

Validity of the Lifetime Drinking History: A Comparison of Retrospective and Prospective Quantity-Frequency Measures



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Abstract



- The Lifetime Drinking History (LDH) has been used to examine alcohol use and abuse throughout the lifespan. Given its retrospective nature, it is important to examine the validity of the assessment. Building upon previous work establishing the reliability and validity of the LDH, the current study examined a sample of 1295 men in the Vietnam Era Twin Registry. The men were assessed retrospectively with the LDH in 2000, at an average age of 51. The drinking patterns of these same men were also assessed prospectively in four prior studies, taking place in 1987, 1990, 1992, and 1995. Validity of the LDH was undertaken by comparing the correspondence between the prospective and retrospective measures of quantity-frequency and reported age of first regular drinking. Results support the use of the LDH in reporting phases of drinking across the lifespan.

Introduction



- The Lifetime Drinking History (LDH; Jacob, 1998; Skinner & Sheu, 1982) is a retrospective interview used to identify patterns of alcohol use, abuse, and dependence beginning with the onset of regular drinking and ending with the individual's current drinking pattern.
 - Patterns of drinking are constructed in terms of drinking phases, where a phases are defined in terms of changes in quantity or frequency of drinking.
- Past research has supported the psychometric properties of the LDH.
 - high test-retest correlations (Chaikelson et al., 1994; Jacobs et al., 2006; Lemmens et al., 1997; Sobell et al., 1988)
 - strong correlations with other measures of alcohol use (Skinner & Schuller, 1982; Skinner & Sheu, 1982)

- No research has been done, however, examining retrospective assessments from the LDH with prospective assessments of alcohol use.
- The current study contrasted reports from four prospective assessments of drinking (in years 1987, 1990, 1992, and 1995) with the retrospective information given by the same individuals for the same years using the LDH in 2000. These comparisons focused on two major drinking domains: age at first regular drinking and quantity-frequency of alcohol consumption.

The Current Study



- **Sample**

- Men from the Family Twin Study: a study of twins and their children (Jacob et al., 2003)
 - 1295 twins, 420 of which had a lifetime diagnosis of alcohol dependence
 - Average age in 2000 = 51 years
 - Drawn from the Vietnam Era Twin (VET) Registry (Eisen et al., 1987; Henderson et al., 1990) and associated data collections

- **Assessments**

- Age of first regular drinking
 - Asked in 1987, 1992, 1995, and 2000

- Quantity-Frequency Index of consumption
 - $QFI = (\text{number of days drank per month}) \times (\text{usual number of drinks on days drank})$
 - Prospectively assessed in 1987, 1990, 1992, and 1995
 - Retrospectively assessed in 2000 using the Lifetime Drinking History (LDH)
 - Allows for a retrospective description of alcohol use and abuse across the entire life course
 - Therefore, if an individual was 38 when reporting in 1987, his reported QFI can be compared to the QFI from the LDH which corresponds to age 38

- **Analyses**

- Age of first regular drinking
 - Mean differences tested by t-tests after an omnibus ANOVA
 - Correlations between all ages given between all years

- QFI
 - Retrospective-prospective mean differences tested by t-tests for 1987, 1990, 1992, and 1995
 - Retrospective-prospective median differences tested by Wilcoxon Signed Rank test for each year
 - Correlations assessed rank-order stability
 - Because of skewness to data, scores were first transformed ($\ln(QFI+1)$)

Results



- Age of first regular drinking
 - Means: see Table 1
 - ~19 across the four surveys
 - Men reported the latest onset of regular drinking in 2000
 - Correlations: see Table 2
 - ranged from .42 to .58 (all p 's < .01)
- QFI measure of consumption
 - Means/Medians: see Table 3
 - Means differed significantly from retrospective to prospective assessments of consumption for the same year
 - Difference largest for AD sub-sample

- Medians also differed, but not as strongly
- Correlations: see Table 3
- The retrospective-prospective correlations were large and significant

Table 1. Age of First Regular Drinking



Assessment	All Regular Drinkers				420 Lifetime AD Drinkers			
	N	Mean	SD	Range	N	Mean	SD	Range
1987	1030	19.3 ^a	3.0	9-37	402	19.0 ^a	3.1	9-37
1992	1179	18.2 ^b	2.7	5-38	416	17.6 ^b	2.6	9-35
1995	772	19.4 ^a	3.3	9-50	329	18.9 ^a	3.0	9-37
2000	1094	20.1 ^c	4.7	5-53	415	19.2 ^a	3.4	5-38

Note. Means with the same superscripts are not significantly different from one another at $p < .01$. The 1995 survey did not ask respondents about age of first regular drinking. Men reporting never having started regular drinking were not included. AD = Alcohol Dependence diagnosis.

Table 2. Correlations between Age of First Regular Drinking Across Four Datasets.



	1987	1992	1995	2000
1987		.49 N=401	.52 N=319	.49 N=399
1992	.45 N=1009		.58 N=328	.54 N=411
1995	.42 N=714	.51 N=765		.55 N=326
2000	.42 N=970	.45 N=1065	.52 N=738	

Note. All correlations significant at $p < .01$. Correlations for the entire sample are below the diagonal, while correlations for the 420 lifetime AD cases are above the diagonal. Men reporting never having started regular drinking were not included.

Table 3. Descriptive Statistics and Correlations for Prospective and Retrospective Assessments of QFI.



Year	Prospective Reports				Retrospective Reports				r^{\S}
	N	Median	Mean	SD	N	Median	Mean	SD	
<i>Entire Sample</i>									
1987*	1222	8.6	31.8	51.3	1290	8.0	37.8	69.5	.58
1990	1183	6.5	30.2	54.0	1201	8.0	33.5	64.6	.63
1992*†	1295	4.3	22.3	46.3	1291	6.0	34.0	67.3	.63
1995*	858	5.0	26.3	50.0	858	6.0	34.0	66.1	.69
<i>Non-AD Sample</i>									
1987	809	0.0	25.6	43.3	870	4.5	20.9	41.0	.57
1990†	798	6.5	23.1	41.0	810	4.0	19.5	39.1	.62

1992*†	875	0.0	15.9	33.0	871	4.0	20.1	41.3	.60
1995	518	4.0	22.0	41.9	517	6.0	22.0	39.2	.69
<i>Lifetime AD Sample</i>									
1987*†	413	17.2	43.9	62.5	420	30.0	72.9	97.7	.57
1990*†	385	12.9	44.9	71.8	391	24.0	62.7	91.8	.63
1992*†	420	8.6	35.5	63.8	420	16.0	62.9	95.7	.66
1995*†	340	6.0	32.9	59.8	341	8.0	52.2	90.1	.69
<p>*p <= .001, when comparing retrospective to prospective mean † p < .01, when comparing retrospective to prospective median § The correlations between retrospective LDH and prospective assessment scores were calculated using natural log-transformed scores. All correlations were significant at p < .01.</p>									

Conclusions



- Onset of regular drinking, reported retrospectively at each assessment, was highly similar over time. This speaks to the general reliability of retrospective reporting.
- For QFI, there was high rank-order correspondence between the prospective reports and the retrospective LDH reports. The mean differences were significant, especially for problem drinkers, who reported drinking more when being assessed retrospectively.

- While an individual's reports of the amount of alcohol consumed may be biased in the retrospective reports, there is still high consistency in reporting low, medium, or high levels of consumption.
- The current study supports the use of the LDH in identifying individuals with alcohol problems and following increases and decreases in alcohol use over time.

References



- Chaikelson, J. S., Arbuckle, T. Y., Lapidus, S., & Gold, D. P. (1994). Measurement of lifetime alcohol consumption. *Journal of Studies on Alcohol*, *55*, 133-140.
- Eisen, S., True, W., Goldberg, J., Henderson, W., & Robinette, C. D. (1987). The Vietnam Era Twin (VET) Registry: Method of construction. *Acta Geneticae Medicae et Gemellologiae*, *36*, 61-67.
- Henderson, W. G., Eisen, S., Goldberg, J., True, W., Barnes, J. E., & Vitek, M. E. (1990). The Vietnam Era Twin Registry: A resource for medical research. *Public Health Report*, *105*, 368-373.
- Jacob, T. (1998). Modified Lifetime Drinking History [Unpublished measure].
- Jacob, T., Seilhamer, R., Bargiel, K., & Howell, D. N. (2006). Reliability of Lifetime Drinking History among alcohol dependent men. *Psychology of Addictive Behaviors*, *20*, 333-337.
- Lemmens, P. H., Volovics, L., & De Haan, Y. (1997). Measurement of lifetime exposure to alcohol: Data quality of self-administered questionnaire and impact on risk assessment. *Contemporary Drug Problems*, *24*, 581-600.
- Skinner, H., & Schuller, R. (1982). Validation of the Lifetime Drinking History: Biochemical, medical history and psychosocial evidence. Unpublished manuscript. Addiction Research Foundation.
- Skinner, H. A., & Sheu, W. J. (1982). Reliability of alcohol use indices: Lifetime drinking history and MAST. *Journal of Studies on Alcohol*, *43*, 1157-1170.
- Sobell, L. C., Sobell, M. B., Riley, D. M., Schuller, R., Pavan, D. S., Cancilla, A., et al. (1988). The reliability of alcohol abusers' self-reports of drinking and life events that occurred in the distant past. *Journal of Studies on Alcohol*, *49*, 225-232.