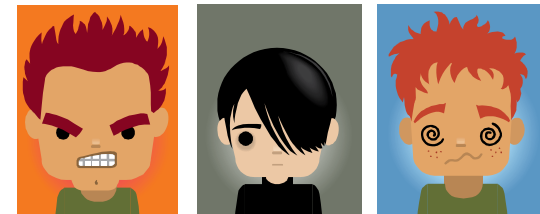




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The effect of amphetamine type stimulants on psychopathology, aggression and cognitive function among clients within a drug therapeutic community



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Background

- In Australia the use of amphetamine type stimulants (ATS) has increased over recent years (AIHW, 2008; NIDA, 2006).
- ATS are now the second most frequently used illicit substance after cannabis (McKetin et al., 2005).
- There are an estimated 73,000 regular users (McKetin, et al, 2005), which is nearly twice the number of regular heroin users in Australia.





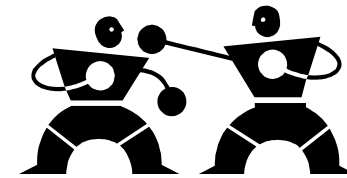
Background

- ATS users are increasingly presenting to drug treatment services. An estimated 23% of treatment episodes included ATS as a drug of concern, which makes them the fourth most common substance for which people receive treatment (AIHW, 2007).
- Recent evidence links ATS use with psychopathology, aggression and cognitive decline.
- This poses particular challenges to drug treatment services.

Background – ATS & psychopathology

- A study investigated ATS use and mental illness within a large (N = 921) sample of NSW prison inmates.
- Results indicated that ATS users were significantly more likely to have had an admission to a psychiatric hospital and had higher rates of all psychiatric disorders including depression and anxiety compared to non-ATS users (Riddell et al, 2006).

Background – ATS & aggression

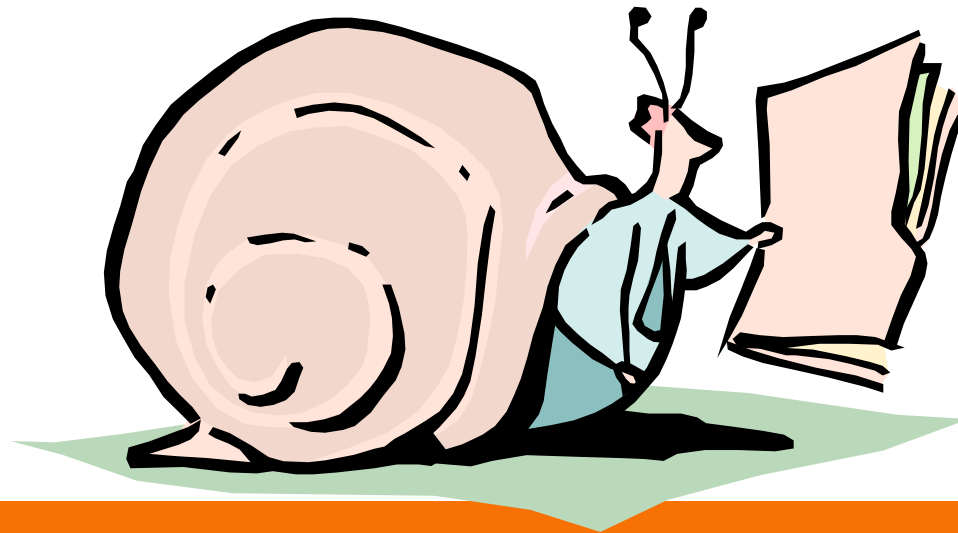


- In 2006, data collected at a Sydney hospital showed that for substance users presenting for medical treatment as a result of toxicity, crystal methamphetamine users presented as more agitated, violent and aggressive than other intoxicated patients (Bunting, et al, 2007).



Background – ATS & cognitive function

- ATS use linked with cognitive deficits.
- Paucity of research comparing ATS users and non-ATS users on measures of cognitive function.

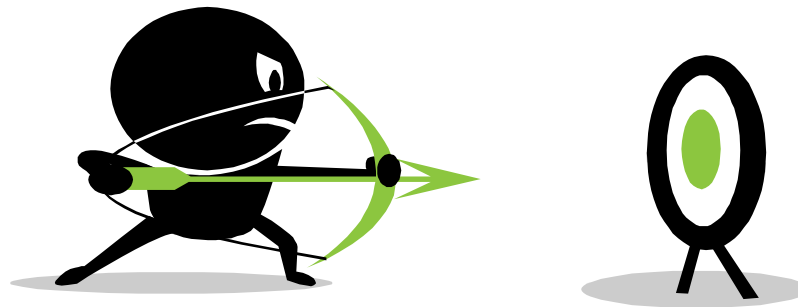


Background – ATS & cognitive function

- In 2006 (Ersche et al), a study compared executive function and memory between current & former ATS users, current & former opiate users and non-drug taking individuals.
- All substance users showed significant impairment in executive functioning.
- Current ATS users exhibited > impairment compared with current opiate users.
- Impairment persisted after several years of drug abstinence for both opiate and ATS users

Aims

- The aim of the current study was to investigate differences in executive function and the prevalence of co-occurring mental health problems—psychopathology and aggression—among participants who identified as being ATS users compared with non-ATS users in treatment in DTCs.





Method - participants

- Participants were residents at one of four Australian DTCs: Karralika (ACT), Odyssey House (NSW), Mirikai (QLD), and Goldbridge (QLD).
- 104 participants (67 males + 37 females).
- Ranging in age from 19 to 60 ($M = 31.88$, $SD = 8.89$).
- Participants were grouped as sustained and recent ATS use ($n=51$) or prior and no ATS use ($n=53$).

Method - measures



Participants completed a self-report questionnaire.

- *Psychopathology* was assessed using the 21 item version of the Depression, Anxiety, and Stress Scale (DASS21; Lovibond & Lovibond, 1995).
- *Aggression* was assessed using Novaco's Dimensions of Anger Reactions Scale 5 (DAR5; Novaco, 1975).



Method - measures

- *Cognitive functioning* (mental capacity to control and purposefully apply one's own mental skills) was assessed with the Behavioural Rating Inventory of Executive Function - Adult Version Self Report Form (BRIEF-A; Roth *et al.*, 2005).
 - BRIEF-A is comprised of 75 items within nine non-overlapping theoretically and empirically derived clinical scales that measure various aspects of executive functioning in everyday life.

Method - Measures

The scales include:

- Inhibit
- Shift
- Emotional Control
- Self-Monitor
- Initiate
- Working Memory
- Plan/Organise
- Task Monitor
- Organisation of Materials



Method - Measures

- The clinical scales form two broader indices:
 - 1) Behavioural Regulation Index (BRI).
 - 2) Metacognition Index (MI), which measures an individual's ability to cognitively manage attention and problem solve.
- From these indices the overall summary score, or the Global Executive Composite (GEC) is calculated, which provides an overall level of executive functioning.

Method - Procedure

- Participation was voluntary, anonymous and confidential.
- All residents present at the time the questionnaire was administered were invited to participate.
- The questionnaire took approximately 20 minutes to complete.



Results

- High level of psychopathology
 - 31.7% extremely severe depression (2.9% normative)
 - 34.6% extremely severe anxiety (3.2% normative)
 - 17.5% extremely severe stress (2.9% normative)
- Depression and aggression scores were significantly higher for ATS users.
- No difference for anxiety and stress scores.

Mean Depression, Anxiety, Stress and Aggression Scores by ATS use

	Total (N=104)		ATS (n=51)		Non-ATS (n=53)		Difference
	Mean	SD	Mean	SD	Mean	SD	<i>t</i> statistic
Depression	18.71	(13.20)	21.69	(12.73)	15.86	(13.12)	<i>t</i> (102)=-2.30, <i>p</i> =.024
Anxiety	15.27	(11.78)	16.71	(11.86)	13.89	(11.64)	<i>t</i> (102) = -1.22, <i>p</i> =.224
Stress	20.37	(10.96)	21.97	(10.79)	18.83	(10.99)	<i>t</i> (102) =-1.47, <i>p</i> =.144
Aggression	2.64	(0.85)	2.90	(0.78)	2.38	(0.85)	<i>t</i> (102)=-3.21, <i>p</i> =.002

Intercorrelations

Variable	1.	2.	3.	4.	5.	6.	7.	8.
1. ATS Use								
2. Aggression	.30**							
3. Anxiety	.12	.36**						
4. Depression	.22*	.44**	.76**					
5. Stress	.14	.59**	.75**	.72**				
6. GEC	.30**	.58**	.52**	.60**	.64**			
7. Age	-.38**	-.44**	-.14	-.12	-.20*	-.39**		
8. Sex (male)	-.01	-.01	-.07	-.12	-.01	-.00	.57	
9. Time in DTC	.02	.01	-.21*	-.13	-.13	-.08	-.15	.09

Statically significant at ** $p < .01$, * $p < .05$

Mean Executive Function Scores by ATS use

	Total (N=104)		ATS (n=51)		Non-ATS (n=53)		Difference
	Mean	SD	Mean	SD	Mean	SD	<i>t</i> statistic
Inhibit	16.51	(3.51)	17.57	(3.44)	15.48	(3.31)	$t(102) = -3.16,$ $p = .002$
Shift	11.55	(2.44)	12.12	(2.16)	11.00	(2.59)	$t(102) = -2.39,$ $p = .019$
Emotional	19.90	(4.45)	20.69	(4.40)	19.15	(4.40)	$t(102) = -1.78,$ $p = .078$
Self-Monitor	11.62	(2.44)	12.37	(2.38)	10.89	(2.29)	$t(102) = -3.24,$ $p = .002$
Initiate	14.80	(3.74)	15.94	(3.90)	13.70	(3.25)	$t(102) = -3.19,$ $p = .002$
Working	15.20	(3.87)	16.41	(3.33)	14.04	(4.03)	$t(102) = -3.28,$ $p = .001$
Plan	18.63	(4.51)	19.39	(4.49)	17.90	(4.44)	$t(102) = -1.70,$ $p = .092$
Task Monitor	11.19	(2.44)	11.67	(2.32)	10.74	(2.48)	$t(102) = -1.97,$ $p = .051$
Organisation	14.16	(3.51)	15.16	(3.41)	13.21	(3.37)	$t(102) = -2.93,$ $p = .004$
BRI	59.57	(10.91)	62.75	(10.45)	56.52	(10.56)	$t(102) = -3.02,$ $p = .003$
MI	73.99	(16.14)	78.57	(15.55)	69.58	(15.60)	$t(102) = -2.95,$ $p = .004$
GEC	14.16	(3.51)	15.16	(3.41)	13.21	(3.37)	$t(102) = -3.16,$ $p = .002$

Conclusions

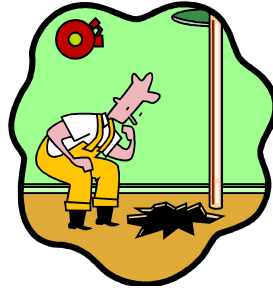


- Co-occurring problems are very common among all drug users in residential treatment.
- Anxiety, depression and executive dysfunction were high among all participants.
- ATS users exhibited significantly higher levels of depression, executive dysfunction and aggression compared to non-ATS users.
- This poses unique challenges for treatment services.
- ATS users represent the younger generation of drug users.



Conclusions

- To be effective, treatment must take into account the cognitive abilities of clients and neuro-cognitive training could form part of drug rehabilitation procedures to improve outcomes in ATS drug dependence.
- DTC treatment practices and protocols, like peer support processes, self reflection and group work may require modification to be effective for ATS users
- Professions working in D&A settings could benefit from training in managing aggressive clients.



Conclusions

- Findings regarding executive dysfunction in ATS users are particularly relevant in DTCs, which rely heavily on group processes, self-reflection and self-motivation as part of the treatment process.
- This research highlights the need for ATS specific interventions aimed at supporting the emerging young generation of ATS users.

Thank you...



Any questions?

