

Turner BJ, Austin SB, Chapman AL. Treating Nonsuicidal Self-Injury: A Systematic Review of Psychological and Pharmacological Interventions. *Can J Psychiatry*. 2014;59(11):576–585.

eTable 1: Empirical Studies of Treatment Effects on NSSI

Study	Diagnostic Group(s)	Sample	Treatment	Comparison condition	Type	Duration	Study Design	Key NSSI Findings
Level I Evidence								
Brent et al., 2009	MDD	N = 334 (70% female) adolescents (ages 12 to 18)	SSRI with or without CBT	Venlafaxine with or without CBT	Meds with and without PTx	12 weeks	RCT	No differences between treatments conditions for NSSI occurrence.
Goodyer et al., 2008; Wilkinson et al., 2011	MDD	N = 164 (74% female) adolescents (ages 11 to 17)	CBT + SSRI and CM (n = 105)	SSRI and CM (n = 103)	PTx + meds vs. meds only	12 weeks (16 week follow-up)	RCT	Adding CBT to SSRI did not result in a significantly greater reduction in NSSI, compared to SSRI only. Neither treatment predicted likelihood of NSSI over the 28 weeks.
Gratz & Gunderson, 2006	BPD	N = 26 (100% female) adults (ages 19 to 58)	ERGT + ongoing CM (n = 12)	TAU (n = 10)	Group therapy, plus CM	14 weeks	RCT	Greater decrease in NSSI frequency in ERGT, compared to TAU. 42% of patients receiving ERGT showed a decrease in NSSI frequency of 75% or greater, and 17% reduced their NSSI frequency by 45-57%.

Gratz, Tull, & Levy, 2013	Mostly BPD	N = 61 (100% female) adults (mean age = 33)	ERGT + TAU (n = 31)	TAU (n = 30)	Group therapy, plus CM	14 weeks (9 month follow-up)	RCT	ERGT resulted in significantly larger decreases in NSSI frequency. > 35% of the patients in the ERGT achieved clinically significant changes in NSSI frequency. NSSI frequency further decreased from post-tx to follow-up. 47% abstained from NSSI throughout follow-up.
Gregory et al., 2008	BPD plus alcohol abuse or dependence	N = 30 (80% female) adults (ages 18 to 45)	DDP (n = 15)	TAU (n = 15)	Ind. PTx.	12-18 months	RCT	57.1% of participants had stopped NSSI at 12 months. There was a significant decrease in NSSI frequency at 12 months.
Hassanian-Moghaddam et al., 2011	Individuals who presented to hospital after self-poisoning	N = 2300 (66.4% female) adolescents and adults (ages 12 and up)	Postcard Intervention (n = 1150)	TAU (n = 1150)	Postcard intervention	12 months	RCT	There was no significant reduction in rates or frequency of self-cutting.
Linehan et al., 2006	Recent suicidal behaviour and NSSI	N = 101 (100% female) adults (ages 18 to 45)	DBT (n = 60)	CTBE (n = 51)	Ind. and group PTx	12 months	RCT	Both treatments decreased number of episodes of NSSI, with no differences between treatments.
Linehan et al., 2008	BPD	N = 24 (100% female) adults (ages 18 to 60)	Olanzapine (n = 12; 2.5 to 15 mg/day)	Placebo (n = 12) plus 6	Meds (plus PTx)	6 months	RCT	Both groups significantly decreased NSSI frequency over tx.

			plus 6 months of DBT	months of DBT				Trend ($p < .10$) for greater decreases in NSSI frequency in the placebo condition.
McMain et al., 2009	BPD, at least two SSI or NSSI in the past 5 years	N = 180 (86% female) adults (ages 18 to 60)	DBT (n = 90)	GPM (n = 90)	Ind. and group PTx	12 months	RCT	There was a significant decrease in NSSI frequency in both groups (OR = .52), with no group differences.
Nickel et al., 2006; Nickel, et al., 2007	BPD	N = 52 (82.7% female) adults (age 16 and older; mean age 21.7)	Aripiprazole (n = 26; 15 mg/day)	Placebo (n = 26)	Meds	8 weeks (18 month follow-up)	RCT	71% meds patients refrained from NSSI over the course of treatment. 50% more patients in the placebo group engaged in NSSI at post-tx vs. pre-tx. Over follow-up, 15% of meds patients engaged in NSSI. 42% of placebo patients engaged in NSSI.
Pistorello et al., 2012	≥ 3 DSM- IV criteria for BPD plus suicidality and/or NSSI	N = 63 (81% female) college students (ages 18 to 25)	DBT (n = 31)	Optimized TAU (n = 32)	Ind. and group PTx	7-12 months (6 month follow-up)	RCT	No difference between treatments in likelihood of engaging in NSSI (DBT: 44.4%; O-TAU: 43.3%). DBT condition showed less frequent and greater decrease in frequency of NSSI compared to O- TAU.

Verheul et al., 2003; van den Bosch et al., 2005	BPD with and without substance abuse	N = 58 (100% female) adults (ages 18 to 65)	DBT (n = 27)	TAU (n = 31)	Ind. and group PTx	12 months (6 month follow-up)	RCT	NSSI frequency decreased more from pre- to post-tx in the DBT group. At post-tx, 65% of the DBT group refrained from NSSI, versus 43% of the TAU group. Differences between treatments sustained at six-month follow-up.
Weinberg et al., 2006	BPD	N = 30 (100% female) adults (ages 18 to 40)	MACT + TAU (n = 15)	TAU (n = 15)	Ind. PTx	6 sessions (6 month follow-up)	RCT	MACT had greater reduction in NSSI frequency post-tx and six-month follow-up.

Level II-1 Evidence

Andion et al., 2012	BPD	N = 51 (100% female) adults (ages 18 to 41)	Individual DBT	Individual plus Group DBT	PTx.	12 months	Controlled trial (non-random)	Both treatments decreased NSSI at post-tx and follow-up. Both achieved clinically significant reductions in NSSI at post-tx (combined: 64.3%, ind. only: 45.9%) and follow-up (combined: 64.3%, individual only: 59.5%).
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Stanley et al., 1998	BPD	N = 30 (100% female)	DBT (n = 15)	TAU (n = 15)	Ind. and group PTx	6 months	Non-random control trial	DBT had greater decrease in NSSI frequency and NSSI urges at 12 weeks, compared TAU.
Libal et al., 2005	Mixed	N = 16 (100% female) adolescents (age 13 to 17)	Ziprasidone (40-80 mg/day; w/ or w/o SSRI) + PTx.	Alternative neuroleptic (w/ or w/o SSRI) + PTx.	Meds (plus PTx)	Not reported. Mean length of stay = 130 days.	Non-random case-control design	47.3% decrease in daily frequency of NSSI with ziprasidone. Greater reduction in NSSI frequency with ziprasidone than alternate neuroleptic medication.

Level II-2 Evidence

Chen et al., 2008	BPD + BED or BPD + BN	N = 8 (100% female) adults (ages 24 to 56)	DBT for ED	None	Ind. and group PTx	6 months (6 month follow-up)	Pre-post	Decreases in NSSI frequency post-tx were small (d = .22) and medium (d = .58) at follow-up, but non-significant.
Clarkin et al., 2001	BPD	N = 23 (100% female) adults (ages 19 to 48)	TFP (n = 17 completers)	None	Ind. PTx	12 months	Pre-post	# of NSSI episodes did not decrease with TFP. Medical severity of NSSI decreased from pre-tx to post-tx.
Federici & Wisniewski, 2013	ED	N = 7 (100% female) adults (ages 20 to 31)	DBT	None	Ind. and group PTx	6 months	Pre-post	71.4% ceased NSSI in the last month of treatment. 14.3% increased the frequency at NSSI from pre- to post-tx, and

								14.3% reported no change.
Geddes et al., 2013	Not reported	N = 6 (100% female) adolescents (ages 14 to 15)	DBT	None	Ind. and family PTx	26 weeks	Pre-post	83.3% ceased NSSI at post-tx. One patient had a 50% decrease in NSSI frequency.
Goldstein et al., 2007	Bipolar	N = 10 (80% female) adolescents (ages 14 to 18)	DBT + medication	None	Ind. and family PTx	24 weeks	Pre-post	Of the 4 participants with NSSI, there was a large (d = .80) but non-significant decrease in rates of NSSI. No NSSI acts were reported in the final 3 months of treatment.
Gratz et al., 2006	BPD	N = 36 (78% female) adults (ages 18 to 57)	Mixed PHP + IOP	None	Ind., group, and family PTx. + meds	3 months	Pre-post	The % of patients engaging in NSSI decreased by half after one month of tx. The % of patients engaging in NSSI was not different from admission to 3-month follow-up. 50% of patients reported abstinence from NSSI at three-months.

Gratz & Tull, 2011	Mostly BPD	N = 23 (100% female) adults (ages 18 to 50)	ERGT + ongoing CM	None	Group PTx + CM	14 weeks	Pre-post	NSSI frequency was significantly lower post-tx compared to pre-tx ($h^2 = .31$). 70% reported a reduction in NSSI frequency of $\geq 50\%$. 55% reported abstinence from NSSI during the last 7 weeks of treatment.
van Goethem et al., 2012	BPD	N = 19 (84.2% female) adults (ages 24 to 64)	DBT (n = 11 completers)	None	Ind. and group PTx	6 months	Pre-post	Many patients (86%) decreased at least one method of NSSI. 29% also increased at least one method of NSSI.
Harned et al., 2012	BPD, PTSD, and recent self-injury	N = 13 (100% female) adults (ages 18 to 60)	DBT + PE	None	Ind. and group PTx	12 months (3 month follow-up)	Pre-post	No difference between PE and no PE on NSSI urges pre- to post-tx. 3 patients (27.3%) engaged in NSSI during the study period, and 2 (15.4%) engaged in NSSI during the PE phase of treatment.
Hayakawa, 2009	BPD + wrist-cutting	N = 13 (92% female) adults (ages 20 to 53)	15-minute assertiveness training sessions, biweekly	None	Ind. PTx	Up to 4 years	Pre-post	9 patients (69%) reduced the severity/frequency of their NSSI. 4 patients (30.7%) reported no NSSI during the final week of tx.

Hulbert & Thomas, 2007	Mixed PD with history of self-harm	N = 27 (100% female) adults (ages 16 to 64)	STP	None	Group PTx.	6 months (12 month follow-up)	Pre-post	There was no significant change in NSSI frequency. 37% of patients abstained from NSSI by 12-month follow-up.
Markovitz & Wagner, 1995	BPD	N = 7 (n =32 without NSSI) adults	Venlafaxine (maximum dose 200 mg bid)	None	Meds	12 weeks	Pre-post	5 patients (71.4%) abstained from NSSI after 12 weeks, while 2 (28.6%) continued NSSI.
Martin et al., 2013	Not reported	N = 19 (100% female) young adults (age 16 to 25)	VMT	Pre-treatment Waitlist	Group therapy	10 weeks (10 week follow-up)	Pre-post	Frequency of NSSI significantly reduced from pre- to post-tx, and pre-tx to follow-up.
McDonnell et al., 2010	Mixed	N = 106 (58% female) adolescents (ages 12 to 17)	DBT in long-term inpatient care (n = 106)	Historical case-matched controls (n = 104)	Ind. and/or group PTx and/or milieu	Not reported (12 month follow-up)	Pre-post	Among youth with 3 or more episodes of NSSI, those who received DBT had lower rates of NSSI over at follow-up compared to historical controls.
Nixon et al., 2003	MDD and/or Dysthymia	N = 9 (88.9% female) adolescents (mean age 15.7)	Auricular acupuncture	None	Medical	3 weeks; once per week (four week follow-up)	Pre-post	Frequency of NSSI significantly decreased from pre-tx to follow-up. Urges to self-injure did not significantly change from pre-tx to follow-up.

Norelli et al., 2013	Mixed	N = 6 (50% female) adults (ages 29 to 40)	Buprenorphine (0.5-6 mg/day)	None	Meds	14 days to 11 months	Pre-post	50% decreased their monthly frequency of NSSI episodes. One patient completely abstained from NSSI during treatment. Two patients did not reduce their in NSSI.
Sonne et al., 1996	BPD	N = 5 (100% female) adults (ages 26 to 36)	Naltrexone (50 mg/day or 100 mg/day)	None	Meds	One week (with one week baseline and one week follow-up)	Within-group controlled design A-B-A design	4 (80%) of the patients refrained from NSSI during tx. NSSI was less frequent during tx, compared to baseline and follow-up. The number of days on which patients engaged in NSSI decreased by 60% from baseline to tx.
Stanley et al., 2007	BPD	N = 20 (85% female) adults (ages 18 to 49)	DBT	None	Ind. and group PTx	6 months	Pre-post	Frequency of NSSI and strength of NSSI urges decreased following six-months of DBT.
Walsh, 2006	Mixed	N = 42 (73.8% female) adolescents (ages 13 to 19)	DBT adapted for inpatient program	None	Ind. and group PTx	7 to 20 months (mean = 12.3) versus 2 to 6 months (mean = 4.0) (6 month follow-up)	Pre-post	Both conditions reduced NSSI frequency during tx compared to the six months pre-tx, and tx to 6 month post-tx. 97% of patients with longer duration tx remained abstinent from NSSI at follow-up, versus 77% of patients with shorter duration tx.

Level II-3 Evidence

Markovitz et al., 1991	Mixed PDs	N = 12 adults	Fluoxetine (80 mg/day)	None	Meds	12 weeks	Open-label, non-blind trial	By nine weeks, 50% of patients stopped NSSI. Frequency of NSSI decreased 74%. The two patients who were still engaging in NSSI post-tx had reduced the frequency of their NSSI by 97%.
Roth et al., 1996	Mixed	N = 7 (100% female) adults (age 18 -50)	Naltrexone (50 mg/day) (no comparison condition)	None	Meds	Mean follow-up 10.7 weeks	Open-label trial	85.7% of patients stopped NSSI during active naltrexone treatment; 42.8% resumed NSSI when naltrexone was discontinued.

Notes. BED = binge eating disorder. BN = bulimia nervosa. BPD = Borderline Personality Disorder. CBT = cognitive behavioural therapy. CTBE = community treatment by experts. CM = case management. DBT = dialectical behaviour therapy. DDP = dynamic deconstructive therapy. ED = eating disorder. ERGT = emotion regulation group therapy. GPM = general psychiatric management. Ind. = individual. IOP = intensive outpatient program. MACT = manual-assisted cognitive therapy. MDD = major depressive disorder. Meds = medication. PD = Personality Disorder. PHP = partial hospital program. PTSD = post-traumatic stress disorder. PTx = psychotherapy. SSRI = selective serotonin reuptake inhibitor. STP = spectrum group treatment program. TAU = treatment as usual. TFP = transference focused psychotherapy. Tx = treatment. VMT = voice movement therapy. WL = waitlist.