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A Qualitative Study of Recovery from Type III-B and III-C Tibial Fractures

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Abstract

The literature has shown that long-term outcomes for both below-knee amputation and reconstruction following type III-B and III-C tibial fracture are poor. Yet, patients often report satisfaction with their treatment and/or outcomes. The aim of this study is to explore the relationship between patient outcomes and satisfaction after open tibial fractures via qualitative methodology. Twenty patients who were treated for open tibial fractures at one institution were selected using purposeful sampling and interviewed in-person in a semi-structured manner. Data were analyzed using grounded theory methodology. Despite reporting marked physical and psychosocial deficits, participants relayed high satisfaction. We hypothesize that the use adaptive coping techniques successfully reduces stress, which leads to an increase in coping self-efficacy that results in the further use of adaptive coping strategies, culminating in personal growth. This stress reduction and personal growth leads to satisfaction despite poor functional and emotional outcomes.

Keywords

lower leg trauma; amputation; reconstruction; coping; qualitative research

Type III-B and III-C fractures are among the most serious trauma an individual can experience. Fractures of this type can be managed with either below-knee amputation or complex reconstructive procedures. Both treatment methods require extensive hospital stays and years of rehabilitation and additional treatment. Our utility survey showed that patients and physicians favor reconstruction over amputation,(1) but outcomes are uncertain regardless of which treatment method is chosen.(2) The Lower Extremity Assessment Project (LEAP), a multi-center, prospective study of patients with severe injuries below the level of the distal femur, followed over 600 patients for nearly a decade and discovered that long-term functional outcomes are poor in both groups. (3,4)

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These, and other, research findings suggest that lower-extremity trauma is a devastating injury that leaves patients broken physically, psychologically and financially. Conversely, however, multiple studies have reported that patients are actually quite satisfied following treatment. Hoogendoorn et al. found that over 80% of patients interviewed reported satisfaction with their treatment, although they do note that this high satisfaction rate indicates satisfaction with treatment, not necessarily with treatment outcomes.(5) However, the LEAP Study found that 66% of patients responded that they were very or completely satisfied when asked, two years after injury, “Overall, how satisfied are you with the progress you have made in recovering from your injuries?”(6) All despite functional outcomes that appear dismal. There is some evidence that some patients’ satisfaction may even extend beyond satisfaction to a sense of personal growth. A 2007 survey of patients who had experienced severe orthopedic trauma due to motor vehicle accidents in the preceding 4 years found that although 87% reported ongoing physical difficulties and 62% reported ongoing psychological difficulties, 99% reported that they felt they had experienced personal growth due to their injuries.(7) For a life-altering traumatic event such as open tibial fracture, the full spectrum of factors contributing to patients’ recovery and well-being may not be fully captured by using quantitative methods, such as physical measurements and outcomes questionnaires, alone. The specific aim of this study is to conduct a qualitative analysis of the patient experience, including satisfaction following type III-B or III-C fracture of the tibia.

Materials and Methods

Previous research exploring the psychological experiences of patient with severe lower limb trauma has used quantitative methodology,(8–10) which cannot provide the rich, intricate details that qualitative methods can.(11) Quantitative methodology has reveled that there are significant psychological sequelae after severe lower limb injury. (8–10) But quantitative methodology cannot define *how* these sequela plays out in the recovery process; it can only show that they do indeed exist. We chose to use qualitative methodology which is ideal for shining light on complex issues, such as coping and emotional recovery, that can be difficult to assess with quality of life surveys or psychological inventories.(11)

We used grounded theory to guide our research. Grounded theory is characterized by the lack of hypotheses at the beginning of the project.(11) This does not mean that research is begun aimlessly, but that there is only a focus and no preconceived notions about what one might discover. Through the process of analyzing interview data, a theory is allowed to emerge. The theory that is developed using grounded theory will often more closely resemble “reality” than one that is developed *a priori*.(11)

Study Sample

We used purposive sampling methodology to select our study sample. Purposive sampling differs from random sampling, generally used in quantitative research, in that participants are chosen because the represent a particular characteristic that one wishes to study.(12) We chose to use purposive sampling because we wanted to ensure that our sample included patients who had been treated with successful reconstruction, reconstruction attempt with secondary amputation and primary amputation. We also wanted to interview patients with a wide range of complications.

We began our purposive sampling with patients who had undergone treatment for type III-B or III-C fractures of the tibia at the University of Michigan between 1997 and 2007. Patients were excluded if they suffered a traumatic brain injury (TBI) concurrently. The myriad of issues inherent to recovery from TBI have been well documented(13) and we felt that the experience of patients recovering from this type of injury would differ drastically from

patients without such injuries. We also excluded patients who were involved in fatality accidents because we felt that recovering from a personal loss may require substantial emotional energy, thus confounding the coping with the physical injury. We ultimately selected 20 patients to interview. Participants received a $100 grocery gift card to thank them for their time. This study was approved by the University of Michigan Institutional Review Board.

Data Collection

Interviews took place in-person at the University of Michigan. To maintain consistency, one member of the research team (MSA) conducted all interviews. Interviews were conducted in a semi-structured manner, meaning that questions were open-ended and participants were encouraged to elaborate on their responses and were to discuss topics in whatever cognitive order they preferred..(14) An interview guide was used, focusing on various areas of the participants' lives that may have been affected by their injury and participants' feelings about the medical treatment they received and their decision-making process related to choice of treatment. The latter two topics were examined in an analysis separate from this one. For all questions, participants were encouraged to compare their experiences before and after their injury.

Data Analysis

Audio-recorded interviews were transcribed verbatim. Following grounded theory, data analysis was achieved in a step-wise process.(11) First, transcribed interviews were read by two member of the research team (MJS, MSA). During this first reading, open coding was performed. Open coding is the process of identifying sentences or passages that represent key concepts.(11) After open coding of all transcripts was completed, the research team met to discuss the open coding and to construct the codebook, including categories, codes and sub-codes. Transcripts were then reread and the codebook was applied in the process of focus coding, which is the process by which the agreed up codes are applied to sentences and passages in transcripts. (11) Following focus coding, the research team met again to discuss any discrepancies. The final, agreed upon coded transcripts were then analyzed to discover which codes appeared the most frequently and if they appeared in conjunction with other codes.

Results

Participants were interviewed an average of 6.8 years (range: 2.3 – 12.0) following injury. Interviews averaged 31:09 minutes in duration (range: 13:22 – 77:06). Participant demographic information is shown in Table 1.

Twenty-three codes emerged in 3 broad categories: 1) Effects on Life, 2) Medical Treatment and 3) Medical Decision-Making. As previously mentioned, this analysis will focus Effects on Life. This category was broken down into 9 specific codes, shown in Table 2. We present highlights and representative quotes on physical outcomes are presented in Table 3, work-related outcomes in Table 4 and psychosocial outcomes in Table 5.

Satisfaction

Our patients, like those reported in other studies, reported satisfaction with their treatment and/or outcomes. Overall, 80% of participants reported that they were satisfied with their outcomes and/or treatment. Only 1 participant who received reconstructive surgery was satisfied with neither his treatment nor his outcomes. Likewise, only 1 participant who received secondary amputation was equally dissatisfied with his treatment and outcomes. For participants receiving primary amputation, 2 were dissatisfied with their outcomes, but

did express satisfaction with the treatment they received. Representative quotes are shown in Table 6

Coping

The use of qualitative methodology has shed some light upon the apparent paradox between outcomes and patient satisfaction. Existing literature, using quality of life questionnaires and Likert scale satisfaction questions could not reconcile the fact that physically, and often emotionally, patients' quality of life is suboptimal, yet they still report high satisfaction. The use of qualitative methodology has shed some light upon this apparent paradox. A factor that quality of life questionnaires cannot expose is coping, the process of managing unpleasant circumstances to minimize or elevate the stress that these circumstances cause.(15) While examining and coding our participants' responses to our questions, a number of coping strategies began to emerge, despite the fact that we never explicitly asked about coping. These responses were consistent with the Approach/Avoidance coping framework. As the name would suggest approach strategies confront the stressor and are considered to be more adaptive, whereas avoidance strategies tend to circumvent the stressor, which is seen as more maladaptive.(16) Both strategies can be defined as problem-focused or emotion-focused. Representative quotes are shown in Table 7.

Approach Coping—Approach coping focuses on understanding and dealing with the stressor head-on. In a problem-focused manner this may involve practical problem-solving. Several participants reported modifications to their homes or vehicles, and nearly every participant mentioned learning new ways to preform everyday tasks or changes.

Another problem-focused approach coping strategy is cognitive restructuring, the process of recognizing the positive aspect of a negative situation. Many participants exhibited this by comparing their current situation with death; 85% of participants mentioned at least once that they were thankful to be alive or that they saw their injuries as a more favorable alternative to death. Cognitive restructuring was also demonstrated by participants receiving disability payments, who felt fortunate to have any income because they felt they would have been unemployed otherwise due to the economy. Finally, a few participants noted that although they continued to have pain, they chose to view it not as an affliction caused by their injury, but as something that would have occurred as part of the normal aging process.

Emotion-focused approach coping is characterized by the expression of emotion and the seeking of social support. When participants were asked about the emotional impact of their injuries, the majority allowed that they often felt frustrated that they could not perform activities that they used to engage in. Four participants mentioned feeling depressed soon after their injury, but very few participants discussed the actual expression of emotion.

Similarly, despite being questioned about the impact of their injuries on their social lives, very few patients explicitly mentioned relying on the support of others. One participant mentioned that her friends had been a source of support, and another relayed thankfulness that her siblings were able to help her physically and emotionally. But spouses were the most frequently mentioned source of support. 60% of our participants were currently married, and interestingly all mentioned during the interview how long they had been married, perhaps indicating the importance of spousal support in the eyes of our participants.

Avoidance Coping—Avoidance coping is characterized by attempts to steer clear of the stressor or its effects. For a stressor such as open lower leg fracture problem-focused avoidance coping techniques, particularly denial that the stressor exists, are highly difficult, if not impossible to achieve. Several participants reported engaging in some degrees of problem avoidance, by avoiding situations that are now too difficult or that would highlight

the participants' injury or disability. Emotion-focused avoidance coping strategies were expressed by several participants in one form or another. For example, three participants with amputations engaged in self-criticism, focused primarily on the perception from the popular media that many amputees are able to compete in athletics at a high level. Withdrawing from sources of possible social support is another emotion-focused coping strategy. At the extreme end of avoidance coping, one participant denied that he felt any emotion toward his injury at all. Overall, though, avoidance coping was seldom expressed by our participants. Given the correspondingly high satisfaction that participants relayed, it is possible that high patient satisfaction is not the result of superior outcomes, but the result of frequent use of adaptive coping strategies.

Self-Efficacy

Another concept related to coping is self-efficacy, the belief that one is capable of performing a particular action at a particular level. The LEAP study found that patients who expressed less self-efficacy over their physical recovery displayed more symptoms of anxiety and depression two years after injury and had a higher level of functional disability seven years after injury.(9),(17) None of our participants relayed feelings of self-efficacy for coping with the aftermath of their injuries, but it is conceivable that low self-efficacy for emotional recovery can have similar negative effects as low self-efficacy for physical recovery.(18) Representative quotes are shown in Table 8.

Personal Growth

Through our analysis a relationship emerged between coping and self-efficacy leading to the best possible outcomes following this life-altering trauma. Some of our participants seemed to be not only surviving their open tibial fractures, they were appearing to thrive, not in spite of the trauma they had been through, but because of it. Anecdotal and scientific evidence show that some people are strengthened after facing severe mental or physical adversity(7,19,20) and our participants seemed to be among them. Three participants explicitly expressed that they have grown personally as a result of their injuries. One, who had undergone successful reconstruction after a motorcycle accident, attributed the accident to his decision to stop drinking and to renew his relationship with his religion.

The other two participants were remarkably similar. Both were 24-years-old when they had crush injuries in industrial accidents. Both could no longer perform the physical demands of manual labor and opted to attend college and become teachers. Some of their personal growth could simply be the increased security and sense of self that occurs during one's mid to late 20s, but both men strongly attribute this growth to their experiences during recovery from their injuries. Representative quotes are shown in Table 9.

Cognitive Framework

Examining the data with coping strategies in mind allowed a cognitive framework to emerge, demonstrating the possible interplay between the physical, social, financial and emotional stress of a severe open tibial fracture, the use of adaptive coping strategies, coping self-efficacy and finally, personal growth. (Figure 1) We hypothesize that positive coping strategies, such as directly confronting the problem, either using problem-focused or emotion-focused approach coping strategies, leads to an alleviation of the stress caused by the injury and its effects. The successful use of positive coping strategies to reduce stress leads to increased self-efficacy for coping with the injury. This leads to the further use of adaptive coping strategies, the further reduction of stress and continuing increase in self-efficacy. Finally, in some cases, this cycle can lead to personal growth, like that seen in three of our participants.

Discussion

Despite ever-emerging new technology the outcomes of type III-B and III-C tibial fractures are not improving. The LEAP study found that regardless of the treatment method used two years after injury only about half of the patients had returned to work and more than 40% had Sickness Impact Profile (SIP) scores that indicated severe disability. (21) Seven years after injury only 58% of patients had returned to work and nearly 50% had SIP scores indicating a severe disability.(17,22) Inability to work and severe disability can affect patients financially; 57% of patients who sustained lower-extremity injuries in motor vehicle accidents would describe the financial impact of their injury as moderate to severe.(8) Physical disability is not the only long-term effect. Hoogendoorn et al. found that three years after injury 46% of reconstructed patients and 39% of amputees still experience occasional pain.(5) Fourteen percent and 11%, respectively, still experience continuous pain.(5) Furthermore, two years after injury nearly 40% of patients in the LEAP study still report moderate to severe psychological distress, including somatic symptoms, depression and anxiety.(9) A Swiss study found that one-third of patients felt that they were less sexually attractive than prior to the injury and about half said that they felt “insecure in their social relations.”(10)

Despite these poor outcomes, over 60% of patients report satisfaction with their treatment and/or outcomes.(5,6) We found similar results. Eighty percent of the patients we interviewed reported satisfaction with their treatment and/or outcomes. This is despite the fact that 100% reported at least some continued impairment to physical functioning and 95% reported that they still had at least occasional pain related to their injury.

This study is not without limitations. There may have been several factors confounding the high level of satisfaction among our participants. First, it is unlikely that participants who were highly dissatisfied with their treatment or outcomes, or who were experiencing significant emotional distress related to the injury, would volunteer to return for an interview. Secondly, our participants were interviewed at least 2 years after injury. This long follow-up time may have given participants time to overcome much of the initial shock of the injury. However, we feel that this is not necessarily negative. The average age of open tibial fracture patients is 43 years.(23) Many of these patients have a long life ahead of them. They will spend many more years in the “post-shock” phase than in the first 24 months after injury.

Using qualitative methodology allowed us to explore the personal experiences of patients recovering from type III-B and III-C tibial fractures, an injury with a generally poor functional prognosis regardless of treatment method. (17,21,22) By asking patients to describe their own experiences, we were able to not only get a more personal glimpse of the physical and psychosocial difficulties that prior research has shown to exist, we were able to explore the apparent paradox between low functional and quality of life outcomes and high patient satisfaction. We hypothesize that satisfaction may come as a results of the use of adaptive coping strategies, which successfully alleviates the life stress that can result from a serious injury such as open tibial fracture. Additional research will allow us to explore these topics further and to test our hypothesized relationship between self-efficacy, coping and personal growth and to explore possible interventions that can detect maladaptive coping strategies, help patients make the most of adaptive coping strategies and to help build coping self-efficacy.

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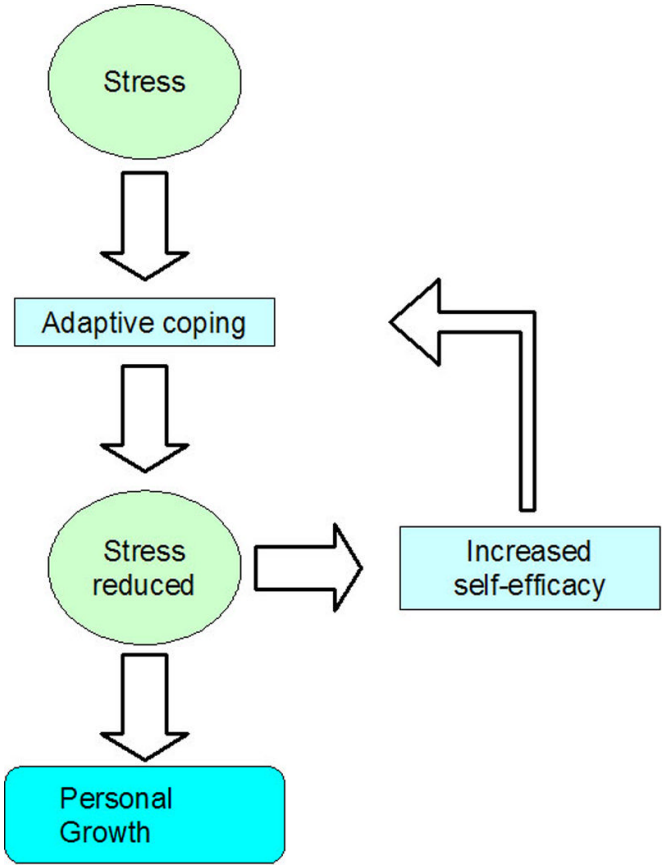

Figure 1.
Cognitive Framework showing the relationship between stress, adaptive coping, self-efficacy and personal growth.

Table 1

Patient Demographic Information

Patient Information (n=20)	
Gender Distribution (M/F)	15/5
Mean age (range)	47 (23 – 68)
Injury information (n=23)	
Bilateral injuries	3
Fracture type	
III-B	17
III-C	6
Treatment type	
Primary amputation	4
Reconstruction	14
Secondary amputation	5
Mean duration to 2° amputation (range)	30 weeks (2 – 72)
Injury Cause	
Motor vehicle accident	12
Crush injury	3
Fall from height	3
Pedestrian hit by vehicle	2
Additional Orthopedic Injuries	
Ipsilateral femur fracture	8
Upper extremity fracture	4
Ipsilateral foot fracture	3
Pelvic fracture	3
Vertebrae fracture	2
Major Complications	
Nonunion	11
Flap failure	5
Osteomyelitis	3
Secondary revision of amputation	2
Necrotizing Fasciitis	1

Table 2

Codes clarifying the effect of type III-B and III-C fractures on participants' lives Physical functioning

Physical functioning
Pain
Energy
Work
Impact on family
Body image
Social life
Other’s reactions to injury
Overall life effects

Table 3

Remarks and Representative Quotes Relating to Physical Outcomes

Physical Functioning

All participants indicated that their physical functioning had changed to varying degrees since their injury

Participants who had undergone an amputation were more likely to relay a greater change than were patients who had only reconstructed limbs.

"It's just hard for me to get around. I'm always in the back, can't keep up with nobody."

- Male, 33-years-old, reconstruction, interviewed 7 years after injury

"I can't walk, can't run, can't go up stairs without help, can't do yard work. I can't have a job unless I'm sitting down, and I can't stand for more than 40 minutes."

- Male, 28-years-old, bilateral injuries, reconstruction /primary amputation (later revised to above-knee amputation), interviewed 8 years after injury

Pain

- 19 of 20 participants indicated that they still experienced some pain related to their injury
- Pain was characterized as "constant" or "almost always there" in 53% of cases; the remaining participants spoke of occasional pain, usually secondary to overuse

"On a daily basis I have pain, whether it hurts minimal or extreme."

- Male, 44-years-old, reconstruction, interviewed 9 years after injury

"From time to time I still have pain in it. But it's not that bad. It's nothin' I can't take."

- Male, 23-years-old, reconstruction, interviewed 2 years after injury

Energy

- 70% of participants responded that they had noticed a reduction in their everyday energy level, when compared to their pre-injury level.

"I feel like it takes twice as much energy to do stuff that I did before. And not even do it as good as before."

- Male, 30-years-old, secondary amputation (performed 2 years after injury), interviewed 7 years after injury

"I still have the will to go, but I just can't go as fast as I did then. I think my energy level is probably about the same. It's just that I can't do what I used to do."

- Female, 62-years-old, primary amputation (later revised to above-knee amputation), interviewed 9 years after injury

Table 4

Remarks and Representative Quotes Relating Work-Related Outcomes

- Only 4 participants were able to return to their previous positions, all desk-based jobs
- 5 participants were forced to change careers
- 2 participants chose to retire following their injury
- 6 were receiving some variety of disability benefits
- 3 participants were laid-off or unemployed
- Only 1 of 11 participant who had reconstructive surgery only, 2 of 4 participants receiving primary amputation and 3 of 5 participants receiving secondary amputation were receiving disabled

"I was able to do the same work, but I cannot stay in certain positions for long, so I've just got to move."

- Male, 53-years-old, reconstruction, interviewed 10 years after injury

"Prior to the accident I was born and raised in the produce business. My grandfather was in it, my father was in it before me, I was in it… I needed to be on my feet 8, 10, 12 hours a day. I needed to be able to lift objects and I needed balance and agility, which now, becoming an amputee, was very limited. It limited me to where I could not go back to doing what I was doing; I had to find another way to make a living."

- Male, 53-years-old, bilateral injuries, reconstruction/primary amputation, interviewed 8 years after injury

"There's a lot of people I know that don't care to work… but that's just not me. I prefer to be working, doing something. Not sitting around watching the cartoon channel."

- Female, 56-years-old, reconstruction, interviewed 3 years after injury, receiving disability

"[My old job] is the only thing I ever did. I don't really know how to do anything else."

- Male, 40-years-old, reconstruction, interviewed 3 years after injury, unemployed

Table 5

Remarks and Representative Quotes Relating to Psychosocial Outcomes

Body Image

- 7 of 11 participants who underwent only reconstructive surgery said they were embarrassed or uncomfortable with the scars on their legs
- 3 of 9 participants with amputations expressed discomfort with exposing their prothesis
- 20% of participants mentioned unwanted weight gain as a result of decreased activity

"Just recently I've started wearing capri pants. Normally I would cover up my scar, but, I figure, hey, this is who I am; it's part of me now. For the longest time I wore long pants and would try to hide it, but I just said, 'Nah, it's not worth it anymore.'"

- Female, 56-years-old, reconstruction, interviewed 11 years after injury

"Wearing shorts is a tough thing. It really is. At first it really bothered me because I could just feel people staring and it's different."

- Male, 30-years-old, secondary amputation (performed 2 years after injury), interviewed 7 years after injury

"I've gained about 50 pounds, I hate to say. 45 or 50. I stayed right around 120 pounds, so this has been the biggest the adjustment for me: my weight."

- Female, 62-years-old, primary amputation (later revised to above-knee amputation), interviewed 9 years after injury

Social Life

- 40% of participants reported no changes to their social life
- 30% relayed that they still interact with others as much as they did in the past, but that they interact in a less physical way
- 20% of participants indicated that they felt less outgoing or more reserved in social situations than they did before

"I'm still in amateur radio, but we used to go out a couple times a year and stomp in the fields… I can't do that anymore."

- Male, 62-years-old, bilateral injuries, reconstruction/secondary amputation (performed 6 weeks after injury), interviewed 4 year after injury

"I used to be a lot more socially active. I would go out, hang out with friends and go in and stand somewhere for an extended time, like going to a bar… It's not worth it to me anymore to go socialize on levels like that. I'd rather stay at my home where I can put my leg up, especially after working all day."

- Male, 36-years-old, reconstruction, interviewed 12 years after injury

Other's Reactions to Injury

- Participants relayed a variety of responses and actions they had experienced including an increased willingness for strangers to hold doors or offer assistance, people inquiring about their injury and people, especially children, staring at their scars

"Some people are more willing to help you more than what they was before."

- Male, 40-years-old, secondary amputation (performed 2 weeks after injury), interviewed 4 years after injury

"People stare at [my scars]. A lot of people ask me what happened and I get a lot of attention because of it."

- Female, 53-years-old, reconstruction, interviewed 5 years after injury

"And it sucks when people stare; sometimes you're just like, 'What the hell is your problem? Would you like me to just show it to you?'"

- Male, 36-years-old, reconstruction, interviewed 12 years after injury

Table 6

Representative Quotes Relating to Satisfaction

Satisfaction
"I told them, I said, 'Well, I want a leg that will work for me.' And he said, 'You're going to get a leg that will work for you.' And they did! This is the same [prothesis] that I've had since day one." - Male, 68-years-old, primary amputation, interviewed 12 years after injury
"I'm only half satisfied. The leg that had to be amputated over and over and over again is the side that I'm really not particularly fond of. Something I've just kinda had to adapt to and get used to. The other leg…I'm 110% satisfied with it." - Male, 28-years-old, bilateral injuries, reconstruction/primary amputation (later revised to above-knee amputation), interviewed 8 years after injury

Table 7

Representative Quotes Relating to Coping

Approach Coping

Problem-focused: problem-solving

"We live in an old, old house. Our bedrooms were upstairs and the laundry room was downstairs. So just recently we added on a main floor bedroom with a laundry room in there, walk-in closets, pocket doors, wider doorways, so when I'm in a chair I can get through the doors."

- Female, 62-years-old, primary amputation (later revised to above-knee amputation), interviewed 9 years after injury

"I don't take [motorized carts] when I go shopping, but do I go to places like Super Wal-Mart? No. I go to local grocery stores."

- Female, 56-years-old, reconstruction, interviewed 3 years after injury

Problem-focused: cognitive restructuring

"After I found out that I was going to live, I thought, I can live with this. I mean, just because I lose my leg, I'll trade that off any time to stay alive. It seemed to be the least of my worries at that point."

- Female, 62-years-old, primary amputation (later revised to above-knee amputation), interviewed 9 years after injury

"I've come to the conclusion that as bad as everything was that happened to me, it was God's way of providing for me. At my age and with the economic conditions in this area there was no guarantee that I was going to continue to get jobs from [my former employer]… So now I am on disability now, I'm doing okay."

- Female, 62-years-old, secondary amputation (performed 1 month after injury), interviewed 3 years after injury

"[My energy level] is not quite to the level it was prior to the injury. But I'm 8 years older too. I'm 53, so, do I feel like I'm 20-years-old again? No. Do I feel like I'm 60? No. I feel like I'm 53, you know? I don't think it's anything any different than anybody else would be feeling to be honest with you. Aches, pains, things like that."

- Male, 53-years-old, bilateral injuries, reconstruction/primary amputation, interviewed 8 years after injury

Emotion-focused: expressing emotions

"I usually cry when I'm telling the story of my accident and stuff and there ain't nobody gonna tell me that I'm not a man or strong, because go through what I went through and then tell me that."

- Male, 30-years-old, secondary amputation (performed 2 years after injury), interviewed 7 years after injury

Emotion-focused: social support

"We went though some really tough times. Pretty good building block for a relationship and marriage when you go through stuff like this. Talk about for better or for worse."

- Male, 30-years-old, secondary amputation (performed 2 years after injury), interviewed 7 years after injury

Avoidance Coping

Problem-focused: avoiding effects of the stressor

"I have to have a really good reason to get up and move around now; either my kids, doctors appointment or something I have to do. Otherwise I don't wanna mess with it 'cause there's a possibility of injuring myself."

- Male, 28-years-old, bilateral injuries, reconstruction/primary amputation (later revised to above-knee amputation), interviewed 8 years after injury

"So I've decided that I cannot go to her house because it's like an obstacle course, everything is so close. There's no space wide enough for me to get my walker through."

- Female, 62-years-old, secondary amputation (performed 1 month after injury), interviewed 3 years after injury

Emotion-focused: self-criticism

"People expect, 'Oh, I saw this guy runnin' the other day and he's runnin' 400s faster than Olympians.' Why can't I do that?"

- Male, 30-years-old, secondary amputation (performed 2 years after injury), interviewed 7 years after injury

Emotion-focused: withdrawing from social support

"My friends came over to see me but I couldn't even get out of my bed after I got out of the hospital, for like six months... That was kinda like my excuse to hide from the world and just kind of reflect on what the hell got me to where I was at and it was a really dark place."

- Male, 36-years-old, reconstruction, interviewed 12 years after injury

Emotion-focused: denial of emotion

"I don't have any emotional towards it or anything. 'Cause it wouldn't do me any good anyway. I just threw it out… somewhere 80 mile out in space. And that's where it's going to stay."

- Male, 68-years-old, primary amputation, interviewed 12 years after injury

Table 8

Representative Quote Relating to Self-Efficacy

"And [the doctor] goes, 'Well, you're never gonna do that again.' That was my turning point and I said to myself, 'I'll decide if I'm going to dance or not.' I'm not going to have some doctor tell me I'm not going to ever dance again. And I said, 'I am going to do this. I'm going to get back as much as I can, as fast as I can.'"
- Female, 56-years-old, reconstruction, interviewed 11 years after injury
"I was always positive, you know. I soaked up the rehab. I wanted to retain as much of my life as possible, as quickly as possible."
- Male, 54-years-old, reconstruction, interviewed 10 years after injury

Table 9

Representative Quotes Relating to Personal Growth

"I'm no longer a drunken idiot, so this helped. This helped me realize that things couldn't stay the same. And, it was a sign, I think." - Male, 54-years-old, reconstruction, interviewed 10 years post after injury
"I think it's made me tougher and just being more secure with myself, you know? Obviously, there are positives that have come out of this that's made me a stronger person. And if you can get through this you can pretty much get through anything." - Male, 30-years-old, secondary amputation (performed 2 years after injury), interviewed 7 years after injury
"All I can say is it has completely redefined me as a man and as a person. There's [me] before the accident which maybe was a little naïve, a little less caring, a little less sympathetic and there's a 10-year plus after the injury [me] that has a completely different understanding of what happens in life and what people go through. And people ask me, "Would you change any of that?" And I don't know. I don't. 'Cause as horrible as it is and everything that's been taken from me, the growth mentally… And I don't think about who I was before anymore. I think about who I am." - Male, 36-years-old, reconstruction, interviewed 12 years after injury