Spinal Cord Injury rehabilitation and pressure ulcer prevention in post-earthquake Pakistan

J Chishtie, F Chishtie

Introduction

The 2005 South Asian earthquake resulted in more than 700 people getting traumatic spinal cord injury (TSCI). Besides temporary institutional arrangements, the 'Subh-e-Nau Disability Program' transitioned towards a community based rehabilitation (CBR) model, to provide services to 117 TSCI persons in the rural Muzaffarabad district of mountainous Kashmir.

Objective: To evaluate the CBR approach for its effectiveness in preventing complications, and its perceived value from a patient's perspective.

Methods

Study Design: Cross-sectional, from a larger program evaluation research in 2010-11.

Participants: 33 randomly selected persons with TSCI in the Muzaffarabad post earthquake region.

Outcomes: Retention of knowledge about pressure ulcer prevention, practices and reduction in the prevalence of pressure ulcers over the last year; differences in factors related to mobility in persons with and without pressure ulcers.

Intervention: PU prevention trainings and follow-up starting in 2006.
Definition: "Localized injury to the skin and/or underlying tissue usually over a bony prominence, as a result of pressure, or pressure in combination with shear and/or friction."
Training components:

1. **Self-examination:** Examining for signs twice a day, preferably in daylight;
2. **Seeking care in case of 'danger signs:'** Immediately reporting danger signs to the team over the phone for consultation and/or emergency evacuation. Any signs related to deep tissue injury, and Stage III and IV PUs.
3. **Postural change in bed:** every 2 hours.

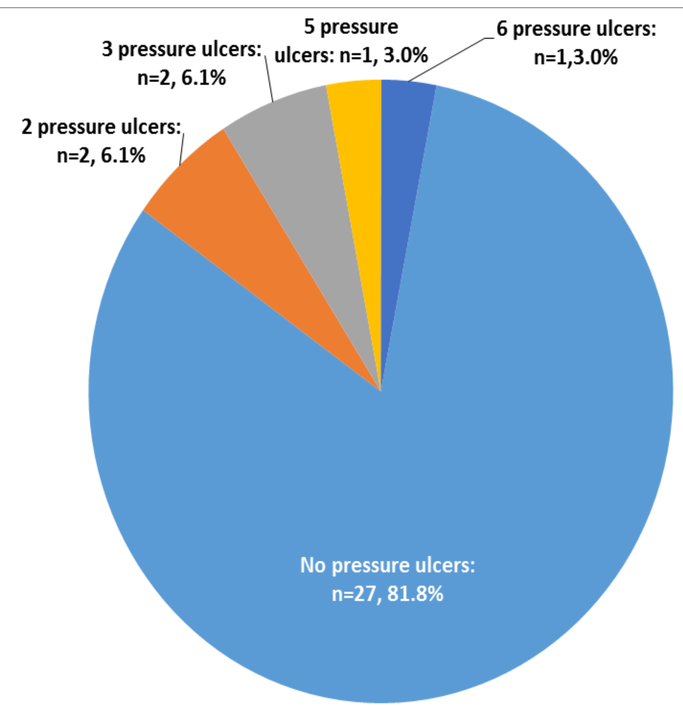
Language: Urdu (national) and Kashmiri (local). Confirmation in "good light" which usually meant day light in this remote region.

Sites of examination: all bony prominences.
Team Follow-up: Weekly through cell phones.

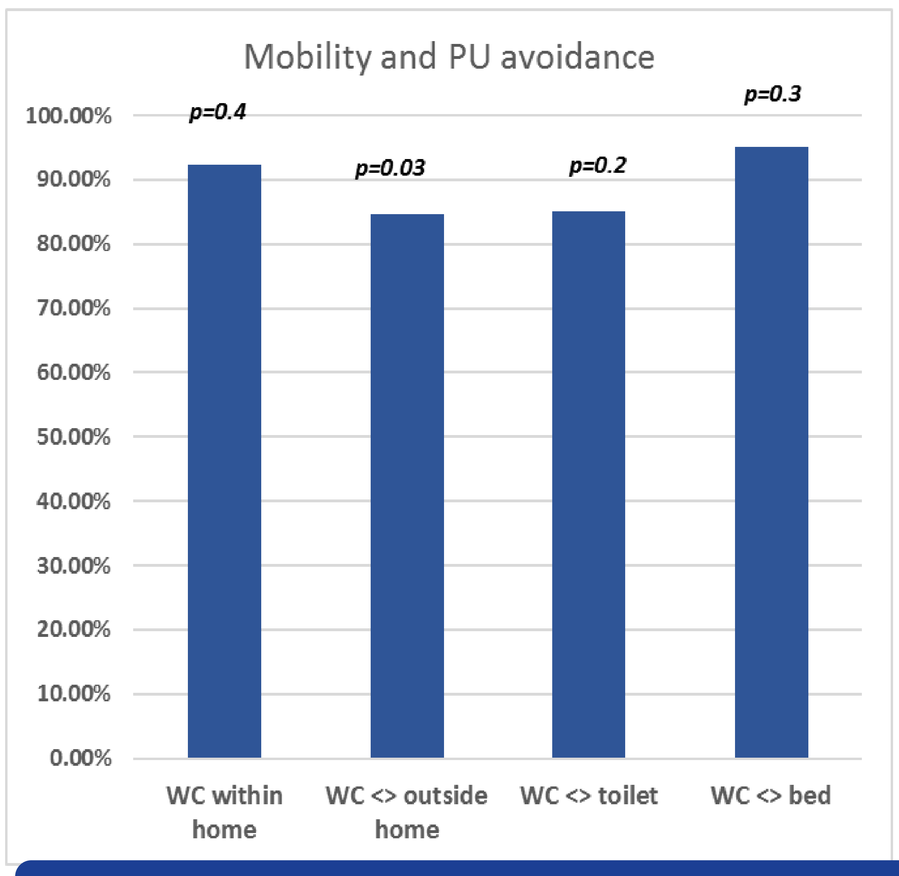
Results

- 97% (32) correctly recalled "danger signs" for preventing and seeking immediate help.
- 97% (32) recalled postural change timings in bed but their practices were varied.
- 82% (27) reported no pressure ulcers over the last year (see pie chart for breakdown).
- Most mobile persons with TSCI did not develop PUs (see graph for details).

Respondent Characteristics		
Age	n	%
6-19y	3	9.09%
20-29y	18	54.55%
40-49y	4	12.12%
30-39y	8	24.24%
Sex		
Male	17	51.52%
Female	16	48.48%
Education		
10th Gr	9	27.30%
8th Gr	8	24.20%
Illiterate	8	24.20%
Primary	4	12.10%
Graduate and above	3	9.10%
High Sch	1	3.10%
Injury Level		
C7-C8	1	3.03%
T10-T11 to T12-L1	14	42.42%
L1-L2 to L3-L4	9	27.27%
L3-L4 to L4-L5	6	18.18%
T5-T6 to T-10	3	9.09%



Pressure Ulcers reported over the last year



- 85% (26) were mobile on their wheelchairs within their homes, and getting outside if the environment allowed, even in this remote hilly area.
- 97% of those mobile did not develop PUs in the last year.
- Mobility outside home was significantly related to PU avoidance ($p<0.05$)

Conclusions

- Preventive education and follow-up, in community based, low resource programs holds potential to prevent PUs over the longer term.
- Retention of preventive education components was found better as compared to institutional educational programs, even among illiterate persons with TSCI.
- Almost all individuals who were mobile on wheelchair, especially outside their homes did not report PUs in the last year.
- The research begins to fill a critical gap in literature, which has been mostly limited to hospital based studies from the first year of the 2005 earthquake.
- Limitations include: lack of longitudinal data, details of the types of ulcers, varying degrees of concomitant secondary health complications.

Key references

Gosney J, Reinhardt J, Von Groote P, Rathore F, Melvin J. Medical rehabilitation of spinal cord injury following earthquakes in rehabilitation resource-scarce settings: implications for disaster research. Spinal Cord. 2013;51:603-9.
Burns AS, O'Connell C. The challenge of spinal cord injury care in the developing world. The journal of spinal cord medicine. 2012;35:3-8.
Garber SL, Rintala DH, Holmes SA, Rodriguez GP, Freidman J. A structured educational model to improve pressure ulcer prevention knowledge in veterans with spinal cord dysfunction. J Rehabil Res Dev. 2002;39:575.
Rintala DH, Garber SL, Friedman JD, Holmes SA. Preventing recurrent pressure ulcers in veterans with spinal cord injury: impact of a structured education and follow-up intervention. Arch Phys Med Rehabil. 2008;89:1429-41.

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Contact info: Jawad Chishtie, Toronto Rehabilitation Institute | Email: jac161@gmail.com
ORCiD: https://orcid.org/0000-0001-8650-4469

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