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The Course of Alcoholism Throughout Midlife

Theodore Jacob, Ph.D.
VA Palo Alto Medical Health Care System

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Washington University School of Medicine
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Key Colleagues

- Kathleen Bucholz, Ph.D. Washington University School of Medicine
- Randy Haber, Ph.D. VA Palo Alto Health Care System
- Donelle Howell, MS VA Palo Alto Health Care System
- Carolyn Sartor, Ph.D. Washington University School of Medicine
- Jeffrey Scherrer, Ph.D. Washington University School of Medicine
- Phillip Wood, Ph.D. University of Missouri - Columbia

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VA Health Care System

- Research Career Scientist Award
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NIAAA

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- Grant P50-AA11998: Midwest Alcohol Research Center funding.

And the cooperation of the

Vietnam Era Twin (VET) Registry

History & Background

1. The clinical perspective emphasized a chronic, progressive, downward course.

2. But a plethora of typologies suggested significant heterogeneity, and in turn, different alcoholism types.

3. The implication was that different types vary in terms of severity, etiology, symptom expression, treatment response, and developmental course.

Variability in Course

- Finney and Moos (1991): 54% abstinent in past year
- Ludwig (1972): 53% had an abstinent period
- Skog & Duckert (1993): 75% alternated over 4 years
- Schuckit (1997): 56% had an abstinent period
- Sartor et al. (2005): mean of 4.2 drinking transitions

Sartor, Jacob & Bucholz (2003)

Findings indicated substantial variability in course over a 25 year period

- **Mean of 4.2 different drinking phases**
- **Duration of the average phase was 8.22 years**
- **More than 50% transitioned to increased AD symptoms, decreased AD symptoms, or both**
- **Only 8% of participating veterans indicated that their drinking pattern did not change throughout adult years.**

Conclusion

- **Alcohol use disorders are best viewed within a developmental, lifespan framework**

- **Different alcoholism types differ in terms of severity, onset, presence of comorbid disorders, presenting symptoms, drinking patterns, etiological elements … AND … in terms of different development features**

NIAAA's Strategic 5-year Plan

"A lifespan perspective will allow researchers to identify how the emergence and progression of drinking behavior is influenced by changes in biology, in psychology, and in exposure to social and environmental inputs over a person's lifetime, and vice versa."

"This approach should help researchers discover life stage-appropriate strategies for identifying, treating, and preventing alcohol use disorders."

A Lifespan Developmental Model Focuses Attention On:

1. Differences in the developmental course of alcoholism over the lifespan

2. Differences in the nature of alcohol use and abuse at various stages of development

3. Differences in how best to intervene in treating the disorder as a function of developmental stage.

Alcoholism Typologies and Differences Along Key Dimensions

Babor (1996) identified 39 typologies describing different subgroups differing in terms of:

1. **Severity**
2. **Chronicity**
3. **Etiology**
4. **Age of onset**
5. **Gender**
6. **Comorbid Disorder**

…and the implication of differences in developmental course.

Two Frequently Identified Alcoholism Subtypes

	Type 1	Type 2
Cloninger	male-limited	milieu-limited
Babor	Type A	Type B
Zucker	Antisocial	Developm'tally Cumulative
Jacob & Leonard	Episodic	Steady
Schuckit	Early Onset	Late Onset
MARC	Behavior Undercontrol	Negative Affect Regulation

Key Characteristics

Type 1	Type 2
– sociopathic features	– depressive features
– episodic drinking	– steady drinking
– interpersonal difficulties	– adequate interpersonal functioning
– early onset	– later onset

MARC Models of Alcoholism Etiology

“Behavioral Undercontrol” model

“Negative Affect Regulation” model

Identification of Alcoholism Subtypes

Zucker's extended model

1. Antisocial alcoholism
2. Negative affect alcoholism
3. Developmentally limited alcholism
4. Primary alcoholism

Key Points

- The literature implies that different developmental characteristics are associated with different alcoholism types.
- The last 10 years has produced empirical validation of different developmental trajectories beginning in early childhood and continuing through the young adult years.
- Little is known about the developmental nature of alcoholism after the 3rd decade of life

But What Happens After 30 ?

- Are these identified patterns (trajectories) stable after young adulthood or does variability and change continue?
- Do other drinking pathways emerge at later ages which could not be anticipated from young adult studies?
- What historical and dynamic variables allow for prediction of which alcoholics will follow what trajectories for what length of time?

Key Points

- Defining the midlife period
- Midlife is marked by great variability
- Central issues of midlife
- Emergence of chronic illness and disease
- Midlife: “The last uncharted territory in human development”
- Midlife needs to be viewed in the context of life course
- Number of people at midlife is huge

Why So Little Interest in Alcoholism at Midlife?

- Alcoholism was viewed as a unitary disorder
- Less “payoff” studying midlife alcoholism
- Stage-specific issues (e.g. maturation) are fewer at midlife making specification of this time period difficult

Why Study Alcoholism Through Midlife?

- Alcoholism treatment frequently occurs at midlife
- Many untreated alcoholics often resolve drinking problems at midlife
- Medical diseases at midlife may alter chronic drinking
- Individuals at midlife (50-60) are the fastest growing age group in this country
- It is critical to determine which trajectories resolve and which persist through midlife

Summary

- Midlife can be a critical period for an alcoholic
- For some, early drinking patterns continue at great personal, interpersonal, and physical cost.
- For others, resolution of problem drinking occurs during this period of time.

Current Efforts

- **Midlife Sample: Vietnam Era Twin Registry (VETR): Twins born between 1939 & 1957 and who served in the military between 1965-1975**

- **Primary Retrospective Assessment Instrument: <u>Lifetime Drinking History (LDH)</u>**

- **Confirmatory Prospective Alcohol Data:**

1987	1992	1995	2000-2003
SOH	HDS	HSUS	TFS

Sample: Vietnam Era Twin Registry (VETR)

- Selection from 5.5 million veterans
- Both twins served during Vietnam Era: 1965-1975
- Twins matched by: Last Name, SSN, D.O.B.
- 7,375 Male-Male Twin Pairs were responsive
- Zygosity from ‘similarity’ questions and confirmed by blood group typing (accuracy of 97%).

VETR Strengths

1. Large general population sample
2. Broad exposure to addictive substances in the military during this era
3. Sample shown to be highly representative
4. Cases are very well characterized
5. A number of VETR studies have used well validated measures

Major VETR-based Studies

1987 Survey of Health Study

1992 The Harvard Drug Study

1995 Health Services Utilization Study

2000, 2003 Family Twin Studies

Survey of Health (SOH)

- 1987 health status questionnaire (first contact)
- Administered by VETR (N=10,979; N=4,774 pair)
  - Current health, medical & hospitalization hx
  - Smoking and Alcohol characteristics
  - Military history, PTSD and adjustment
  - Marriage, reproductive health, general status

Harvard Drug Study (HDS)

- 1992-1993 telephone interview (Ming Tsuang, PI)
- Diagnostic Interview Schedule (DIS) including alcohol, most drug categories, and concomitant psychiatric disorders.
- N= 6,744 participants; N=3,372 twin pairs
- 6,125 male veterans were regular drinkers
- 35% met lifetime DSM-IIIR alcohol dependence

Health Services Utilization Study (HSUS)

- 1995 telephone health services interview and alcohol diagnosis assessment (William True, PI)
- General health status, health perceptions, access to health care, barriers, treatment seeking, insurance, medical conditions, mental health status, social activities, family and social update, and a full alcohol dependence assessment.
- N=2,936 participants

Family Twin Studies

- Three parallel studies assessing twins in 2000/2003 (Ted Jacob, Kathy Bucholz, and Bill True, PIs)
- Alcohol, drug, & psychiatric diagnostic telephone interviews with twins, children, & mothers of the children
- N=1,774 individuals, N=743 pairs (plus families)
- Assessment included the LDH and lifetime diagnostic interviews for smoking, alcohol, drugs, concomitant psychiatric disorders, psychosocial factors, and related experiences

Current Sample Description

- The current sample: from the Family Twin Studies
  - N = 330 AD cotwins
  - All were 41 years or older at time of interview

Current Sample Demographics

• Age	• 50.35 (2.77) years (range 41-57)
• Race	• 98.3% White; 5.9% Black
• Employment	• 89.6% Full-time; 5.8% Retired; 4.0% Unemployed
• Education	• 53.4% Some college or more
• Marital status	• 77.1% married; 18.0% divorced; 4.2% never married

Key Retrospective Measure: Lifetime Drinking History

- The LDH is a structured interview
- It assesses past to present drinking phases by retrospective self-report
- A full DSM-IV alcohol abuse & dependence diagnosis is obtained for each phase
- Includes Phase specific characterization of drinking
- Developed by Skinner; modified by Jacob

Lifetime Drinking History (LDH)

- Phase 1: the age when regular drinking first began (e.g. 1 drink per month for 6 months)
- Phase 2 and each subsequent phase begins when a significant change in drinking pattern occurred
- Each phase is characterized regarding precipitating events, drinking features, diagnosis, and treatment
- The age of the next drinking phase is determined

LDH Phase assessments

Assessed at each phase are:

- **The life event leading to the change in drinking.**
- **Q-F (usual and maximum), beverage, location, time of day, style, drinking with others**
- **Eleven AD and AA symptoms & Phase Dx**
- **Phase-specific formal/informal treatment info**

A Single-Case Timeline

LDH Timeline

		Age Group							
		15-20	**21-23**	**24-26**	**27-29**	**30-32**	**33-35**	**36-39**	**40-41**
Dx	1=dx	0	1	1	0	0	1	0	0
Qty	dk/occ	2	4	4	1	1	6	3	1
Freq	occ/mo	2	4	4	1	1	4	2	1
Style	S,W,D	1	2	2	1	1	3	2	1
LE	C,M.D	C	C		M		D		

Dx (diagnosis): 1=yes; 2=no;
Qty: drinks per occasion; Freq: occasions per month
Style: 1=Social drinker; 2=Weekend drinker; 3=Daily drinker
LE (Life Event): C=College; M=Marriage; D=Divorce

Retrospective Methods

Evidence supports the reliability of retrospective studies of alcohol use, abuse, and dependence:

- **Skinner & Sheu (1982)**
- **Chaikelson, Arbuckle, Lapidus & Gold (1994)**
- **Gladsjo, Tucker, et al (1992)**
- **Sobell, Sobell, Riley, Schuller, Pavan & Cancilla (1988)**
- **Jacob, Seilhamer, Bargeil & Howell (2006)**

Confidence in psychometric strength is high

Analytic Method: Latent Growth Mixture Modeling

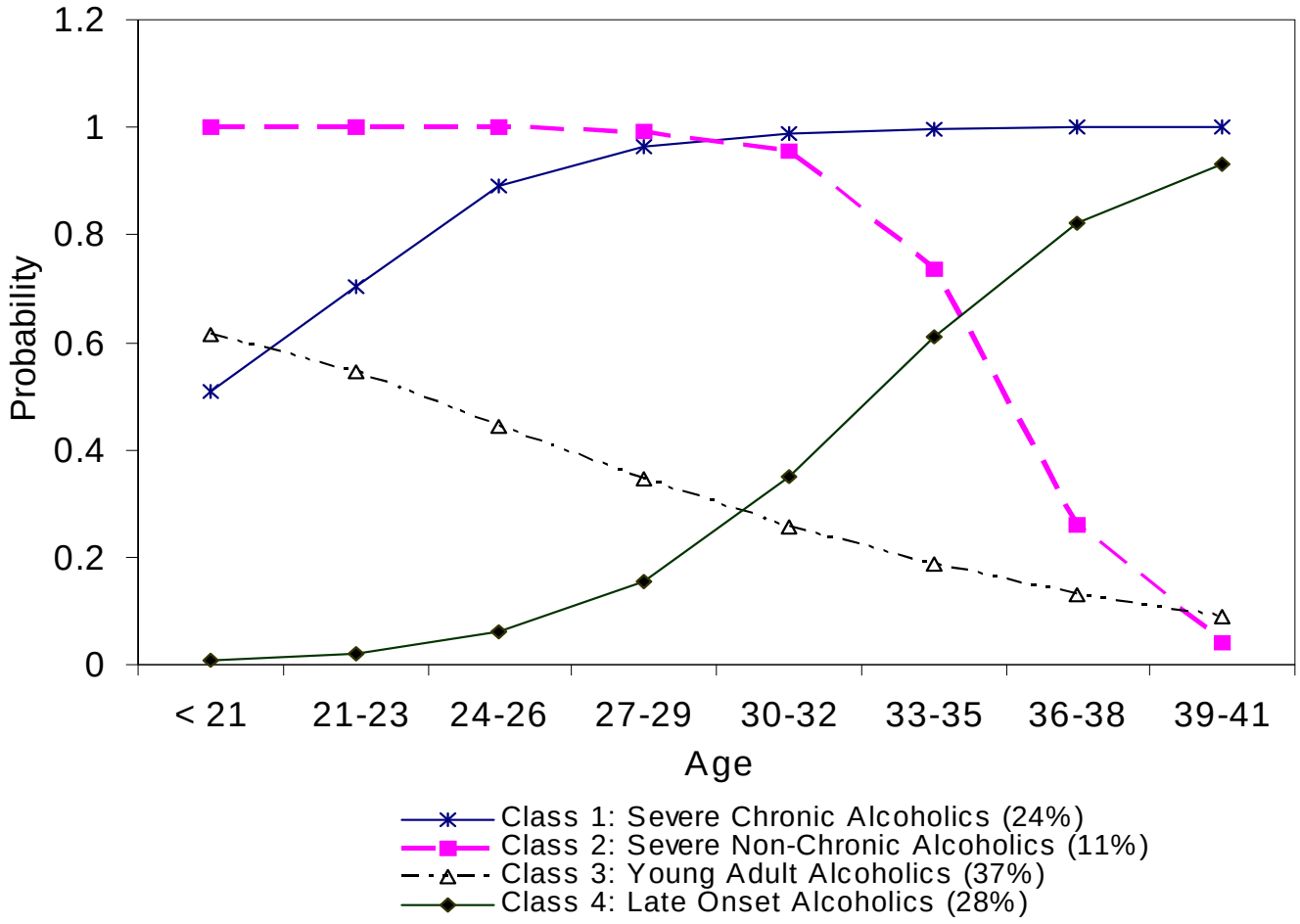
- LGMM used to identify subtypes in the data
- Categorical diagnoses ⟶ probit thresholds
- Mplus v3.11 used to specify 1 to 5 latent classes
- Used MLR estimation & Yuan-Bentler T2 statistic
- Improvement of fit when a class was added was evaluated by the Vuong-Lo-Rubin test

Class Results (LGMM)

Analyses yielded a 4-class solution:

- **Severe, Chronic Alcoholics (SCAs)**
- **Young Adult Alcoholics (YAAs)**
- **Late Onset Alcoholics (LOAs)**
- **Severe, Nonchronic Alcoholics (SNCAs)**

Developmental Trajectories



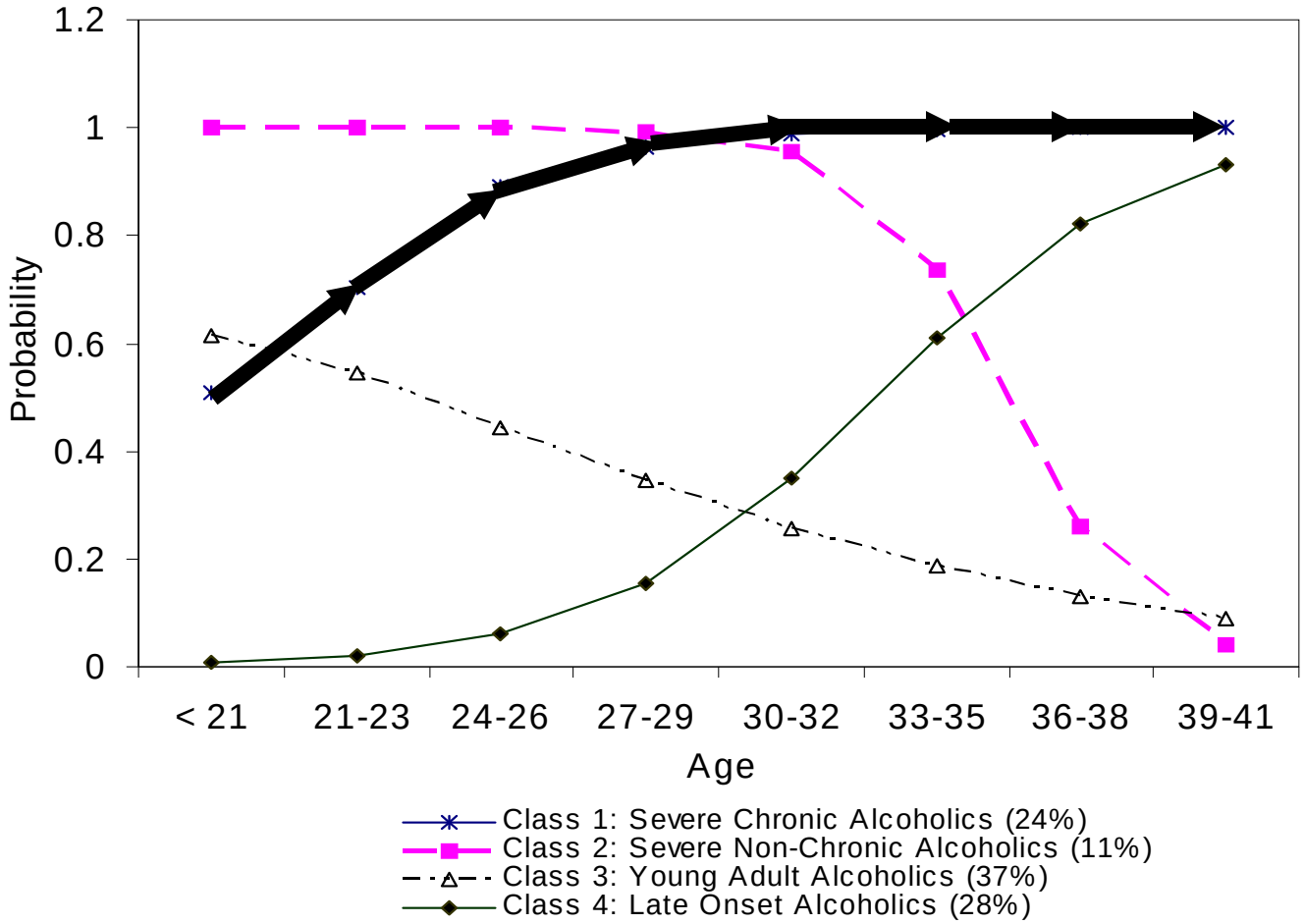
Major Findings

Four different drinking trajectories were supported

Three trajectories have previous empirical support

1. **Most notable was the Severe Chronic Alcoholism type that exhibited early onset, persistent duration, likelihood of comorbid ASP disorder, and paralleled <u>Zucker's Antisocial Alcoholism</u>**

Severe, Chronic Alcoholics (SCAs) ~ Zucker's Antisocial Alcoholism~

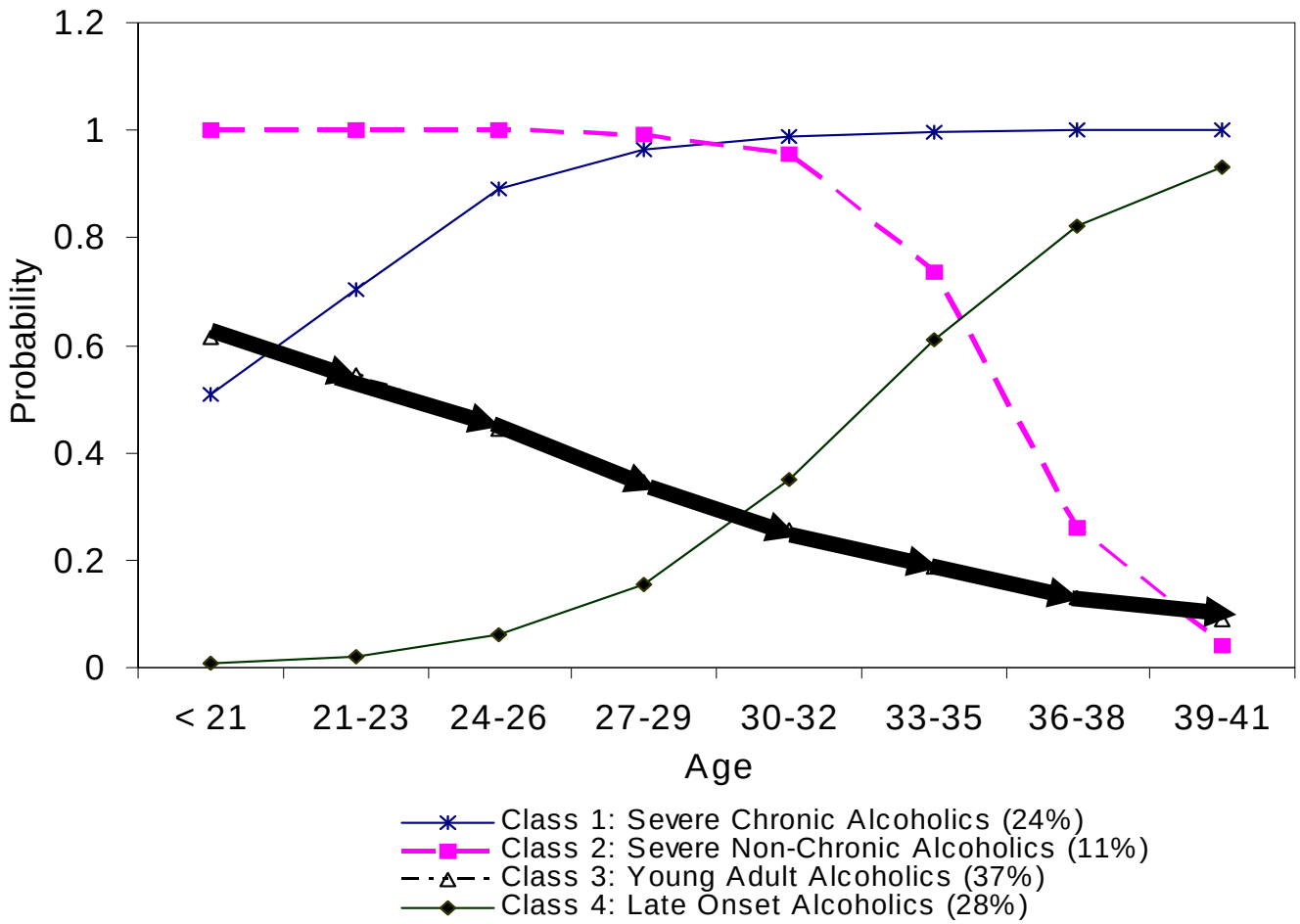


Also Empirically Supported:

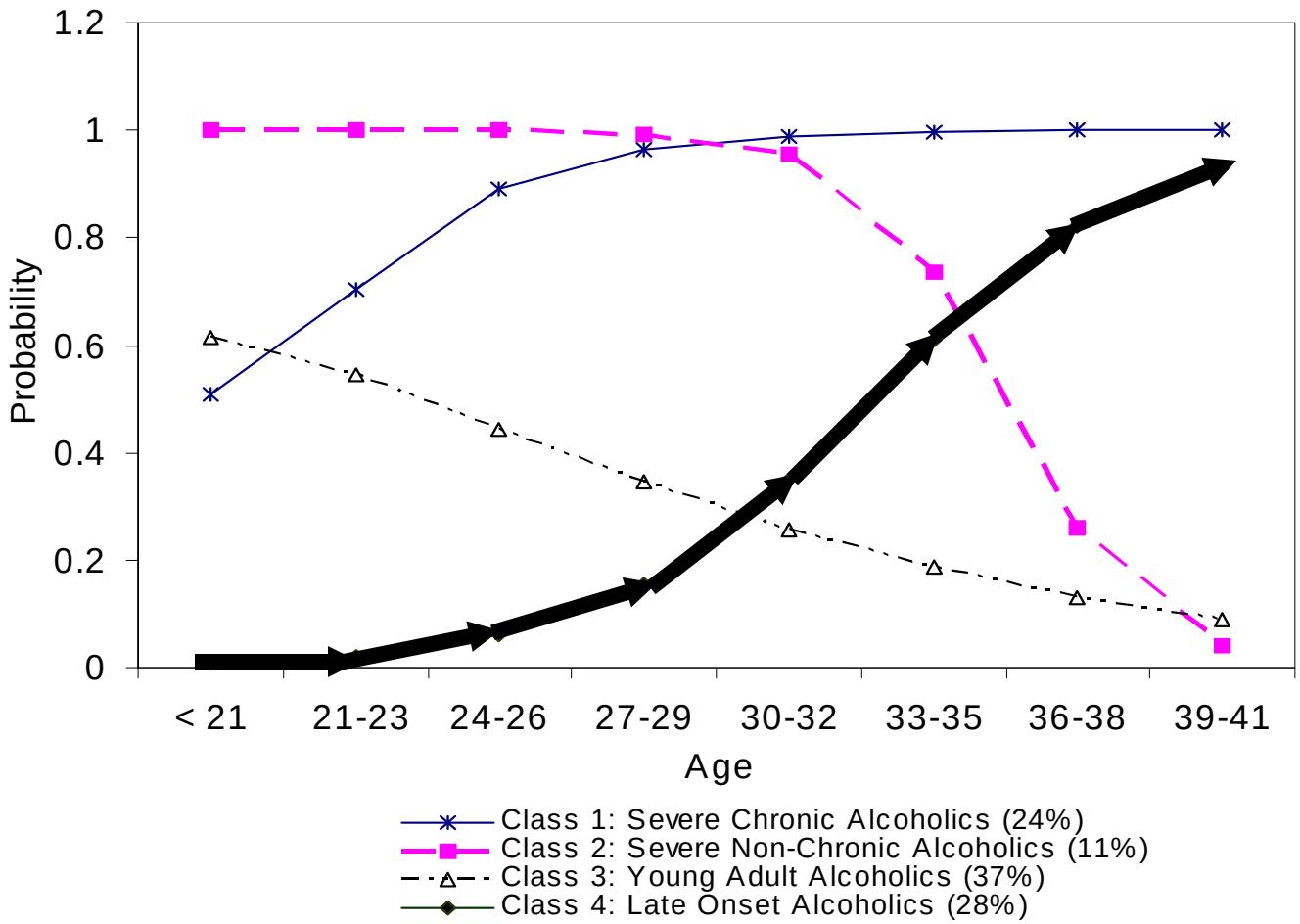
2. Young Adult Alcoholics paralleled Zucker's Developmentally Limited Alcoholism

3. Late Onset Alcoholics exhibited problem drinking in 30's+ and parallels Negative Affect Alcoholism

Young Adult Alcoholics (YAAs)
~ Zucker's Developmentally Limited~



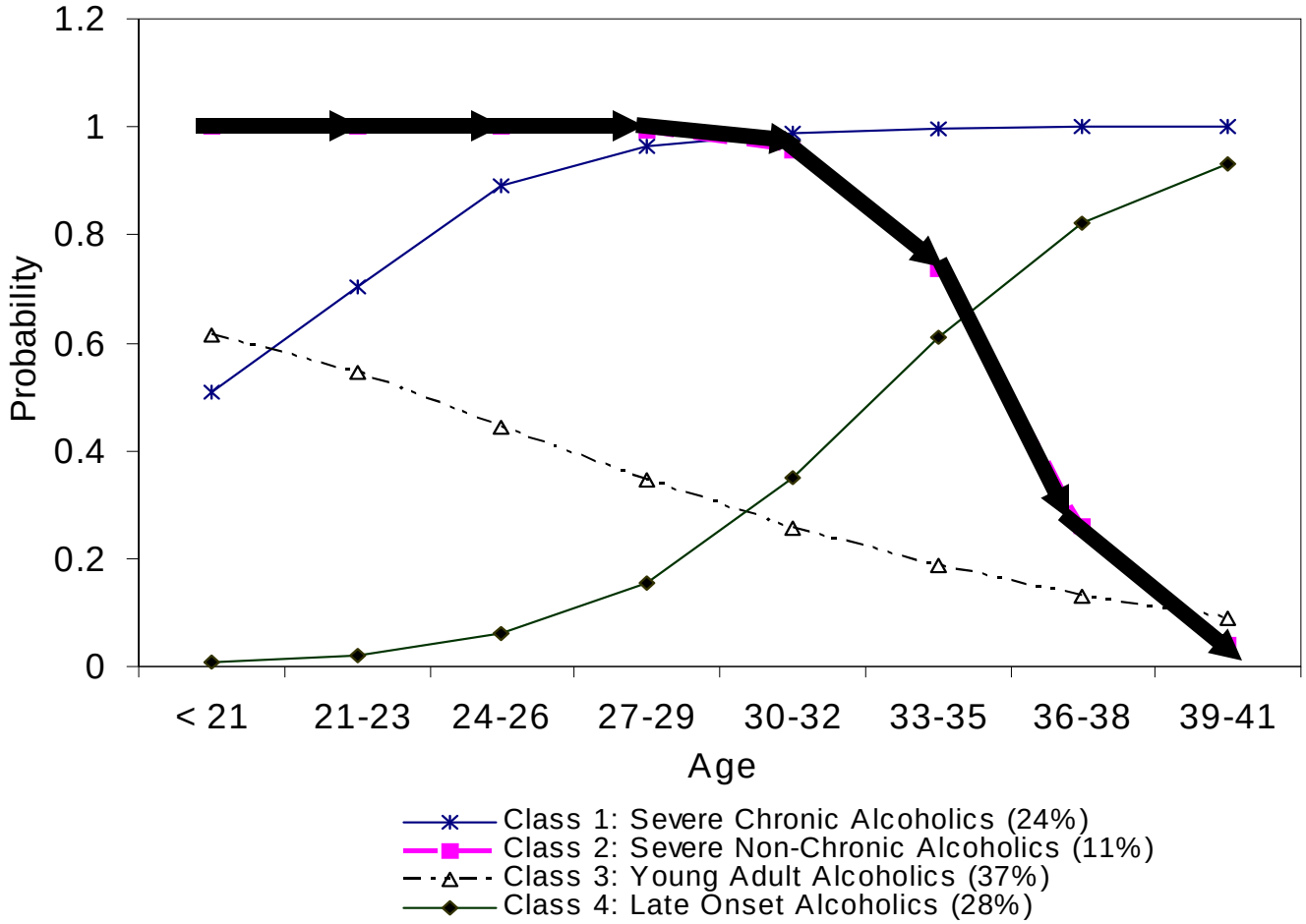
Late Onset Alcoholics (LOAs) ~Zucker's Negative Affect Alcoholism



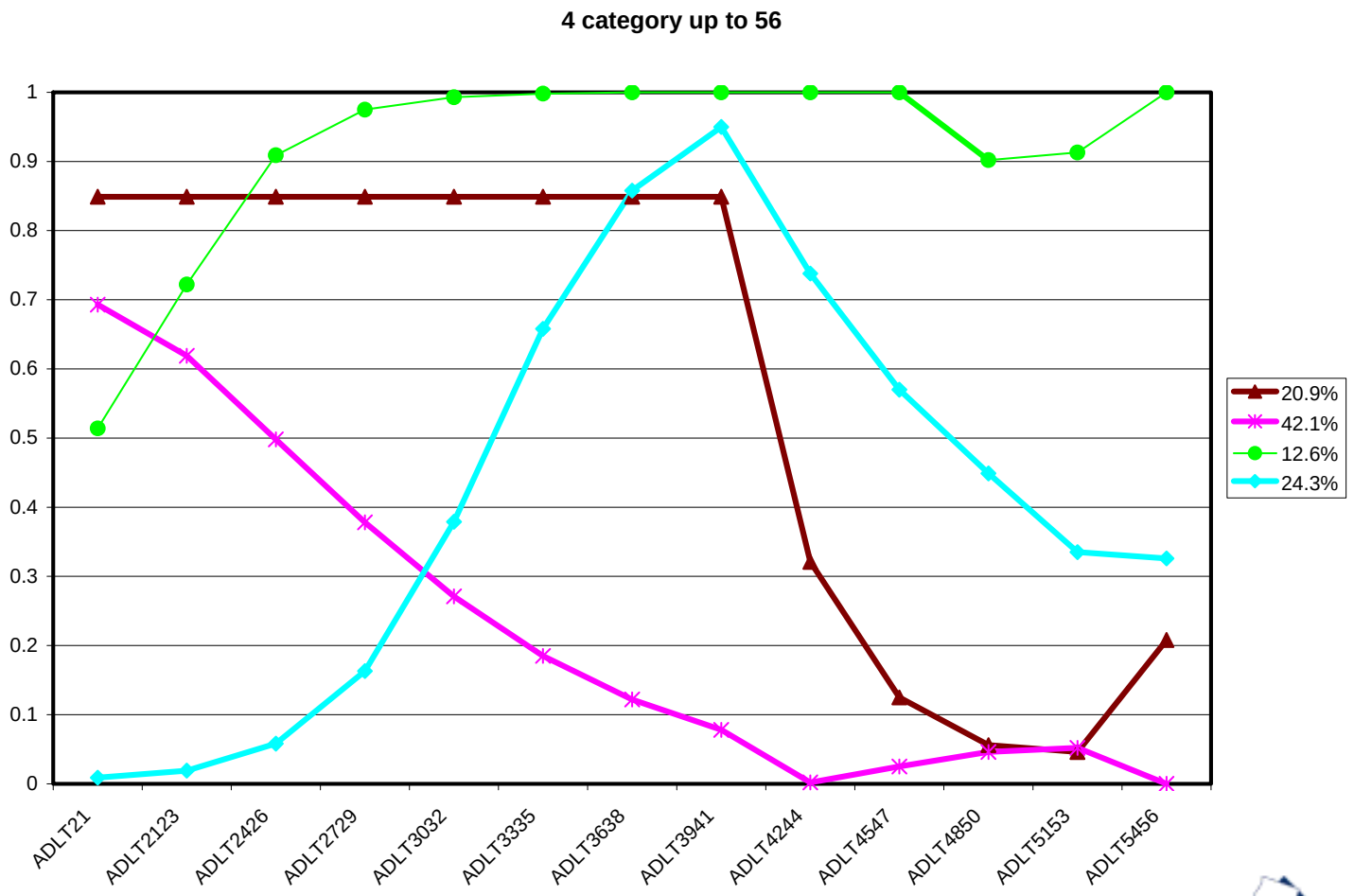
Newly Emerging

4. **Severe Non-Chronic Alcoholics (SNCAs) have no immediate counterpart in the typology literature and reflect earliest onset and highest risk taking and binge drinking, but lack the ASP and enduring diagnosis.**

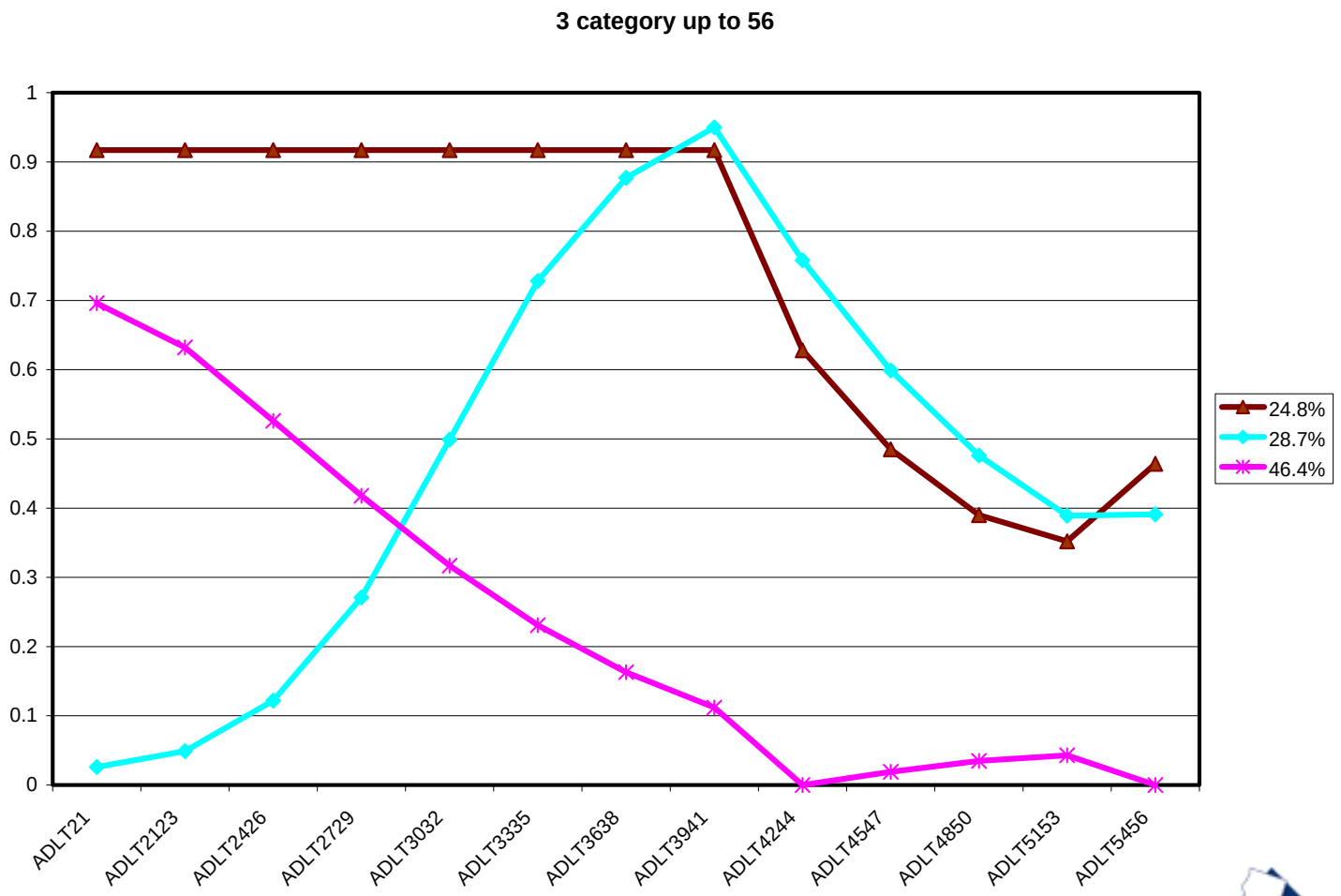
(newly emerging) Severe, Nonchronic Alcoholics (SNCA)

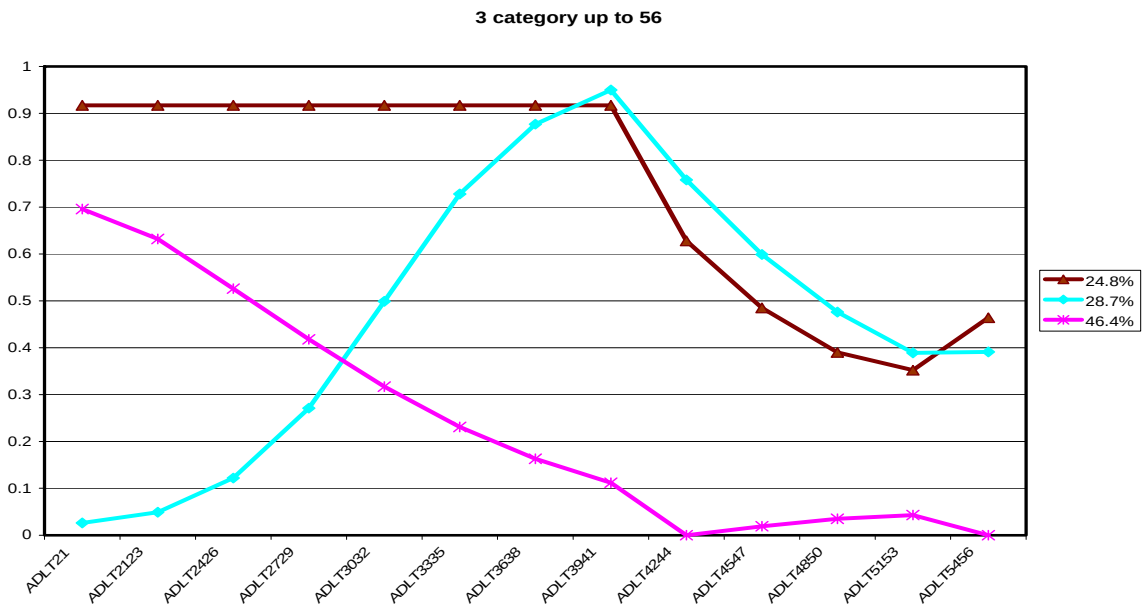


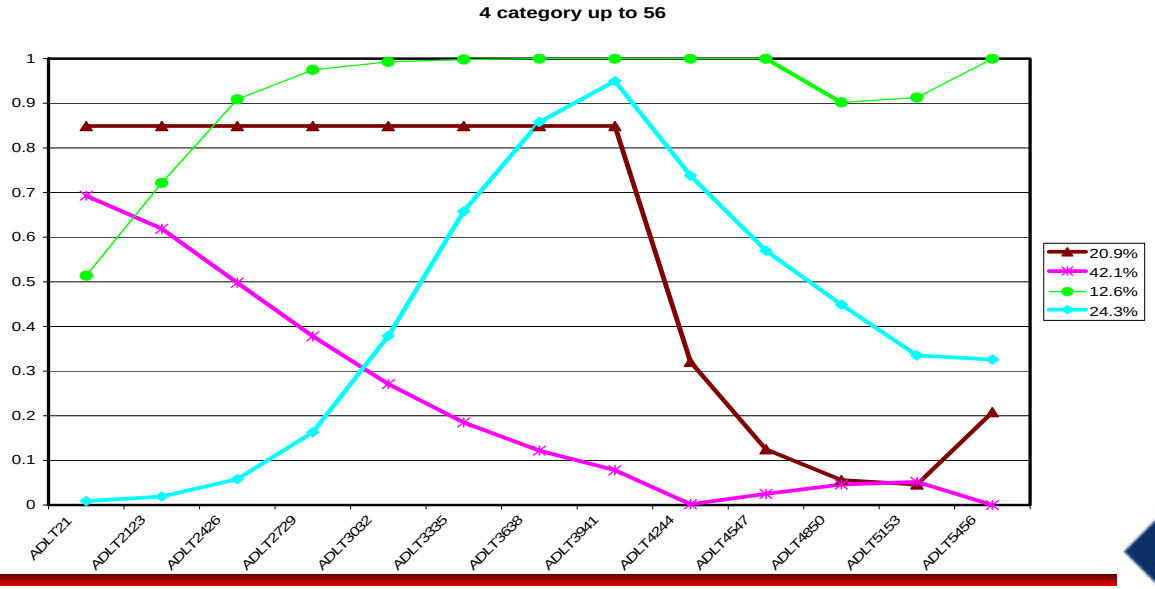
LGMM, 4 group up to age 56



LGMM, 3 group up to age 56




3 category up to 56
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
ADLT21
ADLT2123
ADLT2426
ADLT2729
ADLT3032
ADLT3335
ADLT3638
ADLT3941
ADLT4244
ADLT4547
ADLT4850
ADLT5153
ADLT5456
24.8%
28.7%
46.4%


4 category up to 56
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
ADLT21
ADLT2123
ADLT2426
ADLT2729
ADLT3032
ADLT3335
ADLT3638
ADLT3941
ADLT4244
ADLT4547
ADLT4850
ADLT5153
ADLT5456
20.9%
42.1%
12.6%
24.3%

Conclusions

- Clear support provided for multiple alcoholisms
- Empirical verification for differing characteristics into the midlife years
- Validation for long-term retrospective methodology
- Identification of a newly emerging 4th trajectory

Limitations

1. Sample is limited to middle-aged, male veterans

2. Cannot yet describe persistence of patterns into the 50s & 60s

3. Need psychiatric and psychosocial change data that may predate and predict alcohol transitions

4. Prospective longitudinal data is still necessary to validate retrospective findings

Limitations

5. Sub-clinical patterns of drinking are not included.

6. Methodological limitations: assumptions influence LGMM output trajectories, thus requiring corroboration for our conclusions

The End