

Data supplement to Carter et al. Predicting suicidal behaviours using clinical instruments: systematic review and meta-analysis of positive predictive values for risk scales. Br J Psychiatry doi: 10.1192/bjp.bp.116.182717

Table DS1 Study characteristics evaluating psychological instruments

Study (year)	Country	Recruitment ^a	Setting ^b	Mean Age ^a (years)	Scale ^d	Cut point	Follow up Time Point/ Range	Outcome ^e	Prevalence ^f
Beck 1985	USA	1970-1975	PHS	34	BHS	9+	5-10 yrs	SD	11/ 165 (7%)
Beck 1989	USA	1970-1975	PHS	34	CHS	6+	5-10 yrs	SD	10/ 141 (7%)
Beck 1990	USA	1978-1985	PCS	36	BHS	9+	8mths- 7.5 yrs	SD	17/ 1958 (1%)
					BDI	23+	(<i>M</i> = 3.6 yrs)	SD	
Beck 1999	USA	1975-1994	PCS	37	BHS	8+	4-15 yrs	SD	30/ 3573 (1%)
					SSI-C	2+		SD	30/ 3701 (1%)
					SSI- W	16+		SD	30/ 3701 (1%)
Bilen 2013a	Sweden	2011	GH-ED	NR	SoS-4	0.14+	6 mths	SH	80/ 325 (25%)
					MSHR	1+		SH	
Bilen 2013b	Sweden	2003-2005	GH-ED	NR	MSHR	1+	6 mths	SH	309/ 1524 (20%)
					SoS-4	0.14+		SH	
Bolton 2012	Canada	2009-2010	GH-ED	NR	3GS	1+	6 mths	SH	78/ 2771 (3%)
					SADPERSONS	7+		SH	80/ 2846 (3%)
Brown 2000	USA	1975-1995	PCS	38	BDI	>22	0- 20 yrs	SD	49/ 5668 (1%)
					BHS	9+	(Median= 10 yrs)	SD	49/ 5471 (1%)
					HDRS	>18		SD	49/ 5006 (1%)
					HARS	>12		SD	49/ 5027 (1%)
					BAI	>12		SD	49/ 5193 (1%)
					SSI-C	>2		SD	49/ 5788 (1%)
Buglass 1970	UK	1962-1963	GH-ED	NR	B & H	2+	3 yrs	SH + SD	126/ 511 (25%)
Buglass 1974	UK	1968-1970	GH-ED	NR	B & H	2+	3 yrs	SH + SD	390/ 2511 (16%)*
Carter 2002	Australia	1996-1998	GH-ED	32 ^e	ERRS	Males: 8+; Females 6+	1 yr	SH	180/ 1317 (14%)
Cohen 1966	USA	1956-1957	GH-ED	NR	GGCI	High	5-8 yrs	SH + SD	57/ 193 (30%)
Colman 2004	Canada	1993-1994	GH-ED	NR	3GS	3+	6 mths	SH	92/ 369 (25%)
Cooper 2006	UK	1997-2001	GH-ED	30 ^e	MSHR	Moderate or high	6 mths	SH + SD	1506/ 8825 (17%)*

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Corcoran 1997	UK	1995	PHS/ GH-ED	NR	3GS	0.45+	6 mths	SH	26/ 112 (23%)
Erdman 1987	USA	NR	PHS	NR	3GS	0.5+	3 mths	SH	11/ 52 (21%)
Garzotto 1976	Italy	1970-1973	PHS	NR	B & H	2+	1 yr	SH	24/ 91 (26%)
Harriss 2005	UK	1993-1997	PHS	NR	SIS	Males: 10+; Females: 14+	2 days- 8 yrs (M= 5.2 yrs)	SD	54/ 2489 (2%)
Hartl 2005	USA	1994-2000	Other	51	BDI	46+; and prior suicide attempt	4 mths	SH	31/ 630 (5%)*
Hawton 1995	UK	1989;1991	GH-ED	NR	B & H ERRS	5+ 8+	1 yr	SH SH	171/ 1208 (14%)
Hendin 2010	USA	NR	Other	51	ASQ	3/7 affects rated as 'moderate' or 'severe'	3 mths	SH	40/ 240 (17%)
Huth-Bocks 2007	USA	1998-2000	PHS	15	RADS SPS SIQ-J BHS	77+ 78+ 31+ 9+	6 mths	SH SH SH SH	32/ 228 (14%)
Klonsky 2012	USA	1989-1995	GH-ED	NR	BHS	9+	10 yrs	SH	78/ 414 (19%)
Kreitman 1985	UK	1972; 1977; 1982	GH-ED	NR	ERRS	8+	0-1 yrs (M= 6 mths)	SH	349/ 1852 (19%)
Kurz 1988	Germany	NR	GH-ED	NR	B & H VDL GGCI SADPERSONS PSL- long PSL- short B & H VDL GGCI SADPERSONS PSL- long PSL- short	2+ 5+ 4+ 5+ 0.5+ <0.5 2+ 5+ 4+ 5+ 0.5+ <0.5	1 yr	SH SH SH SH SH SH SD SD SD SD SD SD	51/ 421 (12%) 13/ 421 (3%)
Larzelere 1996	USA	1988-1993	Other	15	SPS	70+	4 days-3.5 yrs (M=1.3 yrs)	SH	29/ 836 (3%)
Motto 1976	USA	NR	PHS	NR	3GS	0.50+	1 yr	SD	66/ 2338 (6%)*

Study (year)	Country	Recruitment ^a	Setting ^b	Mean Age ^a (years)	Scale ^d	Cut point	Follow up Time Point/ Range	Outcome ^e	Prevalence ^f		
Motto 1985	USA	1969-1974	PHS	NR	3GS	0.49+	2 yr	SD	136/ 2753 (5%)		
Myers 1988	UK	1981-1984	GH-ED	38	B & H	2+	1 yr	SH	59/ 365 (16%)		
Naud 2009	Canada	1995-1996	Prison	33	SPS	49/50	10 yrs	SH	71/ 1025 (7%)		
								SD	26/ 1025 (3%)		
								SH + SD	114/ 1025 (11%)		
Nimeus 1997	Sweden	NR	PHS	38	BHS	9+	1 mth- 8 yrs (M= 4.3 yrs)	SD	13/ 212 (6%)		
Nimeus 2000	Sweden	NR	GH-ED	39	SUAS	39+	1 yr	SD	8/ 191 (4%)		
Nimeus 2002	Sweden	NR	GH-ED	39	SIS	19+	10 mth- 8.8 yrs (M=4.5 yrs)	SD	22/ 555 (4%)		
Nock 2010	USA	NR	PHS	36	IATT	0+	6 mths	SH	14/ 91 (15%)		
Ojehagen 1992	Sweden	NR	GH-ED	39	SIS	12+	1 yr	SH	16/ 59 (27%)		
					3GS			SH			
Pallis 1984	UK	NR	GH-ED	NR	SIS	6+	6 mths	SD	18/ 1174 (2%)		
					PSL-long			85+		SD	25/ 1414 (2%)
					PSL-short			28+		SD	
Perry 2009	UK	2002-2004	Prison	29	BHS	8+	4 yrs	SH	47/ 394 (12%)		
					BDI			31+		SH	
					SCOPE			85+		SH	
Petrie 1988	New Zealand	NR	GH-ED	23	3GS	NR	6 mths	SH	15/ 43 (35%)		
Pokorny 1983	USA	NR	PHS	NR	3GS- Model 1	0.44	4-6 yrs	SD	67/ 4800 (1%)		
					3GS- Model 2			0.22		SD	(M= 5 yrs)
Randall 2012	Canada	2009-2010	GH-ED	37	GSI	3.42+	3 mths	SH	34/ 128 (27%)		
					BIS			97+		SH	
					DAST			9+		SH	
					MSHR			1+		SH	
Randall 2013	Canada	2009-2010	GH-ED	NR	3GS- Model 1	0.34+	3 mths	SH	29/ 107 (27%)		
					3GS- Model 2			3.48+		SH	
					IATT			0+		SH	
Roaldset 2012	Norway	2006-2008	PHS	44	MINI	10+	1 yr	SH	60/ 256 (23%)		
Samuelsson 2006	Sweden	NR	PHS	33	SIS	19+	1 yr	SD	5/ 15 (33%)		
Sanchez 2013	Spain	2003-2005	Other	NR	CGS-SS	High	2 yrs	SH	10/ 82 (12%)		

Study (year)	Country	Recruitment ^a	Setting ^b	Mean Age ^a (years)	Scale ^d	Cut point	Follow up Time Point/ Range	Outcome ^c	Prevalence ^f
					HDRS	20+		SH	
Sapyta 2012	USA	NR	PHS	15	SIRS	4+	0- 15 yrs	SH	58/ 159 (36%)
					LARS	5+	(M= 12 yrs)	SH	
Saunders 2013	UK	2011	GH-ED	33	SADPERSONS	7+	6 mths	SH	31/ 126 (25%)
Siani 1979	Italy	1973-1976	PHS	NR	B & H	2+	1 yr	SH	36/ 134 (27%)
Sidley 1999	UK	NR	GH-ED	34	BHS	19+	1 mth	SH	10/ 64 (16%)
Spittal 2014	Australia	2001-2007	GH-ED	NR	RESH	16+	6 mths	SH + SD	21672/ 84659 (26%)*
Steeg 2012	UK	2003-2007	GH-ED	NR	ReACT	1+	6 mths	SH + SD	8110/ 29571 (27%)*
								SD	92/ 29571 (0.01%)*
Waern 2010	Sweden	NR	GH-ED	35	SUAS	24+	3 yrs	SH + SD	61/ 162 (38%)
Yaseen 2014	USA	NR	PHS	39	STS-3	Median 19+	2-6 mths	SH	13/ 54 (24%)
Yen 2013	USA/Canada	NR	PCS	32	SNAP-SH	12+	1 yr	SH	58/ 628 (9%)

^a NR= Not reported

^b GH-ED= General Hospital and/or Emergency Department; PCS= Psychiatric Community Services; PHS= Psychiatric Hospital Service including psychiatric inpatient unit

^c Median age

^d ASQ= Affective States Questionnaire; B & H= Buglass & Horton; BAI= Beck Anxiety Inventory; BDI= Beck Depression Inventory; BHS= Beck Hopelessness Scale; BIS= Barratt Impulsiveness Scale; CGI-SS= Clinical Global Impression of Severity of Suicide; CHS= Clinician Hopelessness Scale; DAST= Drug Abuse Screening Test; ERRS= Edinburgh Risk Rating Scale; GGCI= Golden Gate Clinic Instrument; GSI= Global Severity Index; HARS= Hamilton Anxiety Rating Scale; HDRS= Hamilton Depression Rating Scale; IAT= Implicit Association Test; LARS= Lethality of Suicide Attempt Rating Scale; MINI= MINI suicidal scale; MSHR= Manchester Self Harm Rule; PSL= Pallis (short and long); RADS= Reynolds Adolescent Depression Scale; ReACT= ReACT Self Harm Rule; RESH= Repeated Episodes of Self Harm; SCOPE= Suicide and Self Harm Concerns about Offenders in Prison Environment; SIQ-J= Suicidal Ideation Questionnaire- Junior; SIRS= Subjective Intent Rating Scale; SIS= Beck Suicidal Ideation Scale; SNAP- SH= Schedule for Non adaptive and Adaptive Personality- self harm subscale; SoS-4= Sodersjukhuset Self Harm Rule; SPS= Suicide Probability Scale; SSI-C= Scale of Suicide Intention- Current; SSI-WE= Scale of Suicide Intention- Worst Ever; STS= Suicide Trigger Scale; SUAS= Suicide Assessment Scale; VDL= Van de Loo; 3GS= Third Generation Scales

^e SD= Suicide Death; SH= Self Harm

^f Prevalence calculated by total of suicidal outcomes over total sample size available for that outcome/ measure. *= Included development and validation subsample groups.

Table DS2 Study characteristics evaluating biological measures

Study (year)	Country ^a	Recruitment ^a	Setting ^b	Mean Age ^a (years)	Scale ^c	Cut point	Follow up Time Point/ Range	Outcome ^d	Prevalence ^f
Asberg 1976	Sweden	NR	PHS	50	CSF 5-HIAA	<15ng/ml	NR	SH	6/ 68 (9%)
					CSF 5-HIAA	<15ng/ml		SD	2/ 68 (3%)
Asberg 1986	NR	NR	PCS	NR	CSF 5-HIAA	<90pmmol	1 yr	SD	8/ 76 (11%)
Black 2002	USA	1978-1981	PHS	43	DST	5+	2-5 yrs	SH	21/ 423 (5%)
					DST	5+		SD	11/ 423 (3%)
Boza 1988	USA	1981	PHS	42	DST	5+	1-6 yrs (M=4.3 yrs)	SD	2/ 13 (15%)
Carroll 1981	USA	NR	Other	NR	DST	non-suppressor (‘abnormal’ - 7 ng/ml)	0-6 yrs	SD	8/ 23 (35%)
Coryell 2006	USA	1980-1991	PCS	42	DST	5+	NR (M= 18 yrs)	SD	13/ 334 (4%)
De Leo 1986	Italy	1983	GH-ED	34	DST	5+	1 yr	SD	2/ 37 (5%)
Edman 1986	Sweden	1976-1980	GH-ED	41	SCH	Fast habituators (<11 responses needed)	1 yr	SD	4/ 35 (11%)
Galfalvy 2009	USA	NR	NR	NR	TPH1-promotor	AA (versus GG & AG)	1 yr	SH + SD	28/ 297 (9%)
					TPH1 intron 7	AA (versus AC and CC)		SH + SD	
Jokinen 2007	Sweden	1980-2000	PHS	52	DST	5+	5- 25 yrs (M=18 yrs)	SD	36/ 382 (9%)
Jokinen 2009	Sweden	NR	PHS	47	CSF 5-HIAA	low (median)	NR (M=21 yrs)	SD	11/ 58 (19%)
Nordstrom 1994	Sweden	1973-1987	PHS	40	CSF 5-HIAA	<87pmmol (median)	1 yr	SD	14/ 92 (15%)
Plocka 2001	Poland	1985-1991	PHS	NR	DST	5+	5-10 yrs	SH	5/ 32 (16%)
Roy 1986	USA	NR	GH-ED	45	DST	5+	1 yr	SD	4/ 27 (15%)
					CSF 5-HIAA	<75pmmol		SD	4/ 19 (21%)
Roy 1989	USA	NR	GH-ED	43	HVA	<100pmmol	5 yrs	SH	8/ 27 (30%)
Samuelsson 2006	Sweden	NR	PHS	33	CSF 5-HIAA	<87pmmol	1 yr	SD	5/ 15 (33%)
Targum 1983	USA	NR	PCS	31	DST	5+	6 mths	SH	4/ 49 (8%)
					DST	5+		SD	1/ 49 (2%)
Yerevanian 2004	USA	1980- 2000	PCS	26	DST	5+	NR	SH	11/ 101 (11%)
					DST	5+		SD	3/ 101 (3%)

^a NR= Not reported

^b GH-ED= General Hospital and/or Emergency Department; PCS= Psychiatric Community Services; PHS= Psychiatric Hospital Service including psychiatric inpatient unit

^c CSF 5-HIAA= Cerebrospinal fluid 5-Hydroxyindoleacetic Acid; DST= Dexamethasone Suppression Test; HVA= Homovanillic Acid; SCH= Skin Conductance Habituation; TPH1= Tryptophan Hydroxylase genotype

^d SD= Suicide Death; SH= Self Harm

^f Prevalence calculated by total of suicidal outcomes over total sample size available for that outcome

Fig. DS1 QUADAS summary ratings of risk of bias.

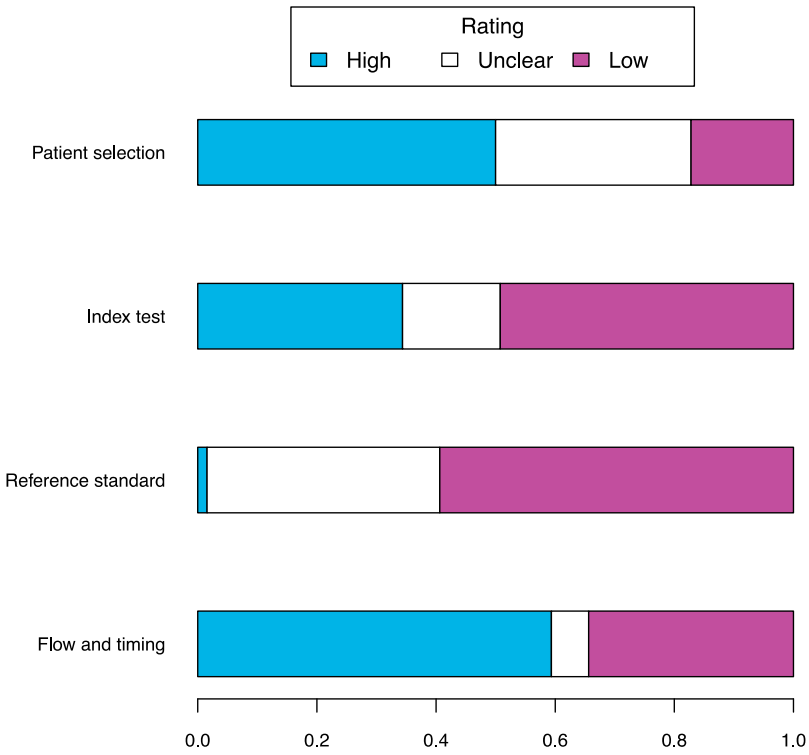


Fig. DS2 Forest plot of study-specific PPVs and pooled PPV for all scales and any outcome (self harm, suicide death, self harm/suicide death).

