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Using International Classification of Functioning, Disability and Health to understand challenges in community reintegration of injured veterans

Linda J. Resnik, PhD, PT, OCS;[1–2*] Susan M. Allen, PhD[2]
[1]Providence Department of Veterans Affairs Medical Center, Providence, RI; [2]Department of Community Health, Brown University, Providence, RI

Abstract—This pilot study used the framework of the World Health Organization's International Classification of Functioning, Disability and Health (ICF) to understand the challenges faced by Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) veterans as they reintegrate into the community. We conducted semistructured interviews with 14 injured veterans, 12 caregivers, and 14 clinicians. We used ICF taxonomy to code data and identify issues. We identified challenges in the following ICF domains: learning and applying knowledge; general tasks and demands; communication; mobility; self-care; domestic life; interpersonal interactions, major life areas; and community, social, and civic life. We found many similarities between the challenges faced by veterans with and without polytraumatic injuries, although veterans with polytraumatic injuries faced challenges of greater magnitude. Identifying community reintegration challenges early and promoting reintegration are important mandates for the Department of Veterans Affairs. The findings of this study are useful in understanding the needs of OEF/OIF veterans.

Key words: activities, community reintegration, ICF, International Classification of Functioning, Disability and Health, OEF/OIF, participation, polytrauma, rehabilitation, TBI, veterans.

INTRODUCTION

More than 1 million U.S. soldiers, sailors, and marines have been deployed in Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF). Redeploying home can be challenging, and many veterans have readjustment issues such as marital difficulties, financial difficulties, alcohol or substance abuse problems, medical problems, and behavioral problems such as depression or anxiety [1], homelessness [2], and motor vehicle accidents [3]. Readjusting to community living is even more challenging for veterans who sustain deployment-related injuries because it may be complicated by the co-occurrence of physical injuries and postwar adjustment difficulties (posttraumatic stress disorder [PTSD]), depression, substance abuse, and severe mental illness [1,4]. Additionally, because of body armor that protects the torso but not the brain or extremities, many OEF/OIF service members are surviving wounds that may have been fatal in previous wars but are now resulting in multiple and severe injuries [5–6]. The most serious injuries are those considered polytrauma, defined by the Veterans Health Administration as, "injury to the brain [traumatic brain injury] (TBI) in addition to other body parts or systems resulting in physical, cognitive, psychological, or psychosocial impairments and functional disability" [7].

Abbreviations: ICF = International Classification of Functioning, Disability and Health, OEF = Operation Enduring Freedom, OIF = Operation Iraqi Freedom, PDA = personal digital assistant, PTSD = posttraumatic stress disorder, TBI = traumatic brain injury, VA = Department of Veterans Affairs, VAMC = VA medical center, WHO = World Health Organization.

***Address all correspondence to Linda J. Resnik, PhD, PT, OCS; Providence VA Medical Center, 830 Chalkstone Ave, Providence, RI 02908; 401-273-7100, ext 2368.**
Email: Linda_Resnik@Brown.edu

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Clearly, various rehabilitation services are needed by many returning OEF/OIF veterans. Though the ultimate goal of rehabilitative efforts is helping injured service members reintegrate into community living [8], little is known about the effect of injury type and severity on community reintegration. Community reintegration can be viewed as the return of individuals to their age, sex, and culturally appropriate role functions. A growing consensus is that the participation domain, as defined in the World Health Organization (WHO) International Classification of Functioning, Disability and Health (ICF) taxonomy, is a useful framework for operationalizing community integration [9] because it links physical and cognitive deficits with activities integral to the successful fulfillment of social roles that, together, speak to the extent of an individual's reintegration into society [8,10].

The ICF model is divided into two sections. The first section covers functioning and disability including body function and structure, activities, and participation. According to the ICF, "activities" focus on the person's individual functioning (e.g., dressing), while "participation" focuses on the person's involvement in society (e.g., relationships with other people, employment). In the ICF extensive system of taxonomy, only one coding structure exists for both activity and participation, given that activity differs from participation only to the extent that the latter connotes role involvement and the former does not. The coding structure for activities and participation includes nine overall domains: learning and applying knowledge; general tasks and demands; communication; mobility; self-care; domestic life; interpersonal interactions; major life areas; and community, social, and civic life. The ICF coding categories are "nested," with the broader categories further defined in more detailed subcategories.

People are considered to have healthy participation if they take part in all life areas or situations in which they wish to participate, in a manner or to the extent that is expected of an individual without restrictions in that culture or society. Thus, the participation domain of the ICF appears to be an appropriate taxonomy for describing community reintegration; however, no prior research has used the ICF model to study community reintegration.

In this study, we used qualitative data collected from interviews with injured OEF/OIF service members, family members, and clinicians. Our purpose was twofold: (1) demonstrate the utility of the ICF framework for understanding the community reintegration issues of OEF/OIF veterans with deployment-related injuries and (2) demonstrate the widespread applicability of the ICF classification system across injury types by comparing and contrasting service members with and without polytraumatic injuries. We believed that the ICF model would be ideal for describing functioning in the community. Data from this pilot study was used in subsequent work to develop a prototype rehabilitation outcomes measure that assesses community reintegration for OEF/OIF veterans.

METHODS

Subjects

The pilot study was approved by the institutional review boards of the Providence Department of Veterans Affairs (VA) Medical Center (VAMC) and the Minneapolis VAMC. The participants in this qualitative study included 14 injured OEF/OIF combat veterans who served in Iraq or Afghanistan and 12 caregivers of OEF/OIF combat veterans. Veterans and caregivers were recruited from VAMCs, VA polytrauma centers, VA regional offices, the National Guard, and the community. Our goal was to sample those with commonly reported problems among OEF/OIF veterans seeking VA care [5–6,11]. A total of 14 clinicians with expertise in the treatment of OEF/OIF combat veterans served as key informants. These clinicians were from VAMCs, the community, and the National Guard Community Based Health Care Organization. The key informants included clinicians from the following disciplines: neuropsychology, physical medicine and rehabilitation, general internal medicine, psychology, physical therapy, occupational therapy, speech therapy, recreational therapy, and vocational rehabilitation.

Interviews

Veterans and caregivers took part in semistructured tape-recorded interviews covering their postdeployment experiences. Participants were asked to discuss challenges in daily life, mobility, activities at home, the neighborhood and community, family and social life, and work life. Clinicians discussed common challenges in community reintegration that they had observed. The interviews with clinicians were not tape-recorded, but the interviewer (Dr. Resnik) kept detailed typed memorandums of the conversations and recorded brief quotations verbatim. The interviews were open-ended to allow participants to highlight areas or concerns of particular importance to them.

Data Analysis

Interviews with veterans and caregivers were transcribed and converted into text files for analysis. This qualitative study employed a directed approach to content analysis [12]. Directed content analysis is a more structured process than nondirected analysis strategies such as grounded theory [13]. In this study, we used a deductive approach to code the data using the predetermined coding structure of the ICF taxonomy. The ICF taxonomy provided standard operational definitions of each coding category. The unit of analysis for data was the theme or expression of an idea [14].

We analyzed the transcripts, independently categorized the data using the ICF activities and participation domains (**Figure**), and compared coding across transcripts. The ICF taxonomy was consulted repeatedly throughout the analysis to ensure that the theme or expression fit the coding category. At each step, we discussed the analysis and reached agreement on classification. The data were further classified into one or more ICF activities and participation level II or III subcategories. Specific issues and concerns were identified within each of the ICF activities and participation subcategories. We carefully scrutinized these issues using the constant comparison analysis method, in which the coded issues were refined, extended, and cross-referenced with the data as a whole and duplicate items removed [15]. Data collection, categorization, and analysis were performed concurrently, with analysis commencing after the initial interview and continuing throughout the data collection period. Data collection continued until no new ICF activities and participation subcategories or issues were identified within the last two interviews [16]. Because the purpose of this study was to understand role function, we did not code challenges or issues that fell into the domains of body structures and functions or environment and personal factors, e.g., panic attacks, living conditions, or personality type. The typed memorandums of the clinician-key-informant interviews were analyzed in a similar fashion.

We enhanced the accuracy and trustworthiness of the analysis using source triangulation, thick description, and an audit trail of analytic decisions [17]. Triangulation was performed by considering data from veterans, caregivers, and clinicians. Dr. Allen, who served as an external auditor, reviewed transcripts, discussed the analysis, and assisted in refining the coding categories.

Domain	Description
Learning and Applying Knowledge	Learning, applying learned knowledge, thinking, solving problems, and making decisions.
General Tasks and Demands	General aspects of carrying out single or multiple tasks, organizing routines, and handling stress. Includes psychological demands.
Communication	General and specific features of communicating by language, signs, and symbols. Includes receiving and producing messages, carrying on conversations, and using communication devices and techniques.
Mobility	Moving; changing body position or location by transferring from one place to another; carrying, moving, or manipulating objects; walking, running, or climbing; and using various forms of transportation.
Self-Care	Caring for oneself, washing and drying oneself, toileting, caring for one's body and body parts, dressing, eating, drinking, and looking after one's health.
Domestic Life	Carrying out domestic and everyday actions and tasks. Includes acquiring place to live, food, clothing, and other necessities; household cleaning and repairs; caring for personal and other household objects; and assisting others.
Interpersonal Interactions	Carrying out actions and tasks required for basic and complex interactions with people (strangers, friends, relatives, family members, and lovers) in contextually and socially appropriate manner.
Major Life Areas	Carrying out tasks and actions required to engage in education, work, and employment and to conduct economic transactions.
Community, Social, and Civic Life	Actions and tasks required to engage in organized social life outside family, i.e., community, social, and civic life areas.

Figure.
World Health Organization's International Classification of Functioning, Disability and Health activity and participation domains.

RESULTS

Table 1 provides a brief description of the veteran and caregiver participants. Veteran participants included 12 men and 2 women. Four veterans had sustained polytraumatic injuries, while three others had sustained blast injuries and/or concussions but were not diagnosed with TBI. In three instances, caregivers were interviewed but the veteran was not. In two cases, the veteran could not be interviewed because of impaired competence or inability to speak. One caregiver of a veteran without polytrauma was interviewed, but the veteran declined participation after giving permission for the caregiver to participate.

Some veteran participants had sustained severe life-threatening injuries and survived against the odds. Others had relatively minor musculoskeletal injuries. A few appeared to be reintegrating well; however, most were struggling with one or more areas of community reintegration. The clinician-key-informants provided many insights into the common challenges of injured OEF/OIF veterans. We report the findings of the study using quotations to justify the application of the ICF coding scheme and include a matrix to provide an overall sense of the community reintegration challenges identified in this study [18]. Each issue is shown in **Table 2**, organized by ICF participation categories (shown in bold) and

Table 1.
Summary of veteran (n = 14) and caregiver (n = 12) participants.

Veteran	Veteran Participated?	Caregiver	Caregiver Participated?	Veteran Injury	Polytrauma?
Male 1	Yes	Mother & Father	Yes	Blast injury, hearing loss, back injury, PTSD.	No
Female 1	Yes	Spouse	Yes	Minor musculoskeletal injuries, fibromyalgia, depression, sexual trauma.	No
Male 2	Yes	—	No	Reinjury of preexisting neck injury, heart problems.	No
Male 3	Yes	Mother	Yes	Vertebral injuries, PTSD.	No
Male 4	Yes	—	No	Crush injuries: internal damage, multiple fractures, multiple surgeries, weeks in coma.	No
Male 5	Yes	—	No	Compression fracture of spine and two herniated lumbar disks, PTSD.	No
Male 6	Yes	—	No	Acute pain syndrome in knees, bruised ribs, multiple concussions.	No
Male 7	Yes	—	No	Hearing loss, smoke inhalation.	No
Male 8	Yes	Mother	Yes	Blast injury, knee injury requiring several surgeries, trauma to hand.	No
Female 2	Yes	—	No	Torn ACL in knee, hearing loss in right ear.	No
Male 9	Yes	—	No	TBI, hearing loss in left ear, shrapnel wounds, ankle injury, bilateral knee injury.	Yes
Male 10	Yes	Mother	Yes	TBI, right leg below femur shattered.	Yes
Male 11	Yes	Mother & Father	Yes	TBI, broken jaw.	Yes
Male 12	Yes	Spouse	Yes	TBI to right side of brain, loss of right eye, multiple shrapnel.	Yes
Male 13	No	Mother	Yes	TBI, fractured C7 vertebra, punctured lung.	Yes
Male 14	No	Mother	Yes	TBI resulting in hemiplegia and aphasia, hearing loss in left ear.	Yes
Male 15	No	Fiancée	Yes	Nerve injury to arm, broken nose, blast injury with hearing loss, third degree burns, PTSD.	No

ACL = anterior cruciate ligament, C = cervical, PTSD = posttraumatic stress disorder, TBI = traumatic brain injury.

Table 2.
Challenges in community reintegration for veterans with and without polytrauma by International Classification of Functioning, Disability and Health (ICF) participation domain, subcategory, and issue (shown with ICF identifier [d + number]).

Challenge	Polytrauma	Nonpolytrauma
Learning and Applying Knowledge		
d1551 Acquiring Complex Skills: Participating in Learning Activities	x	x
d160 Focusing Attention		
Attention/Focus/Concentration	x	x
Remembering	x	x
Confusion	x	x
d175 Solving Problems		
Decision Making	x	x
Everyday Judgment	x	x
Problem Solving	x	x
Following Directions	x	–
d166 Reading		
Comprehending Complex Material	x	x
Remembering What Is Read	x	x
Reading Long Documents	x	x
General Tasks and Demands		
d220 Undertaking Multiple Tasks		
Task Initiation	x	x
Task Completion	x	x
Multitasking	x	x
Undertaking Complicated Tasks	x	—
Organization and Time Management	x	—
Need for Frequent Breaks	x	x
d230 Carrying Out Daily Routines		
Daily Accomplishment	x	x
Completing Daily Activities	x	x
Energy	x	—
Sleep	x	x
d2401 Handling Stress		
Coping	x	x
Irritability	x	x
Hypervigilance	x	x
Communication		
d330–d349 Communicating-Producing		
Speaking	x	—
Writing	x	—
Word Choice	x	—
d3501 Sustaining Conversation		
Sustaining Conversation	x	x
Ability to Follow Conversation Rules	x	—
Conversation Recall	x	—
Mobility		
d4060 Moving Around in Different Locations		
Endurance	x	x
Accessibility	x	x
d470 Using Transportation: Access to Transportation	x	x
d475 Driving		
Driving Independence	x	x
Driving Safety	x	x
Driver Behavior	x	x
Self-Care		
d500 General Self-Care		
Independence in Activities of Daily Living (ADL)	x	x
Initiation of ADL	x	x
d5702 Maintaining One's Health		
Substance Use	x	x
Risk Taking	x	x
Self-Care (Continued)		
Health Habits	x	x
Medication Management	x	x
Adherence to Health Recommendations	x	x
Domestic Life		
d600 General Domestic Life: Independent Living	x	—
d630 Preparing Meals	x	x
d640 Doing Housework		
Managing Housework	x	x
Child Care	x	x
d650 Caring for Household Objects: Home Maintenance and Repairs	x	x
Interpersonal Interactions		
d7102 Tolerance in Relationships: Tolerance and Frustration	x	x
d7104 Social Cues in Relationships: Appropriateness of Reactions	x	x
d7105 Physical Contact in Relationships: Physical Aggression	x	x
d7200 Forming Relationships: Social Isolation	x	x
d7202 Regulating Behaviors in Interactions: Verbal Aggressiveness	x	x
d750 Informal Social Relationships		
Social Withdrawal	x	x
Maintaining Previous Friendships	x	x
d760 Family Relationships		
Family Avoidance	x	x
Parenting Role	x	x
d770 Intimate Relationships		
Maintaining Intimate Relationships	x	x
Initiating New Relationships	x	x
Sexual Function	x	x
Major Life Areas		
d845 Acquiring, Keeping, and Terminating Job		
Seeking Employment	x	x
Training for New Job	x	x
d8451 Maintaining Job		
Maintaining Job	x	x
Employment Modifications	x	—
Job Performance	x	x
Performing Physical Duties	x	x
Job Security	—	—
d8452 Terminating Job		
Workplace Discrimination	—	x
Job Terminations	x	x
d865 Complex Economic Transactions: Economic Self-Sufficiency	x	x
Community, Social, and Civic Life		
d910 Community Life		
Aversion to Crowds	x	x
Limitation of Activities After Dark	—	—
Limited Social Activities	x	x
Involvement in Community Affairs	x	x
d920 Recreation and Leisure		
Hobbies and Recreational Activities	x	x
d950 Political Life and Citizenship: Involvement	x	x

subcategories (shown with ICF identifier [d + number]). Columns for veterans with and without polytrauma are marked to indicate whether data supported the presence of the challenge for each group.

Learning and Applying Knowledge

Challenges in the domain of learning and applying knowledge included acquiring complex skills, focusing attention, solving problems, and reading. Participants were challenged in planning, participating, and succeeding in learning activities. While these challenges were greater for veterans with polytrauma, they were also noted among those without polytraumatic injuries. According to the polytrauma physician, “Limitations in attention and ability to learn can affect all areas of life, including ability to live independently, be employed, be in school, and drive.” Veterans with polytraumatic injuries may have difficulty learning new skills, need to have new material repeated “over and over and over again,” or use memory compensation aids such as “memory books” and personal digital assistants (PDAs) to address memory limitations. Memory and concentration problems are often linked to sleep deprivation, explained one psychologist. In addition, PTSD can affect concentration and cause distraction, making it hard to focus. As a result, “People in school have trouble,” she explained.

Injured veterans with and without polytrauma may have attention deficits, impaired concentration, difficulty remembering, confusion, difficulty thinking, and trouble with problem solving. For those with polytrauma, these problems are typically magnified in the face of increased stimulation, so that people “can do things fine in the clinic, but in the real world with increased stimulation they may forget what they are doing.”

> I could be taught to do something, but if I don’t do it repeatedly or if I am told or taught to do something and I don’t do it instantly and repeatedly, I may forget how to do it.
>
> —Male veteran 11

Decision making was a challenge for both groups of veterans. Impaired decision making is often “the largest disabling factor” for patients with polytrauma, explained one clinician, especially when significant executive functioning problems are present. The mother of one veteran with polytraumatic injuries commented:

> If he was to go to get groceries . . . he will call me three or four times to make sure that he is getting all the right things even though he has it in a PDA. It is the small things he can’t determine if he should go ahead and do it or not. It could be a lack of confidence, but I think it is more a lack of knowing, just being able to have the judgment, the judgment is impaired.
>
> —Mother of male veteran 10

Some patients with polytrauma cannot “generate alternatives or generate ideas for solutions to problems,” in part because “they can’t self-reflect and self-correct,” explained a neuropsychologist. Caregivers affirmed this as they described the way that they repeatedly coached their loved ones in simple problem solving. Several caregivers expressed their fears that impairment of everyday judgment made their loved ones particularly vulnerable to exploitation.

> If you ask him private details, he would tell you everything. If you asked him exactly how much money he had in the bank, he probably would tell you, if he knew what it was. If you wanted his social security number, he would give it to you. He is just so free with that, he is so overly trusting with a lot of people. He is lacking the ability to decipher between it is okay to tell this person certain things, but around certain other people you don’t say those things.
>
> —Mother of male veteran 10

Limitations in decision making may be present in persons with PTSD as well. These veterans may “second-guess themselves around decision making, feel overwhelmed in decision making,” and may not “feel as confident in their decisions,” explained the psychologists.

Restrictions in reading lengthy and complex materials were noted in veterans with and without polytraumatic injuries. Some were able to read simple things, but the more complex the material, the less they felt that they were able to comprehend. In some cases, veterans lacked the attention and memory to retain information that was read, so they avoided reading lengthy things. In other cases, their slower information processing speed made reading a challenge that they avoided. Veterans with more severe head injuries and those with visual losses may have problems reading simple materials.

General Tasks and Demands

Challenges in the domain of general tasks and demands included undertaking multiple tasks, carrying

out a daily routine, and handling stress. These problems were noted in both groups of participants but generally interfered more with everyday function in those with polytrauma. "Multitasking," explained one physician, "is a problem for those with polytrauma due to attentional difficulties and distractability." Another clinician commented, "People start something, then get sidetracked and get pinballed throughout the day, leaving a trail of unfinished business."

Caregivers of participants with polytrauma described difficulties that their loved ones had initiating and completing tasks, multitasking, undertaking complex tasks, and organizing and managing time. Some veterans required a great deal of prompting because they lacked the initiative to perform activities independently or had difficulty with sequencing. One caregiver explained how she had to break down each complex task, creating a list of steps that should be done one at a time. Although her son had made progress, she explained:

> He still needs reminders for what the day is going to be, although we are working on that. He has breakfast down. He does take his meds, but we always check. He is probably 99 percent. But he does need assistance. I mean, like for planning for lunch, in addition it depends on me to set up what we are planning.
>
> —Mother of male veteran 11

Some patients with polytrauma were receiving a great deal of assistance in organization and time management. Caregivers were often in charge of "keeping the calendar" and scheduling appointments.

> We enter all of the day-to-day activities in his Palm Pilot, like keep a little journal, you know, for him. And I go over it every morning, and even yet, today, he does not remember what we did the day before.
>
> —Mother of male veteran 13

Problems with multitasking were not limited to those with polytrauma. The National Guard physician explained, "Many soldiers describe problems with multitasking. They used to think that they could handle anything and now they don't feel up to it." Participants without polytraumatic injuries also reported difficulties dealing with minor problems "like the bills, or you know, something I told the kids not to do a thousand times before."

Participants with and without polytrauma talked about challenges in carrying out daily routines such as accomplishing less than they wished, not completing activities, and having a low energy level. Sometimes these problems were associated with sleep deprivation, which was reported by many, often due to nightmares or intrusive thoughts.

Caregivers described how their loved ones needed to take frequent breaks because of fatigue or pain. Male veteran 12, for example, could "do one chore and then he has to go and sit down." Some participants reported that they were exhausted because of medical or psychological conditions. Male veteran 12, explained his wife, was often really tired especially if he "has been pushing himself the day before or a couple of days before." Female veteran 1 had made some improvement since she "spent the whole winter in bed."

> She can get up and she can do stuff, but she has to really pace herself because if she does too much, even a little too much, she's wiped out or she has to get back in bed, and she might be done for the next day.
>
> —Spouse of female veteran 1

Participants with and without polytrauma had difficulty coping with both minor and stressful situations. Some described themselves as being "a little irritable," while others expressed much stronger frustrations.

> You get easily frustrated, and this type of frustration makes you want to go and jump off a bridge or something.
>
> —Male veteran 9

Some amount of irritability is attributable to the hypervigilance of PTSD, explained one psychologist. Some veterans may "still be in combat mode, checking out overpasses, things on side of road . . . ." For some, like male veteran 15, hyperarousal led to "uncontrollable rage" and required his fiancée to be "very cautious not to upset him, not to startle him."

Communication

Challenges in the communication domain included limitations in speaking and conversation. Some with more severe injuries, such as male veteran 14, were unable to form written or spoken words. Others, with more mild head injuries, such as male veteran 10, had problems with word finding.

> A lot of times he uses the wrong word. He will look at a toaster and call it a microwave. He just comes up with the wrong words, and sometimes, it ends up being offensive to someone.
>
> —Mother of male veteran 10

Veterans with polytraumatic injuries commonly have difficulty sustaining a conversation, following the rules of conversation, or recalling conversations because of memory impairments. Some are "hyperverbal, verbose, and tangential," noted the speech therapist, and may be unable to take turns appropriately in conversation. Some "lose their conversational boundaries and can be inappropriate or offensive," explained another clinician.

> Oh, when we're out in public, for example if we go to Wal-Mart, he will start talking to people, people he doesn't even know. He'll stop and ask them a question that's not even germane to being at Wal-Mart. He'll ask them something in a foreign language and they don't know what he's saying.
>
> —Mother of male veteran 13

A subset of patients with polytrauma are unable to perceive social cues, explained a neuropsychologist. Thus, they "may not be able to differentiate sarcasm from sincerity, cannot accurately perceive another person's emotional state." Difficulties with attention and concentration affect the ability to participate in conversation, and some people have a hard time managing conversations in the presence of distractions. Therefore, if more than one person is involved or if the conversation is too fast, they can get overwhelmed and may get irritable or withdrawn.

Conversation is sometimes restricted for those without polytraumatic injuries, particularly for those with PTSD, who seek to avoid discussing their service or injuries. "People get very uncomfortable when people ask them what happened," commented one psychologist. "So they shut down, and don't participate in those types of conversations." As a result, they may "have fewer conversations, and they don't bother talking."

Mobility

Challenges in the domain of mobility included moving around in different locations, driving, and using transportation. In both groups of veterans, mobility restrictions can be due to limited endurance, which makes it difficult for patients to move around in the community without assistance. "Impairments of balance can make walking on uneven surfaces and around obstacles, such as children's toys, treacherous," explained the physical therapist. Other problems with moving around in different locations stemmed from environmental and architectural barriers.

> Our bedroom is way too tiny to get a wheelchair [into] so it has been very difficult for him to get around in [this area]; he has fallen quite a bit.
>
> —Spouse of male veteran 12

Loss of driving independence was a particular problem for those with polytraumatic injuries, many of whom have recommendations to refrain from driving because of low vision or cognitive impairment. Others are able to drive only for short distances because of fatigue or pain. Thus, they need to obtain rides from friends, spouses, or volunteers. Loss of driving independence was mentioned by several participants as their biggest problem. Inability to drive was particularly challenging for those residing in rural areas with no access to public transportation systems.

Driving safety concerns are evident in patients with and without polytrauma. Panic attacks and hypervigilance may cause drivers to be overly aggressive or make sudden or impulsive movements and can contribute to accidents. As one psychologist explained, "There are a lot of problems with driving too fast." Male veteran 5's comments illustrate this well.

> I was looking at rooftops, uh speeding you know, by some streets, I mean like through the city. I'm doing like 60, 70 miles per hour, avoiding pot holes. When I saw a pile of trash, you know, garbage bags and all that, I would swerve into the other lane.
>
> —Male veteran 5

As one clinician explained, "Veterans with PTSD don't like being hemmed-in in traffic because it's frightening."

> I seen items, it was just regular garbage, you know, but to me it didn't seem like regular garbage. It seemed like something that was going to possibly cause harm to somebody, and I felt a need to just get away from it, because . . . when you get anxiety, you get like pressure in your chest, and your throat gets all choked up, you have a hard time breathing. I seen it coming. It's like, you hold onto the steering wheel real hard, like I'm waiting for another bomb to go off or something, and then I'd just . . . I didn't even look to see if anybody was near me, and I just rammed off to the side and came around it, just to get away from it.
>
> —Male veteran 7

In addition, explained a clinician, “Tolerance of other aggressive drivers is really low,” and “Rage can make them force others off of the road.”

> I didn’t hit nobody. I did get a little close to some vehicles and pushed them out of the way, you know, because I felt they were invading my space. I felt crowded again. I felt threatened. So when I felt threatened, I’d push them out of the way.
>
> —Male veteran 7

Self-Care

Challenges in the domain of self-care included poor initiation of self-care activities as well as difficulties in health maintenance. Although some participants with polytrauma are restricted in performing basic activities such as bathing or teeth brushing because of low vision, neglect, or other impairments, others have problems caused by lack of initiation. These veterans are able to perform activities but do not perform them routinely, at appropriate intervals, or without prompting because of cognitive impairments or, in some cases, depression.

Health maintenance was a challenge for participants with and without polytrauma, including problems with abuse of drugs or alcohol, engaging in risky behavior, dependence in medication management, and keeping scheduled medical appointments. According to clinicians, substance abuse and risk-taking behavior are common concerns in both PTSD and polytrauma. “These guys come back and they are bored and looking for thrill-seeking leisure activities for recreation,” commented one clinician.

Patients will commonly buy motorcycles to continue living on the edge. Driving too fast and drinking and driving are problems. Thus, the risks of accidents, deaths, legal problems because of driving under the influence, and speeding tickets increase.

Many veterans with and without polytraumatic injuries experience major changes in their health habits. Whereas they may have been previously very fit with no limitations, explained the National Guard physician, “Now they can’t do what they used to. So they gain weight, develop diabetes, which in turn complicate other issues such as low back pain, foot pain, knee pain.”

Failure to keep scheduled medical appointments and lack of adherence to provider recommendations are also challenges for veterans in both groups. Some, explained one psychologist, may not follow up with daytime appointments since they do not want to miss work because they are stressed about finances. The ability to manage prescription medications was a particular challenge for those with polytrauma, and several caregivers reported that they set up medications and/or supervised medication administration.

Domestic Life

Challenges in the domain of domestic life included preparing meals, doing housework, and caring for household objects and children. These challenges were particularly apparent for those with polytraumatic injury, some of whom were unable to live independently because of physical or cognitive problems. Only one of the four single participants with polytrauma in this study (male veteran 9) had resumed living on his own, while the others were living with parents or spouses. Most were restricted in meal preparation and needed assistance in cooking.

> If it is anything that involves the gas stove or anything like that, I want to make sure that I have my “baby-sitter,” as I call it, or my personal care attendant. She does that because I don’t want to light myself on fire. That would be no fun.
>
> —Male veteran 11

Many veterans with polytraumatic injuries do resume doing some housework or caring for household objects and outside spaces but often need prompting, supervision, or assistance. In addition, most patients with polytrauma who are parents are restricted in caring for children because, as one clinician stated, “They are not safe themselves.”

Interpersonal Interactions

Veterans with and without polytraumatic injuries had problems with basic and complex interpersonal relationships, relationships with family members, and intimate relationships. Many problems were associated with low frustration levels, poor anger management, argumentativeness, and other difficulties with coping and regulating behaviors in social situations. Some veterans were described or described themselves as having a “very quick temper” and getting “very upset” very easily.

> God, about a month ago I was in McDonald’s with a friend of mine and the lady in front of us was just taking forever, and um I was just like, I’m like, “Christ lady, it’s the same menu in every McDonald’s all over the country. Like order something or get out of the way.” And everybody, it was like, you know, everybody in

> the restaurant just kind of looked at me, and she moved out of the way and we ordered and that was that.
>
> —Male veteran 5

Common cognitive behavioral issues in polytrauma can result in "impaired social pragmatics, i.e., the ability to interact appropriately with others," explained one neuropsychologist. Additionally, the hypervigilance of PTSD can lead to impaired ability to perceive social cues as well.

> I can't trust people. I have to . . . I have to keep a direct contact on their motions. I mean, I'm talking to you, but I can see her [someone nearby] head move. Before, it was . . . I was focused on everything around me, your clothes, your hair, things like that. Now it's, what are you doing? How are you moving? Why are you moving that way? What are your body motions expressing? What are they saying to me?
>
> —Male veteran 7

Problems with physical violence were reported among veterans with and without polytrauma. Male veteran 12, for example, had "a tendency of taking his cane and hitting stuff and there have been times that we actually had to stop him because he was going to smack the kids." One of our participants without polytraumatic injury commented:

> When I first got home, I was there about two months, this kid bumped into me in the local mall and I just started developing an attitude. He wasn't watching where he was going. I laid him out cold.
>
> —Male veteran 5

Clinicians noted that social isolation, apathy, and withdrawal were common among veterans with and without polytrauma. "There's a part of their life they can't explain or share with other people," commented one physician. When people feel disconnected, they may also feel isolated or isolate themselves from social contacts and thus find it difficult to initiate new relationships.

> There's not a day that I think for the rest of my life that I won't think about what I did over there and how close I was to dying. I don't like showing weakness to people anyway. I'm not that type of person. I'm the type of person that I hold everything inside, like to my friends and stuff, I don't tell them. I don't talk to them about it. I don't want them to, you know, think I'm a weak person because I have dreams at night and this and that.
>
> —Male veteran 1

The inability and unwillingness to share with others contribute to the emotional distance that some veterans express and make maintaining previous friendships or initiating new ones difficult.

> I guess I don't have the same interests that everybody else would. I can't seem to get used to what I used to be . . . used to like talking about with my friends or family, you know?
>
> —Female veteran 2

Some veterans only feel comfortable in the company of those who served with them. Male veteran 6, for example, kept in contact with members of his platoon but when asked if he got together with friends responded, "I don't have any."

For those with polytraumatic injuries, whose cognitive, physical, and emotional functioning had changed dramatically, resuming or maintaining friendships was particularly difficult.

"Old friends may have gone away to college, or joined the military themselves," explained one caregiver, "or they may be busy working full-time and having families of their own." Some old friends may be unable to cope with the physical and cognitive changes caused by polytrauma, explained one caregiver, and as a result avoid the injured veteran. Some caregivers, like the mother of male veteran 13, described how her son spent most of his time with her but didn't get together with friends.

Experiencing problems in family relationships is not unusual for participants with and without polytrauma. Veterans with PTSD, explained one clinical psychologist, often avoid going to family functions because "they feel crowded and want space." Some veterans, particularly those with polytraumatic injuries, can no longer perform their role as parents because of deficits in cognitive function or problems with multitasking. The stimulation level and multitasking involved in child care are particularly challenging; one neuropsychologist explained, "As a result, a parent may have angry outbursts because he [or she] can't handle the television, stereo, kids asking questions." As one psychologist explained, "Problems with anger and irritability can impact how they interact with their children, and the presence of depression and anxiety can limit them from doing things together." Instances of physical abuse may occur because of loss of control.

Several clinicians explained that veterans with and without polytrauma commonly experience strain in their intimate relationships, such as the threat of or actual separation or divorce and sexual dysfunction. Problems with anger management can "spill over into relationships, and the chronic nature of these problems creates strain in relationships that contributes to more divorces and separations in this population," noted one physician. Some amount of tension in intimate relationships may be related to the long period of being away, explained one psychologist. Other veterans, particularly those with PTSD, commonly feel distant from their spouses and experience a loss of interest in sex because of pain, psychology, and/or medication use.

> He felt our relationship was over, and there's been no physical relationship between us since he's been home for reasons unknown. Part of it is his injuries and whatnot.
>
> —Fiancée of male veteran 15

Major Life Areas

Participants reported challenges in three subcategories of major life areas: acquiring, keeping, and terminating a job; complex economic transactions; and economic self-sufficiency.

Employment is one of the biggest challenges for veterans with polytrauma typically because of cognition, fatigue, and attention problems, explained one physician. However, returning to previous occupational demands was also a challenge for veterans without polytraumatic injury as male veteran 5 explained.

> I've always done very physical type work, physical labor. I can't really do a lot of that anymore. I can't lift heavy things. I have to watch how I do things, like getting out of a chair. I have to watch how I do it.
>
> —Male veteran 5

Reservists or National Guard members on medical hold are in an occupational limbo, explained the National Guard physician. "They can't go back to their civilian job; they have to stay on medical hold until they are released or considered fit for duty." However, even those who have been discharged from service may not seek employment. None of the participants with polytrauma in this study had participated in job retraining or sought employment, although a few had initiated communication with vocational rehabilitation services and were awaiting follow-up.

For those veterans without polytraumatic injuries who were job seeking, some were having difficulty finding employment. Male veteran 6, for example, did not want to take a job that "didn't have much responsibility," and he felt that the options available to him in the civilian environment could not rival his prior military responsibilities or pay.

> Well, I was in charge of 23 people in a combat environment and literally, hundreds of millions of dollars of equipment. I was 22 years old. Now, I get out, and . . . you don't have college degree you know? You can't work there. You can't do this. As far as they're [prospective employers] concerned, I'm just 23 years old with a high school diploma.
>
> —Male veteran 6

Others veterans do not seek employment because they are afraid of failing at work and losing their disability benefits, explained a vocational counselor. Benefit reductions, whereby disability benefits may be reduced or eliminated when a veteran returns to work, create substantial disincentives in the system. Those who do return to full-time employment, said one psychologist, are at risk for "getting jobs and quitting them," or losing their jobs because they "can't keep it together to go" or "are slow and can't keep up with demands."

> But now I struggle to have a job, hold a job. My attention span's very short. I was working a couple jobs and I just wasn't happy, so I just quit because I wasn't happy.
>
> —Male veteran 1

Veterans with PTSD, explained one psychologist, may have "a decreased tolerance for other people's weaknesses." Some also have issues with leadership and authority, such as "if the boss is perceived as incompetent or not having leadership qualities" that cause problems. These issues may result in supervisor complaints that the veteran is behaving inappropriately and/or is short-fused. Male veteran 7's description of struggles with his supervisor after returning to the job he had held without incident for almost 9 years before his deployment exemplified this challenge.

> The first week back there, they write me a memo saying, "You've got to keep your boundaries between the clients." Then I got another memo, about…talking. We're not allowed to talk to the clients. I have issues with that. But why was I the only one receiving memos when everybody else is doing the same thing I'm doing? The third week came. I get another memo, for inappropriate invitations to staff members.
>
> —Male veteran 7

Male veteran 5 who had spent several months unemployed and was "bouncing from job to job" described the interpersonal relationships at his most recent job.

> I got a feeling that this job is not going to last. It was about a month or two after I was there everybody's true colors started showing up. You know, uh some people treat me like I'm diseased, it's like, "Oh, he was in Iraq, you know, he must be crazy" or "He was in Iraq" or "He's disabled," you know. Some people don't even give me the time of day there. Well guess what, I'm not staying so I'm always looking. You know, I'm not going to stay where I'm going to be uncomfortable. You know, I hate getting up in the morning to go to work there.
>
> —Male veteran 5

Other participants talked about perceived discrimination and hostility in the workplace. Some National Guard members stated that they felt that employers and coworkers resented them because their jobs were held open during their deployment. Other stated that being a reservist made job seeking more challenging, saying "No one will hire me because they don't want someone who may get called up." One neuropsychologist told the story of a patient who left his job because coworkers would sneak up behind him and startle him just for kicks.

A lot of veterans have financial problems when they come back that are related to unemployment, absenteeism from work caused by health problems, and overspending, explained several clinicians. Several of our participants reported problems managing their finances and had gotten into debt because of overspending.

> We are going through some financial difficulties. I have never lived beyond my means. I have always been a big spender, but I always knew . . . . It is hard to say, maybe I have always lived a little bit outside my means but not this far outside my means.
>
> —Male veteran 8

Many veterans with polytraumatic injuries have limitations in handling complex economic transactions. Several participants who were caregivers of veterans with polytrauma had become the legal guardians of the veterans and assumed responsibility for financial matters. Although some, like male veteran 10, expressed the desire to be self-sufficient, his mother expressed concerns that he lacked the judgment to manage a budget and live on his disability income.

> We have different accounts set up. As far as what he does with them, very little, other than use his [bank] card if he needs money, and we have put a limit on how much money he can get out at a time and how much he can get out daily. He does not write checks, pay his bills . . . we do that.
>
> —Parents of male veteran 11

Community, Social, and Civic Life

Participants with and without polytraumatic injuries reported challenges in community life, recreation, leisure, socializing, and political life and citizenship. "It is often such a struggle to meet the demands of home life, work, and school that involvement in community life is impacted," explained one neuropsychologist.

> My attitude nowadays is like, if I don't know you, I could care less about you. You know I saw a traffic accident [in my neighborhood] about 3 or 4 months back, and you know, I just drove right by it. You know, there were plenty of people there. There were [paramedics] and all that, but it was like, it doesn't concern me.
>
> —Male veteran 5

Many participants reported that they or their loved ones avoided crowds and activities such as large gatherings and community places that involved a lot of people. Some reported that they felt uneasy going out after dark. Male veteran 5, for example, described how he avoided going out after dark alone and would only go with friends with whom he felt safer.

> He can't stand to be in a crowd and someone is behind him, one because he can't see out of his right side and he is just very nervous from being in Iraq because he said when they were over there in the crowds, you just didn't know who to trust, that you were always on your guard.
>
> —Wife of male veteran 12

Leisure and recreation challenges were evident for those with and without polytrauma. Some veterans were unable to resume recreational activities because of physical limitations. Some found that they were not interested in the same types of things they used to enjoy. When asked what her son did outside of work, the mother of male veteran 8 responded:

> Nothing. Absolutely nothing. He used to surf. He was an incredible writer. He used to spend hours writing screenplays and things like that, with

> another friend. And what else did he do? He loved to draw. He liked to do that. [Now he does] nothing. He does nothing.
>
> —Mother of male veteran 8

Limitations in social activities were reported by participants with and without polytrauma due, in part, to impaired interpersonal skills, aversion to crowds, or a general sense of disconnectedness from other people. Female veteran 2, for example, explained that she shied away from social activities, "like, social events, birthday parties or family gatherings and stuff." The social circles of patients with polytrauma commonly become extremely narrow, and "The only people that they do things with are their care providers," explained a neuropsychologist. As the mother of male veteran 13 explained, her son did most things with her.

> No friends . . . mostly with me. His brother and sister both work full time. They spend what time they can with him and take him places when he wants to go with them.
>
> —Mother of male veteran 13

Injured veterans may also be restricted in political life and citizenship. Those veterans who have legal guardians are restricted in participation because of questions about legal competence. Others who have PTSD may withdraw and avoid political life. They typically do not vote and may not listen to news because of the fear of having their PTSD symptoms triggered, explained one psychologist.

DISCUSSION AND CONCLUSIONS

The ICF framework of participation provided a comprehensive lens through which to understand the challenges in role participation faced by injured veterans as they reintegrate into the community. Using this framework, we found many similarities in the challenges faced by veterans with and without polytraumatic injuries, although in many cases the magnitude of the challenges was greater for veterans with polytrauma because of greater impairments in cognitive and executive function. Our findings that veterans without diagnoses of polytrauma or TBI have challenges in the areas of learning, attention, memory, and coping are consistent with previous research on OEF/OIF veterans. A recent study that followed two prospective cohorts of active duty U.S. Army soldiers, those who deployed to Iraq versus those who did not, reported that deployment was associated with neuropsychological compromise [19]. This study reported that soldiers who deployed to Iraq had deficits in sustained attention, verbal learning, and visual-spatial memory as well as increased prevalence of negative-state affect on measures of confusion and tension. Several of our participants who were classified as nonpolytrauma may have sustained mild TBI that was not diagnosed. Many are concerned that mild TBI in OEF/OIF veterans may be a widespread and undetected problem that is unrecognized by medical personnel in the community [6]. Although the veteran and caregiver participants in our study were sampled to reflect the types of problems we believed were common in the injured OEF/OIF veteran population, this pilot study used a small convenience sample of veterans seeking treatment at VA facilities and cannot be said to be representative of the entire OEF/OIF population or of those not seeking treatment from the VA. Because no national data on the characteristics of all injured OEF/OIF veterans are available, the service members and caregivers in our study cannot be considered "typical" of the entire population deployed to OEF/OIF. Our findings may have been different if our sample had been larger and included a different mix of participants. Despite this limitation, our clinician group provided key information about their experiences with a much broader population of OEF/OIF veterans. Thus, we believe that our findings are indicative of the types of challenges in community reintegration experienced by the larger population and provide valuable insights regarding appropriate targets for interventions and constructs that should be assessed when tracking outcomes of OEF/OIF veterans. We recognize that the full scope of participation limitations in the OEF/OIF veteran population will only be appreciated through a study that measures community reintegration and employs a random sample of the population. At this time, community reintegration outcomes are not assessed in an organized or standardized way, in part, because no consensus exists on the appropriate measure to use [20]. Although numerous population-specific instruments exist that measure aspects of community reintegration for persons with stroke, spinal cord injury, or head injury [8,21–24], these measures do not comprehensively address the challenges we identified in the OEF/OIF veteran population. Therefore, the results of this study were used to inform the development of a new outcome measure of community reintegration for injured service members. This measure is currently being tested within the VA.

Another limitation of our study design was that we used a directed approach to content analysis [12], rather than allowing themes to emerge from the data. In this approach, we categorized participant concerns using the

ICF taxonomy and reported on the concerns that we believed fit the participation domain. In doing so, we did not focus on coding impairments of body functions or structures, nor did we allow the emergence of unanticipated themes that did not fit the ICF model. Therefore, we recognize that investigators who used another qualitative approach may have coded the data differently. Given, that our purpose was not to test the validity of the ICF model and that the WHO has adopted the ICF as the basis for the scientific standardization of data on health and disability worldwide, we believe that this was a reasonable approach.

Given the findings from our study and the combined prevalence of TBI and PTSD in OEF/OIF veterans, we believe that a substantial number of veterans are at risk of poor community reintegration. Our current understanding of the effects of poor postdeployment reintegration stems largely from the experience of Vietnam war veterans, a disproportionate number of whom suffer from chronic PTSD and pervasive difficulties in their everyday lives, including marital and work difficulties, poor parenting skills, violent behavior, alcohol and drug abuse, involvement with the criminal justice system, suicide attempts, and homelessness [25–29]. In fact, more than one-third of homeless men in the United States are veterans [30], with an estimated 250,000 veterans homeless on any given night and more than 500,000 homeless over the course of a year.

Thus, identifying community reintegration challenges of OEF/OIF veterans early and promoting greater function in the community are important public health mandates. Successful achievement of these mandates hinges upon accurately and comprehensively assessing community reintegration outcomes and providing services that improve participation in the community. According to the ICF model, restriction of participation is not a property inherent in an individual but instead is a state that is influenced by and in turn influences bodily structures and impairments, physical and cognitive functioning, and environmental and personal factors. Thus, the appropriate environmental supports in the form of health services (mental health and rehabilitation) and veteran benefits should facilitate reintegration into community life.

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