A theoretical framework and therapeutic songwriting protocol to promote integration of selfconcept in people with acquired neurological injuries

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Title Page

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Abstract

A positive self-concept after neurological injury is associated with enhanced quality of life and good mental health. Therefore, effective reconstruction of identity is heralded as an important goal of rehabilitation. We have developed and tested a songwriting protocol for people with acquired brain injury and/or spinal cord injury that focuses on six domains of self-concept (physical, personal, social, family, academic/work and moral). Over 12 music therapy sessions, people create three songs that reflect their perception of their past, present and future selves. The therapeutic process of creating these songs aims to integrate residual components of the past self with that of the present injured self. This paper outlines the theoretical foundations for the use of songwriting as a medium for change and describes the protocol in detail. We then present a case study of a man with spinal cord injury to illustrate the application of the protocol and the ensuing changes in self-concept.

Since the emergence of Neurologic Music Therapy as an evidence-based practice for people who have acquired or degenerative neurological conditions, there has been a notable increase in quality research, which focuses on physical, cognitive, and communicative functioning (Thaut, & Hoemberg, 2014). This first began with a movement towards measuring music therapy's effect on functional outcomes (e.g. Baker, 2001; Baker, Wigram, & Gold, 2005; Hitchen, Magee, & Soeterik, 2010; Kim & Jo, 2013; Särkämo et al., 2008; Tamplin et al., 2013a; Tamplin, Baker, Jones, Way, & Lee, 2013b), and the documentation of the clinical protocols utilized in these studies (e.g. Baker, 2000; Magee, 2005; Baker & Tamplin, 2006; Tamplin & Grocke, 2008). However, published studies that track the clinical methods and associated outcomes of music therapy interventions that address the psychological and emotional consequences of acquiring a brain injury (ABI) or spinal cord injury (SCI) are still lacking.

This paper outlines a clinical protocol developed for a pilot study currently undergoing clinical testing as part of a long-term research agenda. This agenda aims to examine how and to what extent songwriting impacts the process of integrating a pre-injured self with a post-injured self in people with acquired neurological impairments. Preliminary evidence suggests this songwriting protocol may lead to positive changes on measures of self-concept (Baker, Rickard, Tamplin, Ponsford, MacDonald & Roddy, 2014). The purpose of this paper is to describe the protocol, but importantly, to also offer a theory

concerning mechanisms of change that explain how this songwriting intervention leads to changes in self-concept.

SELF-CONCEPT AND ACQUIRED NEUROLOGICAL IMPAIRMENTS

The self-concept, also referred to as self-construction or self-identity, is a collection of beliefs about the self that answer the question "Who am I?". The self-concept comprises self-schemas (Markus & Nurius, 1986) and beliefs about the past, present, and possible future selves. It is a multi-dimensional construct crossing several domains namely the physical self, personal self, social self, family self, academic or vocational self, and moral or spiritual self. For example the physical self denotes how a person perceives his/her own body, state of health, physical appearance, and sexuality whereas the personal self concerns a self-evaluation of one's own personality (Fitts & Warren, 1996).

The self-concept is continually transformed throughout life as people encounter new experiences and events. It is not a fixed construct, but a dynamic and changing set of ideas about the self, shaped by the world, the people with whom they interact, and life events that are experienced (MacKinnon & Helse, 2010). People with a strong self-concept tend to define themselves as generally competent people who like themselves (Fitts & Warren, 1996). They perceive themselves as people of value and worth, and have self-confidence to act accordingly. Their many positive aspects can be called upon to compensate for threats to specific aspects of their self-image and therefore they are likely to take a risk because they can absorb anticipated failure. In contrast, people with a low self-concept are doubtful about their own worth. They are more likely to say negative things about themselves even when these are unwarranted and tend to be anxious, depressed, unhappy, and exhibit limited self-confidence (Byrne, 1996). Due to an avoidance of failure, they tend to avoid risk and set unchallenging goals (Fitts & Warren, 1996).

According to Markus and Nurius (1986), the self-concept is derived from a combination of self-schemas, concepts of the past self, present, self, and future or possible selves, and differs from self-esteem or self-worth, which involves an appraisal of the self. Therefore, the self-concept is "built on a temporal framework containing the actual past, the actual present, and potential future" (Obodaru, 2012, p.34). There are neuropsychological and structural aspects of the self-concept including the unhealthy fragmented self-concept versus the healthy integrated self-concept, and a nomological network of relationships that include

the self-concept and personality, self-concept and psychological adjustment, and self-concept and achievement (Gana, 2012). Theory suggests that emotional or significant events (such as acquiring a disability), can be catalysts to consider and reappraise meaning, purpose or direction in people's lives and are opportune moments to reflect and consider alternative future selves (Habermas & Bluck, 2000).

When people acquire disabilities as a consequence of stroke, brain injury, or spinal cord injury, they may experience an existential crisis (Hinkebein & Stucky, 2007). The sudden loss of function demands a re-visioning of their future lives faced with potential prospects of not being able to return to work, to perform previously held family and social roles, to effectively communicate with others, and to partake in leisure activities. When unable to adjust to the many changes presented to them, people with acquired disabilities inevitably face enormous challenges in finding meaning in, satisfaction with, and quality of life (Vickery, Gontkovsky, & Caroselli, 2005).

Adjusting to permanent disability tends to be a cyclic process with the initial encounter demanding that a person confronts reality both emotionally and cognitively, with a subsequent retreat and an active avoidance of the reality both in the short and long-term. Over time, through a series of cyclical processes, there is an eventual return to equilibrium (Shontz, 1975). However, one of the risks associated with acquiring a disability is that the disability narrative becomes the dominant narrative, the story through which all life is experienced and framed. A review of the literature indicates that self-narratives of people with ABI and SCI are comparable (Lennon et al., 2014).

Studies have found that people with ABI or SCI commonly experience a loss of sense of self, report discrepancies between the past, present, and future self, and rate self-concept domains substantially lower than matched controls (Anson & Ponsford, 2006; Kelly, Ponsford, & Couchman, 2013). This is in part due facing the challenge of constructing a future possible timeline that differs to the one they had envisaged pre-injury. They showed lower global self-esteem, and higher levels of depression and anxiety were strongly associated with a low self-concept. Further, these fragmented self-concepts did not naturally improve over time. Other studies have confirmed the association of a decline in self-concept with negative changes in mood (Carroll & Coetzer, 2011) and non-productive coping (Kelly et al., 2013; Geyh et al., 2012). Thus it is possible to theorize that improvements in mood and self-concept could make a person more resilient to coping with traumatic events.

As a positive self-concept after neurological injury is associated with increased quality of life (Vickery et al., 2005) and reduced likelihood of experiencing depressive symptoms (Carroll & Coetzer, 2011), effective reconstruction of an organized, compelling, and realistic identity is considered an important goal of rehabilitation (Biderman, Daniels-Zide, Reyes, & Marks, 2006). However, there are currently no evidenced-based treatments that can successfully address this important rehabilitation need. Researchers have concluded that cognitive impairments present in people with ABI may interfere with the ability to benefit from verbally-mediated therapeutic discussions, as these dialogues may not be effectively consolidated into long-term memory (Kelly et al., 2013; Anson & Ponsford, 2006). For example, each time a person attends a therapy session, s/he may be unable to recall the therapeutic discussions from the previous session due to short-term memory deficits. Subsequently, there is a sense that the therapeutic process is beginning again each time the person attends a therapy session.

In Figure 1, we present the conditions needed to utilize the narrative process to construct a healthy, integrated self-concept post-injury. Under optimal conditions, the person with an injury would tell his story exploring the disabled self and residual self, draw awareness to the residual self, reframe and reconstruct a present and future story, and over time, embed these thoughts and self-perceptions in memory. However, for people with neurodisability, impairments in short-term memory (STM) are a barrier to progressing through the process. Conversely, long-term memory (LTM) becomes a resource that highlights the (hidden) residual self. Utilizing strategies that increase the potential for encoding the process in memory increases the likelihood that people will reconstruct a healthy sense of self.

<INSERT FIGURE 1 ABOUT HERE Figure 1. Cognitive processes active during narrative approaches to addressing self-concept post injury>

NARRATIVE & THERAPEUTIC SONGWRITING

Narrative therapy is one approach that has been used with a range of populations for addressing self-concept. Essentially, it is grounded in the view that people's self-concept is shaped by their life stories and that by exploring these, they can construct meaning about their past, understand the present, and give direction for their future (Feinstein & Krippner, 2008).

When people experience unexpected traumatic events such as an ABI or SCI, their narratives in the continuum of past, present, and future can be significantly disrupted (Pennebaker, Mayne, & Francis, 1997). To live life more fully, it has been suggested that there is a need to re-author and re-construct their stories (Neimeyer, 2000) so that life can continue to have meaning. The therapist's role in the narrative process is to hear people tell and retell their stories, and in doing so, provide feedback and gently challenge them so that they become aware of alternative explanations and understandings to events they have experienced in life. Research suggests that reflecting on events by "repeatedly narrating the self" assists in long-term integration of the self-concept (Obodaru, 2012, p.40).

Songwriting within a therapeutic context is an approach that allows people to tell their stories – past, present, and future (Baker, Wigram, Stott, & McFerran, 2008). Through the creation of lyrics and music, people are able to create an historical account of their lives, reconstruct a previous specific life event, express their feelings about a current situation, or construct a story about a possible future. In a study of songs written by ABI patients, self-concept themes emerged from the inductive (and later deductive) analysis of 82 songs (Baker, Kennelly, & Tamplin, 2005a/b/c). The songs created during music therapy sessions were client-centered and organic in nature. That is, songwriters were not provided with specific themes on which to base their songs, but allowed to create songs on whatever themes were pertinent to them at the time. While there was a notable focus on describing the past (16% of lyrics), and to a lesser extent, the future (7%), most narratives focused on the present. For example, lyrics focused primarily on self-reflections (28%) and reflections on, and messages to family (35%).

MECHANISMS OF CHANGE

Songwriting offers a range of musical and therapeutic experiences that contribute to a successful integration of multiple injured and non-injured self-narratives, which are illustrated in Figure 2. First, research indicates that music has strong links to memory and emotions (Figure 2, pathway 1). If effective learning and memory is a necessity for successful negotiation of past, present, and future identities, then music's potential to facilitate consolidation of information, and retrieval of information from long-term memory, deem it a useful medium to work through issues. Studies indicate that music leads to greater meaning, emotion, and mnemonic potential than speaking alone because emotionally powerful events are

encoded strongly into memory (Cahill & McGaugh, 1996), and can enhance consolidation of coincident events (Judde & Rickard, 2010). There is also neurobiological evidence that the medial prefrontal cortex is a key region linking music, memory and emotion (Figure 2, pathway 2). This evidence suggests that where music, emotional experiences, and significant events occur together, there is a greater chance that the specific music heard at the time, would later trigger strong autobiographical memories (Janata, 2009). These autobiographical memories are important in raising awareness of the residual self (including the musical identity), enabling a healthier, more integrated self-concept to emerge. Further, there is evidence that combining music with other modes (e.g. written or spoken words), leads to a more intense emotional experience and/or a greater chance that the experience will be encoded in ongoing memory (Baumgartner, Lutz, Schmidt, & Jäncke, 2006; Schön, et al., 2008). Therefore, when music is paired with lyrics that coincide with activation of emotions, there is a greater chance the process will be encoded in memory.

Songwriting can be a more useful approach than verbally mediated interventions for people with cognitive impairments. There is overwhelming evidence to suggest that music activates distributed neural networks (Wu, Zang, Ding, Li, & Zhou, 2013). Indeed, music listening has been shown to enhance cognitive recovery in studies with stroke patients (Särkämo et al., 2008), suggesting that music listening facilitates neurological reorganization. There is also emerging evidence that engagement in music-based activities activates the "pleasure" neural network of the brain (e.g. Menon & Levitin, 2005), which may assist in alleviating symptoms of depression and anxiety, and enhance capacity for coping (Figure 2, pathway 3). A more positive attitude may lead to greater motivation to face self-concept crises so that they can be processed and revised.

Another factor that supports the use of songwriting as a medium for addressing self-concept concerns musical identity (Figure 2, pathway 4). While song creations might tell a story of personal identity, the songs are also an expression of musical identity. For example, the musical genre (eg. Gangsta Rap or Punk Rock) selected for a self-composed song can be an important way to express the songwriter's musical identity. Research indicates that musical preferences, engagement, behaviors, and identity remain intact despite neurological impairment caused by dementia (Cadell & Clare, 2011) and multiple sclerosis (Moreira et al., 2009). People typically draw on residual musical memory and resilient musical identities to stimulate autobiographical recall, and, importantly when faced with degeneration of functioning, preserve their pre-

illness identity. Our own experiences, supported by the research of Baird and Samson (2014), suggest that musical identities of people with ABI or SCI are also preserved post-injury.

Wellbeing and positive mood are essential if a person is to have the inner strength and cognitive and emotional capacity to face the difficult reality imposed by an ABI or SCI. Adequate personal resources are needed to reflect honestly and openly on their current and future worlds. There is a burgeoning body of evidence indicating that experiences of flow and meaning in life are positively correlated with general wellbeing (e.g. Csikszentmihalyi, 2008; Seligman, 2011). For example a study of Japanese university students found that flow enhanced mood, and self-esteem, reduced anxiety, increased satisfaction with life, and strengthened the use of active coping strategies, (Asakawa, 2010). Studies by Baker and MacDonald (2013a/b) found that songwriting leads to strong experiences of flow and meaningfulness. As flow and meaning are predictors of wellbeing and coping, songwriting has the potential to directly impact people's capacity to use coping strategies when facing crises (Figure 2, pathway 5). Further, songwriting is a culturally acceptable and appropriate means for emotional expression (Baker, Kennelly & Tamplin 2005c). It provides an alternative outlet for people who may find it difficult to verbally express how they are feeling. This is particularly important for people in the rehabilitation process because repressed negative emotions can lead to depression and/or lack of motivation for therapy.

Finally, songwriting, as mentioned earlier, is a form of narrative expression; an effective way for people to explore their life stories (Pennebaker et al. 1997) and focus on meaning making (Neimeyer, 2000). Through narrative approaches, people attempt to make sense of their past, present, and future, and, with the support of a guiding therapist, work together to construct a healthy identity. Songwriting enables people to tell their stories at the micro-narrative level which contributes to the creation of a macro-narrative (Figure 2, pathway 6). In the right context these creative outputs become not only important markers of identity but also a medium through which the individual can process crises and construct a new and healthy identity (Bruner, 1986). Songwriting studies confirm the potential of lyric writing as a means of expressing personal and musical identity and providing a meaningful opportunity to narrate life experiences (Baker et al. 2005a/b/c; Baker & MacDonald, 2013a/b; Day, Baker, & Darlington, 2009).

<INSERT FIGURE 2 ABOUT HERE: Figure 2. Pathways active during songwriting designed to address fragmented self-concept>

THE SONGWRITING PROTOCOL TARGETING SELF-CONCEPT

Songwriting in therapy can have an advantage over verbally-mediated therapies because it demands the songwriter remain present with confronting issues, feelings and events in the process of discussing these and incorporating them into original lyrics and music. The prolonged engagement with the content (over many sessions) allows the songwriter to process, reprocess, and reconstruct his/her feelings and perspectives on the issue or story and re-author a story (Baker & MacDonald, submitted). This extended processing time is necessary to ensure an authentic representation of personal experiences and to allow the necessary time for processing and reflection that is key to the songwriting protocol presented in this paper. Previously published songwriting protocols (eg. O'Brien, 2011; O'Callaghan, 1996) often involve entire songs being completed in a single session (for example, in acute or palliative care). In our songwriting protocol – which focuses on changes in self-concept - the song product functions to keep the songwriter's attention on the process of self-reflection over many sessions. As the song is designed to tell a complete story, the therapist can redirect the songwriter during any digression from the topic. While such digression may represent deliberate or unconscious avoidance, the focus of completing the song encourages the songwriter to stay with the material.

The emphasis in our protocol on a person's story is grounded in concepts from narrative therapy as discussed previously. Self-concept is strongly connected to a person's life stories and the meaning they give to these stories. Our songwriting protocol thus places a clear and distinct emphasis on the songwriter's sense of past self, present self, and future self by creating a new song for each of these foci. This process provides a framework for recognizing features of the past self, making sense of the present, and provides perspective to contemplate what the future might bring. Although different, there are many similarities in the disruptions to self-concept evident in those who have received a brain injury or spinal injury. Both trigger shock due to the unexpected nature of injury, both impact physical function and independence, and both can lead to changes in sense of self, and grief over lost function and changes in life roles.

The music therapist's role in this songwriting protocol is to hear a person's stories and help to bring order to the chaos that such a traumatic event causes to the person's self stories. The therapist works together with the songwriter to re-construct his/her stories to make meaning from them. This process can include asking pertinent questions, providing feedback on reflections, and gently encouraging the

exploration of alternative possibilities and meanings attributed to life events. The therapist then assists the songwriter to create a song that musically captures the essence and emotional authenticity of the story that s/he wishes to convey. The development of a strong therapeutic alliance is essential to the process as the songwriter needs to trust the therapist and feel safe enough to explore sensitive and personal topics that they feel define or challenge their sense of identity.

The songwriting protocol we present here specifically targets changes in self-concept, and as such focuses on the different domains of self-concept outlined by Fitts and Warren (1996) together with a sequential focus on past, present and future based in narrative therapy. In this way we aim to deal with the perception of self as a multi-dimensional paradigm that is constantly evolving and being constructed over time. The intervention consists of 12 individual sessions over 6 weeks (2 per week). The sessions are specifically designed to assist people to create songs that explore issues of identity – with the aim of integrating aspects of the past pre-injured self with that of the new injured self. We use a prompt sheet listing the domains of self-concept: physical self, personal self, social self, family self, academic/vocational self, and moral self to guide discussions during each session and to ensure each domain of self-concept is covered in the therapeutic process. The physical self refers to a person's perception of his or her health, appearance, physical ability and sexuality, whereas the personal self relates more to perceived personality traits and sense of adequacy and self-definition aside from physical attributes or relationships with others. Family and social self indicate how people view themselves in terms of their roles and relationships with family, friends and peers. Academic/work self-concept refers to how people perceive themselves and their roles in school or work settings, and moral self reflects satisfaction with one's conduct and sense of being able to control one's behaviour. So for example in a songwriting session, if the participant has talked primarily about his physical impairments and role within his family, we might ask him to explore how he feels about his role as a working person or a 'breadwinner', we might also probe to explore whether he feels he is a 'good' person and his understandings of himself in a spiritual or existential context.

The effects of this songwriting protocol on measures of self-concept, wellbeing, mood, and anxiety for inpatients with ABI and SCI have been measured in a pilot study (Baker et al., 2014). In this study, 10 people with ABI or SCI were offered the songwriting program and their data compared with matched controls (10 people with ABI or SCI). Data were collected pre, mid-therapy program, post, and at 6-month

follow up and comprised measures of self-concept, flourishing, satisfaction with life, affect, depression, anxiety, and emotional regulation. Data on control participants and follow-up data are still being collected but preliminary evidence suggests an overall increase in self-concept and improvement in the other wellbeing measures.

CHANGES IN SELF-CONCEPT OVER TIME

The first four sessions are spent focusing on the past, hearing the songwriter's life story and creating a song that expresses the songwriter's perception of their pre-injured self. The middle four sessions focus on the present and the songwriter is encouraged to reflect on changes in self-concept that have arisen due to their injury and its consequences and a second song is written with this focus on the present. The final four sessions focus on the songwriter's conceptions about the future and how they perceive themselves to be in the future. Each song is therefore written over four sessions (see Figure 3).

<INSERT FIGURE 3 ABOUT HERE: Figure 3. Songwriting for self-concept protocol>

Session 1 – Brainstorming ideas, telling the story, exploring feelings

It is vital to the therapeutic process that adequate time is spent in the initial sessions building rapport. Most people who participate in music therapy are non-musicians and can find the thought of writing a song overwhelming. Thus, spending the first session talking and not actually commencing the song creation can alleviate potential anxiety about songwriting. We need to provide reassurance regarding the support provided by a trained music therapist in the creation of meaningful, person-centered songs. We use the very first session to get a sense of the songwriter's personality and musical identity. This can include asking about music preferences in terms of genre, favourite artists, bands, or songs and any reasons for these preferences. It may be appropriate to listen together to significant songs with which the songwriter closely identifies. This helps us to gain deeper insight into the songwriter's personality and can help the songwriter express his/her musical identity and emotional self.

In the first session for each song the therapist listens to and documents the songwriter's story. These notes should be a verbatim record of the songwriter's words if possible, in order to preserve the integrity and authenticity of the songwriter's ideas when using the notes to create lyrics. By giving the role of note-taker

to the therapist, the songwriter can talk freely and without interruption to the thought process. The therapist may need to assist in this process of brainstorming by asking questions about statements made, or asking for expansion of ideas.

Session 2 – Generating ideas for the music and lyrics and commencing the song

The second session is where we decide how to start the song creation process by presenting options to the songwriter. If the songwriter has a strong sense of the desired musical style for the song, this can be a good place to start. The therapist can then offer several musical ideas in that style and ask the songwriter to guide and direct the music creation process. However, in many cases, people prefer to start with the words, as this is more familiar (Baker et al., 2005c). The therapist and songwriter can together review the notes from the brainstorming session and draw out significant points that reflect the different domains of self-concept. As the story unfolds in the lyrics, ideas for music may emerge. It is important to give the songwriter as much control over the music creation process as possible to ensure a greater sense of ownership over the completed song (Baker & MacDonald, 2013a). We have outlined the processes we use to facilitate co-creation of music in a previous publication (Baker et al., 2005c). Providing musical options can be helpful, for example "do you want the end of this line to go up (sing example) or down like this (sing example)?" It can also be helpful to leave an audio recording of the initial ideas for the song for reflection between sessions. Most people have easy access to technology, even in hospital, via their phone or laptop. It is therefore possible to document progress by recording ideas on a person's phone or making a recording using a digital recorder or software such as Garageband™ and emailing it. We may also email incomplete lyric sheets or deliver a hard copy to patients for reflection between sessions.

Session 3 – Writing the remaining verses and chorus and adapting the music or song structure as necessary

The third session is a continuation of the lyric and music creation process. We provide the songwriter with the opportunity to make changes after having time for reflection since the previous session. This may include changes in the wording of lyrics or restructuring the order of ideas, changing melody lines, or instrumentation. We then add more verses and a chorus and contemplate how to record the final version,

including ideas for instrumentation. Often the song is completed in this third session. Again, we leave the songwriter with a record of progress via audio recording and updated copy of lyrics.

Session 4 - Making final adjustments and recording and/or mixing the final version of the song

Session four is where the final version of the song is recorded and mixed. Sometimes we record an acoustic version with a digital recorder using just voice and guitar or piano. Other times we use Garageband™ and involve the patient in making decisions about instrumentation, harmonies, and sound levels of various tracks. We may listen to the entire song several times during this session as the musical decisions change the song. We also allow time for reflection on the entire process of writing the song: the story the songwriter has chosen to tell through the song, and the degree to which the songwriter feels that the song truly captures his/her sense of self at the time point under consideration. The songwriter receives a recorded copy of his/her completed song together with printed lyric sheets.

There is a strong therapeutic focus in this songwriting protocol. Prior to and during the creation of each song there is considerable dialogue and significant processing of issues and emotional responses. However it is not possible to include everything that is discussed in a session in the songs. Therefore although the completed songs are a significant and tangible outcome, the positive effects on self-concept and wellbeing arise from the whole therapeutic process. To illustrate the use of this protocol within the therapeutic process we will now present a case illustration.

CASE ILLUSTRATION: 'Jim'

'Jim' was a sheep shearer from a country town in Victoria, Australia prior to his spinal cord injury. At age 46 he was kicked in the head by a sheep whilst shearing and fell, causing an incomplete SCI at the C3/4 level. Jim had a defacto wife and four children aged 9-17. He was from a low socioeconomic background and had not finished school. Jim enjoyed country, rock and blues music and described himself as 'just an average bloke' (which became the title for his first song). He reported that he was a hard worker, often away from home for weeks at a time shearing. When he was home, he was a devoted father and enjoyed spending time with his children playing sport and participating in outdoor activities, such as

hunting, fishing and camping. An analysis of the song material (Appendix 1) explicates the strong identity as a family man and his sense of personal self (Figure 4).

Jim selected a country music genre, which he believed was a good match with his pre-injury self. He used rhyme intermittently, but driven more by lyrical intent than the need to rhyme words. The music was a simple three-chord country song with a catchy, up-beat feel. We used Garageband™ to record the acoustic guitar and added in double bass, drums, and a vocal harmony in the chorus.

The focus on the present in song two was more confronting for Jim and he chose to start with the music this time in a blues style. This musical genre was able to capture the mixture of grief and anger that Jim felt while also incorporating some black humor (Appendix 2). It was also a genre that enabled him to express strong emotions in a way that did not challenge his masculinity (i.e., it was personally and culturally appropriate). Figure 4 illustrates a distinct shift in the thematic focus between song 1 and song 2. This shift is characterized by a move away from family and personal self, to a strong focus on the physical self. His lyrics describe feeling trapped, useless, and dependent, and how his physical limitations have impacted his roles as worker and physically active father. The instrumentation was guitar, bass, and drums, with 2 blues guitar solos.

After completing the first two songs, a strong therapeutic alliance had been established and Jim felt more comfortable to explore his deeper feelings about the changes in his life and their impact on his sense of identity. Subsequently his final song exposed more raw emotions with a shift back to focusing on family, social, and vocational identity (Figure 4). This clearly highlights Jim's concerns about changes from pre to post- injury in these self-concept domains that he felt were defining features of himself. Jim chose a contemplative rock ballad with a slow tempo for this song to match the reflective nature of the lyrics. The sound of the electric guitar with effects (delay and reverb) set the mood for his authentic expression of his fears about the future. However, he also incorporates hope and a willingness to reconstruct his vision of his future self (Appendix 3). It is clear to see a gradual deepening in Jim's self-reflection and expression in the lyrics of the three songs, which were complemented by appropriately matched musical styles.

<INSERT FIGURE 4 ABOUT HERE: Figure 4. Percentage of song lyrics related to each specific self-concept domain>

CONTRAINDICATIONS

There are some circumstances where this songwriting protocol targeting changes in self-concept may be contraindicated. Given the high-level language and cognition skills required to generate ideas relating to self-concept and shape these into song lyrics, this protocol is really only suitable for people with intact language processing. Therefore this intervention is not indicated for people with aphasia, however people with severe dysarthria or dyspraxia of speech who are able to use alternative and compensatory communication systems and strategies may still be able to benefit from participation in this targeted songwriting protocol. This songwriting process also requires high-level cognitive processing skills including executive functions and insight into disabilities. For example, a person who is unable to comprehend that that she has physical impairments that will significantly change her life is unlikely to process changes in self-concept. Further, this protocol may be too confronting for someone who is emotionally fragile or unstable, as it requires deep introspection and evaluation of personal qualities. For example, it is possible that this songwriting protocol may exacerbate symptoms of anxiety or depression following traumatic injury.

Although it is conceivable that prolonged reflection on significant changes to sense of self may be overwhelming or even re-traumatize someone; our preliminary findings do not suggest this. However, it appears that halfway through the process (during the writing of song 2 about the present self), people tend to experience greater conflict about their sense of self. The process of self-reflection brought about through the songwriting process may bring to awareness, the stark contrast between the past and present self and a feeling of 'not being myself'. This conflict may arise from a desire to hold on to the past self while at the same time facing the reality of present. Such a conflict is not regarded as a negative outcome; conversely it can indicate a turning point in the therapeutic process. Through songwriting we can assist people to work through this conflict in a constructive and supported way towards an integration of past and present self.

SUMMARY AND CONCLUSIONS

There is a clear pattern to the four sessions used to create each song: brainstorming ideas, writing lyrics and music, refining, and recording the song. As the therapeutic relationship develops over the course of the 12 sessions there is a deepening of the songwriter's exploration of self. For example the

brainstorming for the second and third songs often reflect back to previous sessions and build on prior discussions. The development of this therapeutic alliance and trust is essential to the process and allows the songwriter to feel safe and heard.

Often during the brainstorming and lyric creation process, the therapist needs to help the songwriter to focus on the specific time under consideration for the current song (past, present or future). In order to facilitate the therapeutic process and allow the songwriter to talk freely, it is sometimes helpful to 'bracket' out parts of what the songwriter shares for another song. For example, when reflecting back on the past it is natural to compare this to the present situation and how this contrast feels. We might say, "these are really great ideas and strong feelings that relate more to your next song about the present. I'll write them down so we can bring these into song 2." Similarly, when reflecting on the present and how the current situation has brought about so many changes, it is natural to then think about how these changes will impact the future. It is important to allow the songwriter the freedom to express these thoughts and feelings, but when it comes to the song creation, we use ideas related only to the time period for that song.

In conclusion, the songwriting protocol that we have developed and tested assists people to tell their story and integrate their past, present, and future self-concept. The structured nature of this songwriting protocol enables people with SCI or ABI to grieve losses, appreciate what remains, and construct a new perception of their future selves. Our approach is grounded in a theoretical framework informed by neuroscience, music psychology, music therapy, and narrative therapy. We propose that songwriting is an effective medium because:

1) the neurological connection between music, memory and emotion enhances a person's capacity to move forward in the therapeutic process by using music in the song creation process to stimulate emotional expression and enhance memory, both of which are necessary to work though changes in self-concept,
2) music activates distributed neural networks and engages more pathways than just language alone; therefore music therapy can be more effective than verbal therapies for people with cognitive or language deficits. During songwriting, activation of the prefrontal cortex stimulates autobiographical recall and awareness of residual identity, and activation of pleasure networks works to combat depression and anxiety and increases motivation to face challenges,

3) musical identities remain intact despite other fractured identities so songwriting capitalizes on intact resources,
4) songwriting is personally meaningful and leads to strong experiences of flow, which can enhance mood and coping mechanisms needed to face confronting issues,
5) songwriting enables the telling of micro-narratives; making sense of, accepting, and appreciating past, present, and future self-concepts.

Previous research with ABI and SCI patients has demonstrated the value of songwriting to facilitate self-reflection concerning life experiences, memories, relationships, and the impact of an acquired disability on a person's future. To our knowledge, however, this is the first published therapeutic songwriting protocol focused specifically on addressing a fragmented self-concept. Our theory-informed and evidence-based protocol describes the therapeutic and creative process, encompasses a process targeting self-concept, and accommodates for the physical, cognitive, communicative and emotional challenges imposed by the injury. The songwriting protocol described in this paper outlines such a therapeutic process for people who are negotiating changes in self-concept as a result of neurological injury.

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<INSERT APPENDIX 1, 2 and 3 HERE>