling and memoing throughout data collection and analysis (Charmaz, 2014). In this way, analysis was inductive with the goal to develop a framework based on our broad research question and collected qualitative data (Mills, Bonner, & Francis, 2006). Initially, the first four completed interviews were coded line by line using gerund phrases to describe participants' FM experiences and actions; this coding fragmented the data, which could then be reorganized to explain the FM process (McCann & Clark, 2004b). The principle author (L.E.) then grouped initial codes into larger concepts (i.e., focused codes; Charmaz, 2014).

After an initial framework was developed from the focused codes, more interviews were completed, transcribed, and coded. In this way, data collection and data analysis were done simultaneously (Charmaz, 2014). Later interviews with new participants were also guided by new questions arising from the emerging framework (i.e., theoretical sampling; Appendix D at <http://journals.sagepub.com/doi/suppl/10.1177/0008417419833839>; Charmaz, 2014). Later interviews both added data to already developed codes and added different initial and focused codes to the developing framework. Theoretical sampling was also achieved by going back to two participants to discuss the framework.

Developing focused codes and the relationships between them involved constant-comparison methods where data and codes within and between interviews were compared; both similar and contradictory cases were noted, and memos were made regarding how these comparisons shaped the framework development (Charmaz, 2014; Corbin & Strauss, 1990).

Practically, initial coding, focused coding, and initial framework development were completed by hand using printed transcripts and written index cards naming the codes, which allowed for better visualization of the data analysis (McCann & Clark, 2004a). These index cards were grouped on a whiteboard to diagram the developing framework; cards (codes) were moved into focused coding areas as the analysis proceeded. Focused coding and constant comparison of data from earlier and later interviews led to reorganizing, renaming, and redefining the framework categories. As this progressed, relationships between the codes, focused codes (code categories), or parts of the framework emerged, visually represented by lines drawn on the whiteboard to connect index cards/codes.

The initial interpretations and developed conceptual framework were critiqued and refined by two participants with ABI, all four involved researchers, and one ABI researcher external to the project. Interviews were then recoded using a coding structure analogous to the developed framework and qualitative analysis software (NVivo; www.qsrinternational.com) to check for the depth of data supporting the focused codes and to sort all collected data within the framework. This last step also allowed for analysis of data theoretical saturation, in that the software kept counts of which interviews had data supporting the codes; from this analysis, we could determine that new interviews were not adding new codes or interpretations to the developed conceptual framework (i.e., each code was saturated; Charmaz, 2014; Creswell, 2013; Merriam & Tisdell, 2016). In this way, sample size was dictated by data collection, analysis, and theoretical saturation of the framework (i.e., new interviews not altering the framework) rather than a priori determinations (Charmaz, 2014).

Researcher Reflexivity and Techniques for Trustworthiness and Credibility

This study developed from the first author's clinical experiences as an occupational therapist working in acute and rehabilitation care, where many clients with ABI and/or cognitive

impairment were referred with the question of whether the person could manage their own finances in the community. Therefore, analysis was affected by experiences, occupational therapy models of practice (e.g., Person-Environment-Occupation Model; Law et al., 1996; Strong et al., 1999), and biopsychosocial perspectives (e.g., International Classification of Functioning, Disability, and Health; World Health Organization, 2002).

All authors also had their own FM lived experiences and money values. Therefore, they had to reflect often about their financial situations, beliefs, experiences, and assumptions that could be perceived to influence perspectives and analysis (i.e., constructivist perspective). To mitigate this perceived influence, we used multiple strategies to promote analysis transferability and to optimize the trustworthiness, including reflective journaling, prolonged engagement with the data, developing an audit trail, data source triangulation, examination of coding, member checking of analysis with two participants, and peer review (Appendix E at <http://journals.sagepub.com/doi/suppl/10.1177/0008417419833839> describes how these were operationalized; Charmaz, 2014; Creswell, 2003, 2013; Merriam & Tisdell, 2016).

Findings

Data were first analyzed to describe the FM experiences, actions, and processes of the participants with ABI. This included analysis of what FM activities participants engaged in, what was perceived to influence accomplishing these activities, and the process(es) used to complete FM activities.

All participants were involved in similar short-term transactional FM activities to manage money flow, such as shopping for goods, paying bills for goods and services, banking, managing debt, and paying taxes; the latter was often done by accessing family and/or financial professional support. These activities were carried out using a wide spectrum of low (e.g., paper-based) and high technology (e.g., online) FM tools. Fewer participated in long-term developmental FM activities, such as saving and/or investing. Participants reported focusing more on short-term activities due to lack of financial resources (P9), cognitive issues (P4), being able to focus only on the present because of affective and/or time-and-energy factors (P5, P6), and subjective perceptions of decreased life expectancy (P2).

Overall, multiple participants noted that having a health condition made accomplishing FM activities more difficult and effortful:

Because to me, there's all these things that people don't know about and understand. And it's like, "People, money is hard when you're healthy." It's always tricky. It takes time and so when you're not doing well, it's that much harder. (P9)

More specifically, participants noted changes that affected how they accomplished FM activities after ABI:

When you take a look at where people are financially, on the whole, and now that they've got an ABI, people need to be cut

a lot of slack about how do I really go about financial management when I know that at the end of the day, I'm talking about making the best possible [expletive] sandwich. (P2)

Changes in cognitive functions, fatigue levels, sleep patterns, pain levels, sensory tolerance levels, and perceptions of the self and/or the social environment all shaped FM activities. Time and energy available for FM were minimized due to decreased overall energy and the increased time and energy it took to complete other daily activities. Participants reported specific demands post-ABI on their time and energy that decreased time and energy for FM activities. One noted these decreases upon returning to paid employment (P7), and another noted that dealing with an ABI made them "a professional appointment goer" (P9) with little time or energy for other activities.

Further, environmental factors changed after ABI that shaped FM activities. Many participants noted a decrease in available financial resources due to being unable to participate in past employment activities. Consequent to decreased resources, for one participant, the availability of FM technology also decreased (e.g., computer/Internet). Social expectations for FM responsibility changed, with participants who have ABI getting leeway on bill payment due dates (P2), special pricing from health professionals for services (P6, P9), or decreased emphasis on saving for the future (P9/C2). As previously noted, ABI changed time demands through requiring increased time at medical appointments, and it also increased financial demands through the cost of recovery. Participants' financial resources were mediated by costs of accessing needed therapies, medications, or items for recovery that were not covered by governmental funding or private health insurance (P6, P7, P8, P9). These recovery costs also related to participants' inability to participate in cost-saving activities normally recommended to people (e.g., cooking at home, using coupons) due to related cognitive, pain, or energy symptoms and decreased available time to devote to FM activities (P7).

These person and environmental changes altered the way in which the participants completed FM activities. This included implementing new processes and strategies, for example, setting up a home-banking area because bank environments were intolerable (P9) or not going to malls to remove "temptations" (P7). For some, this meant creating new spending rules, as one participant described about creating rules around a favorite hobby of hockey card collecting after having gotten into debt post-ABI:

That's when I started to slow 'er down. Because I had to do the consumer proposal. So that all got paid for, so I had no credit cards, so all I had was just that money coming in. And so that's all I had . . . I just wouldn't buy as many. Because now . . . okay ahh . . . for hockey card collecting there are like 11 different sets to collect, so I would do all 11. Now I am only going to do three . . . I just buy one box a month and that is about it. (P3)

Additionally, ABI-related changes included using old strategies but often using them more, for example, increasing use

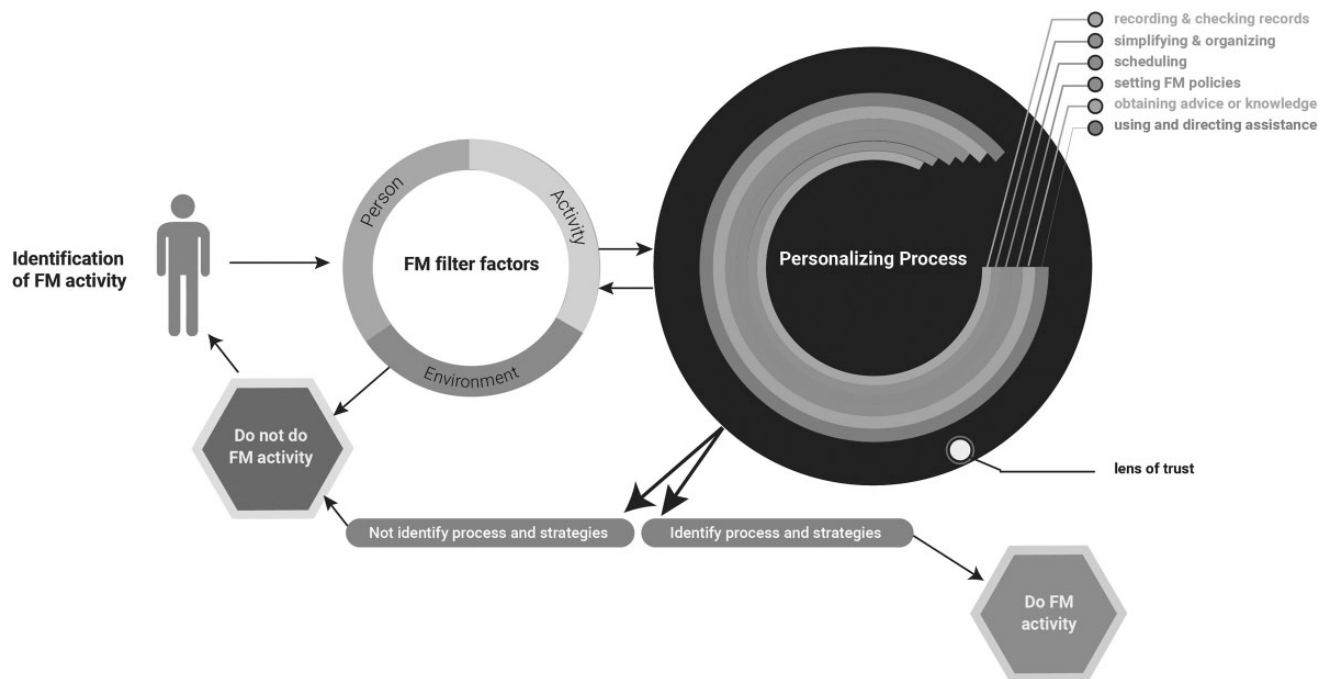


Figure 1. The Financial Management Activity Process (FMAP) conceptual framework. Graphic design support from Jennifer Duby.

of automatic and online payments to manage memory impairments (P2) and simplifying the recording system into a one-page yearly bill-tracking sheet (P5). Moreover, ABI-related changes included specifically not using certain strategies. For example, some participants specifically chose not to use automatic payments due to decreased resources, incongruent timing of bills and financial resources, and decreased initiation in keeping track of spending when on automatic payments (P4, P9, P10).

Conceptual Framework

The Financial Management Activity Process (FMAP) conceptual framework emerged from our analysis of the interview data (Figure 1). This framework describes the real-world actions reported by participants with ABI in moving from not doing to doing FM activities. The FMAP includes three major actions: (a) identifying the FM activities one needs or wants to do, (b) accounting for FM-related filter factors, and (c) identifying and using trusted FM processes and strategies.

Identification of FM activities one needs or wants to do. The first action requires the person to be cognizant of the need to participate in an FM activity in the present moment. Participants reported various events that developed their awareness of certain activities they may need to do or want to do. This included current or past family learning opportunities or discussions (P1, P4, P7, P8, P9), experiences in the educational system (P8, P10), past attendance at FM-related seminars (P10), interactions with finance-related professionals (P2, P8), discussions with coworkers (P5), observations of the

experiences of others (P4), media or online information (P5, P9, P10), and/or past FM experiences (P3).

Filter factors. The second action is that the person accounts for the activity, person, and environmental factors that are perceived to affect doing the FM activity they want or need to do (Table 3). The factors act as a “filter” (P2) that either limited or facilitated FM activity accomplishment.

All of these factors discussed by the participants determined if the activity was even feasible or how the activity could be completed. The filters therefore were relevant to the person determining an actionable plan. For example, participants noted that factors, including anxiety (P6, P8), cognitive initiation or impulse control impairments (P2, P3, P7), pain and fatigue (P6), financial resource issues (P1/CI, P3, P7, P8, P9, P10), lack of access to a formal financial institution (P1/CI), or an activity requirement of travelling to a bank (P6), could render an FM activity undoable. Environmental factors could facilitate action, such as consulting a family member for advice or financial assistance (P9), pressure to overspend, and poor financial management:

I am impulsive . . . You look at something—hey that is nice, okay I will buy it, without thinking. And credit cards are the worst things to get . . . Then I had to do a consumer proposal so they all got out and so they just keep sending you credit cards . . . yah. You write a letter to them saying I don’t want anymore. And sure enough, 6 months later, here, congratulations, you qualify for a free credit card. (P3)

Further, participants noted that financial knowledge was not enough, and oftentimes other factors, such as self-regulation

Table 3
Financial Management Activity Filter Factors

Filter factor	Description and/or participant examples
Activity factors	
Complexity	Number of steps the FM activity required according to the person's understanding of how to complete that activity
Temporality	If steps had to be completed all at once or could be completed at different times
Space/ location	If activity completion required a specific location (e.g., bank)
Person factors	
Physical or sensory	Energy levels/activity tolerance, or auditory or light intolerance (P6, P8, P9, P10)
Cognitive	Memory, executive function impairments (e.g., self-regulation [impulse control], initiation of action, planning), mathematics/numeracy skills (P3), current financial knowledge (capacity/literacy)
Affective, emotional, or behavioural	Anxiety, depression, socioemotional control (P1/C1, P2, P3, P6, P8)
Personal current finances	Resources (e.g., assets, savings) and demands (e.g., debts) related to the person
Perceptions and values	Perceptions of available social supports (P2), personal financial values (P1, P2, P7, P9)
Environment/context factors	
Physical	Lighting or noise in a bank (P6, P9) or access to FM-related technology (P1)
Sociocultural	Availability of knowledge of FM supports (P2), social expectations of financial responsibility (P9/C2), legitimate or fraudulent demands on the person's financial resources (P1/C1, P4, P6, P9, P10)
Institutional or organizational	Opportunities for financial resources, such as paid employment, short- and long-term disability insurance, governmental disability benefits and social assistance programs, or family financial support (P1, P2, P3, P8, P9, P10); access to formal financial institutions (P1/C1, P3); credits or debts scheduling (e.g., time of month) and methods (e.g., cash, cheque, credit; in-person, phone, or online options; P3, P6, P7, P8); professional or employment policies guiding investing and conflicts of interest (P2)

Note. FM = financial management; P = participant; C = close other. Description/participant example with no specific participants listed indicates a point discussed by majority of participants.

(i.e., impulse control or initiation impairments; P2, P3, P7, P10), memory impairments (P2), energy issues (P6, P7), lack of financial resources (P7, P9), or environmental distractions (P2, P7), could override their knowledge of the most optimal FM action or cause a disconnect between knowledge and action.

If something interrupts me, that goes from being an easy task to an easy task that I didn't do because I forgot. So, and this,

this is like, did you hit send . . . It's, it's the, I understand what needs to happen. I have the knowledge in my head about the process that needs to be followed in order for me to make a logical recommendation to my financial advisor, or a decision about whether to take his advice. But implementing those in a logical way where I remember what it was that we were just doing is an entirely different thing. (P2)

Processes and strategies. The third action in the FMAP framework is creating trusted personalized processes and strategies, essentially plans of action that enable activity completion within the constraints of the FM filter factors. We categorized participants' descriptions into six strategies: recording and checking records, simplifying and organizing, scheduling, setting FM policies, obtaining advice or knowledge, and using or directing assistance (Table 4). Strategies could be carried out using various high-technology (e.g., Internet, computers, smartphones) and low-technology tools (e.g., paper and pencil). Some participants chose not to use FM-related technology because of their filter factors (e.g., wanting paper bills to better keep track of spending and bill payments; P4, P6, P7, P10), while others chose to use high-technology options frequently (e.g., automatizing almost all payments to offset memory challenges; P2).

Only one participant used a formal budget to manage cash flow and long-term savings prior to ABI (P7), and no participants reported using a formal budget post-ABI. This was commonly related to decreased time, energy, or initiation in creating and following a budget. Instead, multiple participants noted using specific FM policies that guided their financial decisions and helped to balance resources with spending. Also, multiple participants noted that asking for advice and/or support often included self-disclosing their ABI history to others (P2, P6, P8, P9).

Personalizing the process and strategy use were completed within a "lens of trust"; the person with ABI judged whether they trust themselves, others, technology systems, and/or organizations involved in the FM processes and strategies. One participant noted this was about trusting enough; it was finding the most optimal solution given situational constraints and using strategies "despite their limitations" (P2). For example, some participants reported using advice from banks because they trusted financial personnel (P2, P8), whereas others preferred consulting with family members or friends because of distrust in formal financial services personnel (P1, P6, P7, P9). Multiple participants brought up not trusting a certain company's billing practices, which required them to identify and use other strategies to pay that specific bill (P1, P3, P5).

The coding of strategies and processes emerged from looking at cases where participants reported similarities in how they accomplished FM activities and examining contradictory cases. Four interviews/interview dyads highlighted divergence from the process. In these cases, participants had decreased discussions about FM strategy, conveyed an experience of FM chaos or less subjective FM well-being, and/or identified others

Table 4
Strategies for Financial Management Activity Completion

Strategy ^a	Definition	Examples from interviews of participants with acquired brain injury
Recording and checking records	Making written account of FM information and consulting information as needed	Using debit/credit card or automatic billing for spending and looking at online banking records (P2, P5, P6, P7) Using Excel spreadsheet to track bill payments (P6) Having a written log of bills and banking information (P5)
Simplifying and organizing	Decreasing task complexity and/or arranging needed FM information or tools	Developing a simple one-page log sheet of all yearly bills (P5) Automatizing rent and/or bill payments (P1, P2, P4, P5, P7, P8, P10) Breaking up task into smaller parts (P6) Setting up a “home bank” or specific FM area (P9) Designating online or offline places where financial information is kept (P4, P5, P6, P7, P9, P10)
Scheduling	Setting dates and/or times for FM task completion	Going shopping or to the bank only on nonpeak days and at nonpeak times (P6, P9) Setting up automatic payments to be taken out after monthly insurance payments are credited to account (P3) Scheduling time in a calendar for when to do FM tasks (P6, P9)
Setting FM policies	Creating and following personalized rules that govern FM tasks and choices	No participant reported using a formal, written budget Going grocery shopping only one or two times per week to decrease impulse buying (P7) Not using automatic payments to increase checking records (P9) Shopping only at thrift stores (P9) Buying only two boxes of hockey cards per month from the two cheapest card sets (P3) Always paying credit card bill in full (P2, P4, P5) Paying bills right away as they come (P3, P4) or paying a few days before due (P5) Not making stock/investment decisions until not “tempted” by high-risk options (P7) Always overpaying bills by a few dollars, just in case (P8)
Obtaining advice or knowledge	Going outside of current personal knowledge to gain needed information	Consulting bank personnel or financial professionals about ways to do tasks (e.g., interact payments, setting up savings plans; P2, P3, P5, P8) Asking FM-related questions and/or receiving unsolicited advice from health professionals (e.g., occupational therapist; P3) or family/friends (P3, P4, P7, P8, P9) Reading off- or online FM information or going to FM seminars for information (P9, P7, P10)
Using or directing assistance	Getting another person to complete the FM task ^b	Getting spouse to complete online or offline banking activities (P1, P6) Directing an accountant to complete yearly taxes or a financial advisor to complete investment/savings decisions (P2, P3, P4, P5, P6, P8, P10)

Note. FM = financial management; P = participant. Strategy example with no specific participants listed indicates a point discussed by majority of participants.

^aThese strategies can be accomplished through high-technology (e.g., online banking, smartphone apps, calculators, Excel spreadsheets) and/or lower-technology options (e.g., log books, paper-based calendars, telephone or in-person banking). ^bIn this sense, the person with acquired brain injury is guiding or asking another to do the task as opposed to another person doing it without being directed to (e.g., someone formally/legally or informally taking over FM responsibilities and decisions).

taking over FM activities either in the present time (P1/C1, P8) or when discussing the initial years post-ABI (P6, P7).

Dynamic nature of the framework. Participants noted changes in FM processes both related and unrelated to ABI, the latter often related to FM technology changes and life development changes, such as changes in employment (P4, P10) or social supports (P7). Further, all parts of the framework are fluid and have a dynamic interrelated relationship. Participants noted that obtaining advice increased their FM knowledge and skills (P4), asking for assistance from health practitioners in managing the costs of therapy bills helped to decrease the

environmental demands on their finances (P6, P9), and scheduling, simplifying, or organizing the activity differently changed the activity factors (P3, P5, P6). As one participant noted, “I’m having to always kind of look back and forward between the strategies that I use and the factors that are influencing it [to manage my finances]” (P2).

Discussion

The FMAP conceptual framework is the first framework developed based on the qualitative experiences of adults with ABI

and close others who help them with their FM activities. Developing a framework based on the experiences of the population is vital to creating a comprehensive conceptual framework and the development of relevant rehabilitation resources (Patrick et al., 2011). The developed FMAP framework provides a holistic viewpoint of FM that is a complementary addition to other frameworks and adds a unique viewpoint to expand the discussion of FM after ABI.

The data highlight the importance of strategy use to everyday financial management actions. Strategies are “procedural, purposeful, effortful, willful, essential, and facilitative” (Alexander, Graham, & Harris, 1998, p. 130). People use strategies to optimize information processing, learn, complete desired actions, reach goals, and cope with challenging activities (Bottari, Shun, Le Dorze, Gosselin, & Dawson, 2014; Toglia, Rodgers, & Polatajko, 2012). The emergence and focus on strategies for accomplishing FM actions corresponds with other research in the areas of education (Alexander et al., 1998; Dinsmore, 2017), rehabilitation (Bottari et al., 2014; Toglia et al., 2012; Strangman et al., 2009), and finance and economics (Olen & Pollack, 2016). However, the discussion of strategies is a unique perspective in rehabilitation-related FM frameworks. A rehabilitation approach focused on strategies that can span the continuum of FM technology options can allow FM rehabilitation to address a wide variety of FM activities and acknowledges there are often many different ways to accomplish specific FM activities.

The FMAP provides a biopsychosocial perspective on everyday FM actions and behaviors, extending previous FM-related frameworks. Like past frameworks, our framework acknowledges the roles of cognition and financial knowledge, judgments, and skills capacity (e.g., Sousa et al., 2015; Spreng, Karlawish, & Marson, 2016). However, as others have recognized, our participants identified that cognitive factors and financial knowledge, judgments, and skills (especially those measured in a controlled laboratory setting) are not always indicative of real-world FM performance (Boyle, 2013; Huston, 2010; Lichtenberg et al., 2015; Marson, 2016). All participants presented with subjective and/or measured cognitive impairments, but many participants were using personalized processes and strategies to accomplish their FM activities despite these impairments. Conversely, multiple participants noted that while they could verbalize knowledge for optimal FM behavior, certain filter factors (e.g., initiation, fatigue, lack of resources) were barriers to acting on this knowledge. Consequently, while examining cognitive functions and FM knowledge capacity may be helpful in identifying some FM limitations, they appear to be only two possible contributing factors related to everyday FM behaviors (Huston, 2010; Marson, 2016; National Academies of Sciences, Engineering, and Medicine, 2016).

Interestingly, only one participant (P3) specifically noted issues with arithmetic cognitive abilities relating to FM occupations initially after ABI. We did not measure participants’ current arithmetic skills. In studies using laboratory-based FM measures, arithmetic skills have been noted as important to FM

capacity (Martin et al., 2012). This discrepancy between laboratory-based findings and our findings may be attributable to the use of personalized processes and strategies by our participants in real-world settings. It may be that in real-world settings, this cognitive skill becomes less important when people can use strategies such as calculators or apps that decrease thinking-based arithmetic FM requirements.

Our study also expands upon the contextualizing role of environment factors in everyday FM action. Our participants highlighted both near (e.g., people they have direct contact with) and far environmental FM filter factors (e.g., sociocultural FM pressures, institutional policies) similarly identified in non-ABI-specific FM research (Boyle, 2013; Davies, 2015; Yoong, Mihaly, Bauhoff, Rabinovich, & Hung, 2013). The FMAP framework also acknowledges the positive role of environment through the use of knowledge supports and direct FM assistance strategies. Any FM assessment instrument or intervention strategy should allow for the use of FM-related environmental resources in supporting FM actions (e.g., available technology and/or trusted others), considering that in the general population, these FM strategies are considered legitimate (Collins, 2012; Gerrans & Hershey, 2017; Grable & Joo, 2001; Huston, 2010; Joo & Grable, 2001).

Similar to other FM research, the FMAP framework highlights the dynamic nature of FM (Atkinson, McKay, Collard & Kempson, 2007; McKay, 2011). Awareness and filter factors change due to ABI symptoms (or other health conditions), life experiences, and environmental factors. Moreover, the financial landscape itself is changing; the proliferation of FM technology is rendering many frameworks and assessments outdated. The FMAP framework might be less susceptible to FM technology changes as it acknowledges the use of various high- and low-technology FM process options.

Study Limitations

This framework represents a substantive and foundational theory for this developing area of research requiring further research (Charmaz, 1990; Charmaz, 2014). The results of this study may be less generalizable to the population of adults with ABI as a whole because of the heterogeneity of the diagnostic population. Although we sampled across self-reported gender, current age, and age at injury, and included participants with various levels of subjective and measured cognitive impairments, our sample had elements of homogeneity. Participants had higher physical functioning, education, and crystallized intelligence (i.e., indicator of pre-ABI cognitive status) compared to the age-corrected standardized means of the NIHTB-CB (Casaletto et al., 2015). A larger sample size or more diverse sample, including differences in ABI sequelae, living situations, employment status, and availability of FM supports, might elucidate a different framework. More diverse samples may also identify more participants who regularly used the advice or assistance of a close other. Interestingly, in our sample, although most people noted getting advice or support, only three participants identified a close other who regularly assisted

them (of which we were able to recruit two close others). This may be due to our recruitment strategies and aims; people living with ABI who rely on others for all or the majority of FM actions and decisions, for example, those who use a substitute decision maker or (public) trustee, may not have sought to be involved in this study. We have sought the perspectives of those living with ABI and with decreased FM involvement in another study (Koller et al., 2016).

However, considering the holistic nature of our framework, experiences of different demographic groups would likely be subsumed within the filter factors. We found that later interviews, when compared to the developing codes and framework, were not adding new information to alter the framework (i.e., reached theoretical saturation).

Further, we did not gather quantitative or objective indicators of FM success and financial well-being, such as ratios of income to spending, debt to income, and debt to assets or observation of FM activity completion, nor did we assess whether the reported strategies were effective to maximize financial well-being. As such, we are unable to make determination of whether the FMAP results in better financial outcomes or well-being. Financial well-being was assessed by participant self-report, which may or may not be valid, considering there is no consensus about the definition and measurement of financial well-being (Kim, Garman, & Sorhaindo, 2003). We have found that the objective assessment of FM is hampered by a current lack of a “gold-standard” FM assessment instrument with supporting reliability and validity evidence (Engel, Chui, Beaton, Green, & Dawson, 2018).

Implications for Occupational Therapy Practice

There is significant within-person-over-time, between-person, and between-activity variability in the FM occupations adults with brain injury participate in and how the activities are completed. Results suggest this variability needs to be acknowledged in ABI occupational therapy and rehabilitation practice to ensure FM assessments and interventions are relevant to each person. There may need to be a shift in FM assessment and intervention practice in the field of ABI. This would be a shift from a perspective that currently focuses on a person completing a set of predetermined FM tasks in a prescribed way (Appendix A at <http://journals.sagepub.com/doi/suppl/10.1177/0008417419833839>; Engel, Bar, Beaton, Green, & Dawson, 2016) to one that focuses on the person's abilities to acknowledge various filter factors influencing the FM activities he or she needs or wants to do and identifying and using trusted processes and strategies. Practice in how assessments and interventions are framed may need to acknowledge the variety of FM activities, the plethora of ways each activity can be completed, and the person's level of trust in the process.

Future Research

From our data analysis and conceptual framework development, we hypothesize that awareness of FM activities and filter factors

and the ability to generate and use trusted FM strategies within a personalized process are central to FM activity real-world performance, but further testing is required. How assessments and interventions can incorporate these concepts to improve FM rehabilitation practice after ABI should be explored.

We sampled ABI inclusive of TBI and non-TBI (e.g., stroke). Although in our data set we did not find differences between the data of participants with TBI and with stroke, FM differences between these two subgroups could be explored. Further, future research should examine the prevalence and nature of FM limitations in ABI populations, considering the available data are older and exclusively related to TBI populations.

More research is needed to examine the FMAP's relevance in more diverse samples both with and without ABI; in people with mild, moderate, and severe initial injuries; in people who manage their own FM and those under the FM care of others (e.g., trustees); with people living with other chronic conditions; and with various others involved in addressing FM in populations. For example, future research could examine a more fulsome perspective of close others and of health, social, and financial professionals who assist people with FM occupations. This research should test the hypotheses generated by the framework, specifically our hypothesis that the use of personalized FM strategies correlates with increased FM success.

Last, considering the shift post-ABI to more short-term financial activities and less long-term financial development, future research should examine the reasons, prevalence, and long-term implications related to this shift.

Conclusion

Managing finances is difficult, and it becomes more challenging when also managing a chronic health condition, especially a condition, such as ABI, that is associated with acquired cognitive impairments (MacLeod et al., 2017). Therefore, to optimize real-world FM actions and behaviours, rehabilitation practice must be better informed to assess and intervene in cases of FM limitations. The FMAP conceptual framework provides a biopsychosocial perspective to enable the development of FM assessment instruments and intervention plans. Using the FMAP framework to develop holistic ABI rehabilitation practices may enable adults with ABI in making the best of what may be difficult FM situations.


Key Messages

- Managing finances is a complex and interindividual heterogeneous occupation; this complexity and variability needs to be captured in assessment and intervention practices.
- Person and environmental factors related to brain injury further complicate a person's FM occupations.
- People living with brain injury describe using strategies that align with activity, person, and environmental constraints to accomplish FM activities.

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Supplemental Material

Supplemental material for this article is available online.

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