

The State of the Art of Adolescent Substance Abuse Treatment: What we know and What we don't know



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Goals of this Presentation

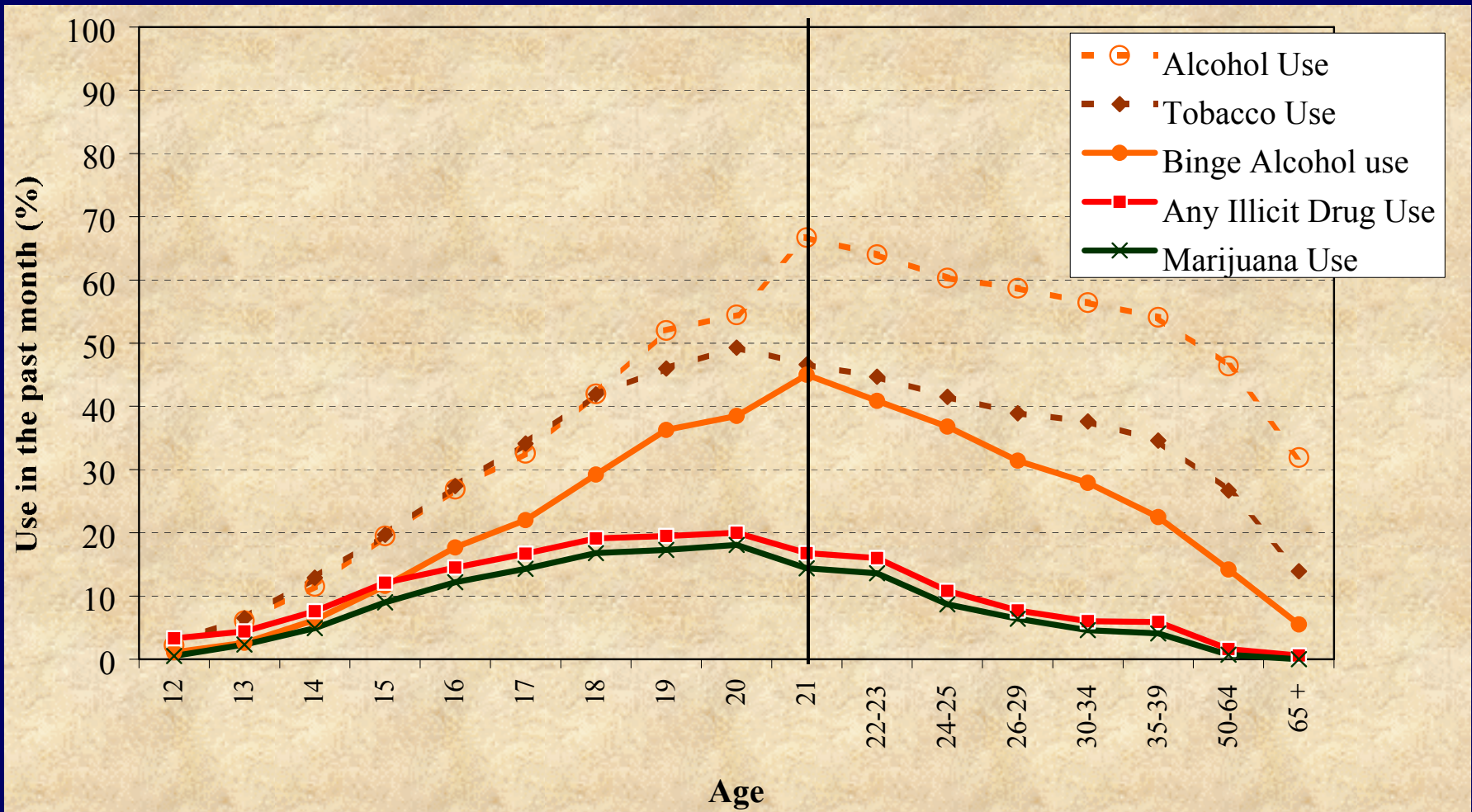


- **Examine the prevalence, course, and consequences of adolescent substance use**
- **Summarize major trends in the adolescent treatment system**
- **Review the current knowledge base on treatment effectiveness**
- **Examine how characteristics and outcomes vary by level of care.**
- **Highlight recent work on post-residential treatment continuing care for adolescents**

The Prevalence and Course of Use

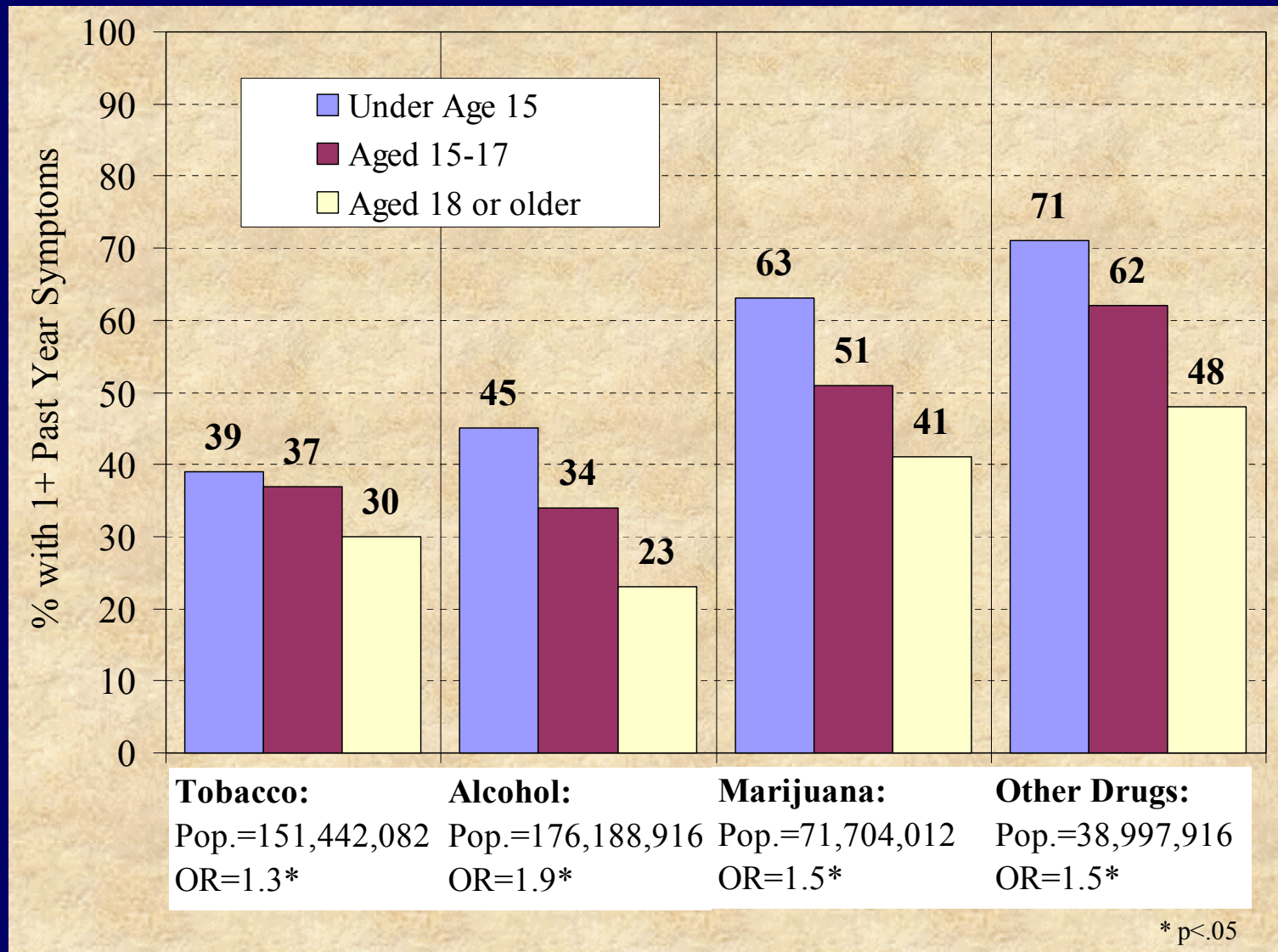
- While the public has generally focused on a leveling off of the prevalence of “any” substance use, the rates of daily use among 12th graders were still substantially higher than what it was in 1992 for
 - being drunk on alcohol (1.7% vs. 0.8%)
 - smoking tobacco (20.2% vs. 17.2%)
 - using marijuana (6.0% vs. 1.9%)
- From age 12 to 20 the rates of past-month use more than doubled for alcohol (20% to 75%), tobacco (18% to 40%), and marijuana (8% to 27%)
- By age 30, alcohol drops off by about 2%, tobacco by 5%, and marijuana drops off by 15%

Change in Past Month Substance Use by Age



Source: Dennis (2002) and 1998 NHSDA.

Significance of Age of First Use

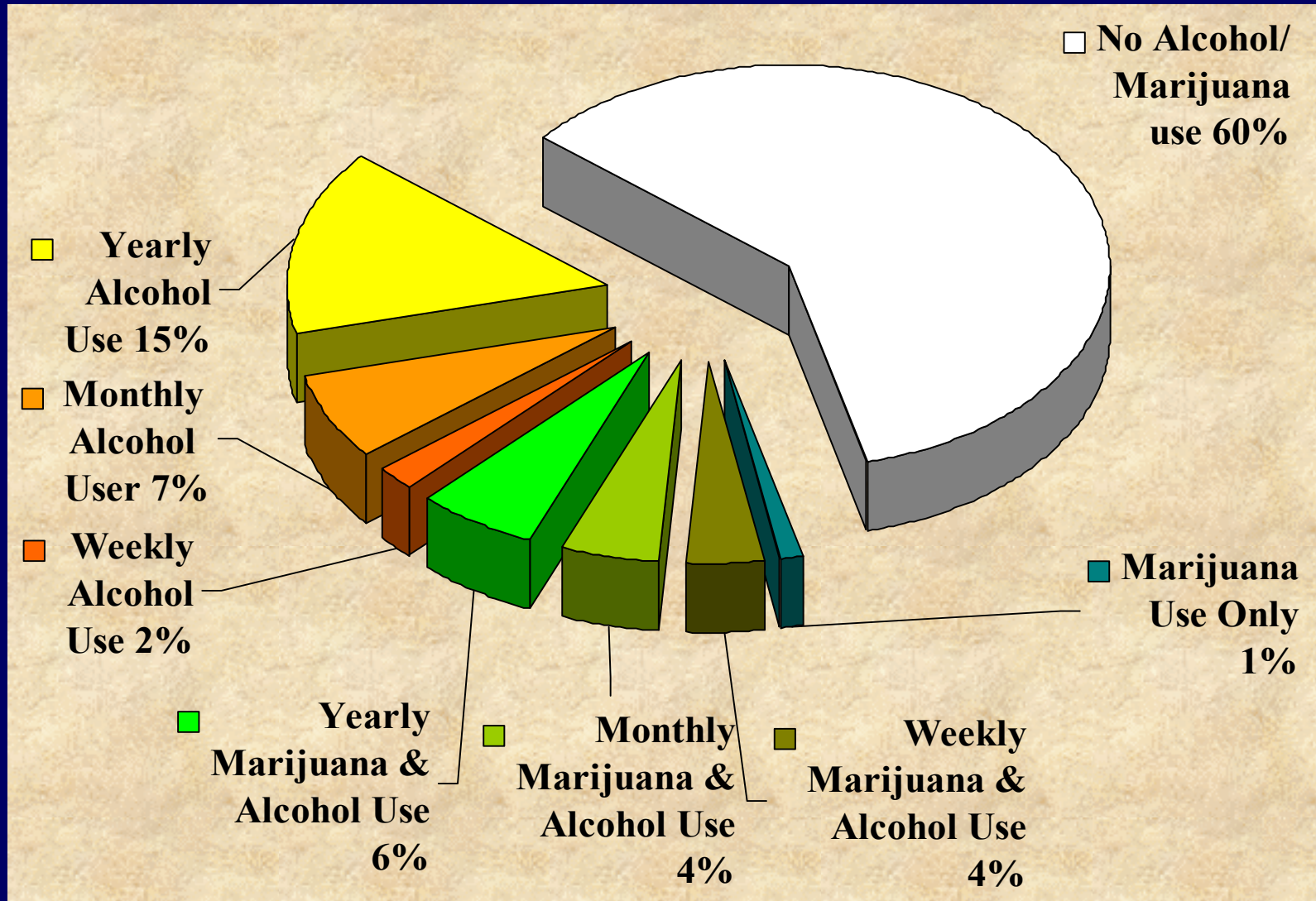


Source: Dennis, Dawud-Noursi, Muck, & McDermeit (2002) and 1998 NHSDA

The Emerging Marijuana Problem

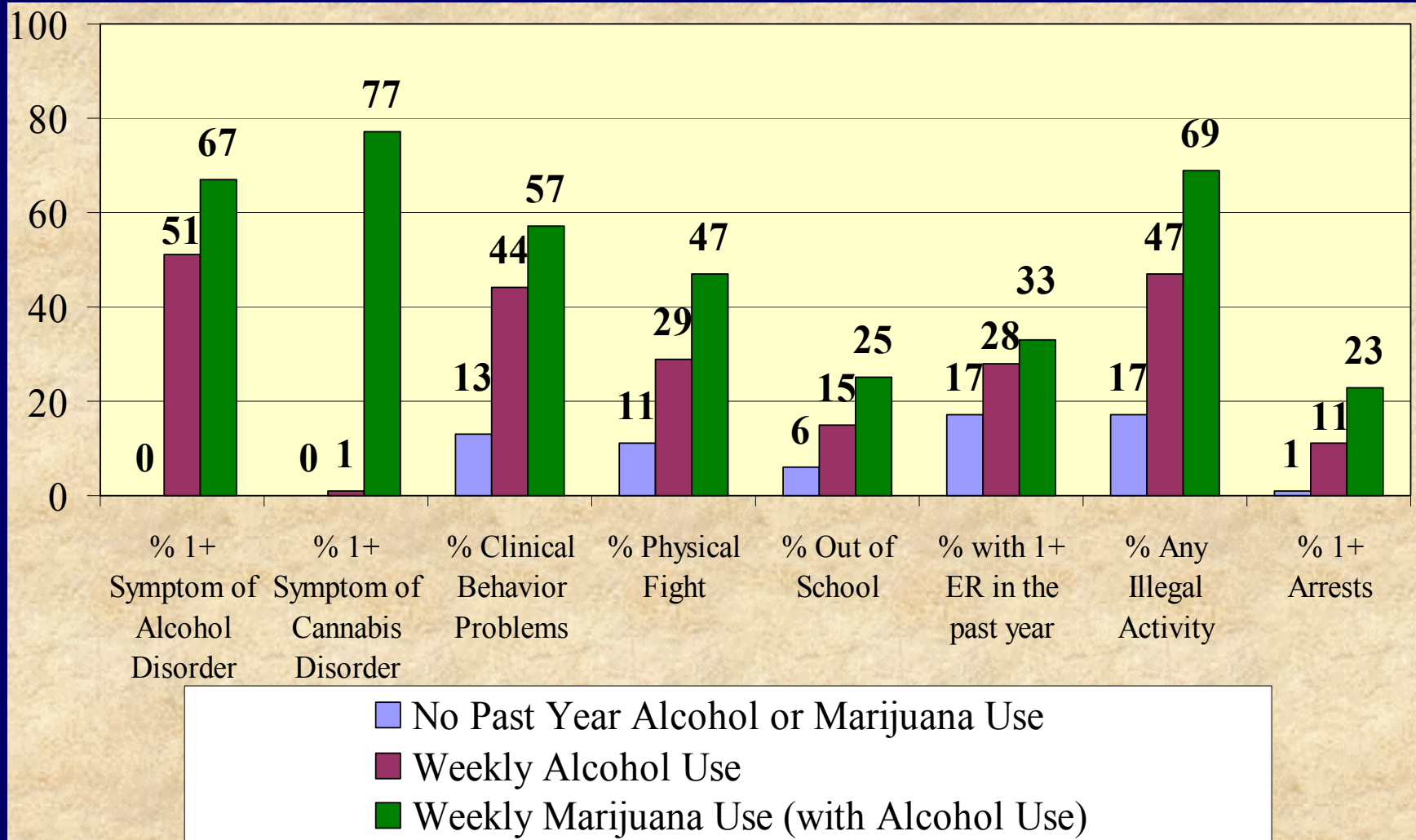
- From 1980 to 1997 the potency of marijuana in federal drug seizures increased three fold.
- The combination of alcohol and marijuana appears to be synergistic and leads to much higher rates of problems than would be expected from either alone.
- Combined marijuana and alcohol users are 4 to 47 times more likely than non users to have a wide range of dependence, behavioral, school, health and legal problems.
- Marijuana and alcohol are the leading substances mentioned in arrests, emergency room admissions, autopsies, and treatment admissions.

Substance Use in the Community



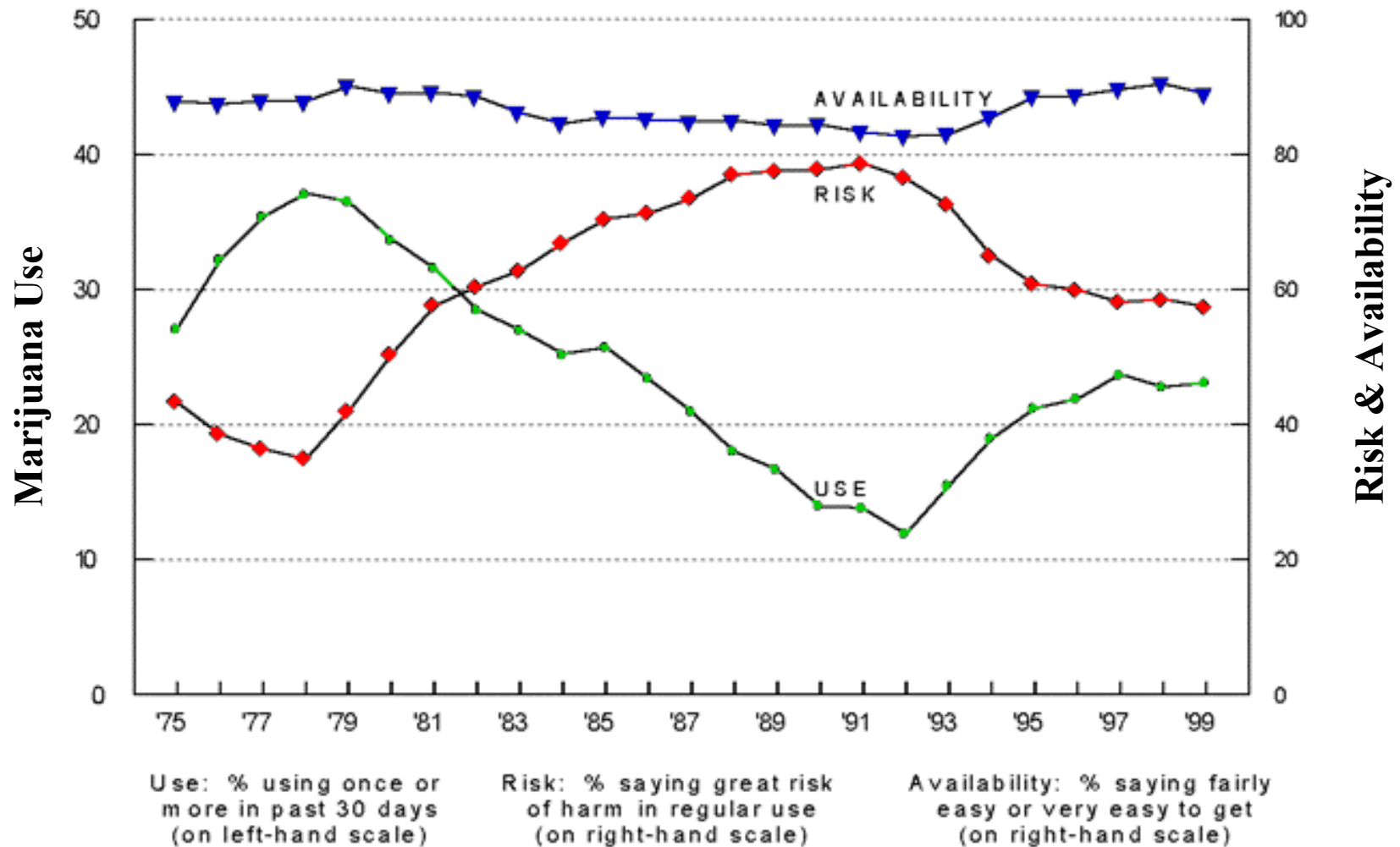
Source: Dennis and McGeary (1999) and 1997 NHSDA

Consequences of Substance Use



Source: Dennis, Godley and Titus (1999) and 1997 NHSDA.

Importance of Perceived Risk



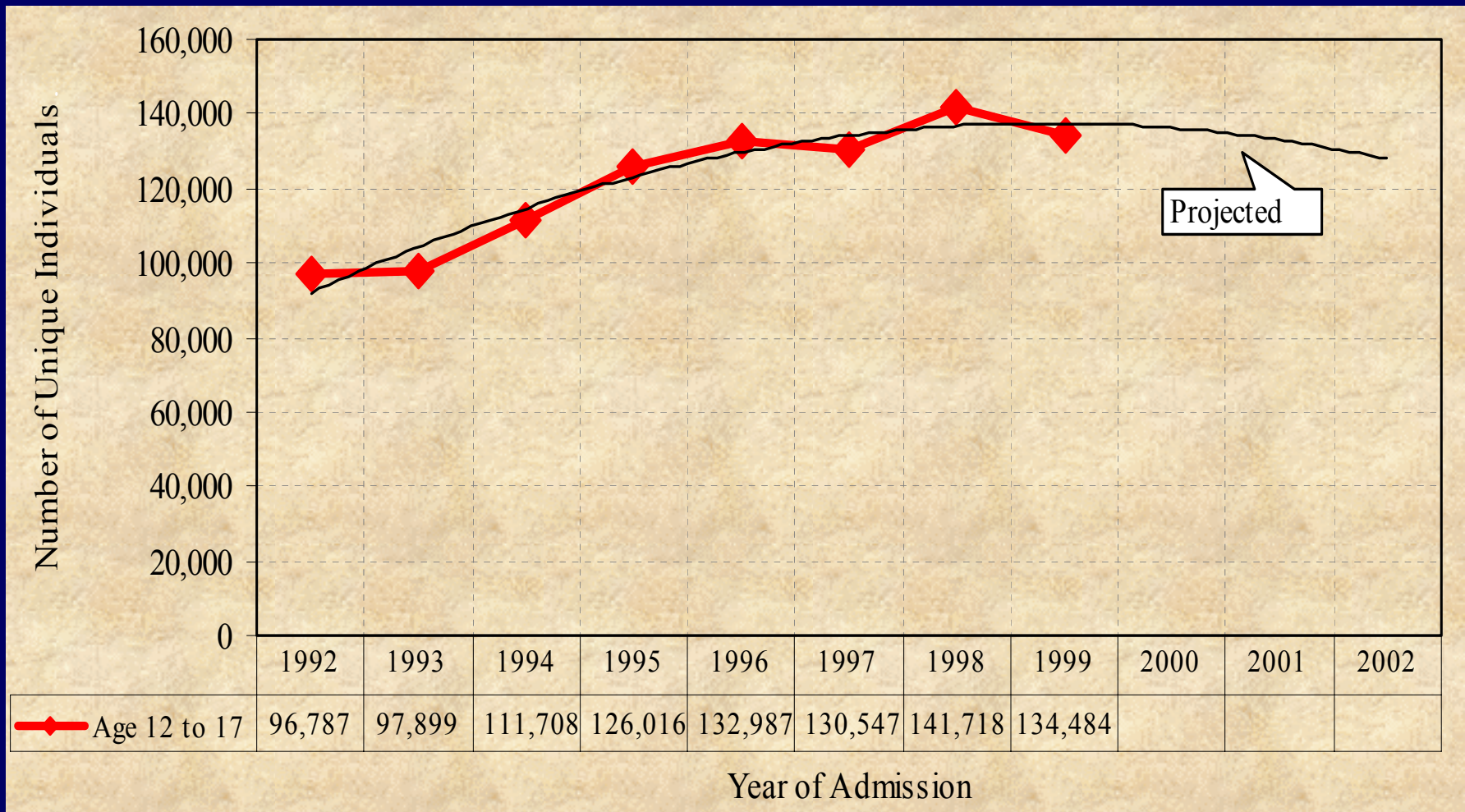
Source: Office of Applied Studies. (2000). 1998 NHSDA

The Adolescent Treatment System



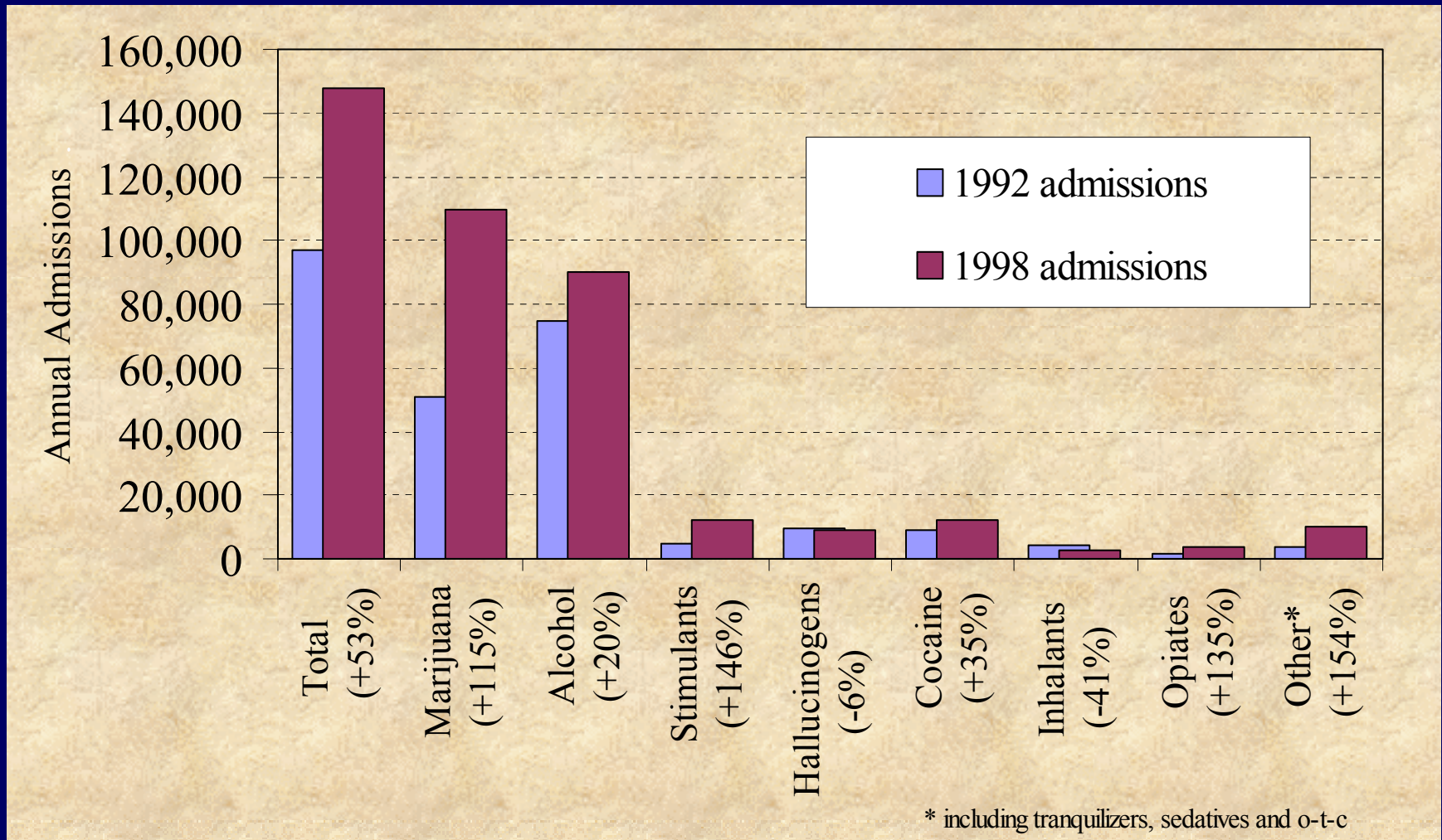
- **Less than 1/10th of adolescents with substance dependence problems receive treatment**
- **Under 50% stay 6 weeks, 75% stay less than the 3 months recommended by NIDA**
- **From 1992 to 1998, admissions to treatment increased 53% (96,787 to 147,899), but then dropped off in 1999**
- **From 1992 to 1998, admissions for treatment of primary, secondary or tertiary marijuana use disorders increased 115% (51,081 to 109,875)**

Trend in Adolescent Substance Abuse Treatment Admissions: 1992 to 1999



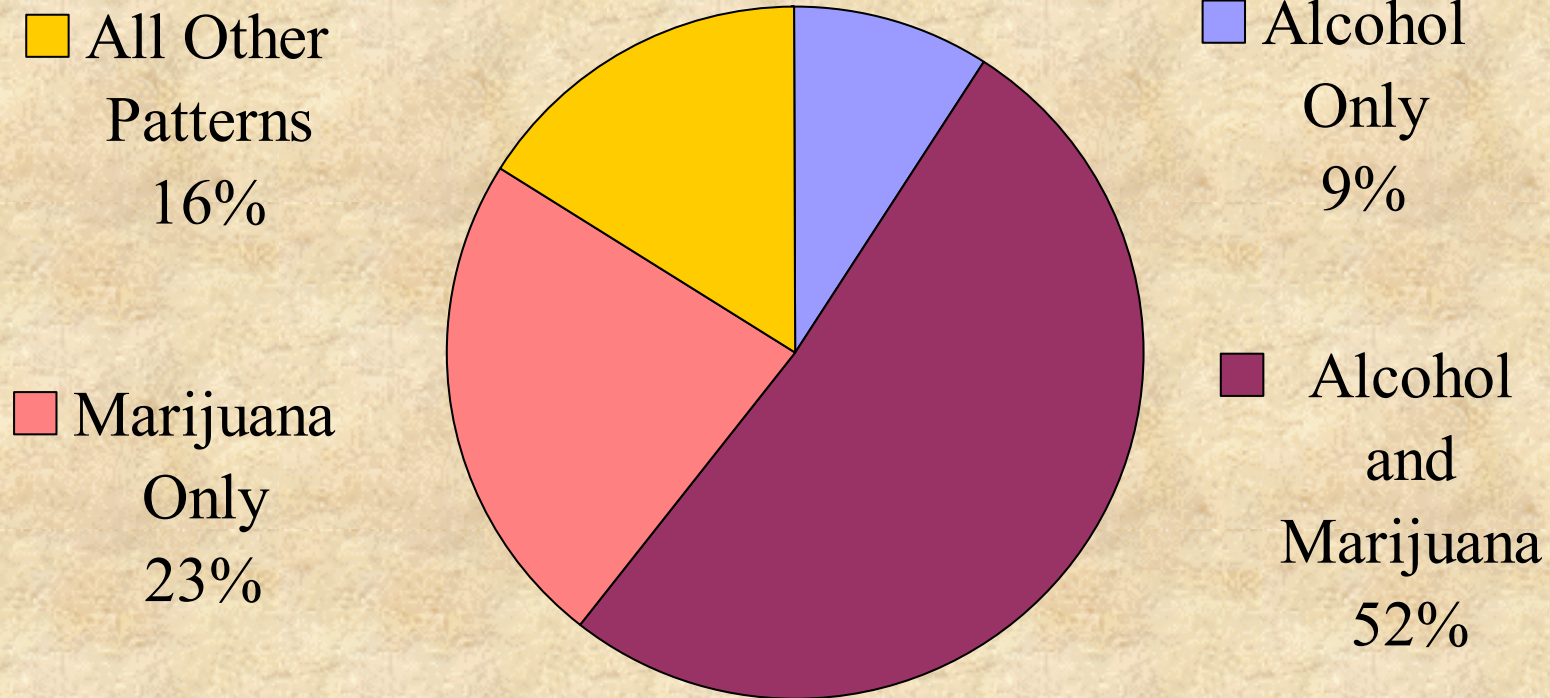
Source: Office of Applied Studies (1999, 2000). 1992- 1999 Treatment Episode Data Set (TEDS)

Adolescent Admissions (1992-1998)



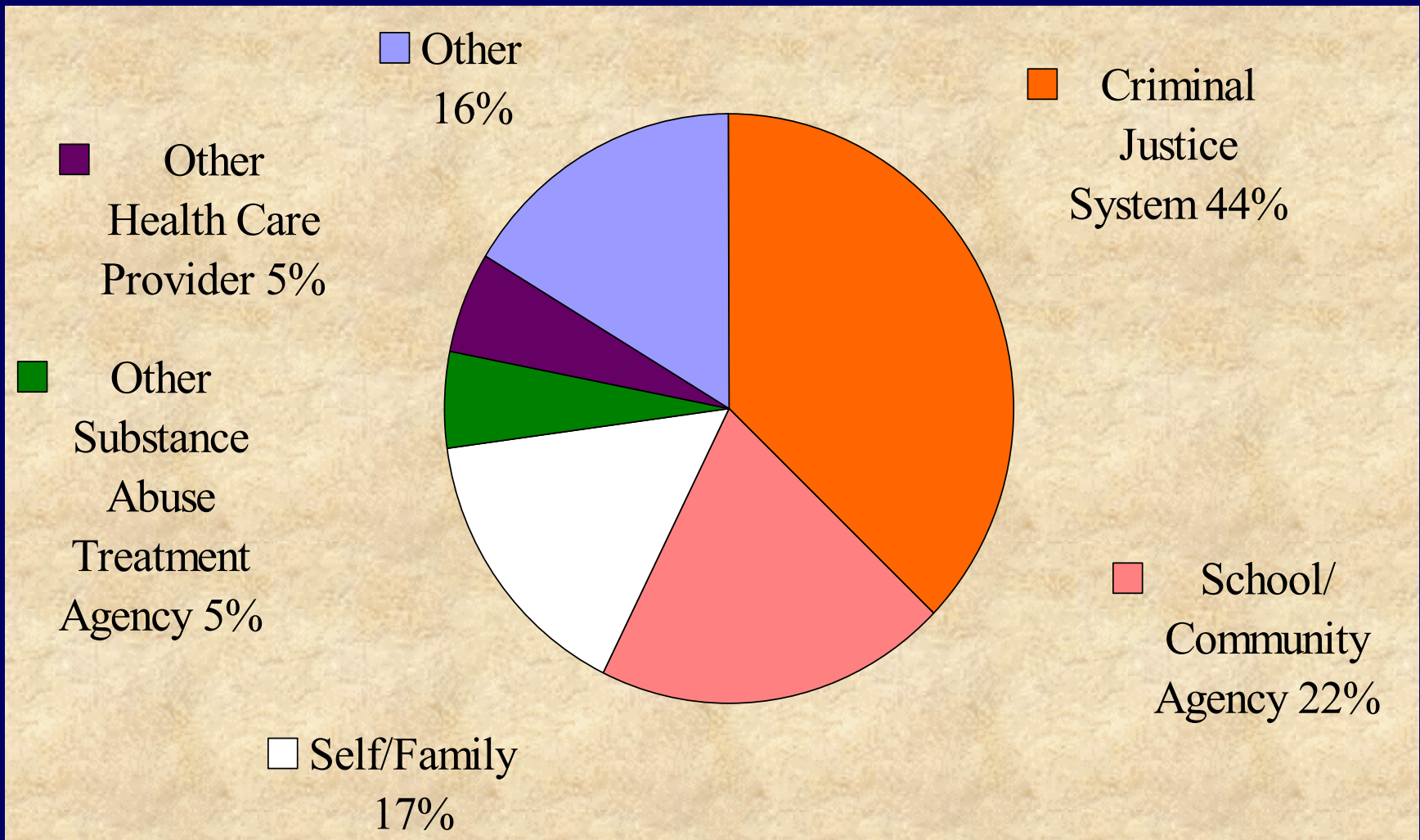
Source: *Dennis, Dawud-Noursi, Muck & McDermeit, 2002 and 1992-1998 Treatment Episode Data Set (TEDS)*

Patterns of Substance Use Problems



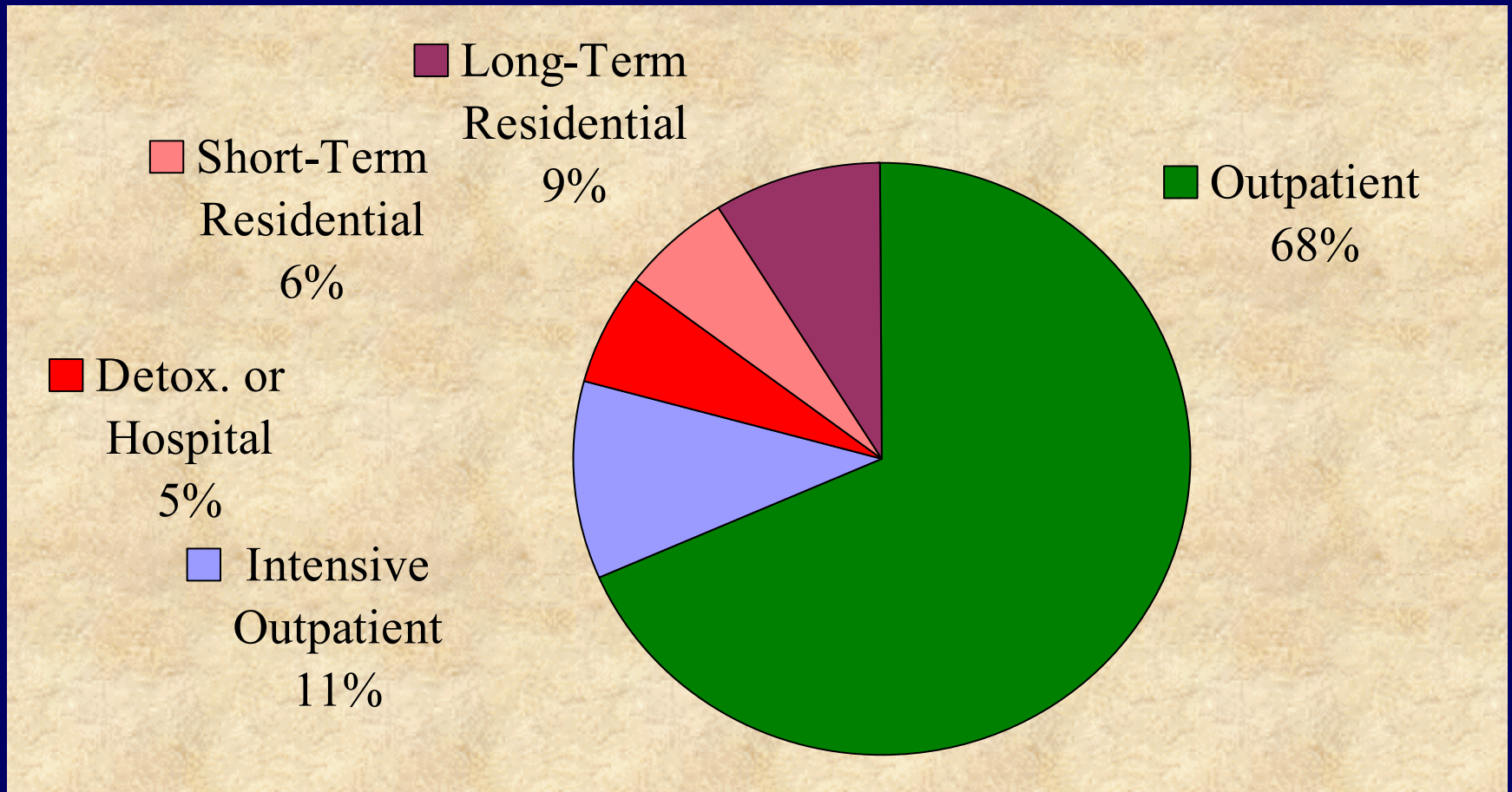
Source: *Dennis, Dawud-Noursi, Muck & McDermeit, 2002 and 1998 Treatment Episode Data Set (TEDS)*

Sources of Adolescent Referrals



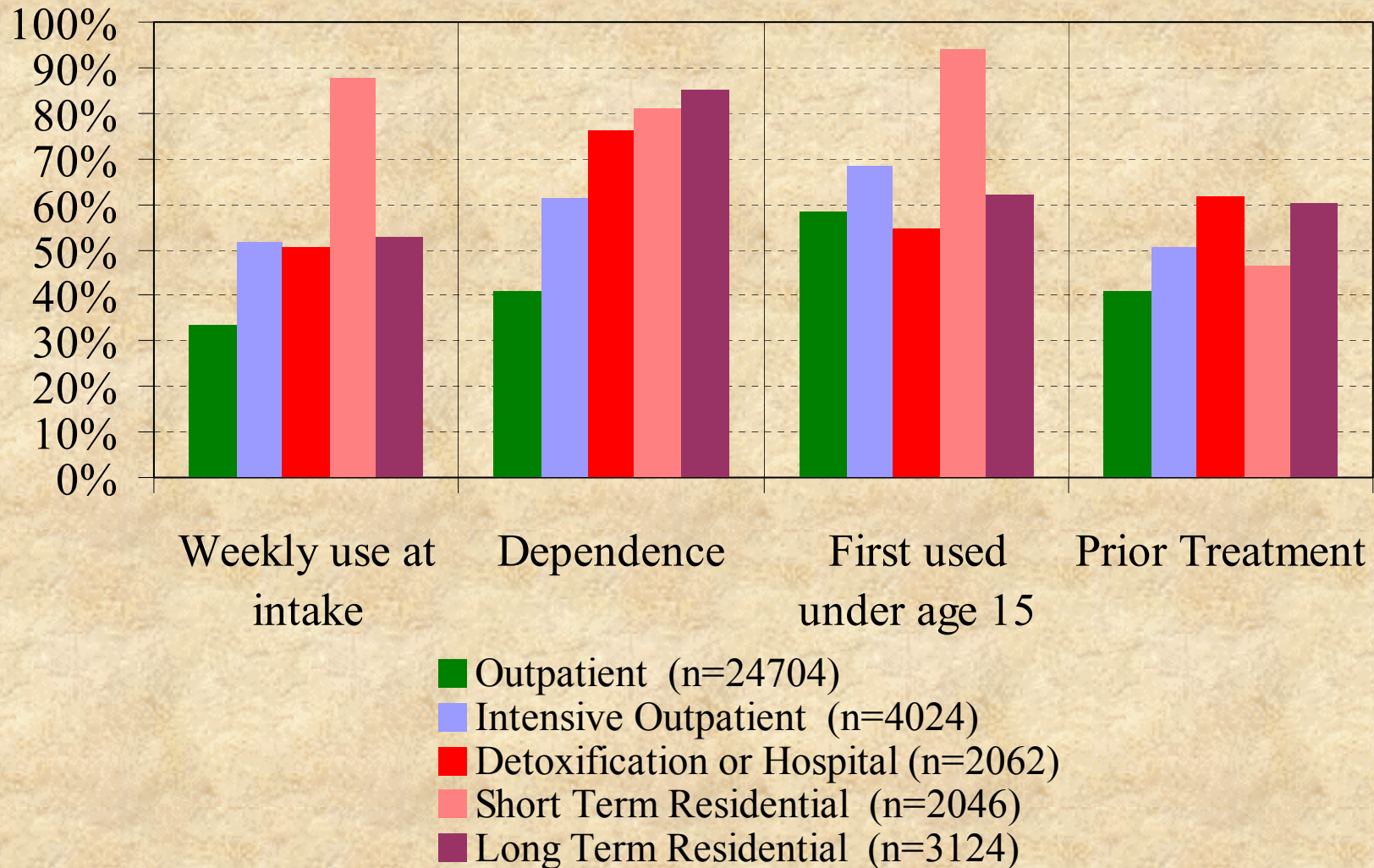
Source: *Dennis, Dawud-Noursi, Muck & McDermeit, 2002 and 1998 Treatment Episode Data Set (TEDS)*

Level of Care at Admission



Source: *Dennis, Dawud-Noursi, Muck & McDermeit, 2002 and 1998 Treatment Episode Data Set (TEDS)*

Severity Varies by Level of Care



Source: *Dennis, Dawud-Noursi, Muck & McDermeit, 2002 and 1998 Treatment Episode Data Set (TEDS)*

Knowledge Base from 36 Studies



- **9 large multi-site longitudinal studies (ATM, DARP, TOPS, SROS, TCA, NTIES, DATOS-A, DOMS), including 1 large multi-site experiment (Cannabis Youth Treatment - CYT)**
- **24 behavioral treatment studies (12-step, behavioral, family, other outpatient, inpatient, therapeutic communities, engagement, aftercare), including CYT and 1 pharmacology-behavioral (CBT) trial**
- **8 pharmacology treatment studies (bupropion, disulfiram, fluoxetine, lithium, pemoline, sertraline) and 1 pharmacology-behavioral (CBT) trial**

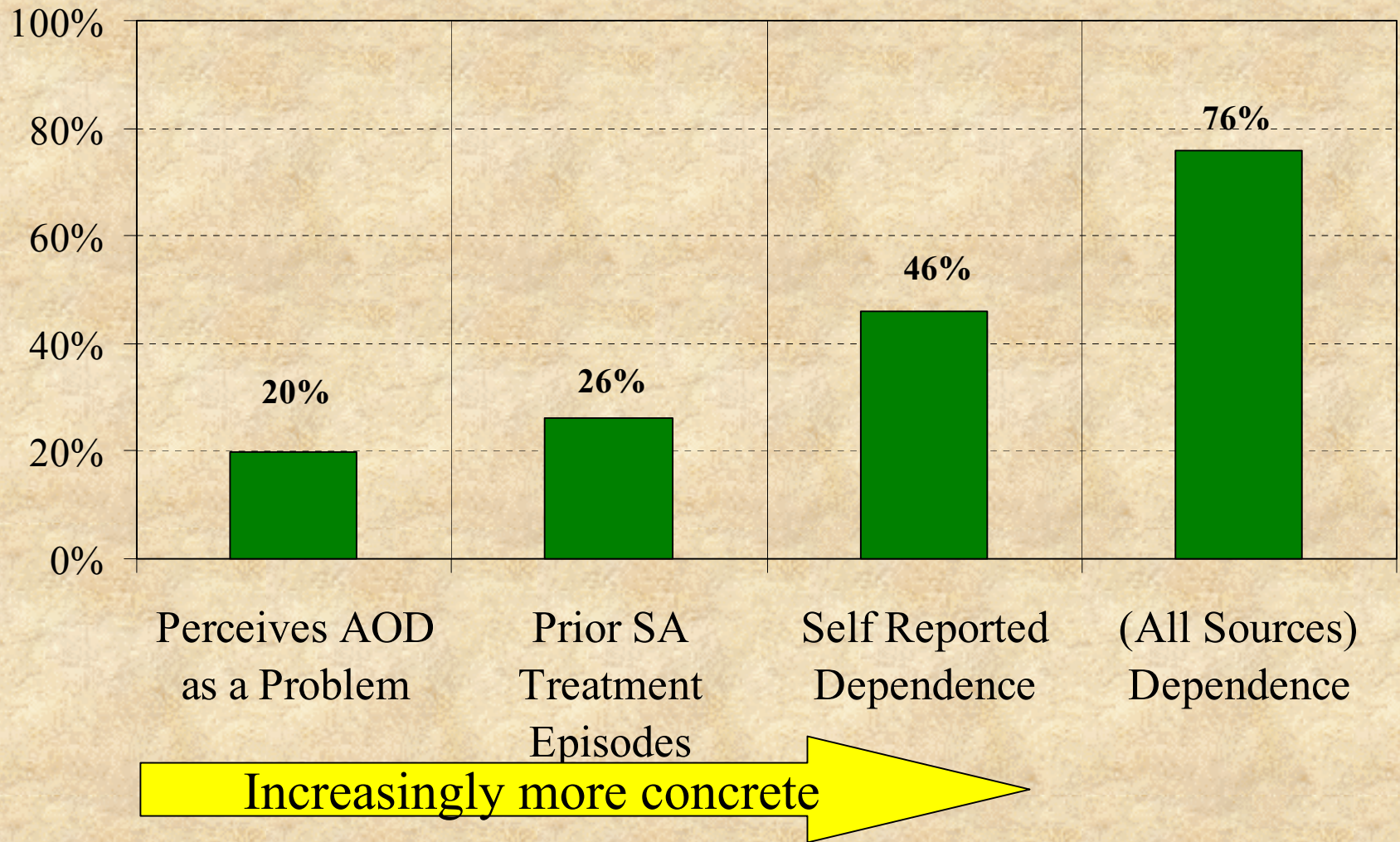
Source: Bukstein & Kithas, 2002; Dennis, White, Titus & Godley (in press), & Lewinsohn et al. 1993

Lessons from 9 Longitudinal Studies



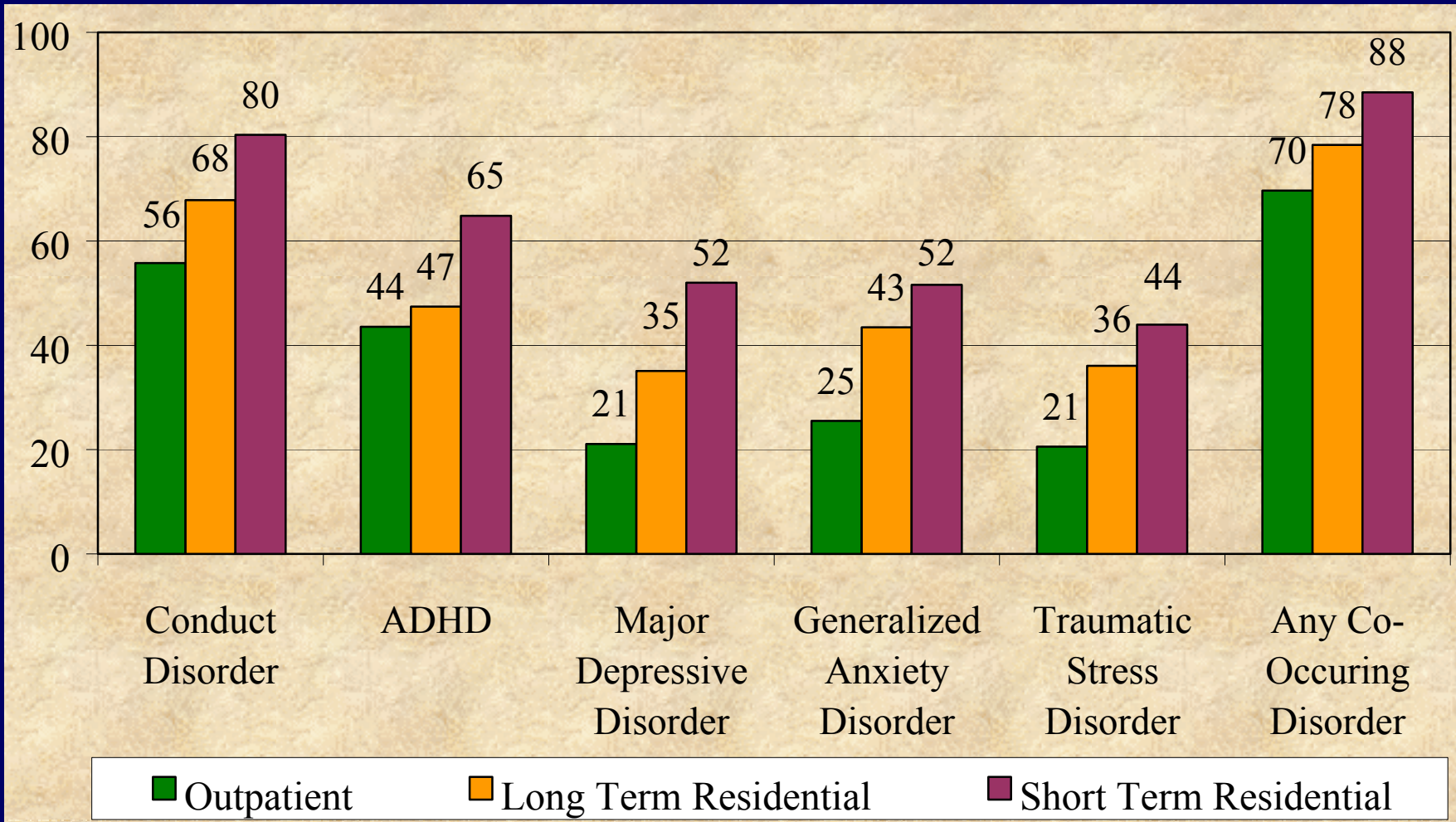
- **Assessment needs to be very concrete**
- **Multiple co-occurring problems are the norm in clinical samples of SUD adolescents** (*60-80% external disorders, 25-60% mood disorders, 16-45% anxiety disorders, 70-90% 3 or more diagnoses*)
- **Adolescents are involved in multiple systems competing to control their behavior** (*e.g, family, peers, school, work, criminal justice, and controlled environments*)
- **Relapse is common in the first 3-12 months**
- **Recovery often takes multiple attempts and episodes of care that may take years**
- **Field shifting to treatment models that:**
 - are more developmentally appropriate for adolescents
 - involve hybrid approaches and continuum of care
 - are manual-guided

Impact of Definition and Sources



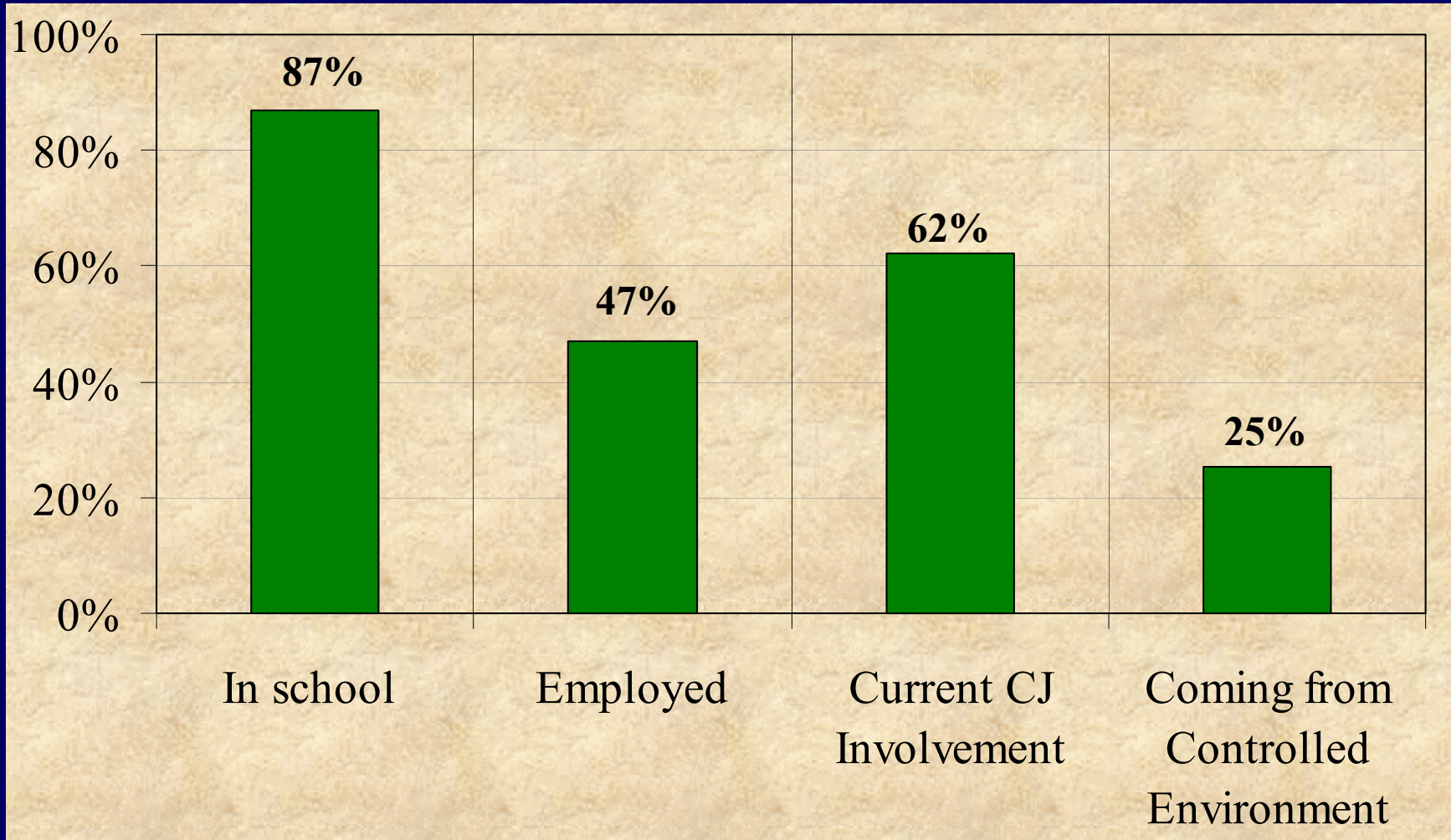
Source: Cannabis Youth Treatment (CYT) study

Multiple Co-occurring Problems Are the Norm and Increase with Level of Care



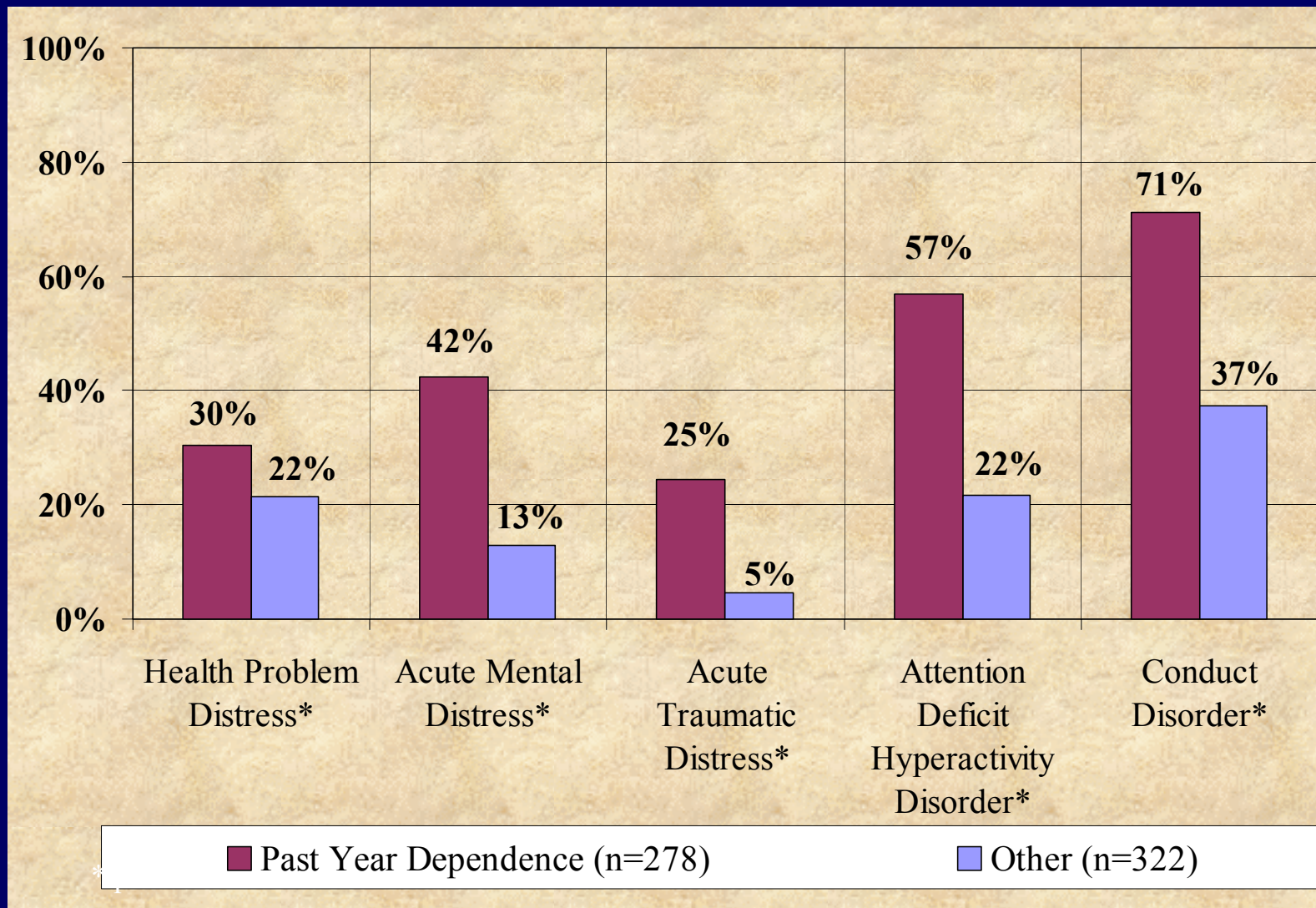
Source: CSAT's Cannabis Youth Treatment (CYT), Adolescent Treatment Model (ATM), and Persistent Effects of Treatment Study of Adolescents (PETS-A) studies

Involvement in Multiple Systems



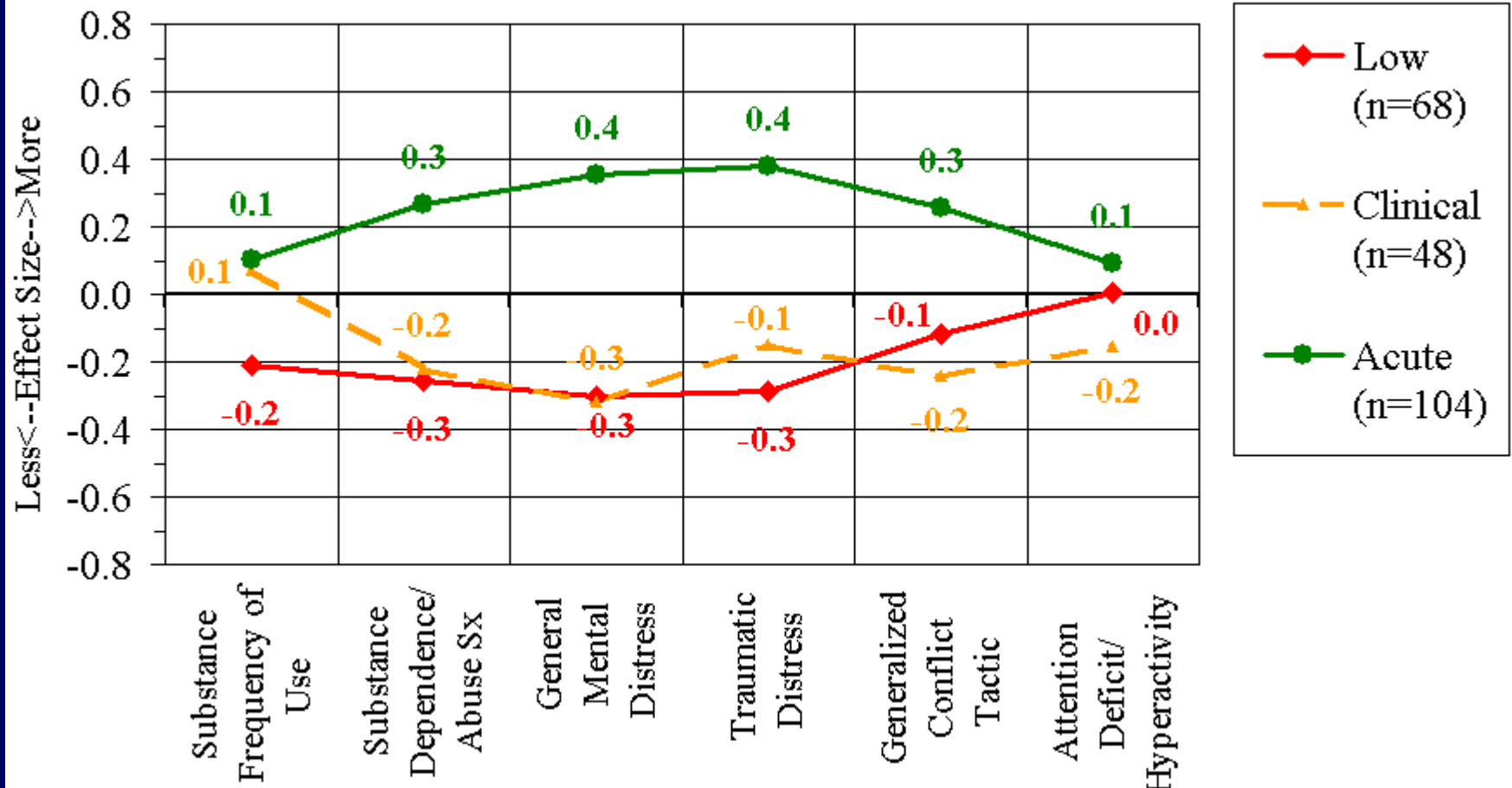
Source: *Cannabis Youth Treatment (CYT) study*

Severity is Related to Other Problems



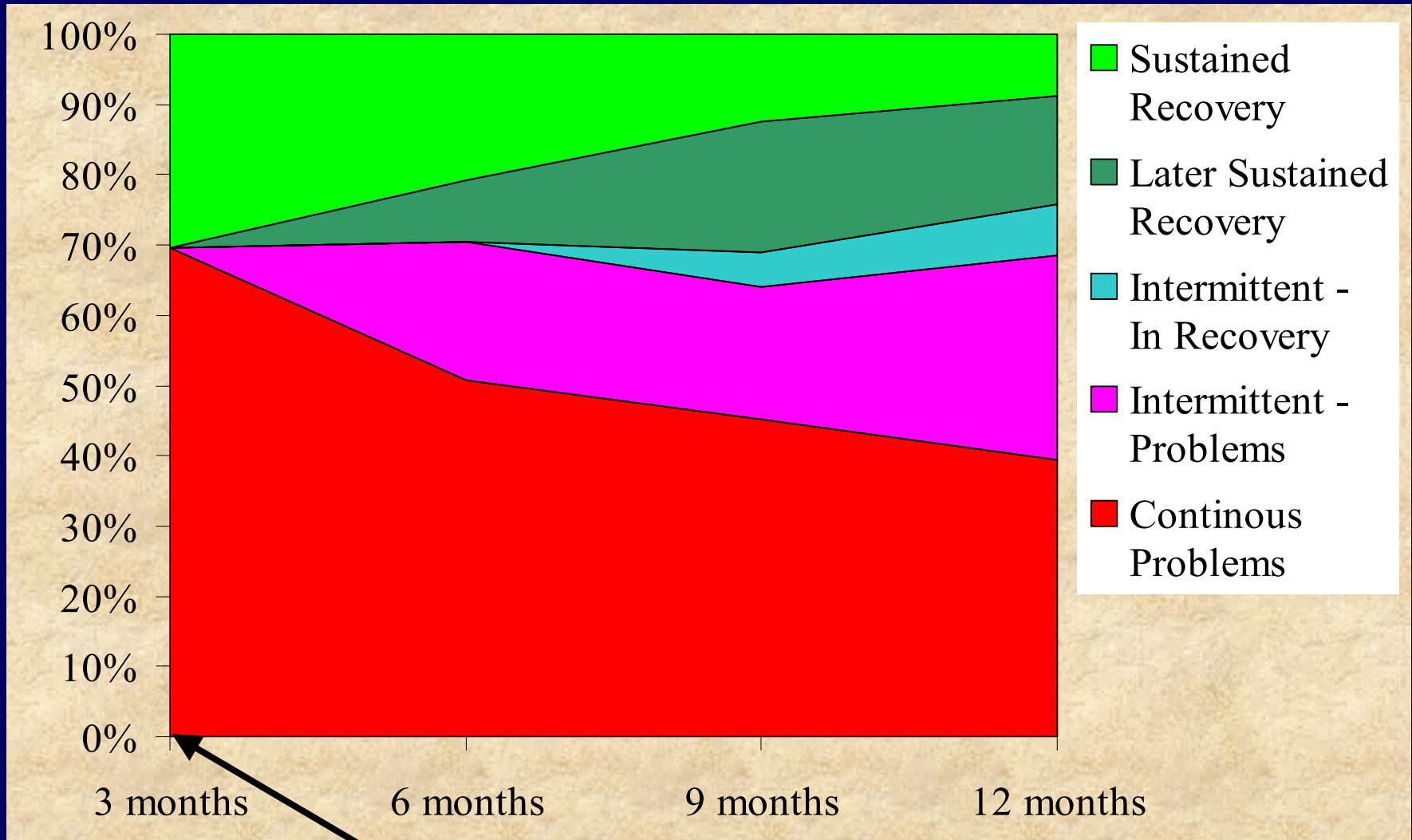
Source: Cannabis Youth Treatment (CYT) study

Victimization is Related to Severity



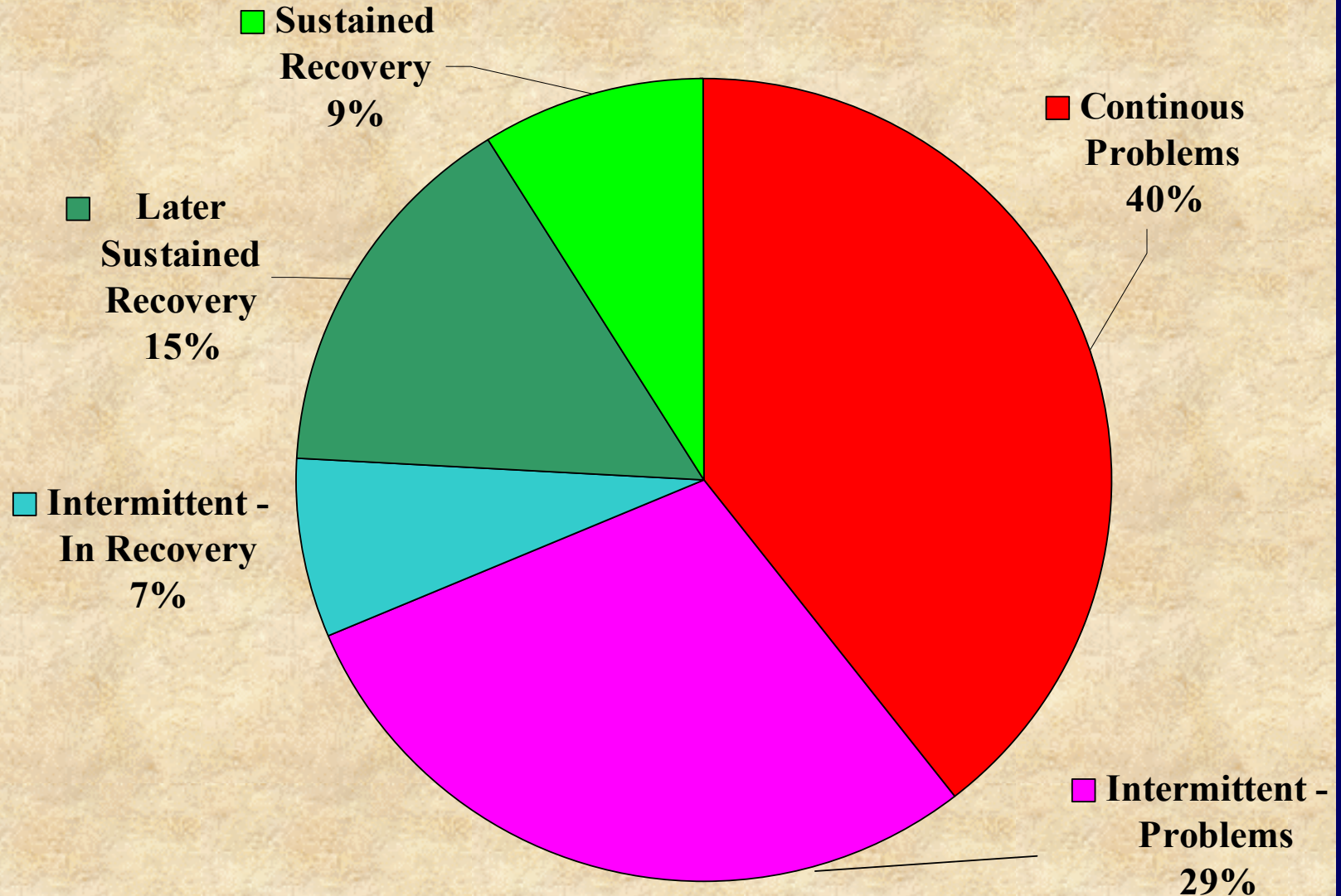
Source: Titus, Dennis, et al., in press

Importance of Multiple Measures



Over 98% of CYT treatments completed

Recovery Pattern Over 12 Months



Source: Dennis, Godley et al. (under review).

24 Behavioral Treatment Studies

- **Interventions associated with reduced substance use and problems:**
 - 1 experimental and 3 non-experimental studies of 12-step treatment (e.g., CD, Hazelden)
 - 7 experimental studies of behavior therapies (e.g., ACRA, AGT, BTOS, CBT, MET, RP)
 - 8 experimental studies of family therapy (CFT, FDE, FFT, FSN, FST, MDFT, MST, PBFT, TIPS)
 - 6 longitudinal studies of existing outpatient
 - 6 longitudinal studies of existing short term residential/inpatient
 - 7 longitudinal studies of therapeutic communities (TC) and other forms of long term residential treatment (LTR)
- **Another 3 experimental studies have shown that engagement and maintenance is associated with several interventions (case management, stepping down residential to OP, assertive aftercare)**

Behavioral Studies - Continued



- **Interventions that are associated with no or minimal change in substance use or symptoms:**
 - **Passive referrals**
 - **Educational units alone**
 - **Probation services as usual**
 - **Unstandardized outpatient services as usual**
- **Interventions associated with deterioration:**
 - **treatment of adolescents in “groups including one or more highly deviant individuals” (but NOT all groups)**
 - **treatment of adolescents in adult units and/or with adult models/materials (particularly outpatient)**

Lessons from Behavioral Studies



- Improvements generally came during active treatment and were sustained for 12 or more months
- Family therapies were associated with less initial change but more change post active treatment (and the same in long-term effects)
- Effectiveness was associated with therapies that:
 - were manual-guided and had developmentally appropriate materials
 - involved more quality assurance and clinical supervision
 - achieved therapeutic alliance and early positive outcomes
 - successfully engaged adolescents in aftercare, support groups, positive peer reference groups, more supportive recovery environments

Lessons from Behavioral Studies

- The effectiveness of group therapy was dependent on the composition of the group
- The effectiveness of therapy was dependent on changes in the recovery environment and social risk
- Effectiveness was not consistently associated with the amount of therapy over 6-12 weeks or type of therapy
- As other therapies have improved, there is no longer the clear advantage of family therapy found in early literature reviews
- Differences between conditions change over time, with many people fluctuating between use and recovery

Lessons from 9 Pharmacology Studies

- **No controlled trials of medication for treating withdrawal, substitution therapy, blocking therapy, aversive therapy or management of cravings**
- **Several adolescent case studies (1-5 subjects) suggest that:**
 - Naltrexone (ReVia®) reduced alcohol cravings
 - Desipramine (Pertofrane®) reduced alcohol/cocaine cravings
 - Disulfiram (Antabuse®) had mixed results in alcohol aversion
 - Bupropion (Wellbutrin®) helped adolescents quit tobacco use
- **One case study reported six deaths secondary to the concomitant use of buprenorphine and benzodiazepines**

Pharmacology Studies - continued

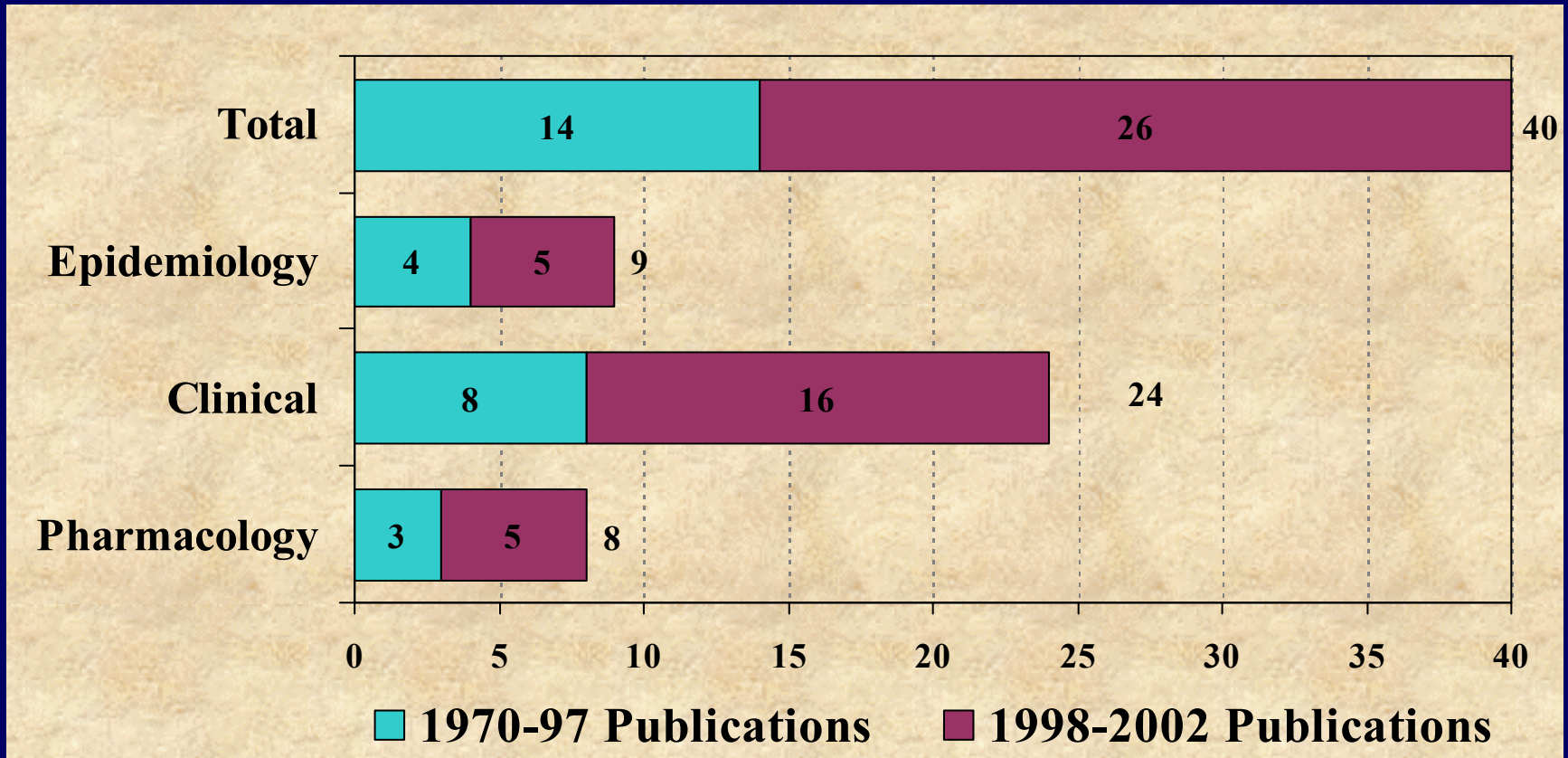
- **Most studies of other disorders exclude adolescents with substance use disorders**
- **Small (n of 8-25), short-term (4-12 weeks) studies suggest medication can be used to effectively treat several co-occurring problems:**
 - Fluoxetine (Prozac®) & Sertaline (Zoloft®) helped reduce depressive symptoms
 - Lithium carbonate (Eskalith®) reduced bipolar symptoms and positive urine rates
 - Pemoline (Cylert®) and Bupropion (Wellbutrin®) reduced symptoms of ADHD
- **One case study reported serious side effects secondary to the concomitant use of tricyclic antidepressants and marijuana**

Limitations of the Literature



- **Small sample sizes (most under 50)**
- **High rates (30-50%) of refusals by eligible people**
- **Unstandardized measures, no measures of abuse or dependence, no measures of comorbidity**
- **Unstandardized and minimally-supervised therapies (making replication very difficult)**
- **Minimal information on services received**
- **High rates (20-50%) of treatment dropout**
- **High rates of attrition from follow-up (25-54%) leading to potentially large (unknown) bias**

Studies by Date of First Publication



With over 65% of the studies first published in the past 5 years and over 3 dozen more currently in the field, we are entering a “renaissance of knowledge” in this area.

Studies are Improving!



- **New studies are likely to have higher rates of participation (70-90%), treatment completion (70-85%), and successful follow-up (85-95%)**
- **They are more likely to involve standardized assessments, manual-guided therapy, and better quality assurance/clinical supervision**
- **Experimental design, multiple time points of assessment and follow-up lasting 1 or more years**
- **Economic analysis of their costs, cost-effectiveness and benefit cost**

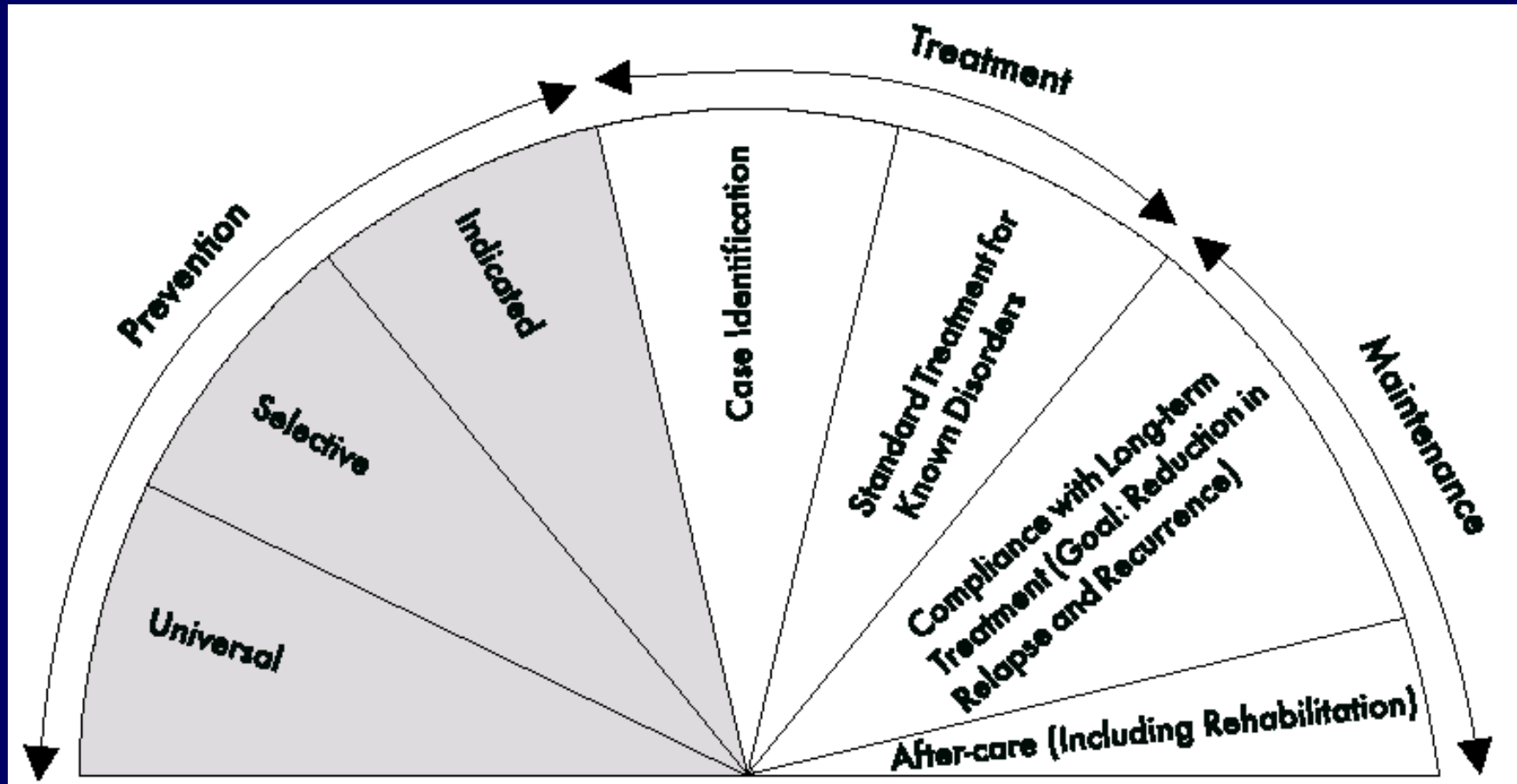
Normal Adolescent Development

- **Biological changes in the body, brain, and hormonal systems that continue into mid-to-late 20s.**
- **Shift from concrete to abstract thinking.**
- **Improvements in the ability to link causes and consequences (particularly strings of events over time).**
- **Separation from a family-based identity and the development of peer- and individual-based identities.**
- **Increased focus on how one is perceived by peers.**
- **Increasing rates of sensation seeking/trying new things.**
- **Development of impulse control and coping skills.**
- **Concerns about avoiding emotional or physical violence.**

Adapting Treatment for Adolescents

- **Examples need to be altered to relevant substances, situations, and triggers**
- **Consequences have to be altered to things of concern to adolescents**
- **Most adolescents do not recognize their substance use as a problem and are being mandated to treatment**
- **All materials need to be converted from abstract to concrete concepts**
- **Comorbid problems (mental, trauma, legal) are the norm and often predate substance use**
- **Treatment has to take into account the multiple systems (family, school, welfare, criminal justice)**
- **Less control of life and recovery environment**
- **Less aftercare and social support**
- **Complicated staffing needs**

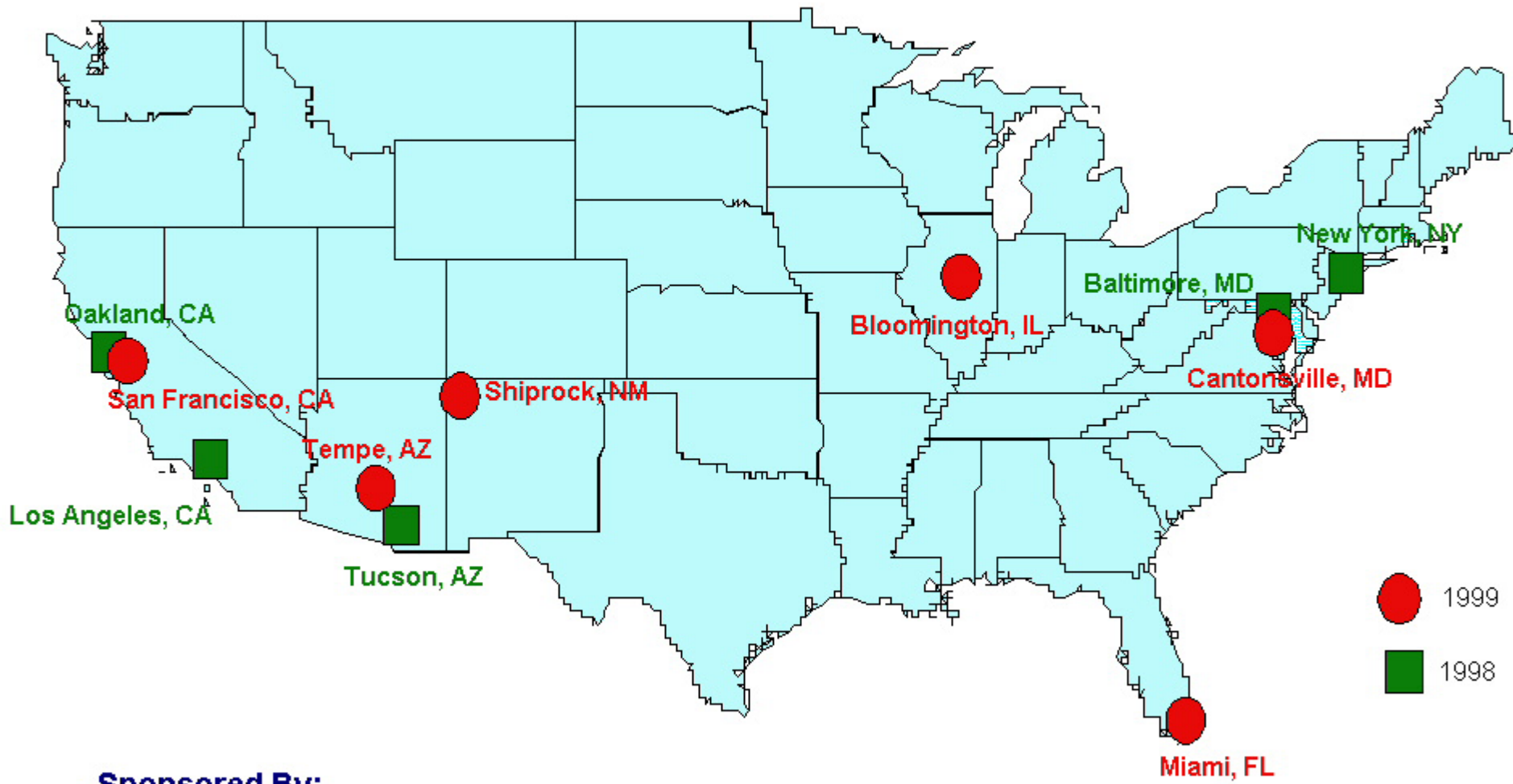
Continuum of Care Framework



Source: National Academy of Sciences (1994).


ATM

Adolescent Treatment Models: A Study of Existing Adolescent Treatment Models



Sponsored By:
Center for Substance Abuse Treatment (CSAT),
Substance Abuse and Mental Health Services Administration (SAMHSA),
U.S. Department of Health and Human Services (DHHS)

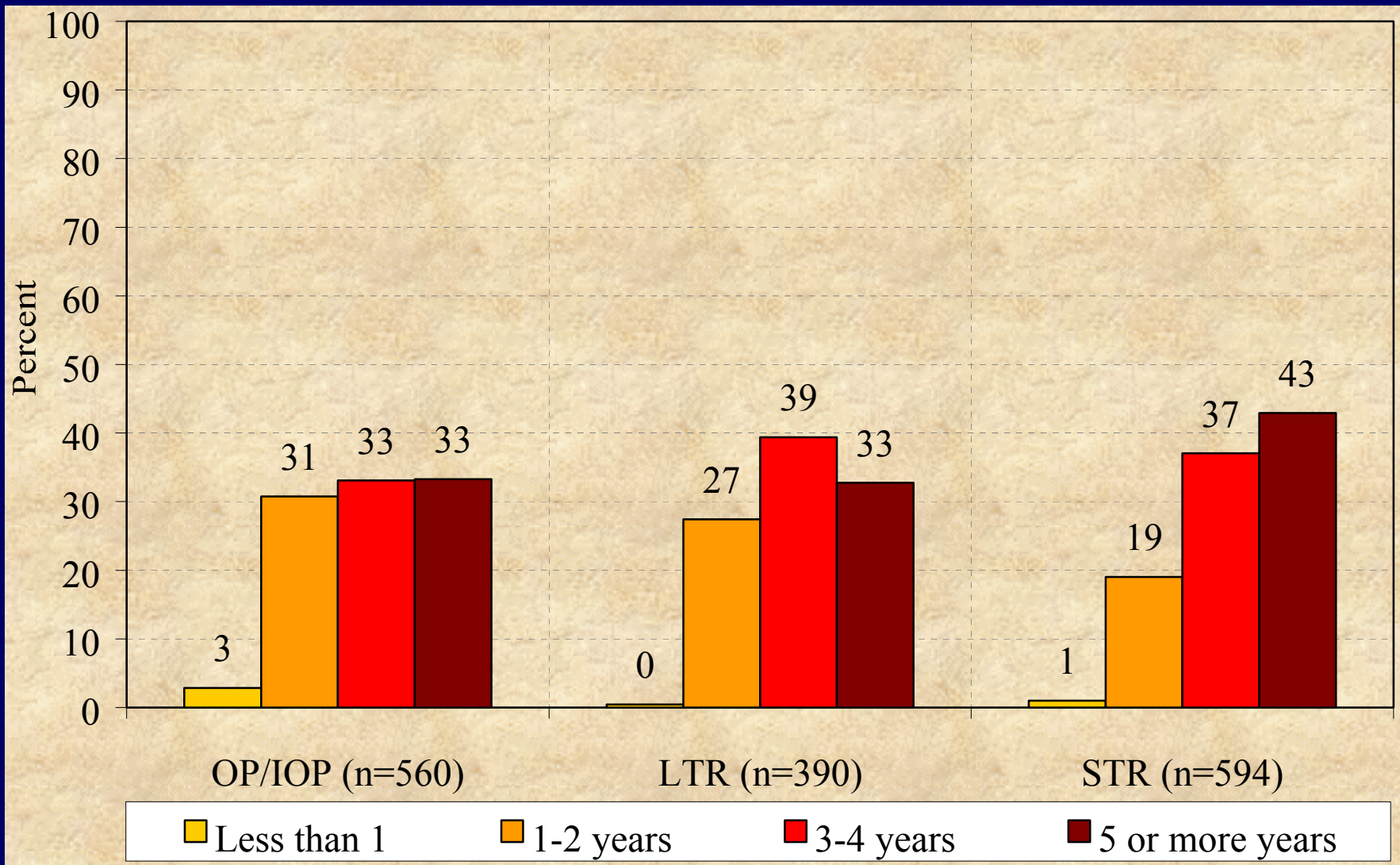
Adolescent Treatment Model (ATM) Study



Level of Care	Clinics	Adolescents	1+ FU*
Long Term Residential (LTR)	4	290	98%
Short Term Residential (STR)	4	594	97%
Outpatient/Inten. OP (OP/IOP)	8	560	96%
LTR Continuing Care (LTR-CC)	1	48	98%
Total	17	1592	97%

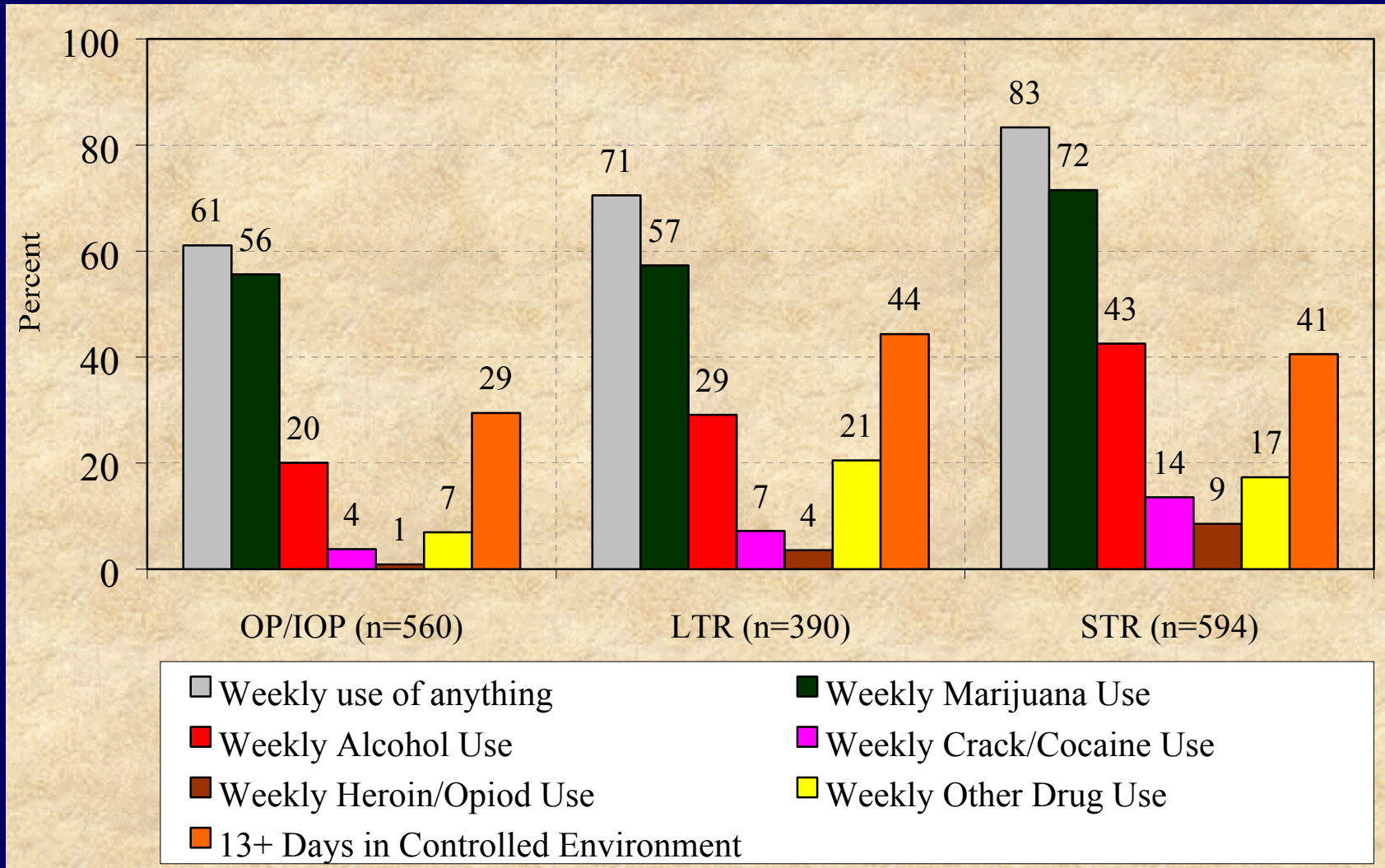
* Completed follow-up calculated as 1+ interviews over those due-done, with site varying between 2-4 planned follow-up interviews. Of those due & alive, 89% completed with 2+ follow-ups, 88% completed 3+ and 78% completed 4.

Years of Use



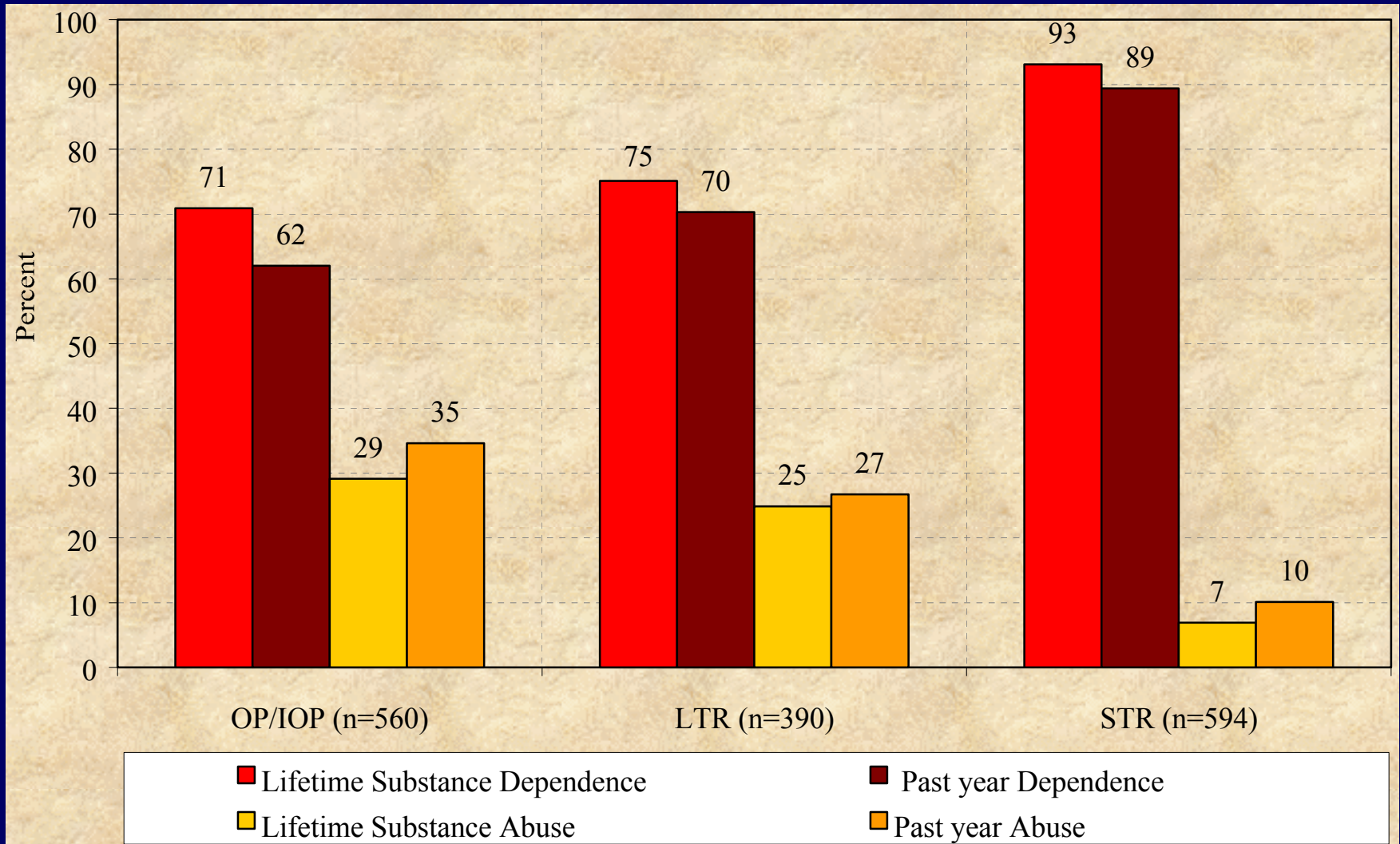
Source: Adolescent Treatment Model (ATM) data

Patterns of Weekly (13+/90) Use



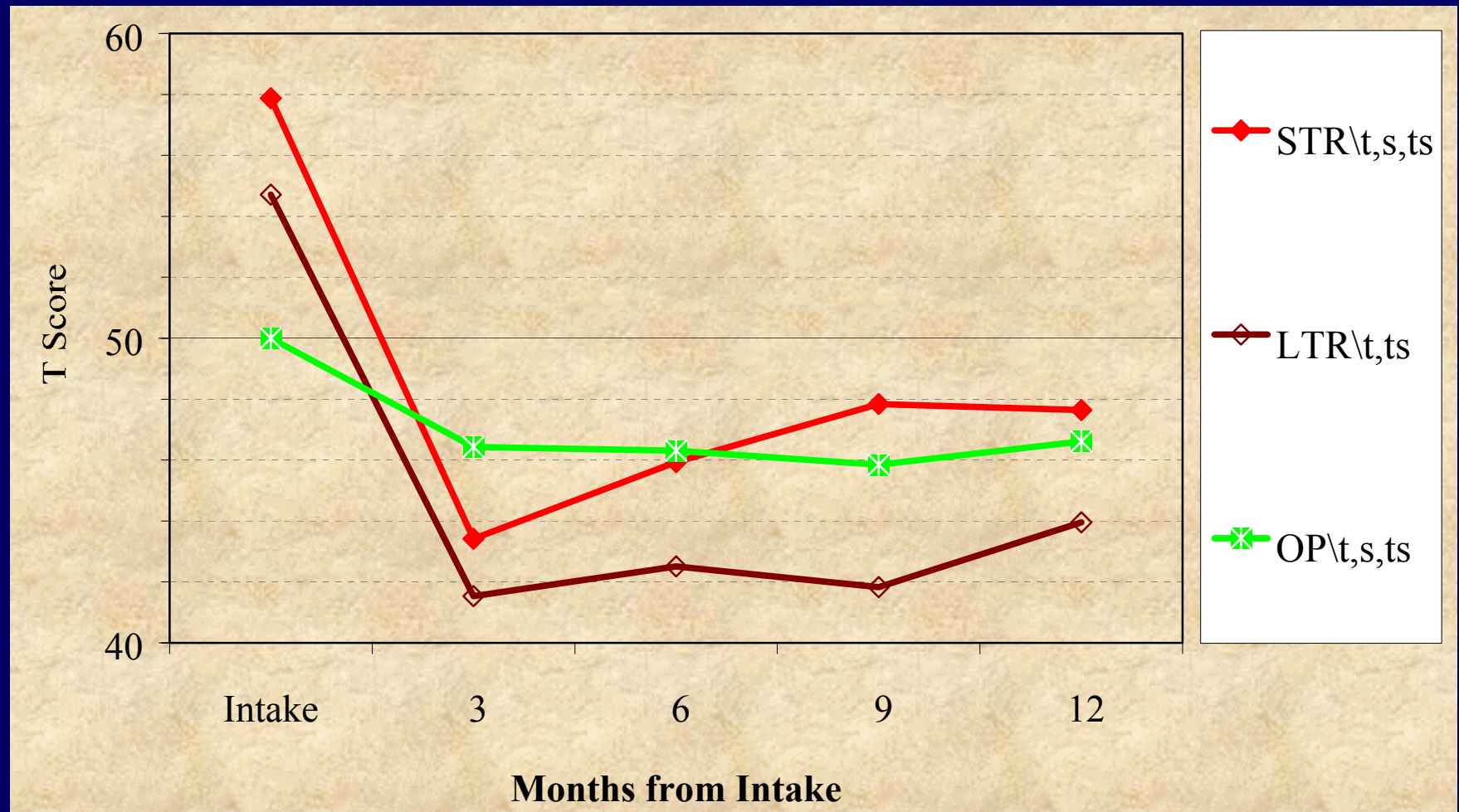
Source: Adolescent Treatment Model (ATM) data

Substance Use Severity



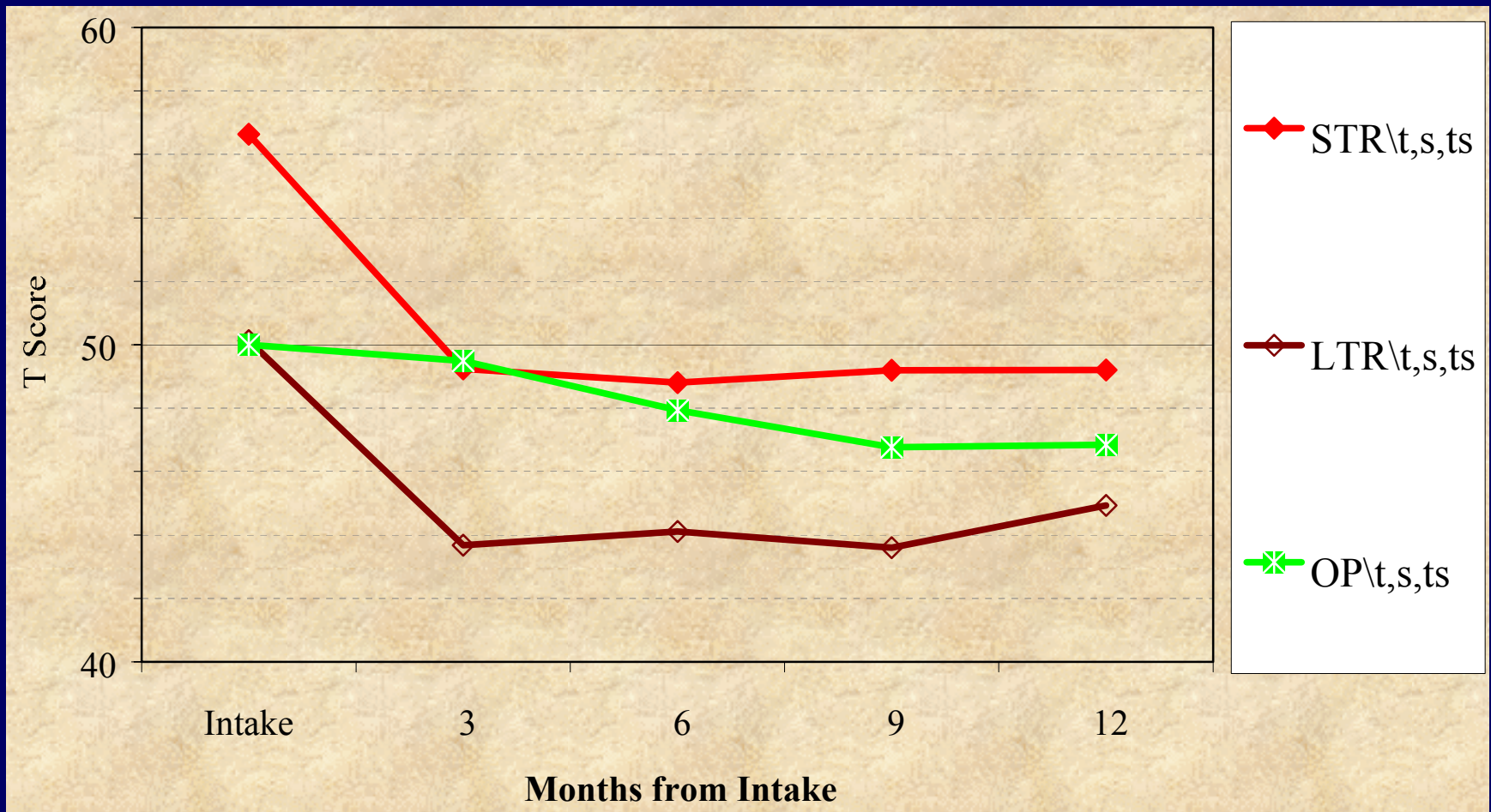
Source: Adolescent Treatment Model (ATM) data

Change in Substance Frequency Index by Level of Care



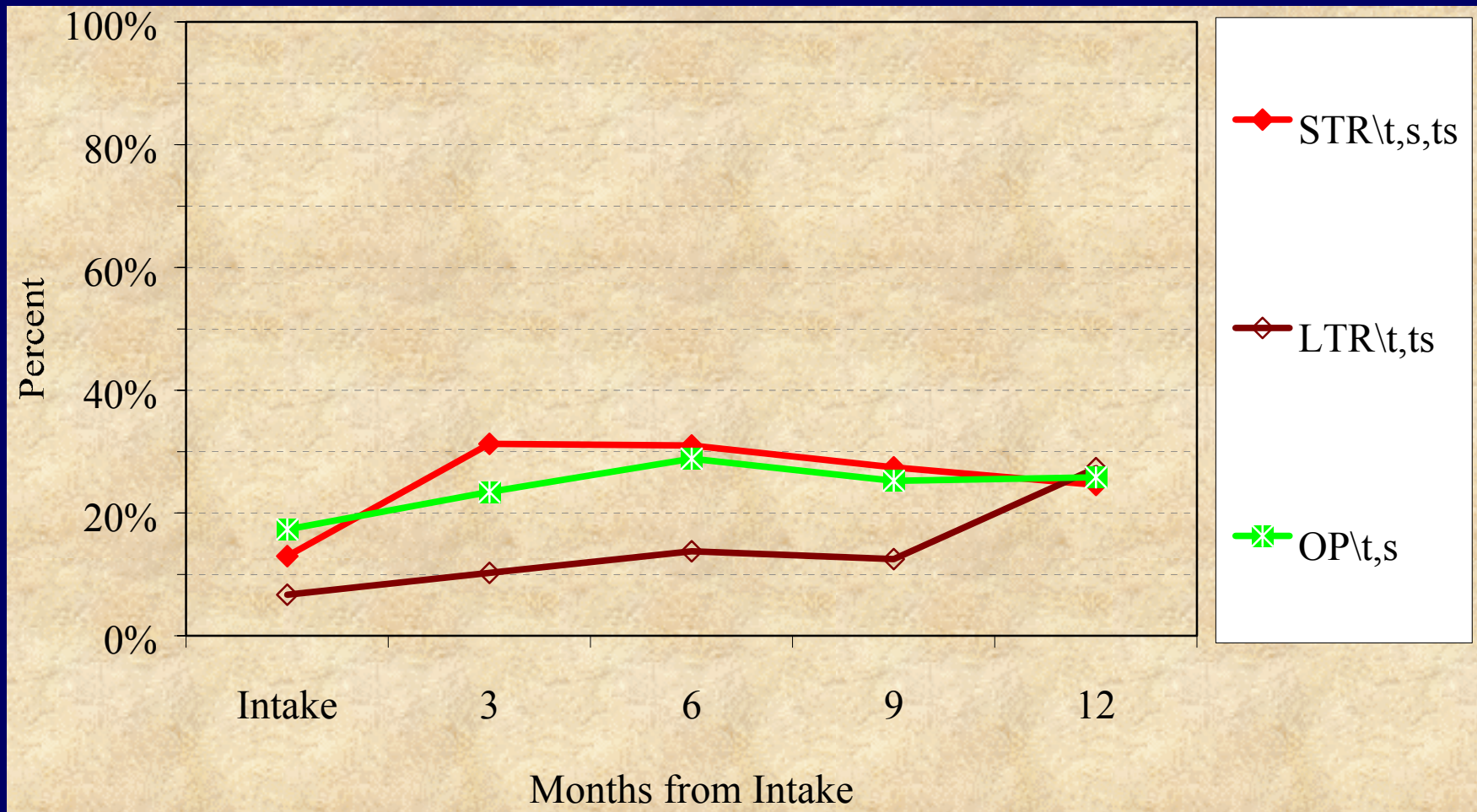
\a Source: Adolescent Treatment Model (ATM) data; Level of cares coded as Long Term Residential (LTR, n=390), Short Term Residential (STR, n=594), Outpatient/Intensive and Outpatient (OP/IOP, n=560);. T scores are normalized on the ATM outpatient intake mean and standard deviation. Significance ($p < .05$) marked as \t for time effect, \s for site effect, and \ts for time x site effect.

Change in Substance Problem Index by Level of Care^a



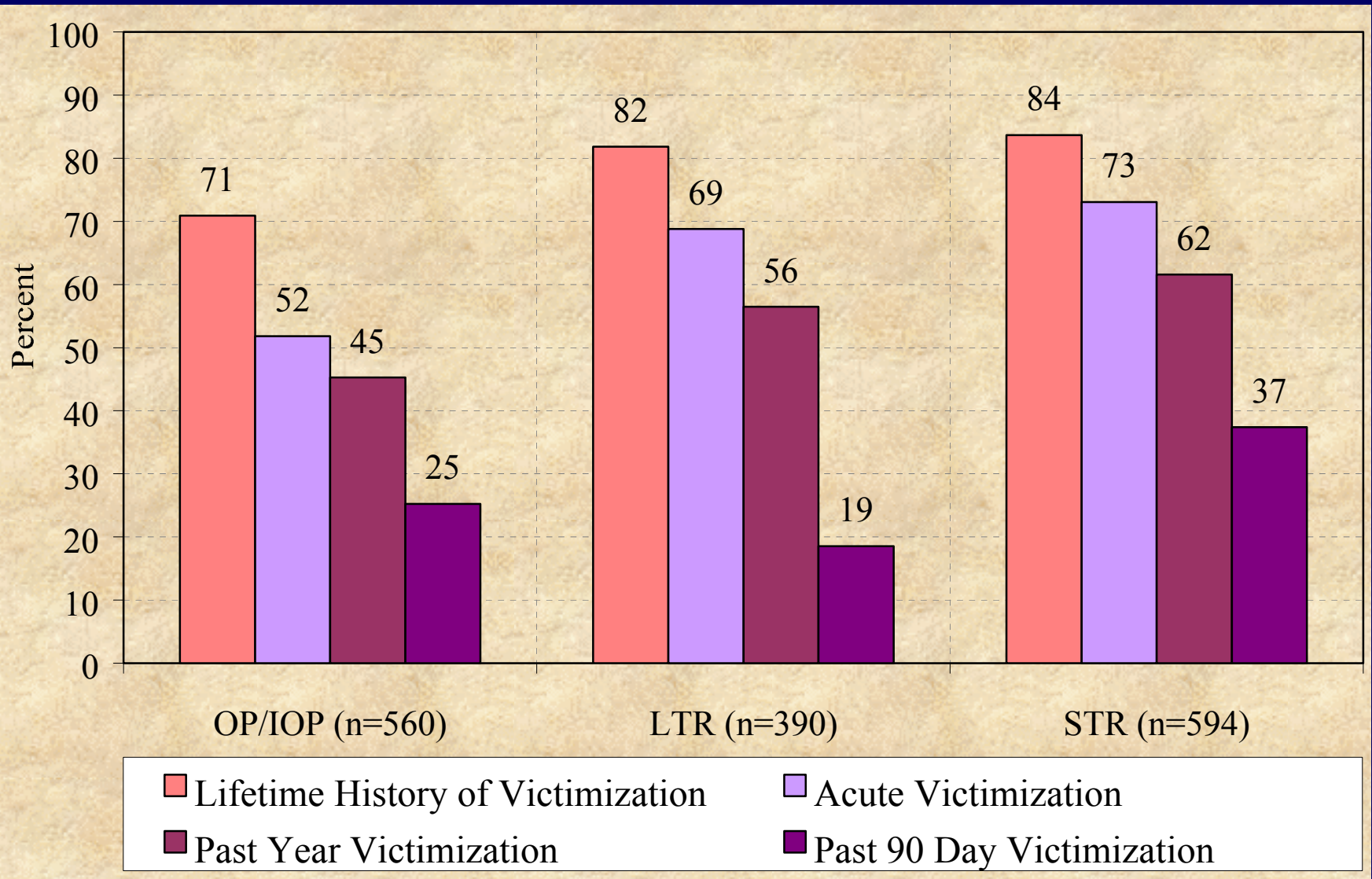
^a Source: Adolescent Treatment Model (ATM) data; Level of cares coded as Long Term Residential (LTR, n=390), Short Term Residential (STR, n=594), Outpatient/Intensive and Outpatient (OP/IOP, n=560);. T scores are normalized on the ATM outpatient intake mean and standard deviation. Significance ($p < .05$) marked as t for time effect, s for site effect, and ts for time x site effect.

Percent in Recovery (no past month use or problems while living in the community)



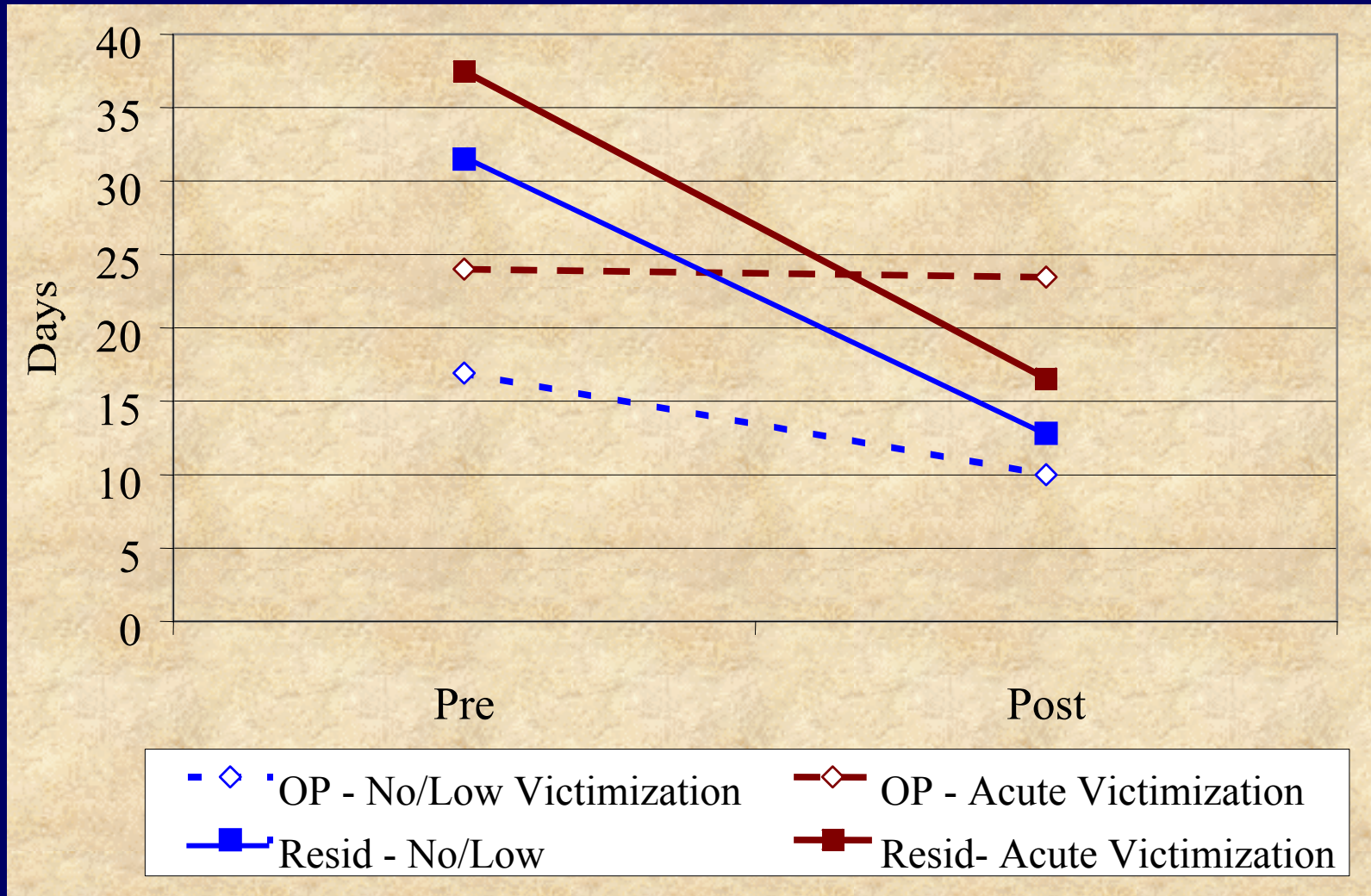
Source: Adolescent Treatment Model (ATM) data; Level of cares coded as Long Term Residential (LTR, n=390), Short Term Residential (STR, n=594), Outpatient/Intensive and Outpatient (OP/IOP, n=560);. T scores are normalized on the ATM outpatient intake mean and standard deviation. Significance ($p < .05$) marked as $\backslash t$ for time effect, $\backslash s$ for site effect, and $\backslash ts$ for time x site effect.

High Rates of Victimization

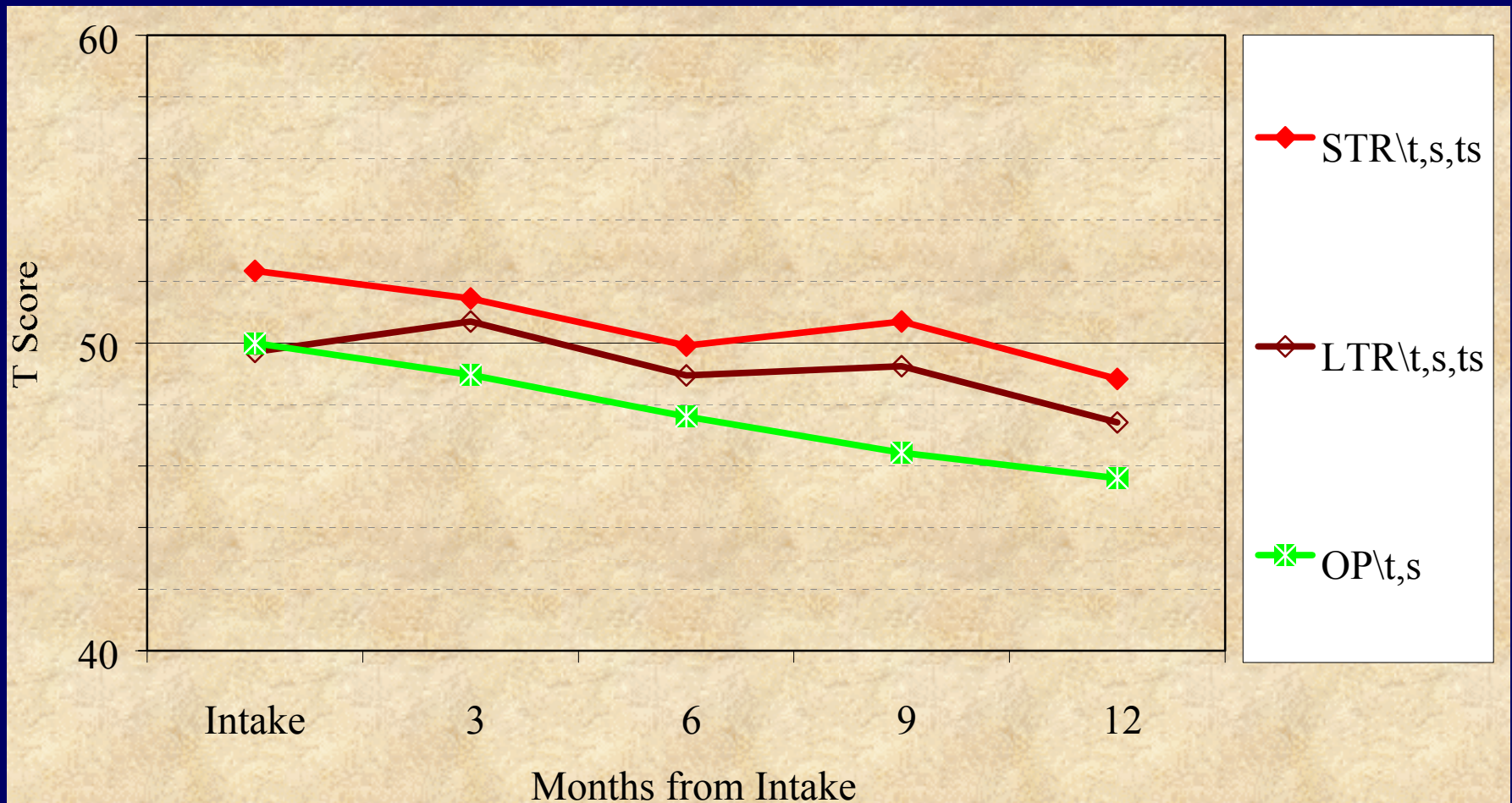


Source: Adolescent Treatment Model (ATM) data

Interaction of Victimization and Treatment Setting on Days of Marijuana Use

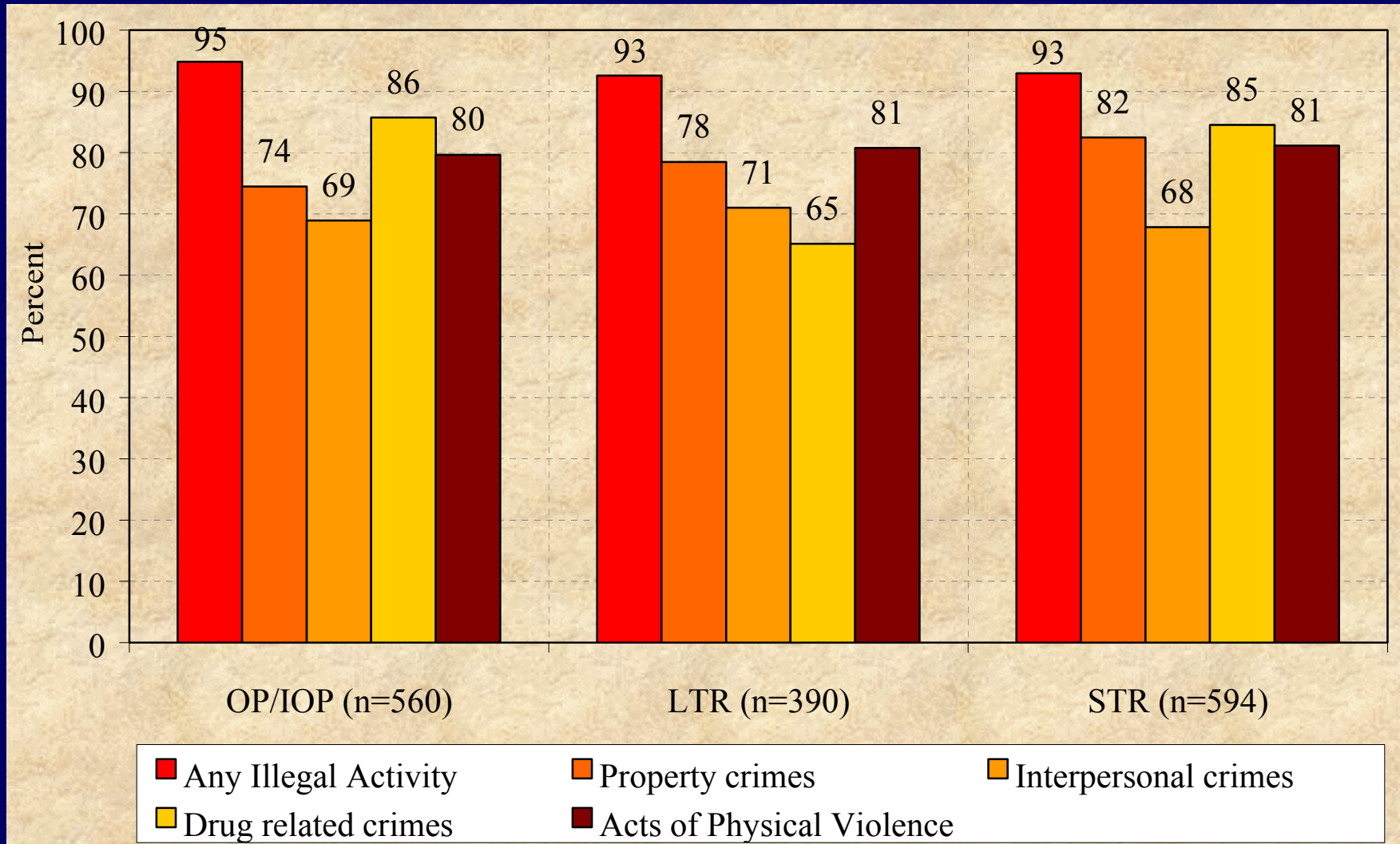


Change in Emotional Problem Index by Level of Care^a



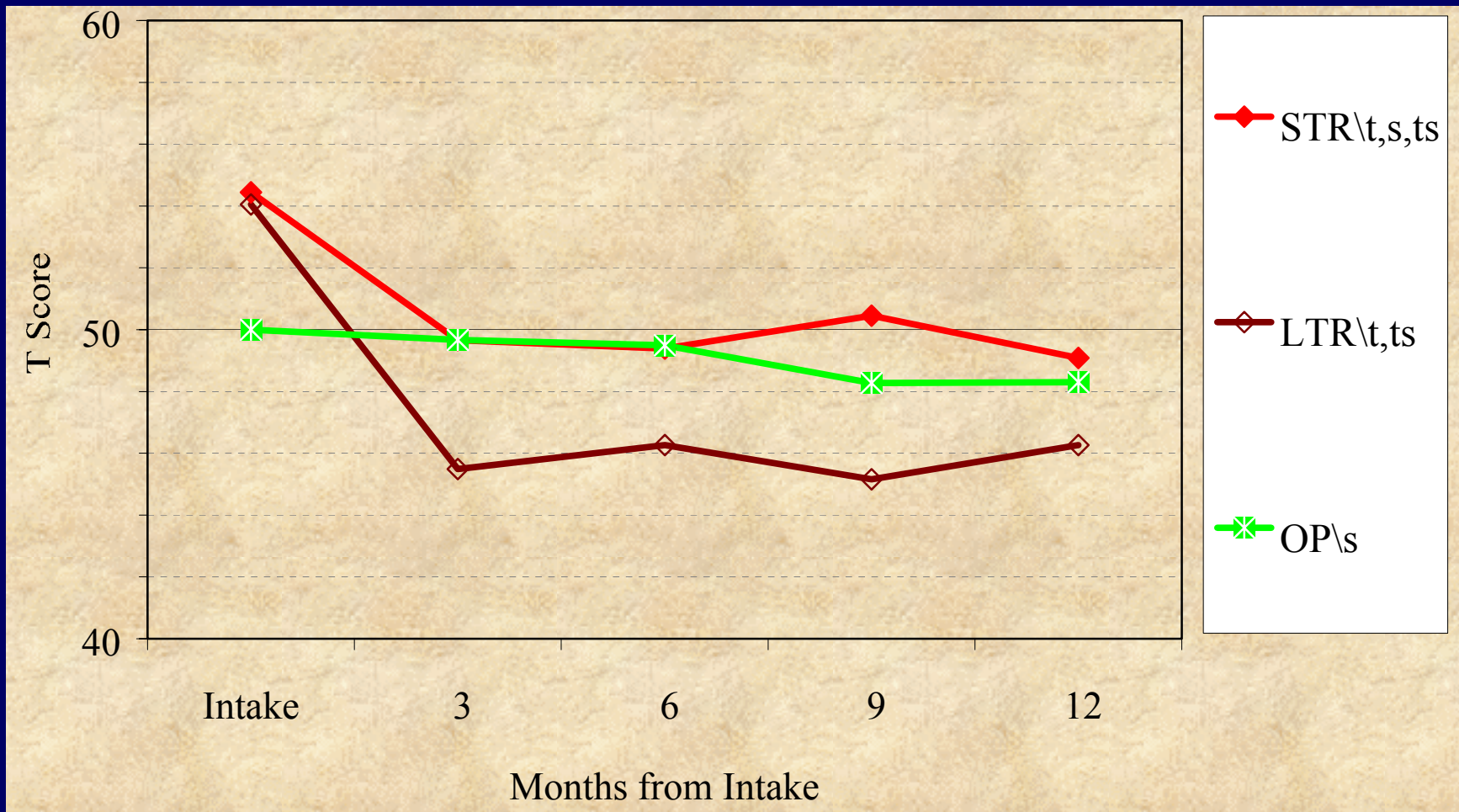
^a Source: Adolescent Treatment Model (ATM) data; Level of cares coded as Long Term Residential (LTR, n=390), Short Term Residential (STR, n=594), Outpatient/Intensive and Outpatient (OP/IOP, n=560);. T scores are normalized on the ATM outpatient intake mean and standard deviation. Significance ($p < .05$) marked as $\backslash t$ for time effect, $\backslash s$ for site effect, and $\backslash ts$ for time x site effect.

Illegal Activity (not just possession)



Source: Adolescent Treatment Model (ATM) data

Change in Illegal Activity Index by Level of Care^a



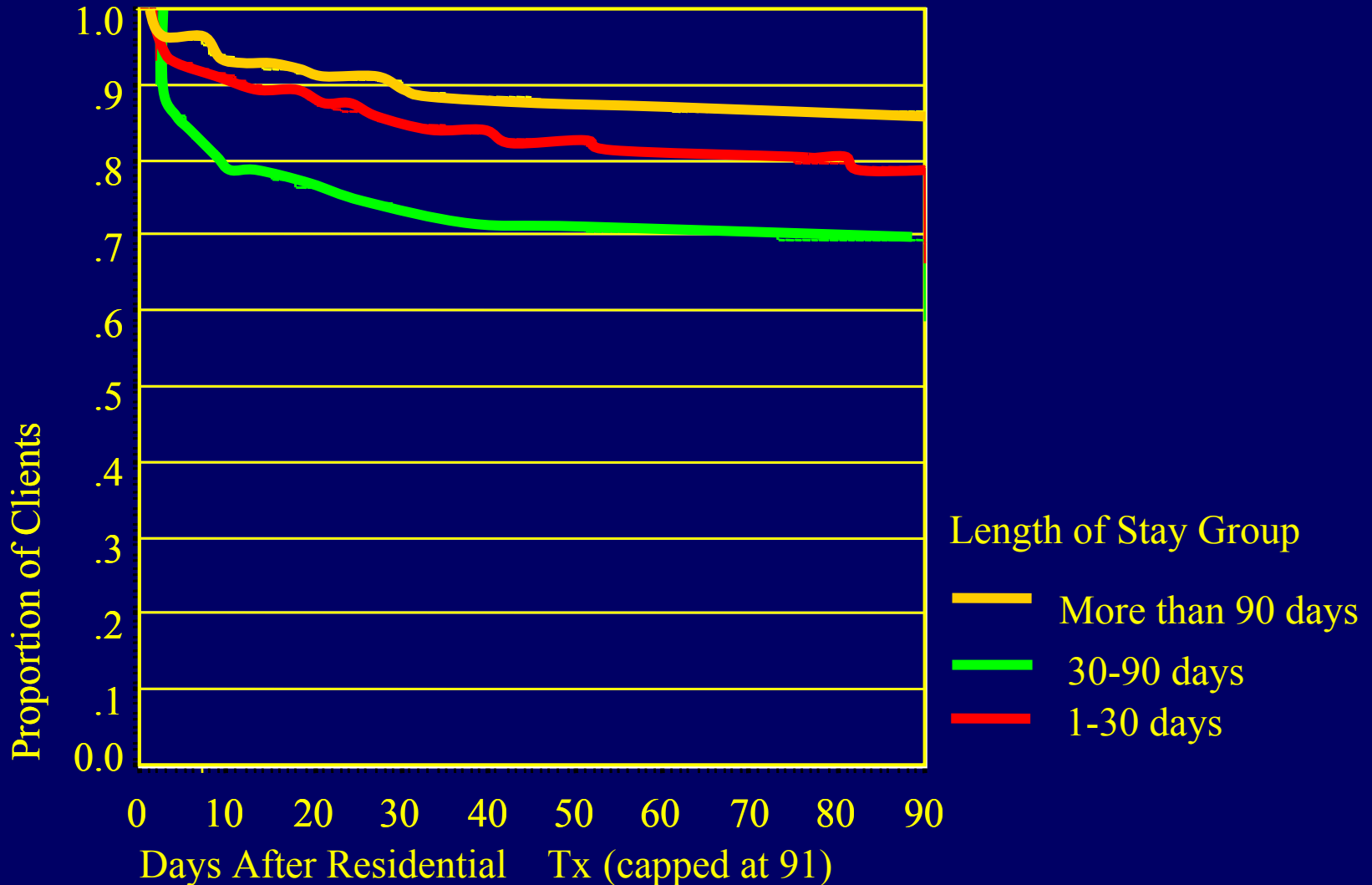
^a Source: Adolescent Treatment Model (ATM) data; Level of cares coded as Long Term Residential (LTR, n=390), Short Term Residential (STR, n=594), Outpatient/Intensive and Outpatient (OP/IOP, n=560);. T scores are normalized on the ATM outpatient intake mean and standard deviation. Significance ($p < .05$) marked as $\backslash t$ for time effect, $\backslash s$ for site effect, and $\backslash ts$ for time x site effect.

Findings from the Assertive Continuing Care (ACC) Experiment



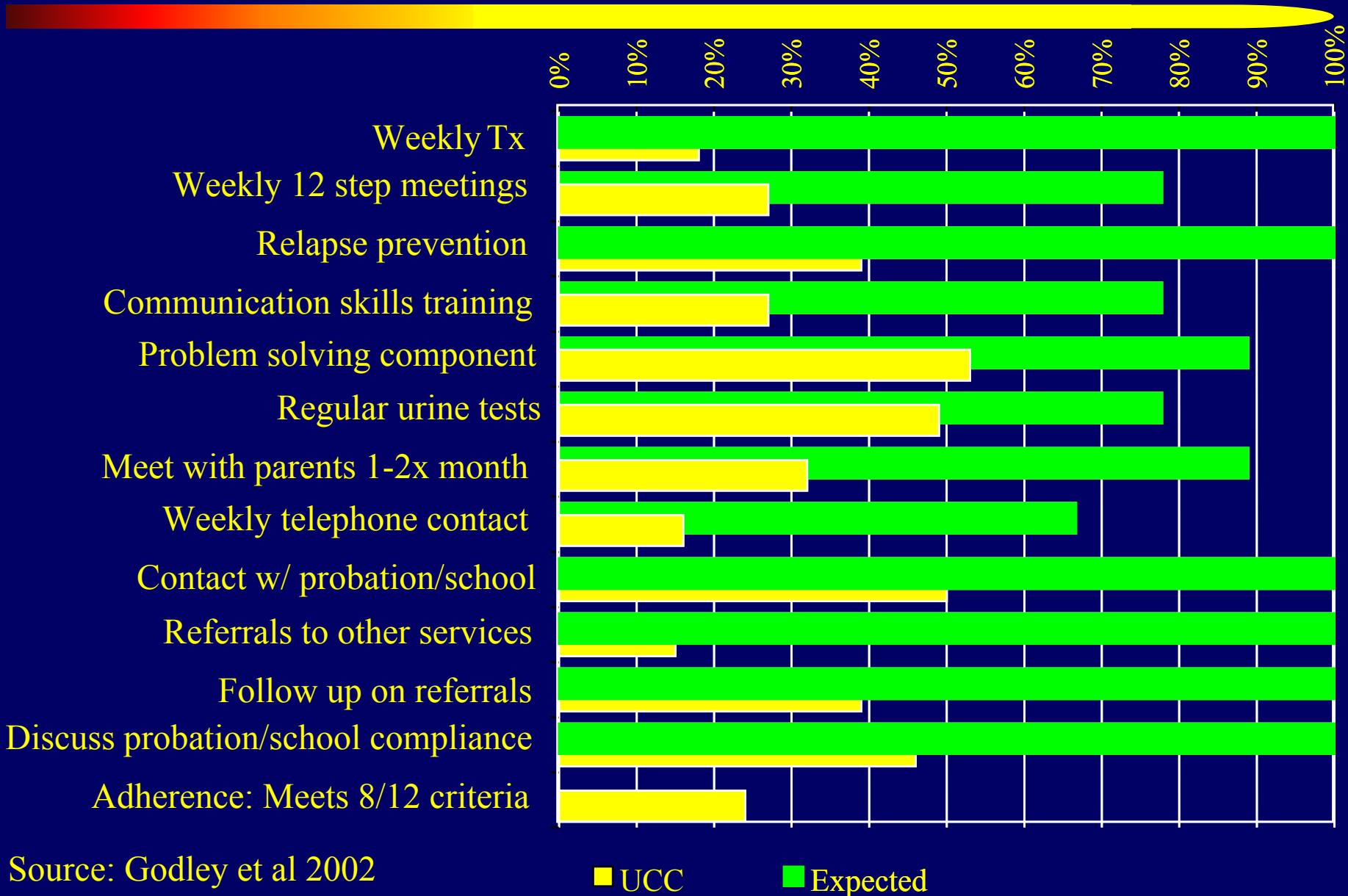
- **183 adolescents admitted to residential substance abuse treatment**
- **Treated for 30-90 days inpatient, then discharged to outpatient treatment**
- **Random assignment to usual continuing care (UCC) or “assertive continuing care” (ACC)**

Time To Enter Continuing Care After Residential Treatment (ages 12-17)



Source: State of Illinois OASA FY99 data (n=634)

Usual Continuing Care (UCC): Expectation vs. Performance



Source: Godley et al 2002

■ UCC

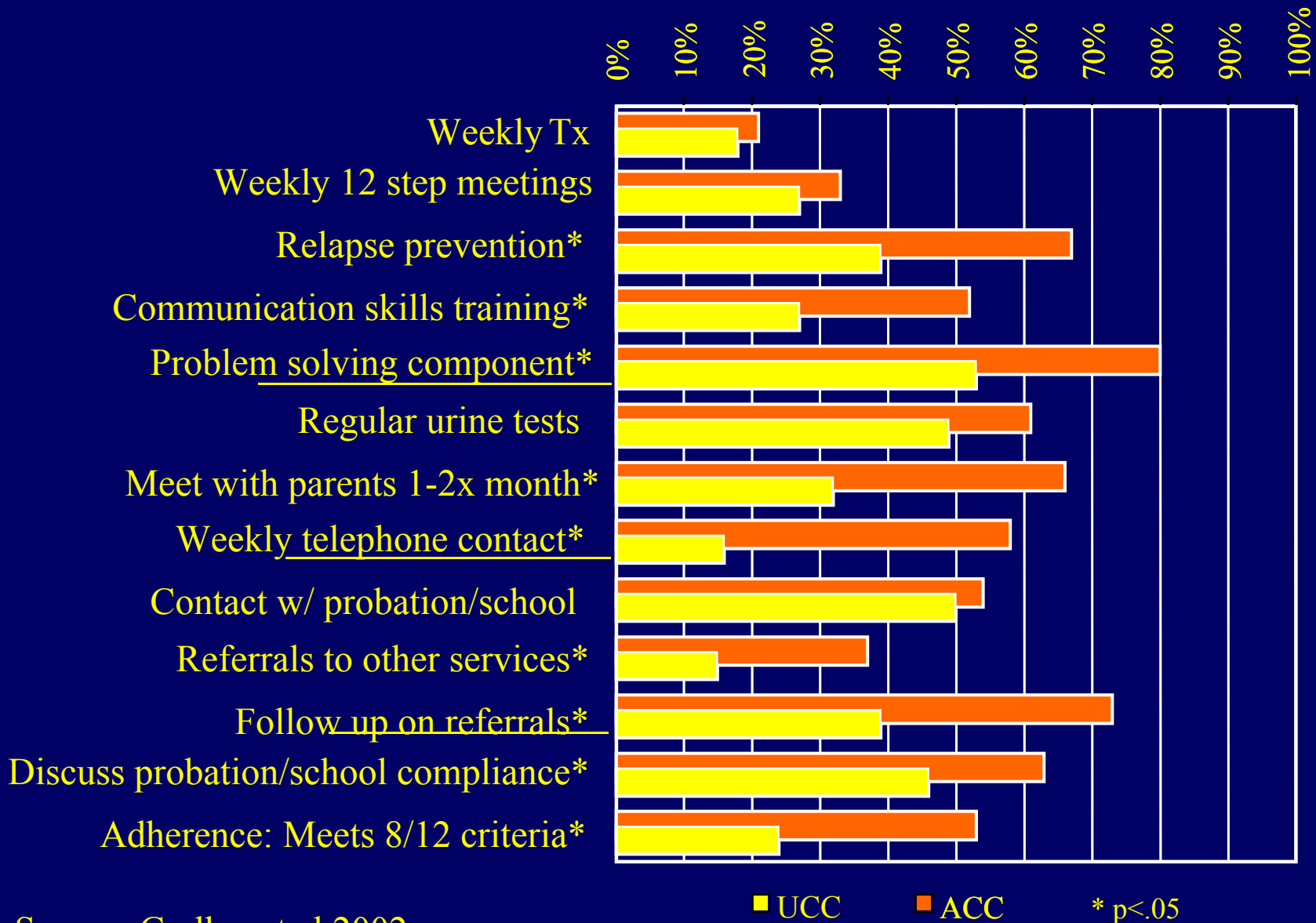
■ Expected

Assertive Continuing Care (ACC) Enhancements



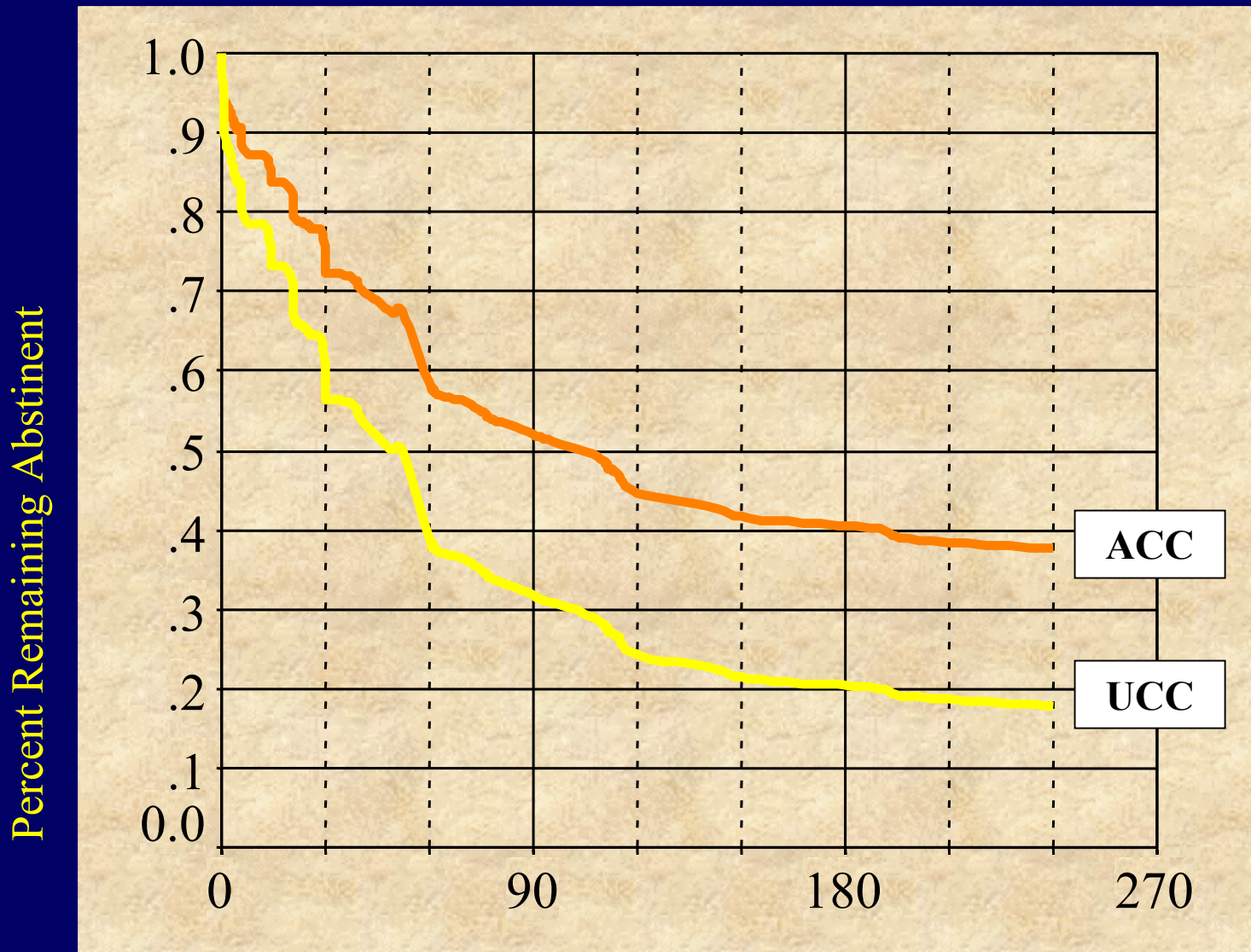
- **Continue to participate in UCC**
- **Home Visits**
- **Sessions for patient, parents, and together**
- **Sessions based on ACRA manual (Godley, Meyers et al., 2001)**
- **Case Management based on ACC manual (Godley et al, 2001) to assist with other issues (e.g., job finding, medication evaluation)**

Results: Improved Adherence



Source: Godley et al 2002

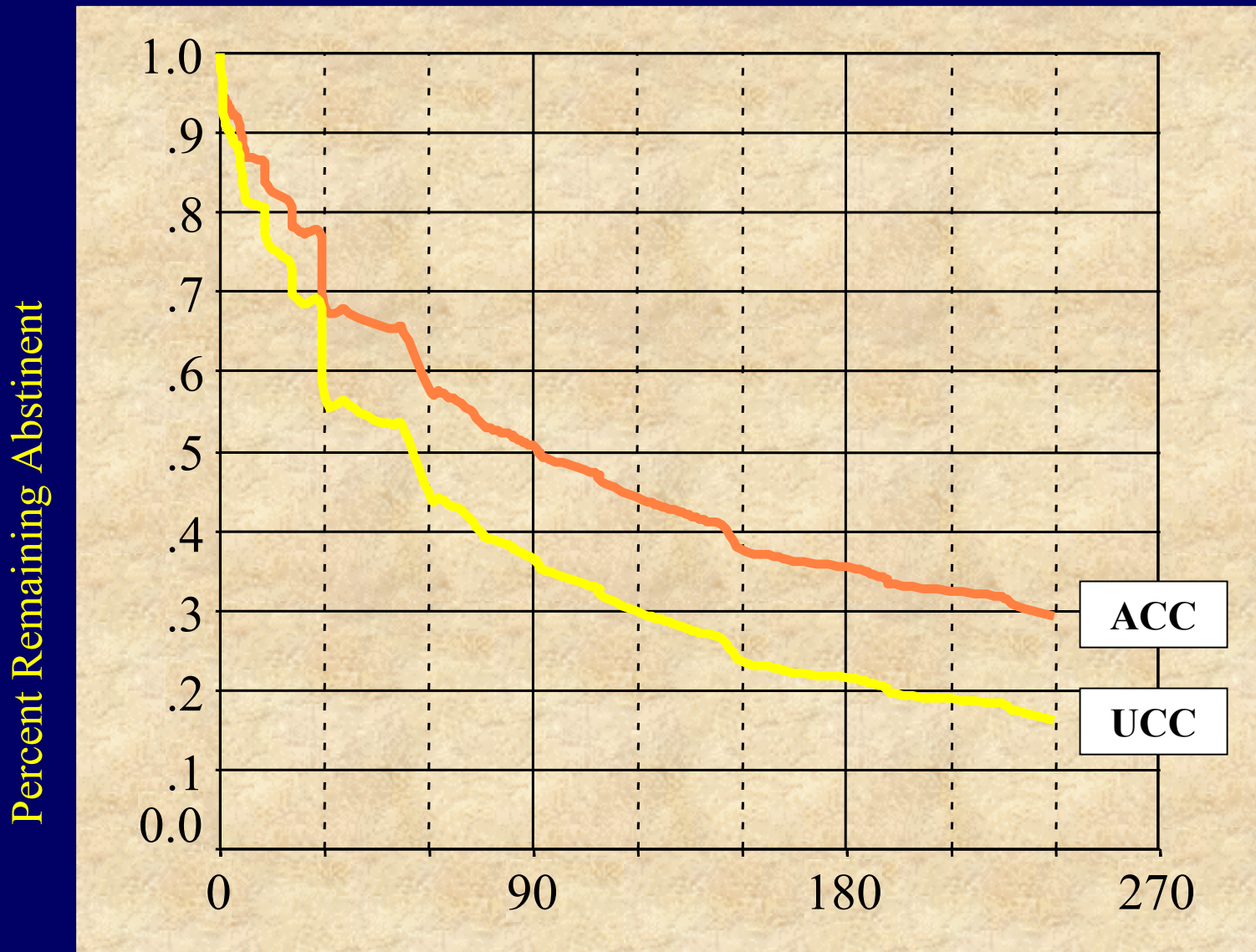
Reduced Relapse: Marijuana



Source: Godley et al 2002

Days to First Alcohol Use ($p < .05$)

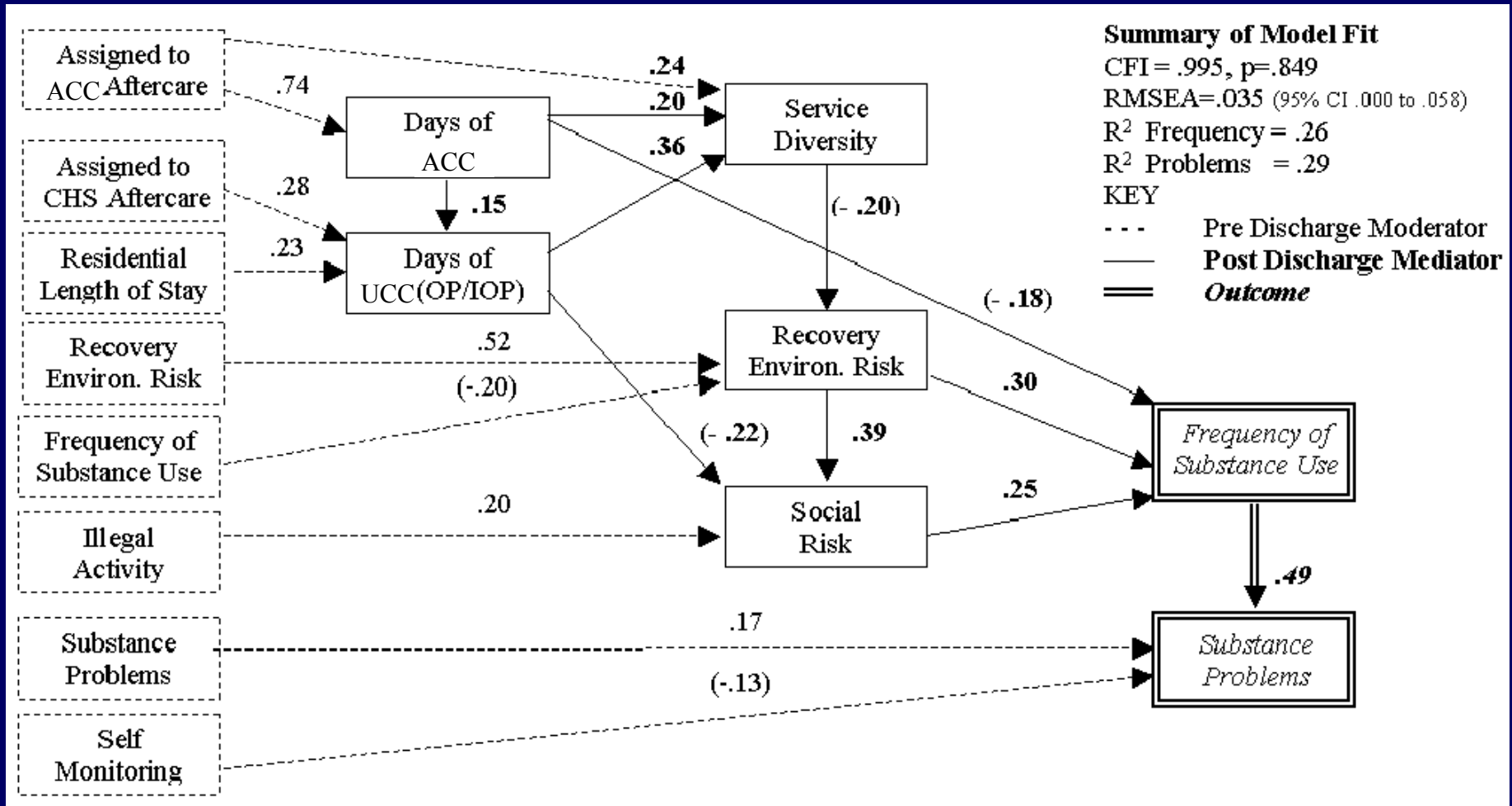
Reduced Relapse: Alcohol



Source: Godley et al 2002

Days to First Alcohol Use ($p < .05$)

Path Model of Post Discharge Outcomes



Concluding Comments



- **We are entering a renaissance of new knowledge in this area, but are only reaching 1 of 10 in need**
- **Several interventions work, but in most cases 2/3 of the adolescents are still having problems 12 months later**
- **We need to move beyond focusing on minor variations in therapy (behavioral brand names) and acute episodes of care to focus on continuing care and a recovery management paradigm**
- **It is very difficult to predict exactly who will relapse so it is essential to conduct aftercare monitoring with all adolescents**

Publications Just Around the Corner

- 1997 CSAT funded the CYT multi-site experiment to evaluate the effectiveness of five promising manual-guided approaches to adolescent outpatient treatment
- 1998 CSAT/NIAAA funded a group of 14 research studies on early intervention/treatment of adolescents
- 1998 CSAT funded 10 grants to manualize exemplary adolescent programs and rigorously evaluate them
- 2000 NIDA started releasing the 12-month outcomes from its DATOS-Adolescent study of 1700 adolescents in a 1994-95 admission cohort
- 2000-present, CSAT funded a 30-month follow-up of 1200 adolescents under its PETS-Adolescent Study
- Several books and special issues of Addiction, Journal of Adolescent Research, Journal of Child Maltreatment

Resources

- **Copy of these slides and handouts**
 - <http://www.chestnut.org/LI/Posters/>
- **Assessment Instruments**
 - **CSAT TIP 3** at http://www.athealth.com/practitioner/ceduc/health_tip31k.html
 - **NIAAA Assessment Handbook**, <http://www.niaaa.nih.gov/publications/instable.htm>
- **Adolescent Treatment Manuals**
 - **NCADI** at www.health.org
 - **CYT manuals** at www.chestnut.org/li/cyt/products
 - **ATM manuals** at www.chestnut.org/li/bookstore
- **Adolescent Treatment Studies and Bibliographies**
 - <http://www.chestnut.org/LI/downloads/bibliographies/adolescentbib053102.pdf>
 - **CYT** : www.chestnut.org/li/cyt
 - **PETSA**: www.samhsa.gov/centers/csat/csat.html
(then select PETS from program resources)
- **Society for Adolescent Substance Abuse Treatment Effectiveness (SASATE)**
 - **E-mail** LCalhoun@hq.row.com to join list server or about meeting
 - **Next conference** is June 20, 2003

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