Author Year; Country Score Research Design Total Sample Size	Methods	Outcome
Fronek et al. 2005; Australia RCT PEDro=6 Level 1 N=89 2011; 2 year follow-up N=37	Population: Staff from an SCI rehab service; <u>Treatment group (n=44)</u> : 31 nurses, 1 medical practitioner, 6 allied health staff, 6 community staff; <u>Control group (n=45)</u> : 32 nurses, 2 medical practitioners, 5 allied health staff, 6 community staff; Previous SCI sexuality training: yes (n=25), no (n=50); Previous SCI sexuality training: yes (n=18), no (n=57). <u>2 year follow-up population</u> : 25 from treatment group, 12 from control group; nurses (n=23), medical practitioners (n=1), allied health staff (n=3), community staff (n=10). Methods: Staff members were randomized to treatment or control groups across disciplines. A consumer driven sexuality training program was developed then delivered in a series of 1-day workshops to the treatment group. Focus groups and written questionnaires were conducted at the 2 yr follow-up. Outcome Measures: KCAASS (Knowledge, Comfort, Approach and Attitudes towards Sexuality Scale); focus group discussion at 2- year follow-up with written feedback to open- ended questions on the KCAASS. Effect Sizes: Forest plot of standardized mean differer intervention data and pre-intervention to retention/follo- Fronek et al Knowledge (Pre-post) Approach (Pre-post) Attitude (Pre-post) Attitude (Pre-ret) Approach (Pre-ret) Approach (Pre-ret) Approach (Pre-ret) Attitude (Pre-ret) Attitude (Pre-ret) Approach (Pre-ret) Attitude (Pre-ret) Attice (Pre-ret) Attitude (Pre-ret) Attice (Pre-ret) Attice (Pre-ret)	
Sawyer et al. 1983; USA PEDro=5 RCT Level 1 N=22	 Population: 22 graduates in rehabilitation counselling. Methods: participants were randomized to experimental (micro-counselling) and control groups (didactic lecture) to test the effectiveness of this training approach in counsellors' ability to respond appropriately to sexual concerns expressed by SCI women. Micro-counselling group (n=11) was shown a videotape modelling 	 A main training effect was found when comparing the experimental and control groups, and in regard to pre- vs. post-testing a significant main effect was found. The micro-counselling group differed significantly in the pre-and post-test. On the post-test the groups differed significantly with the largest gain demonstrated by the micro-counselling group

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	specific counselling skills followed by discussion, demonstration, and role-play. Didactic lecture group (n=11) had traditional lecture and classroom discussion. Outcome Measures: micro-counselling interaction rating scale (developed using the same response cues that appeared on the video model).	and little change demonstrated by the didactic lecture group.
Simpson et al. 2006 New Zealand Prospective Controlled trial with pre- and post- evaluation Level 2 N = 99	 Participants: 74 rehabilitation staff and a control group of 25 other staff members. Treatment: Two workshops were held at major rehabilitation centres in New Zealand (control group did not attend). Outcomes: The Sex Attitude Scale, as well as a knowledge test, a self-rating inventory of skills and clinical activity, and a single-item measure of the degree of staff comfort. 	 Workshop participants showed significant increases in knowledge, skills and comfort after the workshop, and a number of these gains were maintained at the six-month follow-up. There was an associated increase in reported staff activity (for the treatment group only) addressing patient/client sexual health concerns in the six months to follow-up, compared to a similar time period preceding the workshop.
Fronek et al. 2011 Australia Follow-Up study Level 4 N=37	 Population: 37 of the original 89 participants from Fronek et al. 2005 who completed all three previous assessments. 23 nurses, 1 medical practitioner, 3 allied health staff and 10 community staff. Treatment: None - follow-up of trainees in Fronek et al. 2005. Outcomes: The KCAASS was administered approximately 4 months later (no significant differences re: scores on the KCAASS between those who participated at 2 year follow-up and those who did not). Focus group - participants were asked to comment about the benefits and challenges of the training. 	 For the experimental group, 2 year follow-up scores did not differ significantly from scores at post-training or 3 month follow-up for Knowledge, Comfort and Approach subscales. Attitude scores were significantly lower at 2 year follow-up than at post-training. For the control group, Knowledge and Attitude scores were significantly higher at 2 year follow-up than at 3-month follow-up. From the focus group, participants said that the multidisciplinary rehabilitation setting 'helped to understand views of others' and 'foster respect of other team members'. It was suggested that 'self-directed learning packages' or a 'combination of learning options' would be useful to update staff.
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- efficacy providing care to SCI persons who may be LGBT. 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.	 317 strongly agreed that watching the videotape increased their confidence levels in providing services for people who may be LGBT. Effect of the training program: Increased knowledge: Strongly agree (SA; 18.2%), Moderately agree (MA; 63.9%), 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%)
Tepper 1997; USA	Population: 18 staff who worked ≥50% of the time in SCI rehabilitation; nurses (n=10),	 The workshop significantly increased tested knowledge of the sexual response cycle and

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Pre-post Level 4 N=18	 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) 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). 	 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 their sexual questions/concerns (yes=17, attributed: 1.59) Improved skills in providing comprehensive sexual health care (yes=17, attributed: 1.82) Increased skills in identifying sexual concerns (yes=15, no=2, attributed: 1.31)
Cole & Stevens 1975; USA Pre-post Level 4 N=199	 Population: 199 SCI professionals; counsellors (n=142), social workers (n=9), nurses (n=8), psychologists (n=7), OTs (n=6), physicians (n=2), speech therapists (n=1), clergy (n=1), other (n=23). Methods: Creation and implementation of a 1-day seminar on sexual function in SCI for rehabilitation professionals. Outcome Measures: questionnaires pre- and post-seminar. 	 Did sexual counselling with their clients: No (n=138), Yes (n=61) Inappropriate to their work (n=14) 50 expected to do sexual counselling, 13 of them not doing it Post-seminar evaluation (n=132): Beneficial/somewhat beneficial (95%) Not beneficial (5%) Harmful/somewhat harmful (3%) Not harmful (97%) 87% felt a program like the seminar should be part of professional training for rehab professionals, 13% had reservations/opposed the idea.
Held et al. 1975 USA Pre-Post Level 4 N= 95	 Population: 1st Sample = 76 people with SCI/their partners; 2nd Sample = 119 Rehabilitation professionals; 3rd Sample = 51 Rehabilitation professionals). 51% men, 49% women. Treatment: Sexual attitude and Sexual counselling workshops for spinal cord injured adults, their partners and rehabilitation professionals. Slides, films, panels and large/small group discussions. The 3rd workshop (sexual history taking/sexual counseling) included an interview demonstration and practice for participants in small groups. Outcome Measures: 1st sample – (post- only) asked participants did they enjoy, learn, and would they recommend. 2nd sample – (pre-post) 	 1. 1st sample – 96% were glad they attended, 92.1% thought the workshop was worthwhile, 82.8% stated that they personally benefitted, 90.8% would recommend the program to others. 2. 2nd sample - 97.3% reported that the workshop had given them ideas. 3. 3rd sample –67.3% frequently had the opportunity to do sex counseling, 100% thought that they should, but only 51% did it sometimes. Only 18% felt effective, 54% felt uncomfortable, and 4% felt ineffective. 63% said they had no specific training and limited experience; 4% said they were trained and experienced. 3rd sample – 96% said the workshop had been a good learning experience. Participants were significantly more accepting towards 4

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	asked about involvement in sexual counseling and education and how the seminar affected. 3rd sample – survey re: attitudes towards sexual activities completed before and 6 weeks after the workshop.	of the 9 listed sexual behaviors and who they were appropriate for after the workshop.
Milligan & Petchers 1988 USA Pre-Post Level 4 N =609	 Participants: 609 participants completed pretest 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. 	 Participants significantly improved knowledge and skills after series of training workshops. Specific workshop on sexuality and the physically disabled – participants showed no significant difference in knowledge or skills after training. 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.
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. 	 All professional groups said that they needed training in sexuality (Doctors, 71%; Nurses 92%; PTs/OTs/SLPs 71%). 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. Knowledge, recognizing problems and communication skills all improved significantly after training, and improvements were generally maintained at follow-up.
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).	 Multivariate testing showed significant differences between disciplines and significant improvement between the first and second measurement. Physicians improved on all KCAASS subscales, the group of other disciplines improved in Knowledge, Comfort, and Approach, Occupational therapists

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	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).	 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.
Pieters et al. 2017 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-posttest 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. 	 The number of times that sexuality was discussed with patients increased significantly after the training. Rehabilitation staff received more questions from patients, initiated speaking about sexuality with their patients, and discussed sexual health during meetings much more frequently. 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. Staff's knowledge, attitude and skills and comfort increased significantly after receiving the training, as measured by the KCAASS. There were no differences between professional groups, except PTs/OTs who initiated sexuality discussions compared to the other groups.
Chubon 1981 USA Pre-Post Level 4 N=15	 Participants: 15 students from graduate programs and rehabilitation agencies in the Greater Pittsburgh area, representing the fields of rehabilitation counseling, special education, social work, counselor education, psychology, and physical therapy. Treatment: A full 2 credit elective course including broad range of topics re: Sexual Health, including the Impact of Spinal Cord Injury. Information delivery, modeling, small group/class discussions, role play, films, all intended to aid with desensitizing students. 	 There were significant increases in knowledge levels and in sexual attitudes toward greater acceptance, both with regard to sexuality in general and of handicapped persons. The students indicated that the course content met their needs and was of value to them both professionally and personally. No differences in pre-course scores, and attitudes or knowledge levels, between sexes or married/single students, between age and any of the experimental measure scores. Anxiety and social desirability scores were all inside of the norm.

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	Outcomes: State-Trait Anxiety Inventory Form, Irvine Sexual Attitude and Knowledge Inventory, Marlowe-Crowne Social Desirability Scale, Personal logbooks, a course evaluation survey, and a multiple choice exam for testing knowledge.	
Mims et al. 1974 USA Pre-post Level 4 N = 143	 Participants: 143 Medical, Nursing and Health/Social sciences students at graduate and undergraduate level. Treatment: 5 days of didactic sessions, films, role plays, and small group discussions on topics of human sexuality including sex and the handicapped. Outcome: Sex Knowledge and Attitude test (SKAT) 	 The total group Knowledge scores and 3 of 4 Attitudinal subscales increased significantly from pre- to post. Med students increased Knowledge scores and 2 of 4 Attitude scales; Nursing students increased Knowledge scores and 3 of 4 Attitude scales; Other students increased Knowledge scores and 1 of 4 Attitude scales. There were no differences between Medical and Nursing students on Knowledge or Attitude scores.
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 sexuality 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. 	 No differences between 4 groups in either pre- or post-test scores. Total group and Nursing group improved attitudes and comfort significantly from pre- to post-training. Total group, Nursing and Physiotherapy showed significant increases in knowledge from pre- to post-training.
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. Treatment: None (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. 	 Significant gains reported from post- workshop to follow-up on Knowledge and Attitude scores. Participants reporting additional sexuality 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 	 No differences between OT and PT students on any of the three measures (attitudes, comfort, knowledge) in the 18 month follow- up results. No differences between the 11 students who reported additional sexuality education on any of the three measures. 3. There were no changes from the post workshop results to the 18 month follow-up.

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	during original workshop collected at 18 month follow-up.	
Neistadt 1986 USA Cross-Sectional Level 5 N = 288	 Participants: 288 students from Boston school of OT at Tufts university who have taken the sexuality counseling module. Treatment: Three sessions of 3-hour each devoted to the knowledge areas and skills re: sexual health including the ways in which various disabilities might influence sexual functioning. Outcomes: Post-course evaluation 	 100% of the students felt the module was a pertinent part of their academic program at BSOT. Many reported using the information and skills they gained in the module during their fieldwork experiences. (For 48 students taking the course 1 year prior to publication) 100% met course objectives in Anatomy, Comfortableness in discussion, Development, and Sexual Acting out; 95.8% met objectives in Counseling strategies and the Sexual response cycle, 89.6% met objectives in Sexuality and Disability, and 68.8% met course objectives in Neurological control.
Cole, 1973 USA Cross-sectional Level 5 N= 55	 Population: 55 participants, 20% paraplegic, 20% quadriplegic; 15% spouses of people with SCI; 45% = health professionals/friends of participants. Age = 16-59 (range). Time since injury – Range = 2-15+5 years; (90% more than 3 years since injury). Treatment: A 2-day program for people with SCI and able-bodied persons was developed to deal with sexual attitudes. Slides, speakers, panels and films were sequenced to introduce progressively more explicit and anxiety-evoking sexual material (e.g., pornography), as well as specific content re: aspects of human sexuality of the spinal cord injured person. Outcomes: Pre-workshop questionnaire assessed sexual knowledge, attitudes, and behaviors of the participants. A post-training evaluation asked if participants were glad they attended, and if it had been helpful or harmful. 	 90% of the paraplegics and 80% of the quadriplegics indicated that never or seldom did the hospital staff initiate discussions re: the sexual implications of spinal cord injury. 50% of male/female quadriplegics to 87% of able-bodied males agreed or strongly agreed that an active sex life is important to personal happiness of people with SCI. 98% of respondents said the workshop had been helpful, 2% said it had no effect, and no one said it had been harmful. 98% of the participants agreed that a program dealing with human sexuality should be offered on a voluntary basis for all spinal cord injured adults. Able-bodied and disabled participants agreed that addressing sexual health should be offered during the first hospitalization/certainly within the first 6 months after injury.
Katzman 1990 USA Qualitative (Description of class and quotes from students only) Level 5 N = 78	 Participants: 78 nursing students – 73 female, 5 male Treatment: A course focusing on the effect of illness, disability, and medical treatment on sexual functioning, as well as sex education of patients and clients. Outcomes: Post-course interview with participants. 	 One participant said: "This class has led me to believe in sexual health care by nurses. I would have been content to leave it to the doctors or social workers who I thought were taking care of itI was not aware of how little attention was given to patients' sexual concerns by any health professional until I started looking for it. I now believe that nurses, more than anyone, can help bring about positive changes in these areas." Another student said: "I think more resources for sexuality teaching should be available for nurses. I have cared for many patients who could have used this type of intervention, but I was not prepared to give it."

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Blanchard, 1976 USA Qualitative Level 5 N=56	 Population: 56 nursing staff completed the program. Treatment: 4 meetings of 1.25 hours each dealing with a) personal taboos that prevent people from developing a healthy therapeutic attitude towards sexuality; b) misconceptions about sex and of vocabulary; c) identification of the sexual problems of the spinal cord injured patient; and d) how the knowledge gained could be used to help SCI patients. Outcomes: Evaluated the program by interviewing individual participants. 	 Participants reported that after the program they: enjoyed the class and felt it was worthwhile, though it was stressful at times, and that some participants became uncomfortable when peers freely shared sex experiences. could respond with a calm and positive attitude when patients asked about sexual functioning. appreciated having more factual knowledge to pass on to patients. found that patients learned about the program's existence and felt freer to ask the nurses about sex. Found that nursing staff who did not participate were now interested in taking the program. Head nurses felt that other health disciplines should also be knowledgeable re: sexual rehabilitation.