Author Year; Country Score Research Design Total Sample Size	Methods	Outcome
[Khadour et al. 2023](#) China Observational Level 5 N=294	**Objective:** This study aimed to describe the bowel programmers utilized by people with SCI in China and the impact of bowel dysfunction on the quality of life (QoL). **Population:** The two questionnaires were sent to 413 SCI patients. Two hundred ninety-four participants (43.1±14.5 years of age; men, 71.8%) responded. **Treatment:** N/A **Outcome Measures:** A neurogenic bowel dysfunction (NBD) score is a questionnaire developed to evaluate the severity of neurogenic bowel dysfunction. A Short Form-12 (SF-12) was designed to measure the quality of life in people with SCI. Demographic and medical status information was extracted from their medical records.	1. This study found a significant association between the QoL score and the time used for each defecation, autonomic dysreflexia (AD) symptoms, taking medication to treat fecal incontinence, using digital stimulation, having uncontrollable flatus and perianal skin problems.
[Gong et al. 2021](#) China Cross-sectional Level 5 N=101	**Objective:** To determine the aspects of excretory dysfunction most influential in determining the quality of life of survivors of spinal cord injury. **Population:** N=101 Female: 25.4% Age: 40.5 ± 15.27 years 61.4% 18-45 y 26.7% 46-60 y 11.9% 61-90 y	1. The results of the univariate analysis showed that patients with traumatic SCI, sacral injury, or cauda equina syndrome, suffering bladder or bowel accidents (p<0.001), with more than one bladder or bowel complication (p<0.001), and those with an NBDS ≥14 (p<0.001), reported poorer QOL. 2. The results of the linear regression analysis showed that

	Level: 28.7% cervical, 48.5% thoracic 8.9% lumbar, 13.9% sacral and CES Severity: 39.6% complete, 60.4% incomplete Etiology: 83.2% traumatic; 16.8% non-traumatic **Treatment:** N/A **Outcome Measures:** Questionnaire asking re: demographic characteristics: gender, age, level of education, marital status, and employment status. The injury's etiology, severity, level, and the time since the injury were extracted from the patient's medical records.	poor excretion-related QOL was associated with bowel accidents (β=12.280, 95% confidence interval: 5.479–19.081).
Inskip et al. 2018 Canada Cross-sectional Level 5 N=287	**Objectives:** To describe the relationships between bowel care, AD, and QoL in people with SCI. **Population:** N=287 (73%completion rate, n=210) Level: Cervical: 45% Thoracic: 45% Lumbar: 9% Sacral: 1% Complete: 30% Mean Age (SD): 49.2 $\pm$ 13.2 Mean Time since Injury (SD): 17.1 $\pm$ 12.9 years **Treatment:** N/A **Outcome Measures:** 1. Bowel management 2. QoL 3. Cardiovascular symptoms	1. Time to complete current bowel care routine (p<.001) and severity of AD symptoms during bowel care (p=0.036) were the only significant predictors of QOL after adjusting for confounds. 2. Secondary predictors of QOL were level of injury (p=0.027), number of bowel management approaches used to complete bowel care (p=0.001). 3. Fatigue and number of bowel management approaches use (p<.001) best predict severity of AD symptoms experienced during bowel care. 4. Bowel had a more significant impact on QOL than effects of sex dysfunction (p=0.024), bladder dysfunction (p<.0001), pain (p=0.013), spasticity (p<.0001), using a wheelchair (p<.0011), and skin integrity issues (p<.0001).
Pires et al., 2018	**Objective:** To assess the	1. 50.1% of participants had

EU Cross-sectional N=64	impact of bowel dysfunction on ICF domains and QoL in SCI people. **Population:** N=64 Level: 39.1% cervical, 39.1% thoracic, 21.9% lumbar, AIS 39.1% A 12.5% B 17.2% C 13.3% D Etiology: 71.9% traumatic, 28.1% non-traumatic Age: Mean 56.6 years, SD 15.6 years, Range 24-91 years Duration: 6.9 years % Female: 34.4% **Treatment:** N/A **Outcome Measures:** demographic data, lesion characteristics, bowel management methods currently and at last inpatient discharge, Neurogenic Bowel Dysfunction Score, impact on ICF domains and QoL	moderate or severe bowel dysfunction. 2. The greatest impact in ICF domains was personal and environmental factors (39.1% financial costs, 45.3% in need of assistance, 45.3% emotional health, 46.9% loss of privacy). 3. There is a strong association between negative impact on QoL and severity of bowel dysfunction (p<0.05).
Liu et al., 2009 Taiwan Cross-sectional Level 5 N=128	**Objective:** To assess the relationship between the severity of neurogenic bowel and health-related quality of life in persons with spinal cord injury. **Population:** N=128 (~60% response rate) Level: 36 tetraplegia ASI A, B, C (28.1%), 58 persons had paraplegia ASI A, B, C (45.3%), and 34 persons had paresis AIS D (26.6%). Etiology: vehicular accidents (56.3%), falls (25.8%), sports (3.1%), violence (3.1%) or other causes (11.7%) Age: Mean 48.3 years, Range 13 – 84 years Duration: 1–2 years (32.1%), 3–5 years (21.9%), 6–10 years (16.4%) and over 10 years (29.6%).	1. Approximately half of the persons with spinal cord injury (46.9%) had moderate to severe degrees of neurogenic bowel dysfunction. Bowel dysfunction caused major restrictions in social activities and in the QoL in 39% of persons with SCI. 2. Severity of NBD across neurological classifications varied significantly, that is people with higher AIS motor scores had more NBD (p=0.001). 3. There is a significant relation between the NBD score and physical functioning (r=–0.70, p<0.001) and the Physical component score of the SF-36 (r=–0.58, p<0.001).

	% Female: 25.8% None Complications: 24 had a high-level cord injury and needed help filling in their answers. Source: 214 persons with an International Classification of Diseases-9 (ICD-9) diagnosis of SCI, who were admitted to the rehabilitative department of a medical centre in southern Taiwan between 2002 and 2006 **Treatment:** N/A **Outcome Measures**: Short-Form 36 (SF-36) and NBD score.	
[Braaf et al. 2017](#) Australia Qualitative N=22	**Objective:** To describe the experiences of bowel and bladder dysfunction on social activities and relationships in people living in the community with SCI. **Population:** N=22 Level: Paraplegia (complete & incomplete): 7; Tetraplegia (complete): 8; Tetraplegia (incomplete): 7 Etiology: Transport: 11; Sport and recreational injuries: 5; other including farming accidents, falls or acquired injury: 6 Age (mean, SD) : 51.9 (12.9) Duration of Injury: <=15 yrs: 10 >15 yrs: 12 Female: n=6 **Treatment:** N/A **Outcome Measures:** Interview topics: 1. Problem and methods of bladder/bowel management 2. Barriers and facilitators 3. Social, community,	**Altered social relationships:** 1. The constant need to manage bladder and bowel issues negatively impacted on the initiation and conduct of social relationships. 2. Participants perceived themselves as a 'burden' because of their loss of independence in managing bowel and bladder function. The need for assistance with bladder management systems and dealing with incontinence negatively impacted some close personal relationships. **Keeping it personal to support social relationships:** 1. Despite the considerable impact of bowel and bladder dysfunction on their daily lives, information about this issue (incontinence) was only shared with friends and family if participants perceived it to be necessary 2. While desiring privacy, participants also wanted greater

	emotional and financial impacts	understanding from friends about such SCI issues

Lack of adequate bathrooms is a social barrier:

1. Social interaction outside the home was affected by available bathroom facilities. Significant uneasiness arose for participants when access to bathrooms was restricted, such as in private residences.

Social support and networks promote social participation:

1. Social activities were facilitated when participants had good social support (such as physical and emotional), as bowel and bladder dysfunction were perceived to be more manageable.
2. Inadequate carer support was reported as a major barrier to social engagement outside the home

Moderated social activities:

1. Participation in social activities was profoundly reduced and disrupted by illness, stomach upsets, routines for regular bowel function and stress and anxiety about managing outside the home
2. *Daily routine* - Routines to manage bowel dysfunction were reported to be inflexible and time consuming. Strict bowel routines did not guarantee reliable attendance at social occasions.
3. *Stress & anxiety* - Most participants described embarrassing situations when management of their bowel and bladder dysfunction had failed, causing stress & anxiety. Negative emotions and a reduced enjoyment of social

		activities resulted from concerns of bowel/bladder dysfunction. To alleviate stress and anxiety, participants limited their travel to familiar local areas, reduced the number of activities in which they engaged, and developed a preference for staying at home. 4. *Changing plans* - Many participants went into social isolation when experiencing frequent episodes of illness. Even when feeling well, participants could not guarantee their presence at social events. **Adaptation for social engagement:** 1. Although the management of bowel and bladder dysfunction consistently raised challenges for participation in social activities, some participants reported making psychological and lifestyle adjustments to minimize their impact. *Acceptance* - Reaching acceptance entailed a positive attitude, prioritization of activities, formulating a plan to manage the problem and being flexible with social plans. *Modified diet* - To reduce the anxiety, stress and embarrassment associated with unplanned bowel actions, participants reduced their intake of food, consumed specialized diets, and confined their meals to a certain time of day. *Planning* - Some participants made plans to reduce potential issues or to be prepared to deal with problems should they arise. *Home* - To balance the

		complexities of managing bowel and bladder dysfunction in the built environment, with the desire to participate in social activities, some participants preferred people to visit them in their home environment.