



Building bridges between
Aviation Medicine and Aviation
Psychology |

Content

1. Accredited Clinical Aviation Psychologist
2. Most common psychological problems with flight crew
3. Considerations for mental health screening flight crew
4. Substance Abuse Support Programme in Belgium

Accredited Clinical Aviation Psychologist EAAP

Peer recognition system European Association for Aviation Psychology (EAAP) valid for 5 years

- Minimum University degree in Psychology (Clinical)
- 3 years and 3000 hours working experience in applying aviation psychology in 1 or more specialist areas of aviation (military/civil)
- Continuous professional occupation in the field
- Successful completion of two full EAAP training courses on different aviation psychology topics
- Experience as a technical professional (flight crew, engineer, ATC,....)
- Or PPL
- Or expertise in technical field by positions occupied/ documented achievements and or scientific publications



Master Degree Clinical Psychology (5 years)

Postmaster Solution Focused Cognitive Systemic Psychotherapy (4 years)

PhD Loneliness, Affect and psychopathology (2nd year)

Specialist Addiction, personality disorder, trauma, mood disorder, suicide

Clinical psychologist in psychiatric hospital for addiction

Advanced training in Aviation Psychology, Aviation neuropsychiatry and

Aviation medicine by the American college of

Professional neuropsychology (Denver, Colorado)

Critical Incident Stress Management (ICISF certification)

Safety department – Nominated person Flight operations –

Pilot recruitment – Peer support

Commercial ATPL since 2001: Fokker 50, Fokker 100, Gulfstream 550,

Falcon 2000, Global Express, Boeing 747, Boeing 737, F2000S



Part MED Annex I ED Decision 2019/002/R

Specialist opinion and advise:

Psychiatric evaluations conducted by qualified psychiatrist having adequate knowledge and experience in aviation medicine.

Psychological opinion and advise conducted by a suitably qualified and accredited clinical psychologist with expertise and experience in aviation psychology.

BELGIUM since 2016: Clinical psychologist is 'ZORGBEROEP' with VISUM from FOD allowing INDEPENDENT psychodiagnoses being performed by Clinical Psychologist

Psychodiagnosis flight crew

Frequent causes for grounding a **pilot** were cardiovascular (19%), psychiatric (11%), neurological (10%), and psychological (9%)..

Psychiatric and psychological diagnoses were most frequent in the age 20-40 cohort. (Simons et al., 2016)

Sharp increase of new mental disorder cases with pilots (Antiskid Germany)

2020: +50%

2021: +100% (compared to 2019)

First time severe expressions of depressive disorder

First time suicidal thoughts and behaviour

Red flags in aviation



• RED Flags:

- Psychosis
- Suicidal ideation and deliberate self harm
- History of use of antidepressants or other psychiatric drugs
- History of electroconvulsive therapy
- Psychiatric hospitalizations
- Bipolar spectrum disorder
- Affective instability (ex. Borderline/bipolar/recurrent depressive disorder/personality disorders)

• BLIND SPOTS:

- ! ADHD Attention Deficit (Hyperactivity) disorder
- ! ASS Autism Spectrum Disorder
- ! Personality disorder

Most common with pilots

- Mood disorder (unipolar depression – major depression)
- Anxiety (often training related)
- Occupational stress (longer working hours, decreased working conditions, training related)
- Sleep disorder
- Relationship problems
- Substance abuse

AD(H)D

Neuro-developmental disorder

Must exist before age 12

Higher prevalence with men (2:1)

Genetic (74%)

Comorbidity: mood disorder, substance abuse, ASS, suicidal ideations

Overdiagnosis

- May no longer exist in adulthood (1/3rd)
- Difficult to diagnose in adulthood (sleeping problems – distraction – concentration – unorganised conversation)

Flying

Reason for disqualification as a pilot (with or without medication) –

Sometimes detected because of training issues –

Professional/relationship instability

Impairment in cognitive executive functioning

- Impulse control
- Attentional processing – high distraction
- Executive functioning (planning – decision making)
- Memory
- Visual-spatial functioning
- Negative emotional state

Autism Spectrum Disorder (ASS)

Neuro developmental disorder:

Must exist before age 12

Man – Woman (3-1)

Genetic

Psychiatric comorbidity (70%): depression – anxiety – AD(H)D –
sleep/eat disorder – suicidal ideations

Diagnose:

(A) problems in social communication and interaction

(B) limited and repetitive behavior, interest and activities

Flying:

Highly rigid – low stress tolerance – social interaction problems -
inflexibility

Mood disorders

Internalising behaviour patterns

Prevalence: women-men (2:1)

Genetic (40%): neuroticism

Major depressive disorder: Chances for suicide x17

Flying:

Concentration degraded

Disturbed sleep – fatigue

Reduced executive functioning prefrontal cortex

Light depressive symptoms may allow functioning in cockpit

Most pilots do not have any idea about accepted SSRI's

CAUTION: Trazodone often prescribed by general practitioners

CAUTION: ALWAYS check for presence of Manic/hypomanic episodes that may indicate BIPOLAR disorder (suicide x20)

Psychopharma

Depression:

The SSRI's Sertraline, citalopram and escitalopram are the only antidepressants permitted for EASA for treatment of depressive symptoms or as maintenance medication after treatment for depression.

For citalopram, the maximum daily doses are: 40 mg for adults and 20 mg for patients older than 65 years.

For escitalopram, the maximum daily doses are: 20 mg for adults and 10 mg for patients older than 65 years.

Psychopharma

Hypnotics

Temazepam has been used in military and civilian aircrew for the short-term treatment of insomnia associated with circadian rhythm disturbance for many years. Specific treatment should be directed towards other underlying causes of insomnia such as adjustment disorder. Temazepam is short acting and hangover effects are uncommon. However, drowsiness or light-headedness the next day, confusion, ataxia and amnesia are possible side-effects so the medication should be started for the first time when it is certain licence privileges will not be exercised the following day. Thereafter, it should be taken no less than 12 hours before exercising licence privileges. Aircrew should not take Temazepam continuously for more than one week because of the risk of dependency developing.

Zaleplon is also acceptable for EASA medical certification subject to the same considerations as Temazepam.

Zolpidem 5 mg is acceptable. It should be taken no less than 8 hours before exercising licence privileges. All other hypnotics including zopiclone and "over the counter" preparations such as diphenhydramine and promethazine are disqualifying for EASA medical certification, including melatonin.

Psychopharma

Antipsychotics

Antipsychotics are not compatible with EASA medical certification because the condition for which they are prescribed is to be disqualifying. However, low dose sulpiride (less than 40mg daily) is acceptable for the treatment of Gilles de la Tourette's syndrome (unlicensed indication) provided a clinical report confirms treatment is successful without significant side-effects and a medical flight test gives a satisfactory result. The use of donazepam for treating tics is disqualifying.

Lithium is disqualifying for EASA medical certification because of the risk of unacceptable side effects.



Class 1 – 2 –LAPL
Mental health assessment

Considerations

Be very cautious with psychological questionnaires:

Class 1 Initial

- MMPI Minnesota Multiphasic Personality Inventory (RF and 3 should NEVER be used, MMPI 2 ONLY when reason to suspect psychiatric/psychological problem)
- Forensic questionnaires not designed to be used in context of aviation clinical screening
- Clinical questionnaires with high face validity

CAUTION: THEY ARE NOT MEASURING WHAT SHOULD BE MEASURED!!!!

High 'failure rates': High costs for psychiatric/psychological expertise (up to 2400€)

Class 1 Renewal / Class 2

- Questionnaire: have you consulted psychiatrist/psychologist
- ***CAUTION: every pilot will be dishonest***
- ***Professional secrecy***

Clinical interview

Medication use with emphasis on sleeping medication, SSRI's, benzodiazepines, ritaline

History of psychiatric/psychological problems

Family history of psychiatric/psychological problems

Difficulties child and school history (may be indication of developmental disorders)

Sudden life changes and stressors

Obvious weight gain or loss

Check for sleep patterns, fatigue, work and personal stress

Attitude – Appearance -
Mood and affect –
Behaviour - Thought process and content –
Cognition - Perception

Substance
Abuse
Support
Program BE





Part MED Annex I ED Decision 2019/002/R

Mental or behavioural disorder due to substance use or misuse, with or without dependency should be assessed as unfit.

Fit assessment after 2 years of documented sobriety.
Earlier may be considered with OML after treatment,
evaluation and inclusion into a support program.

Existing programs

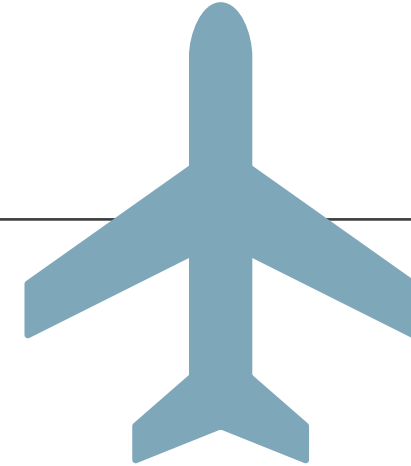
HUMAN INTERVENTION MOTIVATION STUDY (US)

ANTISKID (NL-GERMANY)

CREWMIND (BELGIUM)

SUCCESS RATE: 80-85%

<https://www.youtube.com/watch?v=WpSrZkOvyCU>





Who becomes
addicted?

Biological factors

More than **50%** of people with a substance use disorder are genetically pre-disposed.

Genetic vulnerability cannot be attributed to a single gene: **less sensitive** to substance, so need to consume more to experience same effect.

More than 50% have **family members** with similar addiction problems.

Children (sons) of alcoholics are 3-4 times more likely to develop alcoholism.

Disease sometimes skips one generation.

Genes only are **very rarely sufficient** to create the onset of addiction. Additional psychological and/or social factors are often needed.

Psychological factors

- Impulsive personality
- Elements of low self-control, often already shown in childhood
- People that tend to be sensitive to developing depressive symptoms, anxiety symptoms
- People that often ruminate
- Thinking faults: overestimation of effects, underestimation of effects, overestimating judgement
- Major depression, Anxiety disorders and PTSD
- Bipolar disorder and Schizophrenia
- Personality Disorders
- Chronic pain
- Terminal medical conditions

Social factors

- Long term un-employment
- Poverty or welfare
- Higher education often means there is access to more social events, more availability of the product (networking, receptions, lunches, dinners,....)
- Baby boom generation with certain drinking habits/culture
- Untreated trauma
- Childhood neglect/abuse
- Stressing environment
- Peer pressure
- Drug availability

Liver: infection - cirrhosis – liver transplant

Medical
consequences
Alcohol
specific

Ceased breathing (5 promille)

Epileptic insults

Polyneuropathy

Delirium tremens - coma

Syndrome of Wernicke

Korsakov Syndrome

Reduced brainvolume in frontal lobe 10-15% (pilot!)

Withdrawal symptoms



SWEATING -TREMBLING

INSOMNIA

HEART RHYTHM PROBLEMS

STOMACH AND INTESTINE PROBLEMS

NAUSEA- VOMITING

INCREASED TENSION/AGITATION/GRUMPY BEHAVIOR

DEPRESSIVE AND/OR ANXIETY SYMPTOMS

CONCENTRATION PROBLEMS

EPILEPTIC INSULTS - DELIRIUM TREMENS - COMA

6 Steps Program

Prevention

Identification

Treatment

Evaluation

Aftercare

Monitoring

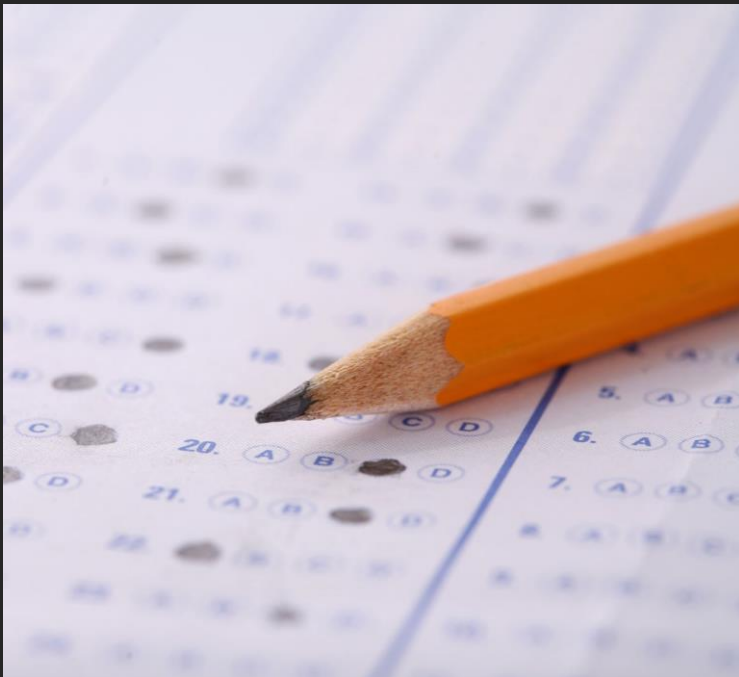
1. Prevention

Education for flight crew on:

- Substance use and associated risks
- How to detect problematic use
- Availability and advantages of early treatment
- Details of support trajectory of support program
- Reducing stigma
- How to self-refer or refer someone else

EARLY INTERVENTION IS CRUCIAL !!!

2. Identification



First 'triage' within 'safe zone' by Aviation Clinical Psychologist

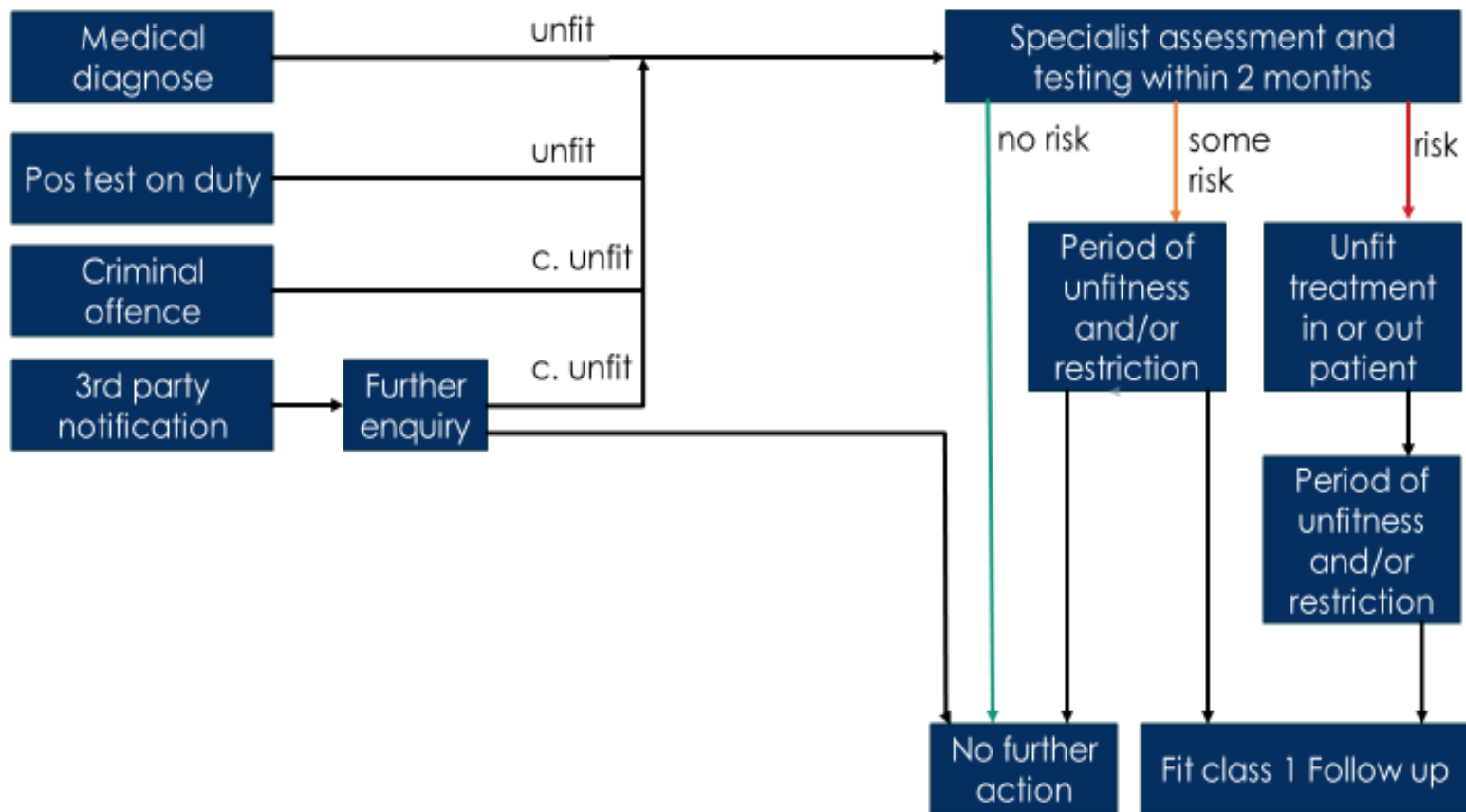


DSM diagnose by clinical psychologist or psychiatrist



FIT/Unfit by AME

Protocol



Substance use disorder DSM 5 diagnose

11 CRITERIA (MILD (2-3) MODERATE (4-5) SEVERE (>6):

1. Higher volume or frequency than planned
2. Persistent wish or several attempts to maintain/reduce current amount of intake
3. A lot of time invested to obtain/use or recover from use
4. Craving
5. Recurring use resulting in failure to adhere to role obligations at work/school/home
6. Persisting use despite persisting or recurring social problems caused or impaired by use
7. Social, professional or leisure activities have been reduced or stopped because of the use
8. Recurring use in situations where the use leads to a threat to physical safety
9. Continued use despite persisting or recurring physical or psychological problem most likely caused by or worsened by the use
10. Tolerance
11. Withdrawal symptoms

NO BIOMARKER included: careful with blood samples short detection window + only 8-10% cirrhosis

3. Treatment



In patient treatment



Out patient treatment



Ambulant care by clinical
psychologist

4. Evaluation



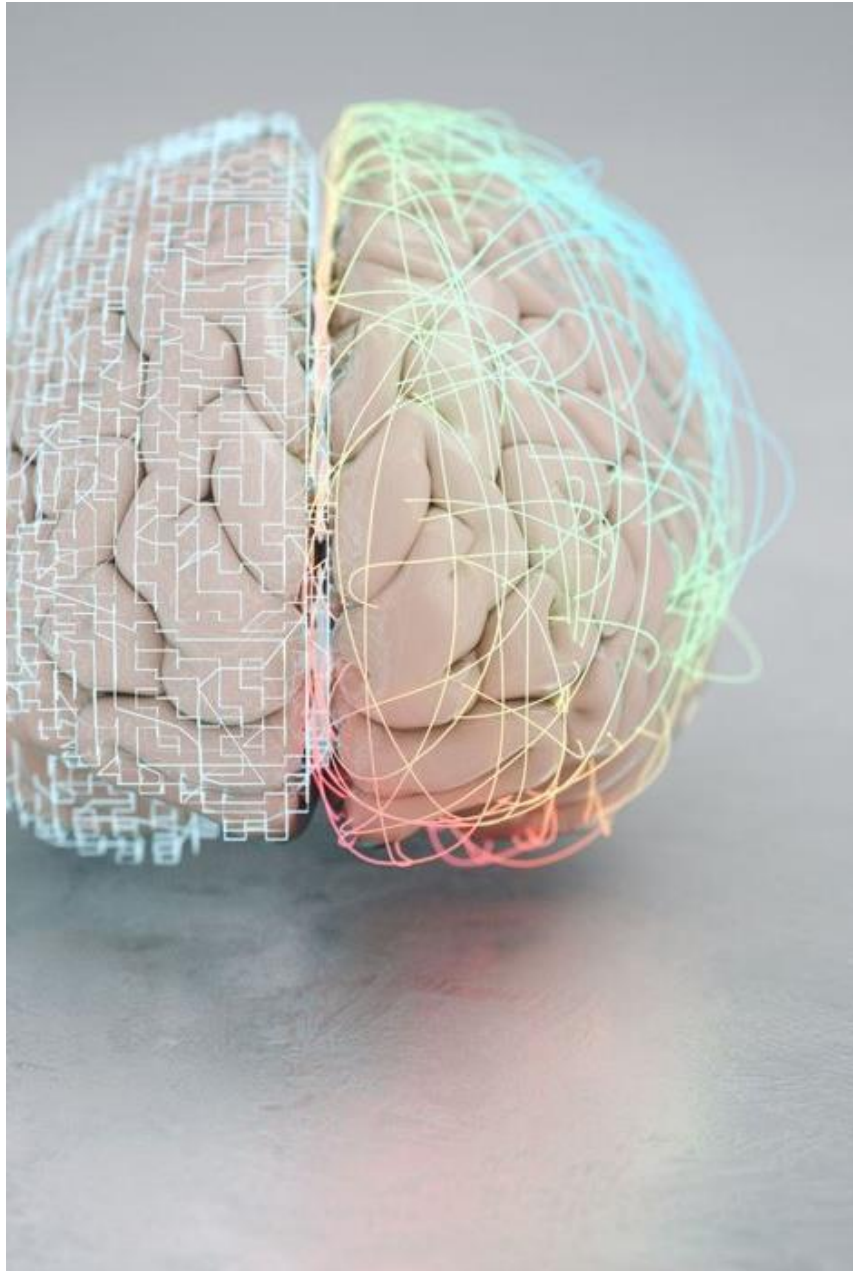
CREWMIND AV Psychologist:
cognitive testing – personality
– comorbid disorders



External Psychiatric
Evaluation



Aero Medical Examiner



Brain functioning

Frontal lobe:

Short term memory problems: no more transfer to long term memory

Decreased planning capacity and decision making

Intellectual decline, concentration problems

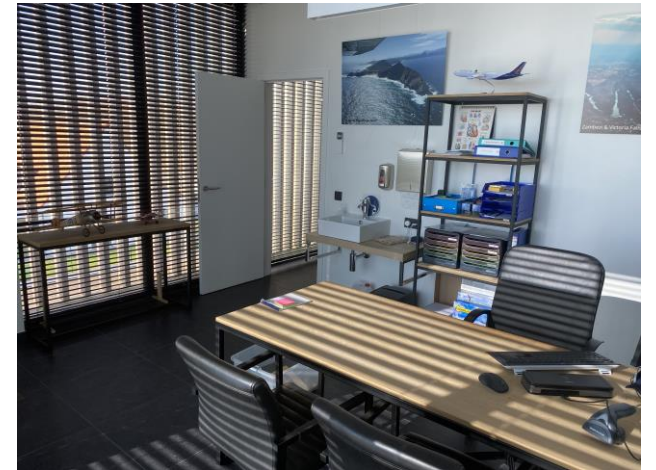
Reduced self-control, increased impulsive behavior

Cerebellum: reduced psychomotor capacity, coordination and balance

Medulla: autonomic functions (breathing and heartbeat)

Cognitive testing

Dimensions	Tests	Test forms	Duration in min.
Total length if all dimensions are presented			approx. 63
Attention			
Alertness, visual	WAF	S1	approx. 2
Divided attention	WAF	S1	approx. 6
Processing speed	TMT-L	S2/Part A	approx. 1
Memory			
Subdimension: Learning ability	FGT	S12	approx. 10
Subdimension: Short-term recall	FGT	S12	approx. 1
Subdimension: Long-term recall & Recognition	FGT	S12	approx. 13
Executive functions			
Cognitive flexibility	TMT-L	S2/ Part B	approx. 1
Planning ability	TOL-F	S2	approx. 16
Working Memory, verbal	NBV	S2	approx. 9
Additional information			
Response Inhibition	INHIB	S14	approx. 4



5. Aftercare



The AME may require continuous follow up by a mental health professional for a specific amount of time.

- Clinical psychologist, or
- Psycho-therapist, and/or
- Psychiatrist, and/or
- General practitioner

Support program can refer to recovery program (AA/Birds of Feather/SOS Nuchterheid,...)

6. Monitoring



High success rate (80-85%) due to peer pilot monitoring and continuous biomarker testing.

14 contacts per year with peer pilot monitor

PEER PILOT MONITORS trained in:

- Substance use disorder
- Substance abuse support program process
- Complex conversation techniques for difficult peer cases
- Recognizing signs of relapse
- Monthly peer monitoring calls and reporting

AME/medical assessor will require frequent substance abuse biomarker testing to prove long term abstinence or sobriety.



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