

Lost at Home: The Psychosocial Consequences of the Exxon Valdez Oil Spill



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- ◆ *Exxon Valdez* left the Alyeska Pipeline Terminal at 9:12 p.m., Alaska Standard Time, on March 23, 1989.
- ◆ The 987 foot ship, second newest in Exxon Shipping Company's 20-tanker fleet, was loaded with 53,094,510 gallons (1,264,155 barrels) of North Slope crude oil bound for Long Beach, California.

- ◆ Less than three hours later, the *Exxon Valdez* grounded at Bligh Reef, rupturing eight of its 11 cargo tanks and spewing some 10.8 million gallons of crude oil into Prince William Sound.









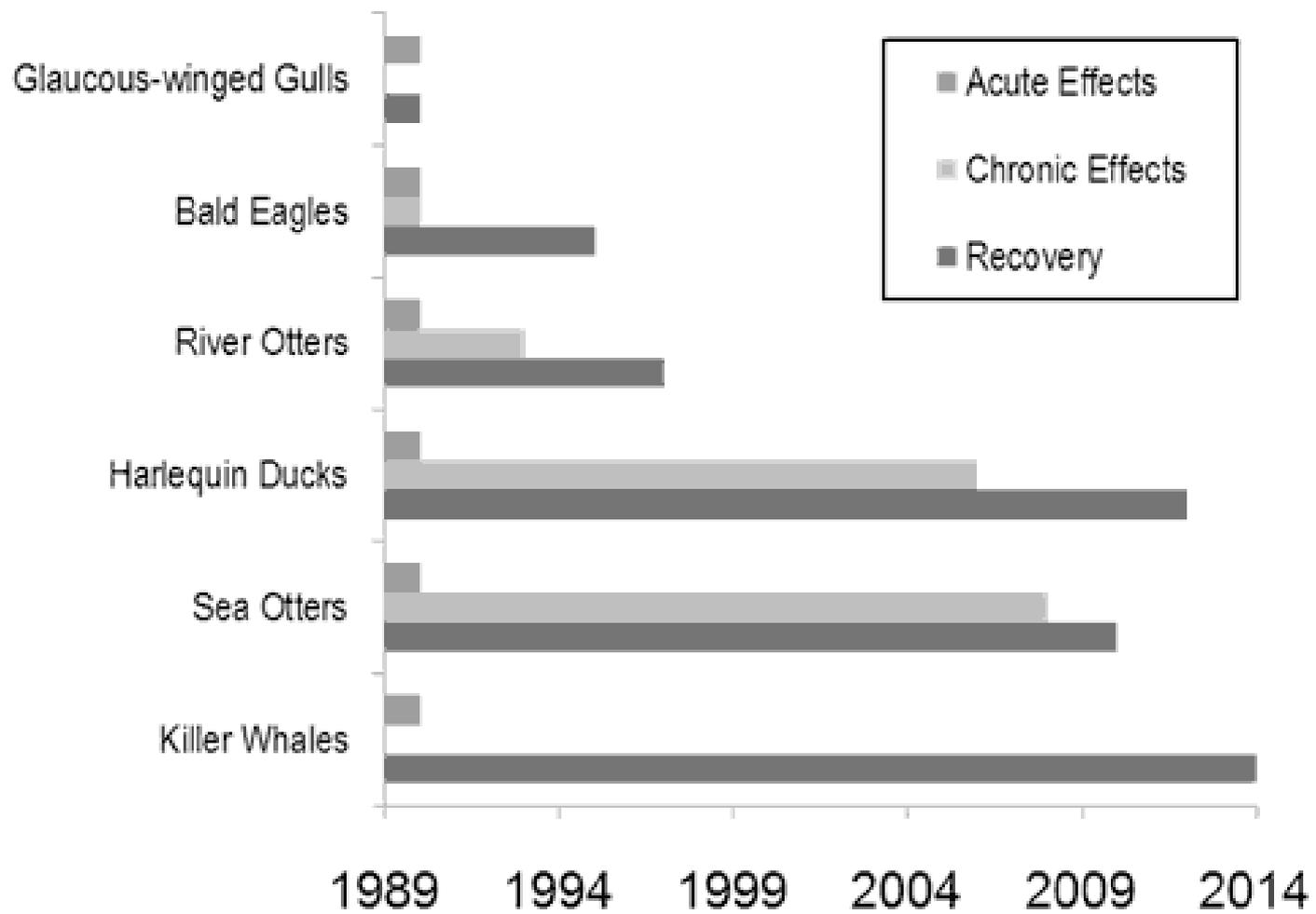


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Oiled Mayors Study

Methods

- ◆ Ethnographic fieldwork in 22 communities
- ◆ Quantitative survey of 600 households in 13 communities
- ◆ Cross-sectional 1 year post-spill

Assessment of Exposure (none, low, high)

- ◆ Affected area used by household
- ◆ Participation in cleanup
- ◆ Other contact with oil
- ◆ Property damaged or lost
- ◆ Damage to commercial fishing areas
- ◆ Effects on hunting, fishing and gathering



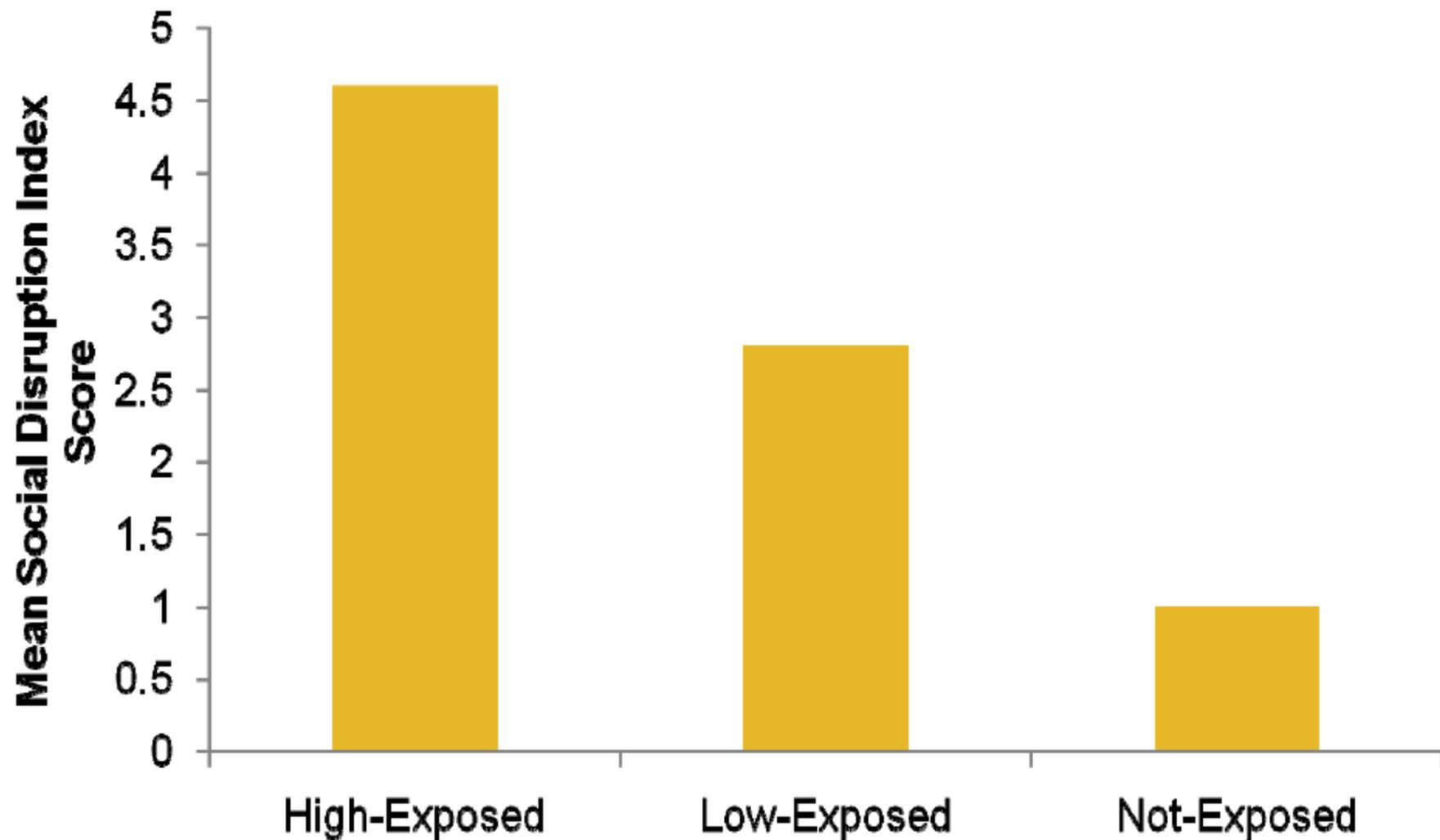
Changes in Traditional Social Relations, Alaska, 1990

Not getting along as well compared with same period in 1988	Exposure Status						
	High Exposed			Low Exposed		Not Exposed	
	N	N	%	N	%	N	%
Spouse or partner**	444	25	14.5	7	4.6	0	0.0
Children living at home**	371	14	10.1	5	4.2	1	0.9
Other relatives living at home**	188	11	17.2	2	3.7	0	0.0
Relatives not living at home**	536	24	11.6	9	4.9	0	0.0
Neighbors and friends**	565	28	13.1	9	4.5	1	0.7
People from other communities**	447	28	13.7	14	7.8	2	1.3
Co-workers*	483	20	10.6	15	8.9	5	4.0
Increased conflicts with							
Outsiders**	593	106	47.5	47	22.6	5	3.1
Friends**	591	89	40.3	30	14.4	4	2.5

χ^2 test for trend * $p < 0.05$; ** $p < 0.001$

(Source: Palinkas et al., 1993; Russell et al., 1996)

Association between exposure to oil spill and disruption of social relations



(Source: Palinkas, 2009)

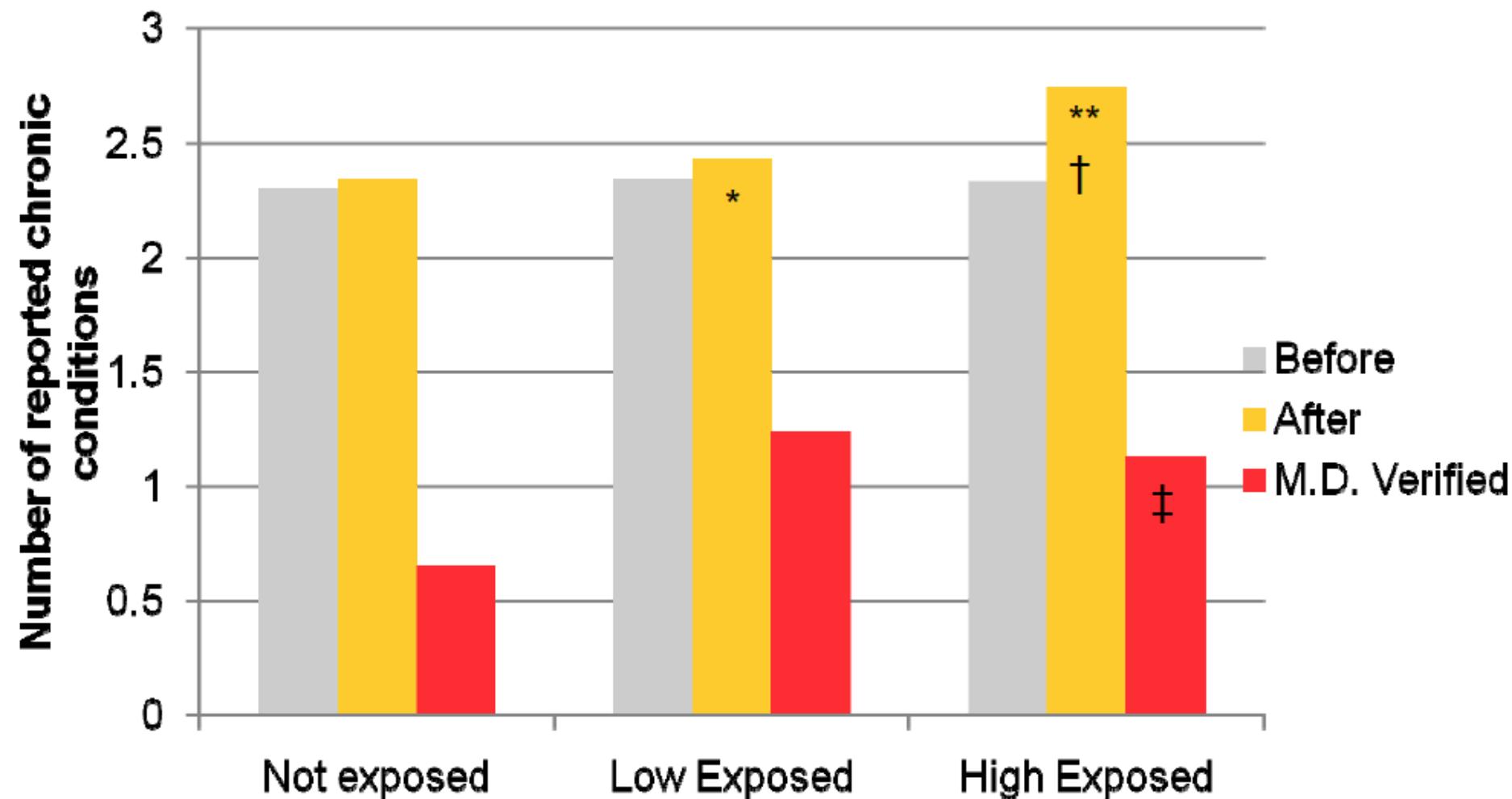
Effects of oil spill on families and children

- Exposure to the oil spill was associated with parents reports
 - Decline in relations with other children in community
 - Children have more difficulty sleeping
 - Children's grades in school have declined
 - Children get upset when someone talks about the spill
 - Bedwetting is a new problem for one of my children
 - Children do not like being left alone
 - Children fight more with other children
 - Children have more difficulty getting along with parents
 - Children have more difficulty getting along with siblings
- These outcomes also associated with parents' mental health
- Difficulty finding child care was a significant predictor of PTSD, GAD and Depression

(Source: McLees-Palinkas, 1994)



Impact of oil spill on physical health



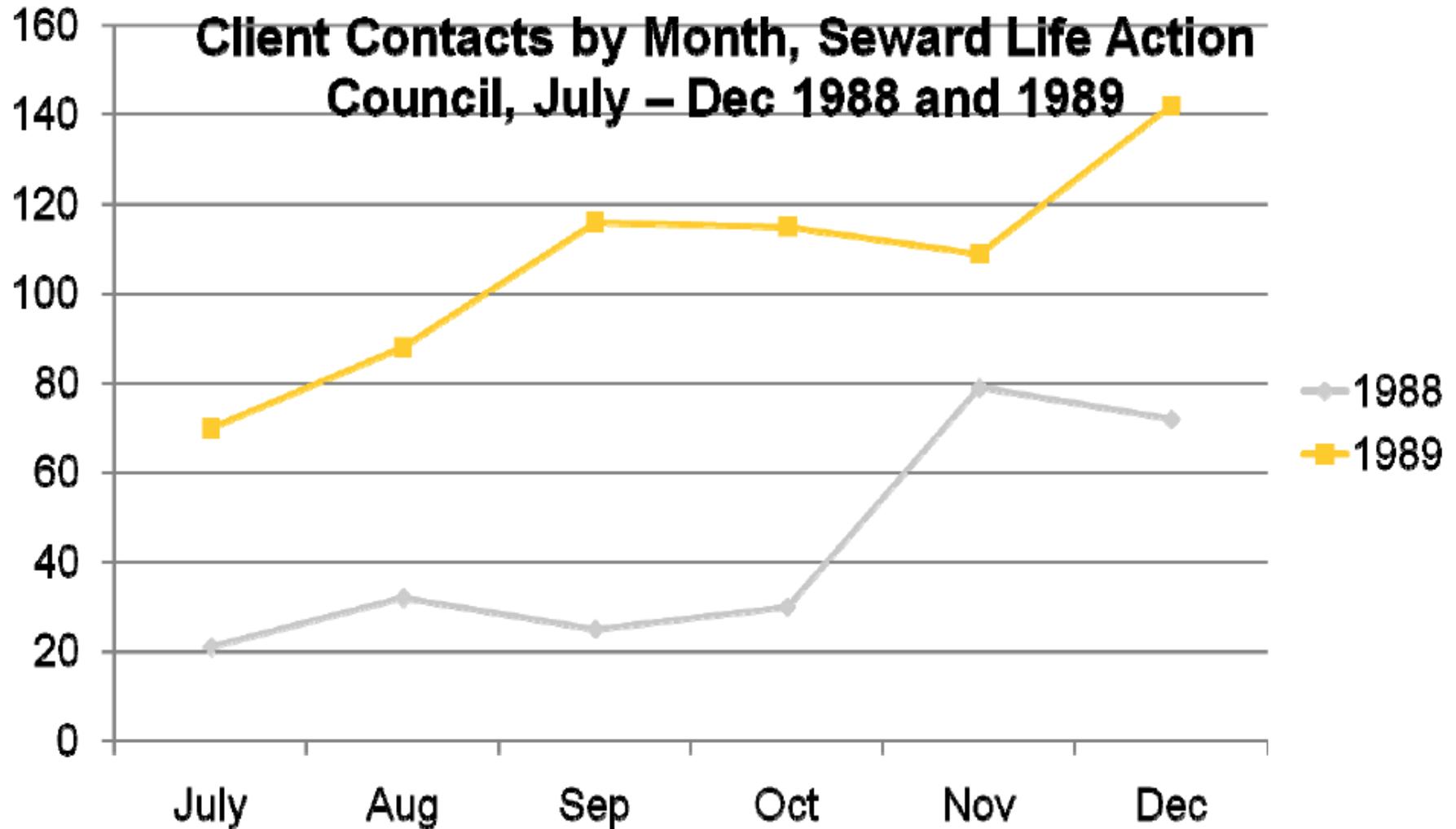
e.g., heart disease, high blood pressure, diabetes, thyroid problem, cancer, asthma, ulcer, bronchitis, chronic cough. skin rashes

* $p < 0.01$, ** $p < 0.001$ compared to health status prior to spill

† $p < 0.01$, ‡ $p < 0.001$ by exposure status

(Source: Impact Assessment, Inc., 1990)

Impact of oil spill on mental health visits



(Source: Impact Assessment, 1990)

Problems with Alcohol and Drug Abuse and Domestic Violence by Exposure Status, Alaska, 1990

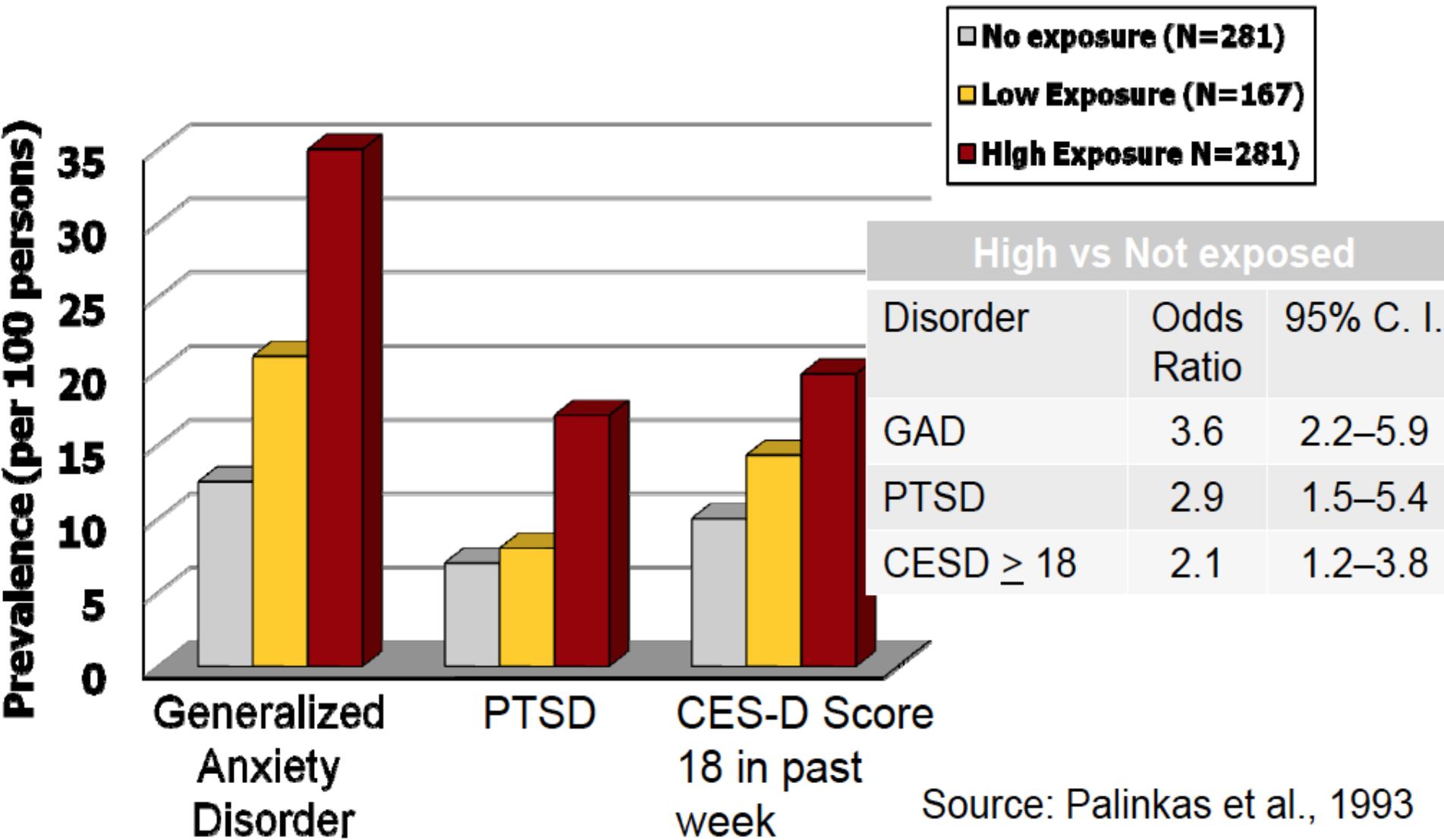
Social Unit & Problem	% High Exposed	% Low Exposed	% Not Exposed
Community			
More Drinking*	56.8	40.4	5.0
More Drinking Problems*	45.3	32.5	6.9
More Drug Use*	50.4	43.2	6.8
More Drug Problems*	39.5	30.8	9.4
More Fighting*	40.5	32.3	3.5
More Fighting Problems*	33.9	27.7	4.8
Family & Friends			
More Drinking*	29.3	15.3	2.8
More Drinking Problems*	26.0	13.3	5.4
More Drug Use*	21.2	10.8	1.7
More Drug Problems*	19.4	9.1	1.5
More Fighting*	19.7	3.8	0.9

* x2 test for trend $p < 0.0001$

(Source: Palinkas et al., 1993; Russell et al., 1996)



Prevalence of Generalized Anxiety Disorder, PTSD, and Depressive Symptoms in Exxon Valdez Study Respondents (N=593) by Exposure Status, 1990



Prevalence of Posttraumatic Stress Disorder by Exposure and Ethnicity, Exxon-Valdez Oil Spill

	Alaska Natives (N=188)		Euro-Americans (N=371)	
	Yes	No	Yes	No
Type of exposure	%	%	%	%
Affected area used by household	15.7	8.1	10.7	6.6
Participation in cleanup	20.8**	6.9	9.0	7.0
Other contact with oil	18.5	8.9	9.7	8.0
Property damaged or lost	37.5**	9.9	9.4	8.6
Damage to commercial fishing areas	18.9**	6.1	11.5	7.1
Effects on hunting, fishing and gathering	19.8**	5.2	14.3*	6.4
Not exposed	5.8		8.3	
Low exposed	5.3		6.8	
High exposed	25.0**		10.0	

* $p < .05$; ** $p < .01$; *** $p < .001$

Source: Palinkas et al., 2003





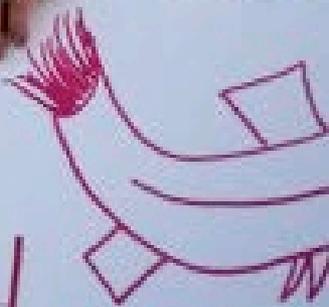


Photo: Geoff Carroll



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Recommendations

- ◆ Ensure community-based participation in framing research questions, study design, acquisition and analysis of data, as well as interpretation of findings
- ◆ Require transdisciplinary, team-based science that promises comprehensive understanding of full range of impacts
- ◆ Support development of conceptual models for articulating, integrating, and operationalizing the role of culture in assessing and mitigating impacts
- ◆ Encourage more formal mixed methods research blending qualitative and quantitative investigative approaches
- ◆ Mandate greater attention to and more aggressive dissemination of results and implementation
- ◆ Provide for greater insulation from adverse corporate or industry influences on research process and application of findings