Table 30. Sexual Health Education for SCI Clinicians

Author Year Country Score Research Design Total Sample Size	Methods	Results
Giurleo et al. 2020 Canada Pre-post Level 4 N=20	**Objective:** This quality improvement initiative embedded sexual health education and support for health care professionals providing health services for people with SCI. **Population:** N=20 health care providers completed both pre- and post-intervention surveys **Methodology:** A systematic process was undertaken which included implementation science principles; the PLISSIT model and Sexual Rehabilitation Framework were foundational to the new practice. **Outcome Measure:** Sexual Awareness	1. Most staff reported either/ always (15/28) or sometimes (11/28) avoiding the topic of sexual health unless the patient brought it up. 2. Patients reported increased awareness of sexual health resources and increased satisfaction with sexual health concerns being addressed 3. Compared to pre-implementation (5/28), most staff knew where to direct patients for accurate information and resources (13/20) and most staff had familiarized themselves with the sexual health resources available on the unit (14/20).
Rassem et al 2022 Canada Pre-post Level 4 N=86	**Objective:** To explore barriers to discussing sexual health with SCI patients as perceived by health care professionals, to determine interest and preferences regarding further education in sexual health, and to assess the perceived need for an inpatient Sexual Health Team **Population:** N=86 Nurses (86%F;14%M), Mean age: 39 **Treatment:** Education sessions on SCI patients' sexual health **Outcome Measures**: Self-administered Survey	1. After the education session, most nurses felt they had sufficient knowledge about sexual health, SCI, and had sufficient training ($p<0.001$). 2. Participants were significantly more confident treating SCI patients ($p=0.005$) and offering sexual health counselling ($p<0.001$) after the education session. 3. The main perceived barrier from the perspective of participants was lack of sufficient training and that the preferred way of learning about sexual health was in-person workshops.
Hencklein et al. 2021 Brazil Pre-Post Level 4 N=54	**Objective:** To evaluate the effects of an educational intervention on nursing students' knowledge acquisition about the sexual health of individuals with SCI and on the students' self-confidence and satisfaction with the experience **Population:** N=54 Nursing Students (46F), Mean age: 22.4	1. All variables of the Scale of Knowledge increased at post-test ($p<0.001$). 2. There is a strong correlation between knowledge and self-confidence ($p<0.001$).

Author Year Country Score Research Design Total Sample Size	Methods	Results
	Methodology: The intervention was the application by a senior-level nursing student of 2 scenarios of high-fidelity clinical simulation **Outcome Measures:** Scale of Knowledge Acquisition About the Sexual health of People with Spinal Cord injury	3. There was a medium to large effect size for knowledge acquisition. 4. Great satisfaction and self-confidence in learning through the use of simulated experience and peer-assisted learning.
Pieters et al. 2018 Netherlands Pre-Post Level 4 N=74	**Participants:** 74 participants completed the pre- and post-test questionnaires. Participants included 13 medical (doctors, nurses, physician assistants), 13 psychosocial (5 psychologists, 7 social workers, 1 chaplain), and 48 paramedical (24 physiotherapists, 18 occupational therapists, one cognitive therapist, one dietician, four speech therapists). **Treatment:** Training, based on the PLISSIT model, consisted of six half-day sessions and multiple modules, including some disability-specific sexual health information. Interactive teaching, exercises, role-playing, presentation of sexual aids, and information delivery. **Outcomes:** A pretest-post-test design used the Dutch adaptation of the KCAASS, as well as two questionnaires where participants would rate the number of times sexual issues were discussed and how good they were at recognizing and treating problems.	1. The number of times that sexual health was discussed with patients increased significantly after the training. Rehabilitation staff received more questions from patients, initiated speaking about sexual health with their patients, and discussed sexual health during meetings much more frequently. 2. After finishing the training, participants reported that they "recognized sexual problems" more frequently (36.4% to 59.7%), "gave permission to talk about sexual problems with patients" (66.2%), "gave advice or specific suggestions" (31.2%), and "exchanged relevant information with colleagues" (29.9% to 48.3%), but that there was still no difference in the number of referrals. 3. Staff's knowledge, attitude and skills and comfort increased significantly after receiving the training, as measured by the KCAASS.
Burch 2008 USA Pre-post Level 4 N=402	**Population:** 402 health care professionals who provided services to SCI patients. PTs (n=176), OTs (n=93), speech therapists (n=46), PT assistants (n=22), OT assistants (n=8), nurses (n=50), physicians (n=7). **Methods:** A pre-intervention questionnaire to assess levels of knowledge, attitudes, and self-	1. 317 strongly agreed that watching the videotape increased their confidence levels in providing services for people who may be LGBT. 2. Effect of the training program: - Increased knowledge: Strongly agree (SA; 18.2%), Moderately agree (MA; 63.9%),

Author Year Country Score Research Design Total Sample Size	Methods	Results
	efficacy providing care to SCI persons who may be LGBT. **Intervention**: Videotape for health care professionals on providing services to LGBT persons was shown and a post-briefing diversity-training questionnaire was given. **Outcome Measures:** pre- and post-intervention questionnaires on knowledge, attitudes, and self-efficacy.	Agree (A; 14.9%), Moderately disagree (MD; 3%) - Increased Attitudes: SA (24.6%), MA (65.9%), A (9%), MD (0.5%) - Increased Self-efficacy: SA (78.9%), MA (12.9%), A (6.7%), MD (1.5%)
Post et al. 2008 Netherlands Pre-Post Level 4 N=283	**Participants:** 283 Participants were nurses (35.2%), physicians (14.3%), physical therapists (14.0%), occupational therapists (13.7%), psychologists and social workers (10.2%), and other disciplines (12.6%). Mean age was 39 years, 83% were female and their mean experience in rehabilitation was 9.1 years (same sample as Giannoten, 2006). **Treatment:** The training for physicians, psychologists, and social workers was three units of 3 h each and for the other disciplines two units of 3 h each. The training used exercises on actively "talking sex" and role-playing exercises with volunteer patients. **Outcomes:** Each participant completed 3 questionnaires (pre-, post-, and 3-4 months after training) and a Dutch translation of the KCAASS (same measures as Gianotten et al. 2006).	1. Multivariate testing showed significant differences between disciplines and significant improvement between the first and second measurement. 2. Physicians improved on all KCAASS subscales, the group of other disciplines improved in Knowledge, Comfort, and Approach, Occupational therapists improved in Knowledge and Approach, psychologists/social workers and nurses improved only in Knowledge, and physical therapists did not show any change at all. 3. 88.8% had not taken courses in sexology before this training; despite this 81.7% of participants felt that discussing sexual concerns with patients was part of their job (Range - 99.5% physicians- 60.5% physical therapists). 4. The duration of the training was judged "good" by 76.5% of participants and the possibilities to apply the lessons learned were judged positively (moderately, good or very good) by most groups.

Author Year Country Score Research Design Total Sample Size	Methods	Results
Giannoten et al. 2006 Netherlands Pre-Post Level 4 N=302	**Population:** 302 rehabilitation professionals attended at least one training session. Participants were nurses (36.2%) physicians (15.1%), occupational therapists (14.3%), physical therapists (13.6%), psychologists and social workers (9.3%), speech/language therapists (2.5%), and other disciplines (8.9%). Their (mean) experience in rehabilitation was 9.1 years and 11.2% had attended post-study courses in sexology before. **Treatment:** The training consisted of seven modules (based on the PLISSIT model) and was offered in six sessions of three hours. Lectures, discussions, role-playing, and simulation of cases/team meetings, and homework consisting of talking about sex with their rehabilitation patients. **Outcomes:** Each participant completed 3 questionnaires (pre-, post-, and 3-4 months after training) and a Dutch translation of the KCAASS.	1. All professional groups said that they needed training in sexual health (Doctors, 71%; Nurses 92%; PTs/OTs/SLPs 71%). 2. Mean general opinion of the training was between 'moderately good' and 'good', and only a small percentage of participants expressed a negative opinion on the usefulness of the training. 3. Knowledge, recognizing problems and communication skills all improved significantly after training, and improvements were generally maintained at follow-up.
Tepper 1997 USA Pre-post Level 4 N=18	**Population:** 18 staff who worked ≥50% of the time in SCI rehabilitation; nurses (n=10), psychologists (n=2), OTs (n=1), physiatrists (n=1); Time working in SCI rehab: 9 months to 22 years. **Methods:** An interdisciplinary continuing education and training curriculum addressing the provision of comprehensive sexual health care for professionals was implemented as a 3-day experiential, massed-learning pilot workshop. **Outcome Measures:** For evaluating the workshop: 1) matched pre- and post-test (summative evaluation) 2)	1. The workshop significantly increased tested knowledge of the sexual response cycle and the possible effect of SCI, staff self-assessed comfort, knowledge, and skill from pre- to post-test. 2. Behavioural changes reported post-workshop: - Incorporated some definable change in provision of sexual health care to patients (yes=17, attributed: 1.65) - Sought additional information about effects of SCI on sexual function (yes=16, no=1, attributed: 1.65) - Showed greater comfort in talking with patients about

Author Year Country Score Research Design Total Sample Size	Methods	Results
	participant journals, 3) participant observation by research assistant, 4) Objective Structured Clinical Examination (OSCE), 5) post-workshop program evaluation (formative evaluation) 6) 5 month follow-up (questionnaire and phone interview).	their sexual questions/concerns (yes=17, attributed: 1.59) - Improved skills in providing comprehensive sexual health care (yes=17, attributed: 1.82) 3. Increased skills in identifying sexual concerns (yes=15, no=2, attributed: 1.31)
Cohen et al. 1996 Canada Follow-up (Post evaluation 18 months later) Level 4 N=76	**Participants:** 76 students from the OT/PT, Nursing, or Medical programs that originally took part in Cohen 1994. **Intervention:** Workshop delivered 18 months prior. Completed a 18-month follow-up to Cohen et al. 1994). **Outcome:** 3 questionnaires to assess Sexual Attitude, Comfort and Knowledge (same questionnaires as Cohen 1994), plus asking participants if they had participated in any additional education re: sexual health.	1. Significant gains reported from post-workshop to follow-up on Knowledge and Attitude scores. 2. Participants that sought additional sexual health education showed significantly higher Attitude scores from post-workshop to 18-month follow-up.
Hay et al. 1996 Canada Follow-up (Post Evaluation 18 months later) Level 4 N=30	**Participants:** 30 Occupational and Physical Therapy students. 90% female with an average age 25 (some of the same participants from Cohen et al. 1994). **Treatment:** None (follow-up to workshop reported in Cohen et al. 1994). **Outcomes:** Same measures on Sexual Attitudes, Comfort, and Knowledge as assessed during original workshop collected at 18-month follow-up.	1. There were statistically significant gains from the workshop in sexual attitudes, comfort and knowledge that were maintained at 18-month follow-up. 2. No differences between the 11 students who reported additional sexual health education beyond the workshop on any of the three measures.
Cohen et al. 1994 Canada Pre-Post Level 4 N=164	**Participants:** 164 Undergraduate students in 4 programs at McMaster University – Medicine, Nursing, PT and OT – completed the course and both pre-and post-tests. **Treatment:** A two-day interprofessional workshop in	1. No differences between 4 groups in either pre- or post-test scores. 2. The Total group and the Nursing group improved attitudes and comfort significantly from pre- to post-training. 3. The Total group, Nursing group, and Physiotherapy group

Author Year Country Score Research Design Total Sample Size	Methods	Results
	sexual health using lectures, audiovisuals, and small group discussions. **Outcome:** The Sexual Opinion Survey (SOS) and a 46-item sexual knowledge test were administered pre- and post-workshop.	showed significant increases in knowledge from pre- to post-training.
Milligan & Petchers 1988 USA Pre-Post Level 4 N=609	**Participants:** 609 participants completed pre-test and post-test questionnaires (response rate = 73.5%). 123 participants answered the follow-up telephone survey (15%). Trainees included physicians, nurse practitioners, clinic assistants, social workers, educators, and residential program managers. **Treatment:** 37 different workshops on aspects of sexual health, including one workshop specifically on issues re: the physically disabled. **Outcomes:** Pre/post-test measuring knowledge and skills. Follow-up interviews, asking whether workshops resulted in improved knowledge and skills on the job and how they used/disseminated information on the job.	1. Participants significantly improved knowledge and skills after the series of training workshops. 2. Specific workshop on sexual health and the physically disabled – participants showed no significant difference in knowledge or skills after training. 3. A follow- up questionnaire indicated that the majority of respondents: gained new knowledge, improved understanding, dealt better with problems, informally shared information, and had the opportunity to use what was learned, but took no action and delivered no different services based on attending the workshops.
Bryant et al. 2022 Australia Cross-sectional Level 5 N=39	**Objective:** To understand the support for sexual health and improvements in care for people with SCI in Australia **Population:** N=39 (30F), allied health (n=26), nurses (n=4), peer support workers (n=4), doctors (n = 3), and sexual health professionals (n=2) **Methodology:** Survey including 47 closed questions (Likert scales and multiple-choice), ten open-ended questions were also included and focused on, suggestions to improve practice, existing barriers, involving significant others, and	1. Most commonly reported that doctors (64%) and nurses (64%) provided sexual health support 2. Sexual healthcare and education were most often provided in inpatient, outpatient, and transition care 3. All participants reported wanting more sexual health training, and 97% of participants specifically reported wanting additional training for SCI patients. 4. Commonly suggested strategies to improve practice included: increasing sexuality training,

Author Year Country Score Research Design Total Sample Size	Methods	Results
	sexual health support timing. **Outcome Measures:** SCI Sexual health support and service Improvements	utilizing a team approach, initiating the conversation of sexuality early, and consensual inclusion of significant others in sexuality support. 5. Results suggest that sexuality support is not always routinely provided for people with SCI and training and team-based approach is necessary.
Longoni Di Giusto et al. 2022 Latin America Cross-sectional Level 5 N=318	**Objective:** To examine rehabilitation professionals' training and education, attitudes, beliefs or misconceptions, and assessment of issues related to sexual health in individuals with Spinal Cord Injury (SCI) and their romantic partners. **Population:** N=318 Healthcare Professionals (83 female, 235 male), Mean age: 40.5 **Methodology:** Online survey of 47 questions was created categorized by five areas: (a) demographic information; (b) training and work; (c) training in sexual health; (d) experience in discussing sexual health with individuals with SCI; and (e) beliefs and attitudes about sexual health in individuals with SCI. **Outcome Measures:** Training and Education for health professionals	1. More professionals (N=190) did not receive training related to sexual health and people with SCI 2. Most professionals are comfortable discussing sexual health issues with SCI patients but are limited by their lack of training in this area 3. 98% of participants agreed that sexual health should be addressed in SCI rehabilitation. When discussing sexual health issues, most participants indicated that they discuss sexual health issues with the patient and partner 4. Professionals identified sex therapy, advice, psychotherapy, and psychoeducation to be the most helpful in managing sexual health issues
Akhavan Amjadi et al. 2021 Iran Cross-sectional Level 5 N=78	**Objective:** To identify the sexual and reproductive health (SRH) needs of women with SCI in Tehran (Iran) in 2019 **Population:** N=78, Mean age: 41.73 (SD) 8.42, 13Cervical, 48 Thoracic, 16 Lumbar, 1 Unknown **Methodology:** Cross-sectional study was conducted to assess the SRH needs of women with SCI in Tehran (Iran) in 2019 using the SRHNA-SCI validation tool which is	1. The highest scores were found in the following: "the need for improving quality of services for women with SCI", "pay attention to our high-risk pregnancy", "suitable labor beds should be provided", and "suitable ultrasonography beds should be provided"

Author Year Country Score Research Design Total Sample Size	Methods	Results
	composed of six constructs and 93 items **Outcome Measures:** SRHNA-SCI	
Gowinnage et al. 2020 Sri Lanka Cross-sectional Level 5 N=159	**Objective:** To enable healthcare providers to initiate educational interventions that are appropriately tailored to their needs, and to provide patients with accurate information to make informed decisions on SRH **Population:** N=159 (142M), Average age: 36.5, 16 Cervical, 59 Thoracic, 10 Lumbar **Methodology**: Among rehabilitated and community integrated SCI persons, identified through data sources maintained in the three main rehabilitation hospitals. A postal questionnaire retrieved information on SRH related experiences, problems faced and knowledge on improving SRH. **Outcome Measures:** Sexual and Reproductive Knowledge	1. 67.1% of participants with SCI felt sexual desire, which was consistent with higher frequency of sexual activity and the degree of sexual pleasure, but not with their confidence in satisfying partner (50%), which was most likely due to urinary leakage and poor erection/ejaculation. 2. Majority were unaware of the ability to reproduce (54.1%); autonomic dysreflexia during sexual activity (87.4%) and management (96.2%); methods for improving erection (60.6–66.9%) and ejaculation (93.7%) in males; and vaginal lubrication in females (82.4%). 3. Men most often reported 'never' for ejaculation during sexual activity.
Barrett et al. 2022 UK Qualitative N=16	**Objective:** To explore healthcare professionals' perspectives on the barriers and facilitators impacting provision of support for sexual functioning/satisfaction during spinal cord injury rehabilitation. **Population:** N=16 (14F;2M) Healthcare professionals, 3 Nurses, 4 Case Managers, 3 Physiotherapists, 2 Occupational Therapists, 2 Psychologists, 2 Sexual Therapists **Methodology:** Semi-structured interviews were conducted using a 9-item interview guide. Interviews were transcribed verbatim and inductively analysed **Outcome Measures:** Health professional perspective	1. Five inductive themes were generated describing healthcare professional-perceived barriers and facilitators impacting upon care delivery post-spinal cord injury: (1) Integrating sexual wellbeing in rehabilitation; (2) Sex-informed multi-disciplinary teams; (3) Acknowledging awkwardness; (4) Enhancing approachability; and (5) Recognizing the partner. 2. Healthcare professionals do not feel supported to engage with their patients to improve and manage sexual functioning/satisfaction. Ensuring that healthcare professionals are equipped and made aware of

Author Year Country Score Research Design Total Sample Size	Methods	Results
		sexuality-specific guidelines and operational frameworks, which can be easily interpreted, structured and implemented as a standard part of spinal cord injury rehabilitation is key.
Bryant et al. 2020 Scoping Review N=30	**Objective:** To identify, summarise and describe existing literature on non-medical approaches to sexual health following spinal cord injury. **Databases:** Embase, CINAHL, PsycINFO, Scopus, Web of Science, PubMed, Cochrane, ProQuest dissertation, a university library search engine and Google Scholar	1. Three themes were identified, including: the importance of individuality and timing, the health care professional role, and provision of non-medical interventions and strategies. 2. Implications for rehabilitation include: non-medical approaches to support sexuality after a spinal cord injury exist, however, there appears to be no consistent approach, that individualised person-centred care which addresses personal factors and includes intimate partners is essential when supporting sexuality, and that more sexuality resources and training should be available for both people with spinal cord injuries and health care professionals.