# ALCOHOL DEPENDENCE and SUICIDAL BEHAVIOR

by

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### **Disclosure Statement**

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# Agenda

- Risk for suicide conferred by ADs
  - Cohort studies
  - Psychological autopsy studies
- Risk factors for suicidal behavior among ADs
  - Studies of attempted suicide
  - Studies of suicide
- Transitions along the pathway of suicidal thoughts and behavior among ADs
- Reactive- and Proactive aggression in suicidal thoughts and behavior among ADs
- Plug for the forthcoming "TIP"

Risk for suicide conferred by AD



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	R	esults – R	eports on	AD		
Gender	No. of Reports	Observed Suicides	"Expected" Suicides	SMR	Lower CI	Upper CI
Mixed	33	537	55	979	898	1065
Men	26	564	117	483	444	524
Women	12	48	3	1690	1246	2241

Evidence based on psychological autopsies

Study	Site	% AUD suicides	% AUD controls
Cheng 1995	Taiwan	44%	25%
Conner et al. 2003	New Zealand	20%	5%
Foster et al., 1999	N. Ireland	43%	11%
Kolves et al., 2006	Estonia	61%	22%
Phillips et al., 2002	China	7%	6%
Schneider et al., 2006	Germany	22%	7%
Vijayakumar et al., 1999	India	34%	8%

# Alcohol Dependence vs. Alcohol Abuse in Suicide

Study	Site	Alcohol dependence cases vs. controls	Alcohol abuse cases vs. controls
Cheng et al. (1995)	Taiwan	28% vs. 7%	16% vs. 17%
Foster et al. (1999)	N. Ireland	43% vs. 13%	7% vs. 0%
Kolves et al., (2006)	Estonia	51% vs. 14%	10% vs. 7%
Lesage et al. (1994)	Quebec, CA	24% vs. 5%	5% vs. 4%

# Integration of Psychological Autopsy Findings

#### Psychological Medicine, 2003, 33, 395-405. © 2003 Cambridge University Press DOI: 10.1017/S0033291702006943 Printed in the United Kingdom

#### REVIEW ARTICLE

#### Psychological autopsy studies of suicide: a systematic review

J. T. O. CAVANAGH,<sup>1</sup> A. J. CARSON, M. SHARPE AND S. M. LAWRIE From the University of Glasgow Department of Psychological Medicine, The Academic Centre, Gartnawd Royal Haspital, Glasgow

ABSTRACT

ABSTRACT Background. The psychological autopsy method offers the most direct technique currently available for examining the relationship between particular antecedents and maide. This systematic review and to examine the results of studied that used a psychological autopsy method. Method. A computer aided search of MEDLINE, BIDE ISI and PSYCHLIT, supplemented by reports known to the reviewers and meports dimetized from the reference lists of other netricoal reports. Two investigators systematically and independently examined all reports. Median pro-pertorismover determined and population attributable fractions were calculated, where possible, in cases of nucleid and controls.

cases of suicide and controls. Results. One hunder dand filty-four reports were identified, of which 76 met the criteria for inclusion; 54 were case series and 22 were case-control studies. The median proportion of cases with mental disorder was 01 % (05% CIII - 04%) in the case series. In this case-control studies the figure was 05% and the series of the control studies of the control studies of the grave was 05% abuse also preceded suicities in more cases (18%, 19-57%) than controls (6%, 0-13%). The population attributable fraction for mental disorder ranged from 47-74% in the seven studies in which it could be calculated. The effects of particular disorders and sociological variables have been insufficiently studied to drave derar conclusions.

Conclusions. The results indicated that mental disorder was the next strongly associated variables to the very block that have been studied. Further studies should focus on specific disorders and psychologial factors. Suickle prevention strategies may be most effective if focused on the treatment of mental disorders.

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Internet the second second

Reviewed 76 autopsy studies 54 uncontrolled 22 case-control

38% of suicides had comorbid mental disorder plus substance use disorder

Among ADs, who is at greatest risk for suicidal behavior?

for attempted suicide?for suicide?





Used the COGA dataset to compare:

ADs with suicide attempts (N=522) AD non-attempters (N=2688)

# Multiple Logistic Regression Results

Variable	OR	95% C.I.
Female	2.86	2.35 - 3.56
Age	0.99	0.97 - 0.99
Separated/Divorced	1.26	1.01 - 1.58
# Alcohol dependence symptoms	1.12	1.06 - 1.19
# Alcohol-related physical problems	1.38	1.20 - 1.59
# Alcohol-related violence	1.18	1.10 - 1.28
Independent depression	3.39	2.58 - 4.46
Substance-induced depression	2.30	1.81 - 2.93
Currently not employed	1.34	1.10 - 1.70



Used the SCID-II in a German sample of inpatient AUDs to examine personality disorders

Compared:

90 ADs with history of attempted suicide 286 AD non-attempters

Univariate analyses: Cluster A - schizoid Cluster B - narcissistic, borderline, antisocial Cluster C – avoidant, dependent

Multivariate analysis: borderline: OR (95% CI) = 1.80 (1.46, 2.21)



# Multiple risk factors predict suicide in alcoholism

G. E. Murphy, R. D. Wetzel, E. Robins & L. McEvoy

Archives of General Psychiatry, 49, 459-463; 1992

Examined white male ADs in St. Louis area

67 AD suicides106 community ADs (ECA sample)142 clinical ADs

### AD suicides differed on 7 variables:

recent heavy drinking (suicide > community, clinical) suicide communication (suicide > community, clinical) major depressive disorder (suicide > community, clinical) unemployed (suicide > community) living alone (suicide > community)

medical problems (suicide > community)
low social support (suicide > community)

# Pathways to suicidal behavior among ADs

# Background

Suicidal behavior among ADs is heterogeneous, requiring an examination of different "routes to" and "types of" suicidal behavior.

We examined correlates of steps along the pathway to suicidal ideation, planning, and attempts (Kessler et al., 1999).





Predictor	Strata	Total a. Ide b. No ( <b>IDE</b>	Sample: eation vs. Ideation ATION)	اط c. f d. ۱ ( <b>PL</b>	eation: Plan vs. No Plan <b>ANNING</b> )	ا و. ہ f. No (PL AT	Plan: Attempt Attempt ANNED FEMPT)	No g. At h. No ( <b>UNP</b> AT	o Plan: tempt vs. o Attempt <b>LANNED</b> TEMPT)
		OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Sex	Female	1.7	1.5, 2.1	1.2	1.0, 1.5	3.4	2.4, 4.9	3.8	2.5, 5.7
Age <sup>b</sup>	18-24	1.3	0.9, 1.7	1.1	0.7, 1.7	1.7	1.0, 3.1	0.6	0.3, 1.2
	25-34	1.0	0.8, 1.3	0.9	0.7, 1.2	1.4	0.9, 2.2	0.6	0.3, 1.0
	35-44	1.0	0.8, 1.3	0.8	0.6, 1.1	1.2	0.8, 1.9	0.6	0.3, 0.9
Employment Status	Not Employed	0.8	0.7, 0.9	1.2	0.9, 1.4	1.3	1.0, 1.8	1.5	1.0, 2.2
Marital Status	Separated/ divorced	1.2	1.0, 1.4	1.1	0.9, 1.4	1.1	0.8, 1.5	0.9	0.6, 1.4

Predictor	Strata	Total Sample: (IDEATION)		ld (PL/	eation: ANNING)	l (PL AT	Plan: ANNED FEMPT)	No Plan: (UNPLANNED ATTEMPT)	
		OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Age onset of regular	<u>&lt;</u> 12	1.8	1.2, 2.6	0.8	0.9, 1.4	1.1	0.6, 2.0	1.9	0.9, 4.1
drinking °	13-16	1.3	1.1, 1.7	0.8	0.5, 1.2	1.0	0.7, 1.6	1.1	0.6, 1.9
	17-20	1.1	0.9, 1.4	0.8	0.6, 1.0	1.1	0.7, 1.7	0.9	0.5, 1.7
Maximum # drinks in 24	15-23	1.2	0.9, 1.5	1.1	0.8, 1.5	1.4	0.9, 2.2	1.1	0.6, 2.1
hours (quartiles) <sup>d</sup>	24-35	1.1	0.9, 1.4	1.0	0.7, 1.3	1.3	0.8, 2.1	1.9	1.0, 3.4
	<u>&gt;</u> 36	1.1	0.9, 1.4	1.3	0.9, 1.9	1.8	1.0, 3.0	2.0	1.0, 4.1
Alcohol depend symptoms <sup>e</sup>	ence	1.10	1.05,1.15	1.00	0.93,1.07	0.96	0.87,1.05	1.05	0.92,1.20
# Alcohol- related	1	1.1	0.9, 1.4	1.3	1.0, 1.7	1.9	1.3, 2.8	1.5	0.9, 2.4
physical problems <sup>f</sup>	<u>≥</u> 2	1.1	0.8, 1.5	1.6	1.1, 2.3	2.0	1.3, 3.2	1.7	0.9, 3.2
# Illicit substances	1	1.4	1.1, 1.6	1.5	1.2, 2.0	1.3	0.9, 1.9	1.5	1.0, 2.4
dependent on <sup>f</sup>	<u>≥</u> 2	1.5	1.2, 1.8	1.5	1.1, 1.9	1.3	0.9, 1.9	0.9	0.6, 1.6

Predictor	Strata	Total (IDE	Sample: ATION)	lde (PLA	eation: NNING)	l (PL ATT	Plan: ANNED FEMPT)	No (UNP AT	o Plan: PLANNED FEMPT)
		OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
History of depression	alcohol- induced	2.5	2.2, 3.0	1.7	1.3, 2.1	1.3	0.9, 1.9	1.3	0.8, 1.9
	independe nt	4.0	3.2, 5.0	1.9	1.4, 2.4	1.3	0.9, 1.9	1.7	1.1, 2.6
Anxiety disorder	Any history	1.9	1.5, 2.4	1.6	1.3, 2.1	1.1	0.7, 1.5	0.8	0.5, 1.3
Antisocial personality	Present	1.3	1.0, 1.6	1.2	0.9, 1.6	1.2	0.8, 1.7	1.1	0.7, 0.8
Alcohol-related score <sup>e</sup>	aggression	1.09	1.03, 1.62	1.01	0.94, 1.08	1.08	0.97, 1.20	1.34	1.16, 1.56
Proband Status	Proband	1.0	0.9, 1.2	1.1	0.8, 1.3	1.2	0.8, 1.7	1.2	0.8, 1.7



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Reactive aggression and suicide Theory and evidence Kenneth R. Connet <sup>a, Jo, e,</sup> Paul R. Duberstein <sup>45,e</sup> , Yeats Conwell <sup>47,</sup> Eric D. Caine <sup>56</sup>	1 2 3 4
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Abstract	11
Agground to confers tick for middle Blowever, "aggression" is a hatempeneous content, and it is likely the adgression fundrimable that particular types of aggression are at higher risk. We potentiates that a subtype of aggression, resistive aggression, models to for aggression are at higher risk. We potentiates unicide risk-cougnitism and prepresentiation. The shorestical minolate and empirical evidance for the role of reactive aggression in mixidg is presented from the perspective of forumbiology, psychopathology, and over violant behaviors. The forestical minical high galaxies and poly of the utilized and profilminary evidence in support of fais hypothesis is reviewed. We also discuss being juiled as adpression of subtype of the start of subtyperiodies is reviewed. We also discuss being juiled as a substrain programmed and older a subtra- redividual. Resonmendations are made to advance the study of reactive aggression and auxids, including methodological innovations and agreene for an one-short of varios and older a subtra- of 2002 Published by Elsevier Science Lid.	12 13 14 15 16 17 18 19 20 21 22 23
$\mathcal{O}$	23
1. Introduction	24
Suicide is the fourth leading cause in the United States of years of potential life lost before age 75 years (National Center for Health Statistics, 1998) and the 11th leading cause of death <sup>•</sup> Corresponding author: Department of Psychiary, University of Rochester School of Medicine and Denisty, 300 Catanana Bandwark, Rochester, WY, 1962, USA.	25 26
n-mail aaaree: Komen.commengaamo.ncommengaamo.ncommen osa (K.K. Commer). 1359-1789/02/8 - see front matter © 2002 Published by Elsevier Science Ltd. 1911: 51 1.56 - 129 4/02 2000 40-7.8	

# Definitions

#### **Reactive (impulsive, affective) aggression:**

Characterized by emotional arousal including anger and anxiety, poor modulation of physiological arousal, and loss of behavioral control (Barratt, 1991). It occurs in the context of perceived interpersonal threat (Dodge et al., 1997)

#### **Proactive (premeditated, instrumental) aggression:**

Characterized by aggressive acts that are executed for a reward (e.g., to intimidate another individual) and are accompanied by low autonomic arousal (Stanford et al., 2003) and a lack of emotional awareness (Meloy, 1997).

Reactive- and Proactive Aggression and Suicidal Behavior among AUDs

Conner, Swogger, & Houston

# Hypotheses

Reactive aggression is associated with suicide attempts

Proactive aggression is not associated with suicide attempts

# Procedure

Subjects were recruited from 4 residential treatment programs.

Newly admitted patients who volunteer to participate receive a brief screening battery.

Select attempters recruited for a detailed interview.

Current analysis uses screening data only.

Analysis further limited to subjects with AUDIT scores  $\geq 8$  (n=644).

# Subjects

N=644

Mean age =  $39 (\pm 10)$ 

469 (73.1%) men 173 (26.9%) women

358 (55.8%) white 284 (44.2%) black

181 (28.2%) subjects with <12 yrs education 461 (71.8%) with  $\ge 12$  yrs.

# Measures

**Outcome:** based on NCS items (Kessler et al., 1999)

1) lifetime history of suicide attempt (SA, n=167, 26.0%)

2) serious suicidal ideation w/o attempt (SI, n=140, 21.8%)

3) no history, considered <u>n</u>on-<u>su</u>icidal (NS, n=335, 52.2%).

# Measures continued

**Key predictors:** based on Impulsive-Premeditated Aggression Scale (IPAS; Stanford et al., 2003):

1) Reactive Aggression (10 items,  $\alpha = .77$ )

2) Proactive Aggression (8 items,  $\alpha = .73$ )

These scales are not correlated (r=.03)

Reliability has been demonstrated in treated substance abusers (Conner et al., 2007)

## Example items

#### **Reactive aggression:**

- When angry I reacted without thinking.
- I feel I lost control of my temper during the acts.
- I became agitated or emotionally upset prior to the acts.

#### **Proactive aggression:**

- I think the other person deserved what happened to them during some of the incidents.
- I feel my actions were necessary to get what I wanted.
- Prior to the incidents I knew an altercation was going to occur.

Independent variable	Suicid	e Ideation (SI) I	listory	Suicio	le Attempt (A	NT)
	OR	95% CI	p- value	OR	95% CI	p-value
Male	1.32	0.80, 2.18	.280	0.52	0.34, 0.80	.002
Female	1.00			1.00		
Primary Substance Alcohol	0.35	0.19, 0.63	.000	0.80	0.43, 1.49	.479
Primary Substance Cocaine	0.68	0.39, 1.18	.170	0.98	0.53, 1.80	.938
Primary Substance Other Drug	1.00			1.00		
AUDIT score	1.04	1.01, 1.07	.004	1.04	1.01, 1.06	.008
PHQ-9 Score	1.04	1.00, 1.07	.041	1.08	1.05, 1.12	.000
Reactive Aggression	1.05	1.01, 1.09	.015	1.03	0.99, 1.07	.116
Proactive Aggression	1.17	1.04, 1.32	.011	1.27	1.13, 1.42	.000
Sex X Proactive Aggression Interaction	0.90	0.82, 0.98	.021	0.88	0.81, 0.95	.002





# Sensitivity analyses Similar findings: • control for general aggression • limit the analysis to aggressive subjects • exclude subjects who did not report suicide intent at the time of the attempt

### Interpretation- proactive aggression

- Proactive aggressive individuals tend to display fearlessness, poor emotional awareness, and little sentimentality, which are elements of psychopathy (Frick et al., 2003; Stanford et al., 2007; Woodworth & Porter, 2002).
- May more easily overcome fear of suicidal behavior that may be protective?
- May experience less emotional distress at the time of suicidal behavior that may be protective?

## Interpretation - interaction

Aggression shown to be more strongly associated with suicidal behavior among women compared to men (Conner et al., 2001).

Measures of aggression more strongly distinguish women seeking treatment for alcoholism (Robinson, Brower, & Gomberg, 2001).

Lower base rate of aggression among women may suggest that it better discriminates women with impairments/difficulties relevant to suicidal behavior.

May be especially salient for proactive aggression, a stereotypically masculine behavior.

Substance Abuse Clinicians and Administrators:

Look for the **"TIP"** (Treatment Improvement Protocol) on substance abuse and suicidality (SAMHSA)

Thank you