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Predicting Death by Suicide with Administrative Health Care System Data

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			Population		Analytic	Predictive			
Outcome	Data Class	Data Source	Class	Population	Approach	Performance	Utility	Key Components	Article
Ideation	Assessment	Clinical	Subpopulation	Clinic:	Machine	Better than	Methods	Prediction using	Novel Use of Natural
		assessment		mental	Learning:	clinical		response to SMS	Language Processing (NLP) to
		tool: GHQ-		health,	Natural			text messages.	Predict Suicidal Ideation and
		12; SMS		inpatient	Language				Psychiatric Symptoms in a
				and ED	Processing				Text-Based Mental Health
									Intervention in Madrid
Parasuicide,	Administrative	Survey	Population	General	Regression:	NA	Risk	No prediction;	Baseline factors predictive of
Ideation					Logistic		Factors	evaluation of risk	serious suicidality at follow-
								factors only.	up: findings focusing on age
									and gender from a
									community-based study

Parasuicide,	Assessment	Clinical	Subpopulation	Clinic:	Regression:	NA	Risk	No prediction;	Longitudinal Trajectories and
Ideation		assessment		mental	Growth		Factors	evaluation of risk	Predictors of Adolescent
		tool:		health,	Curve			factors only.	Suicidal Ideation and
		battery		inpatient					Attempts Following Inpatient
									Hospitalization
Parasuicide	Assessment	Clinical	Subpopulation	Clinic:	Regression,	Solid	Methods	Early prediction	A Comparison of Models for
		assessment		mental	Bayesian			article, 1981. Small	Predicting the Outcome of
		tool: article		health,	Model			subpopulation.	Suicide Attempts
				inpatient				Methods outdated.	
Parasuicide	Assessment	Clinical	Subpopulation	Clinic:	Regression:	NA	Risk	No prediction;	Attitudes of acceptability and
		assessment		mental	Logistic		Factors	evaluation of risk	lack of condemnation toward
		tool:		health,				factors only.	suicide may be predictive of
		battery		inpatient					post-discharge suicide
									attempts

Parasuicide	Assessment	Clinical	Subpopulation	Clinic:	Regression:	Clinical	Risk	Clinician predictions	Clinician Prediction of Future
		assessment		mental	Logistic		Factors	were better than	Suicide Attempts
		tool: SAD;		health, ED				Clinical assessment	
		SAFE						tool. Predictors	
								limited to MH	
								services. No ML	
								comparison.	
Parasuicide	Administrative	Clinical	Subpopulation	Clinic:	Regression:	NA	Risk	No prediction;	Predicting Future Suicide
		assessment		mental	Logistic		Factors	evaluation of risk	Attempts Among Adolescent
		tool: CSSRS;		health, ED				factors only.	and Emerging Adult
		EMR							Psychiatric Emergency
									Patients
Parasuicide	Administrative	EMR	Subpopulation	Clinic:	Stratification	Better than	Risk	Similar to proposed	Predicting Risk of Suicide
				mental		clinical	Factors	project. Physical	Attempt Using History of
				health				predictors.	

								Predictors limited to	Physical Illnesses From
								hospital services. No	Electronic Medical Records
								broad ML	
								comparison.	
Parasuicide	Administrative	Survey	Subpopulation	Adolescents	Machine	Solid	Methods	Survey data not	Prediction by data mining, of
				Korea	Learning:			useful for health	suicide attempts in Korean
					Trees			care application. No	adolescents: a national study
								broad ML	
								comparison.	
Parasuicide	Assessment	Clinical	Subpopulation	Clinic:		Clinical	Risk	Bimodal risk score	Predictive Validity of the
		assessment		inpatient			Factors	distributions. Small	Suicide Trigger Scale (STS-3)
		tool: STS-3						subpopulation.	for Post-Discharge Suicide
								Predictors limited to	Attempt in High-Risk
								MH services. No ML	Psychiatric Inpatients
								comparison.	

Parasuicide	Assessment	Trial	Subpopulation	Clinic:	Stratification	NA	Risk	No prediction;	Predictors of Suicide-Related
				veterans			Factors	evaluation of risk	Hospitalization among U.S.
								factors only.	Veterans Receiving
									Treatment for Comorbid
									Depression and Substance
									Dependence. Who is the
									Riskiest of the Risky?
Parasuicide	Administrative	EMR	Subpopulation	Clinic:	Regression:	Better than	Risk	Similar to proposed	Risk stratification using data
				mental	Shrinkage	clinical	Factors	project. Predictors	from electronic medical
				health				limited to MH	records better predicts
								services. No broad	suicide risks than clinician
								ML comparison.	assessments
Parasuicide	Assessment	Clinical	Subpopulation	Clinic:	Regression:	NA	Risk	No prediction;	Self-Harm Subscale of the
		assessment		mental	Cox		Factors	evaluation of risk	Schedule for Nonadaptive
		tool: SNAP		health				factors only.	and Adaptive Personality

									(SNAP): Predicting Suicide
									Attempts Over 8 Years of
									Follow-Up
Suicide	Administrative	EMR	Subpopulation	Died by	Stratification	NA	Risk	No prediction;	Patterns and predictors of
				suicide			Factors	evaluation of risk	help-seeking contacts with
								factors only.	health services and general
									practitioner detection of
									suicidality prior to suicide: a
									cohort analysis of suicides
									occurring over a two-year
									period
Suicide	Assessment	Chart	Subpopulation	Clinic:	Machine	Solid	Methods	Small	Predicting the Risk of Suicide
		Review:		veterans	Learning:			subpopulation. No	by Analyzing the Text of
		Notes			Genetic			broad ML	Clinical Notes
					Programming			comparison.	

								From CMAJ, 1969;	Prediction and prevention of
								perspective would	suicide
								be interesting. Can't	
								find. Perspective	
								likely interesting but	
								outdated.	
Suicide	Summary	Review	Subpopulation	Clinic:	NA	NA	Risk	Review only.	Prediction and prevention of
				mental			Factors		suicide in patients with
				health					unipolar depression and
									anxiety
Suicide	Administrative	Survey	Population	Military	Regression:	NA	Risk	No prediction;	Predictors of completed
				Conscripts	Cox		Factors	evaluation of risk	suicide in a cohort of 50,465
								factors only.	young men: role of
									personality and deviant
									behaviour.

Suicide	Summary	Review	Subpopulation	Clinic:	NA	NA	Risk	Review only.	Reformulating Suicide Risk
				mental			Factors	Concepts of risk	Formulation: From Prediction
				health				status and risk state.	to Prevention
Suicide	Assessment	Chart	Subpopulation	Clinic: ED	Regression:	NA	Risk	Predicts screening	Multicenter Study of
Screening		Review			Logistic		Factors	for suicide. No	Predictors of Suicide
								prediction;	Screening in Emergency
								evaluation of risk	Departments
								factors only.	
Suicide,	Summary	Review	Subpopulation	Youth	NA	NA	Risk	Review only.	Improving the Prediction of
Parasuicide							Factors		Suicidal Behavior in Youth
Suicide,	Administrative	EMR	Population	General:	Regression:	NA	Risk	No prediction;	Predictors of suicidal
Parasuicide				sick say	Сох		Factors	evaluation of risk	behaviour in 36,304
								factors only.	individuals sickness absent
									due to stress-related mental

									disorders - a Swedish register
									linkage cohort study
Suicide,	Administrative	Ecologic	Population	General:	Regression:	NA	Risk	Ecologic. No	Predictors of Suicide and
Parasuicide				transit	Poisson		Factors	prediction;	Suicide Attempt in Subway
								evaluation of risk	Stations: A Population-based
								factors only.	Ecological Study