Stoke Mandeville Spinal Needs Assessment Checklist (SMS-NAC)

Assessment Overview

Assessment Area

ICF Domain:

Activities

Subcategory:

Self-care

You Will Need

Length:
331 indicators – 60 minutes

Scoring:
Scores are derived by summing sub-scale items indicators; a "percentage achieved" is also calculated for each of the 10 domains ranging from 0-100% with higher scores indicating greater level of physical/verbal independence.

Summary

The Stoke Mandeville Spinal Needs Assessment Checklist (SMS-NAC) assessess patient attainment of changes in rehabilitation outcomes through self-rating of perceived physical and/or verbal independence. It is used specifically for patients with a spinal cord injury or disorder. It can be used to identify the patient's current level of physical/verbal independence, as well as identifying specific targets for rehabilitation goals.

It consists of ten rehabilitation domains: physical healthcare (56 indicators), daily living activities (24 indicators), skin and posture management (26), bladder management (27), bowel management (13), mobility (21), wheelchair and equipment (60), community preparation (33), psychological health (35), and discharge coordination (36).

Availability

Worksheet:

- A sample of the SMS-NAC worksheet can be found here.
- A copy of the SMS-NAC, license agreement for permission to use, and other materials (such as a "Manual", "Information for User Guide", and a scoring tool) can be found by contacting bht.nsicpsychology@nhs.net and/or here.

Assessment Interpretability

Minimal Clinically Important Difference

Not established in SCI

Statistical Error

Not established in SCI

Typical Values

Mean (SD) scores for each SMS-NAC domain:

SMS-NAC Domains	Mean (SD)		
	Complete tetraplegia	Complete paraplegia	All levels incomplete
Physical health			
Adm	54.6 (13.9)	74.2 (15.3)	70.1 (15.2)
D/C	80.2 (14.1)	87.6 (12.3)	87.7 (11.9)
ADL			
Adm	47.6 (29.0)	75.2 (16.3)	66.7 (24.8)
D/C	76.7 (20.9)	95.5 (6.68)	89.6 (12.0)
Skin and Posture Management			
Adm	41.7 (21.5)	51.6 (24.2)	65.3 (24.1)
D/C	87.4 (13.7)	90.0 (12.2)	93.4 (8.22)
Bladder Management			
Adm	49.7 (16.6)	57.1 (19.3)	69.7 (18.8)
D/C	79.0 (15.3)	84.2 (12.2)	88.1 (9.05)
Bowel Management			
Adm	23.0 (22.3)	38.4 (32.0)	67.4 (31.0)
D/C	71.0 (26.5)	80.2 (22.3)	88.2 (17.7)
Mobility			
Adm	43.7 (19.4)	46.0 (16.2)	44.9 (25.8)
D/C	76.5 (17.2)	77.2 (14.5)	80.7 (16.7)
Wheelchair and Equipment			
Adm	33.3 (19.1)	46.3 (19.6)	70.1 (20.4)
D/C	70.1 (20.4)	80.3 (16.5)	83.7 (17.7)
Community Preparation			
Adm	31.3 (11.2)	38.9 (15.0)	38.5 (15.5)
D/C	66.2 (14.9)	74.1 (13.5)	70.2 (13.5)
Psychological Health			
Adm	59.8 (13.2)	64.6 (13.9)	66.9 (13.9)
D/C	66.9 (16.5)	74.2 (14.6)	74.1 (16.7)
Discharge Coordination			
Adm	24.3 (15.8)	34.8 (17.9)	41.6 (23.6)
D/C	58.9 (19.8)	67.5 (19.8)	70.9 (15.5)

Admission (adm), discharge (D/C)

(Eaton et al. 2022; n=191; 139 males, 56 females; mean (SD) age: 53.0 (17.5) years; 51 tetraplegia complete (C1-C8 A/B/C), 77 paraplegia complete (T1-L5 A/B/C), 67 incomplete (C1-L5 D); mean (SD) time from injury to rehabilitation: 412.6 (2895.7) days)

Measurement Properties

Validity – Moderate to High

High correlation of NAC ADL with SCIM-II:
SCIM self-care correlation: r = 0.850
SCIM Total correlation: r = 0.873

High correlation of NAC Bladder & Bowel with SCIM-II:
SCIM respiration & sphincter correlation: r = 0.681
SCIM Total correlation: r = 0.754

High correlation of NAC Mobility with SCIM-II:
SCIM mobility correlation: r = 0.691
SCIM total correlation: r = 0.696

High correlation of NAC psychological issues (mood subsection) with HADS:
HADS anxiety correlation: r = -0.709
HADS depression correlation: r = -0.633
HADS total correlation: r = -0.726

Moderate to High correlation of NAC psychological issues (full subscale) with HADS:
HADS anxiety correlation: r = -0.501
HADS depression correlation: r = -0.466
HADS total correlation: r = -0.523

(Berry & Kennedy 2002; n=43; 38 males, 5 females; mean (SD) age: 42.2 (14.6) years; complete and incomplete tetraplegia and paraplegia)

Number of studies reporting validity data: 1

Reliability – Moderate to High

Moderate to High Test-retest Reliability:
Overall α = 0.8238
Subscale α = 0.694-0.904

(Berry & Kennedy 2002; n=43; 38 males, 5 females; mean (SD) age: 42.2 (14.6) years; complete and incomplete tetraplegia and paraplegia)

Moderate to High Internal Consistency:
Overall α = 0.83
Subscale α = 0.6729-0.9467

(Kennedy et al. 2003; n=192; 147 males; 45 females; mean (SD) age: 40.7 (16.5) years, tetraplegia and incomplete SCI)

Overall α = 0.889
All subscales α = > 0.7

(Kennedy et al. 2012; n=193; 143 males, 50 females; mean age: 46.6 years; tetraplegia and paraplegia; complete and incomplete injuries)

Number of studies reporting reliability data: 3

Responsiveness

Floor/Ceiling Effect:

Not established in SCI

Effect Size:

Not established in SCI

Number of studies reporting responsiveness data: 1

Responsiveness to change:

There was an average increase of 60% across all domains of the SMS-NAC (all domains except psychological health demonstrated an increase of more than 20%).

Weak to moderate differences between rehabilitation scores obtained based on injury level: In nine domains of the SMS-NAC, excluding mobility, there was a significant main effect of level of

injury, though the effect sizes ranged from weak (partial $\eta^2 = 0.05$ for SMS-NAC psychological health, the smallest effect size) to moderate (partial $\eta^2 = 0.30$ for SMS-NAC activities of daily living, the largest effect size).

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