

# Measuring The Social Impact of Burn Injuries:

## Conceptual Foundation and Item Pool Development for a Computer Adaptive Test

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### Background & Aims

- 2 million people in the United States sustain burn injuries every year.
- The mortality rate for burn injuries dropped greatly in the 1970's and 80's, and is currently 3.7% for all cases and 6.4% for fire/flame injuries.<sup>1,2</sup>
- The near universal survival of individuals with burns requires a consideration of long term outcomes.
- Adults who experience burn injuries face considerable physical, psychological, and social challenges throughout their recovery and return to everyday life.
- This project aims to develop a validated conceptual framework for understanding the social impact of burn injuries in adults and develop a large item pool for purposes of calibration using Item Response Theory (IRT) for the future development of a Computer Adaptive Test.

### Methods

- Comprehensive literature review and consultation with clinical experts and burn survivors about social roles and life areas impacted by burns.
- Items modification from nineteen previously established and published generic, burn-specific, and other condition-specific measures.
- Classification of items by subdomain; group consensus on inclusion, modification, removal and addition of new items based on iterative review process.
- Focus groups with burn survivors and clinicians to validate the framework and revise and augment the initial item pool.
- Item revision, removal and writing based upon feedback from the focus groups.
- Cognitive interviews with burn survivors to assess clarity and consistent interpretation.

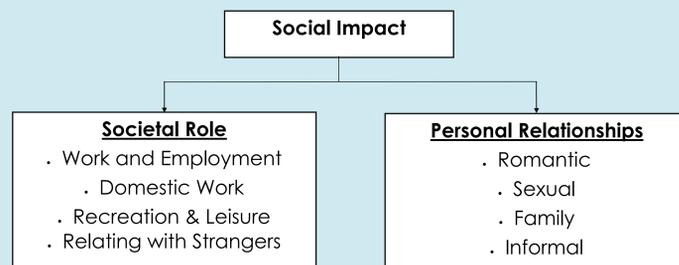
### Results

**Table 1. Sample Characteristics**

Focus Groups: Burn Survivors/Partners (n=23)	
Gender	
Female	11
Male	12
Age	44.7 (13.5)
Race	
White	20
Other	3
Years Since Burn Injury	8.2 years
TBSA	60.1%
Focus Groups: Clinicians (n=27)	
Gender	
Female	16
Male	11
Age	43.9 (12.3)
Years Experience	13.8 (10.5)
Specialty	
Surgeon	9
Psychiatrist	3
RN - Inpatient	9
Occupational Therapist	2
Physical Therapist	1
Massage Therapist	1
Social Worker	1
Other	1
Cognitive Interview Participants (n=23)	
Gender	
Female	10
Male	23
Age	50.9 (11.1)
Race	
White	22
Other	1
Years Since Burn Injury	9.3 years
TBSA	28.3%
Education	
High School Diploma or Less	6
Greater than High School	17

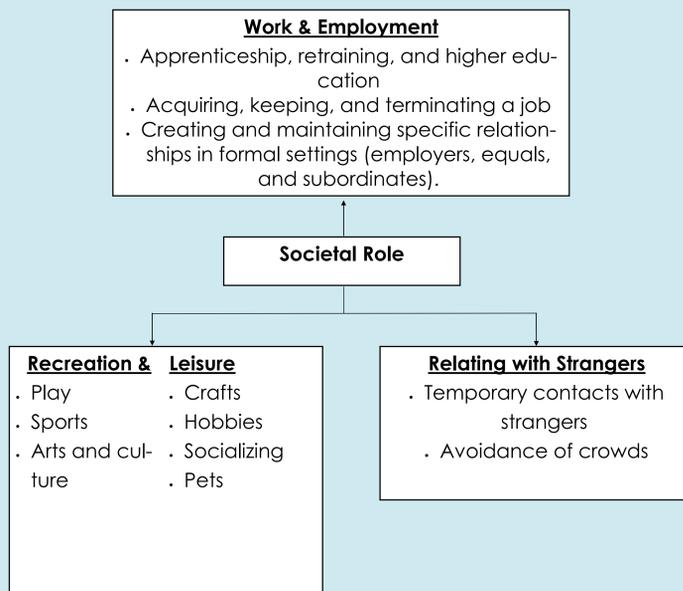
**Table 1.** The sample was drawn from a local burn survivors support group, and through a database of patients who were contacted via mail. Focus groups with burn survivors were divided by gender; focus groups with clinicians were divided into Physicians and other clinical professionals.

**Figure 1. Conceptual Framework: Domains Impacted by Burn Injury**



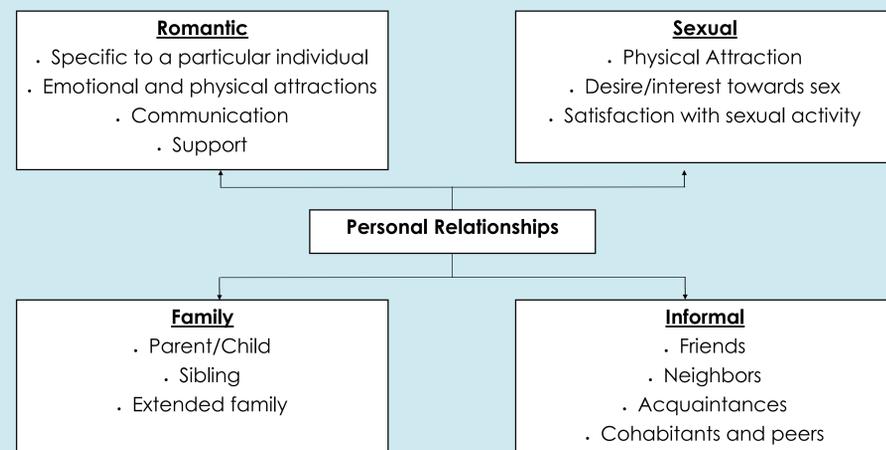
**Figure 1.** Conceptually grounded in the World Health Organizations International Classification of Functioning, Disability and Health (ICF), the primary construct identified was social participation, which contains two major concepts—societal role and personal relationships—each with several subdomains.

**Figure 2. Content Model for Societal Role Domains**



**Figures 2 and 3.** The eight subdomains chosen for item development were work related to employment, domestic work, recreation and leisure, relating to strangers, relationships consisting of romantic, sexual, family and informal.

**Figure 3. Content Model for Personal Relationship Domains**



**Table 2. Focus Group Feedback and Item Development**

Sub-Domain	Focus Group Quotation	Item
Recreation & Leisure	"In one way, like I said, you may have to change your method, you may have to change your mode, but you can overcome those physical obstacles in some way or another."	I do things I enjoy, even if I have to do them differently.
Relating with Strangers	"I found out that if I went out in public and I was in a good mood—and I learned very early on to look people in the eye. And I learned that if I had a smile on my face, they did not stare....I found out that it's mainly my attitude that depends on how people receive the scars on me, my outward scars."	I can help strangers feel comfortable around me.
Romantic Relationships	"I had a relationship that pre-dated the fire and it just gelled and came together in a way after that because we have been through this together—you know, I think it moved us 10 years forward in terms of trust and connection and solidity"	My relationship with my partner got stronger since my burn.
Family Relationships	"I wish my parents would have given me that opportunity to really sit down and just cry and just be like, Oh, my gosh, I'm burnt...It was like, I never got to stop and be human have that feeling of will I ever."	My family helps me through my bad days.

### Discussion

- Qualitative results strongly suggest that the conceptual model fits the constructs for societal role and personal relationships with the remaining seven subdomains.
- Although included in the literature, the content subdomain of domestic work was eliminated because burn survivors and experts did not mention it as an integral part of social recovery, and more of an economic support issue.
- The final pool contains 192 items that were tested for clarity and interpretation by burn survivors.
- The resulting measure will be the first to specifically measure the social aspects of burn survivors life throughout the recovery process.

### Future Work

- This work will lead to future calibration using IRT methods and the development of a CAT for monitoring the social impacts of burn injuries during recovery.
- The measure has the potential to be integrated into electronic health records, which would allow burn survivors and their care providers to measure current social participation, and track the trajectory of social participation throughout the recovery process.

### Acknowledgement

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