

Psychodiagnostic tools: usefulness for aeromedical assessment

Paola Tomasello – 23/04/2024



Some critical questions

Are there any standardized tests to assess mental health as standalone measures?

→ **What psychodiagnostic tools exist besides tests?**

→ **What are the strengths and weaknesses of tests?**

Can tests predict unsafe behaviours?

→ **What information can be collected by means of tests?**

To what extent do AMEs feel confident in assessing mental health without the MHS's advice??

→ **What are the criteria to call for the MHS's advice?**

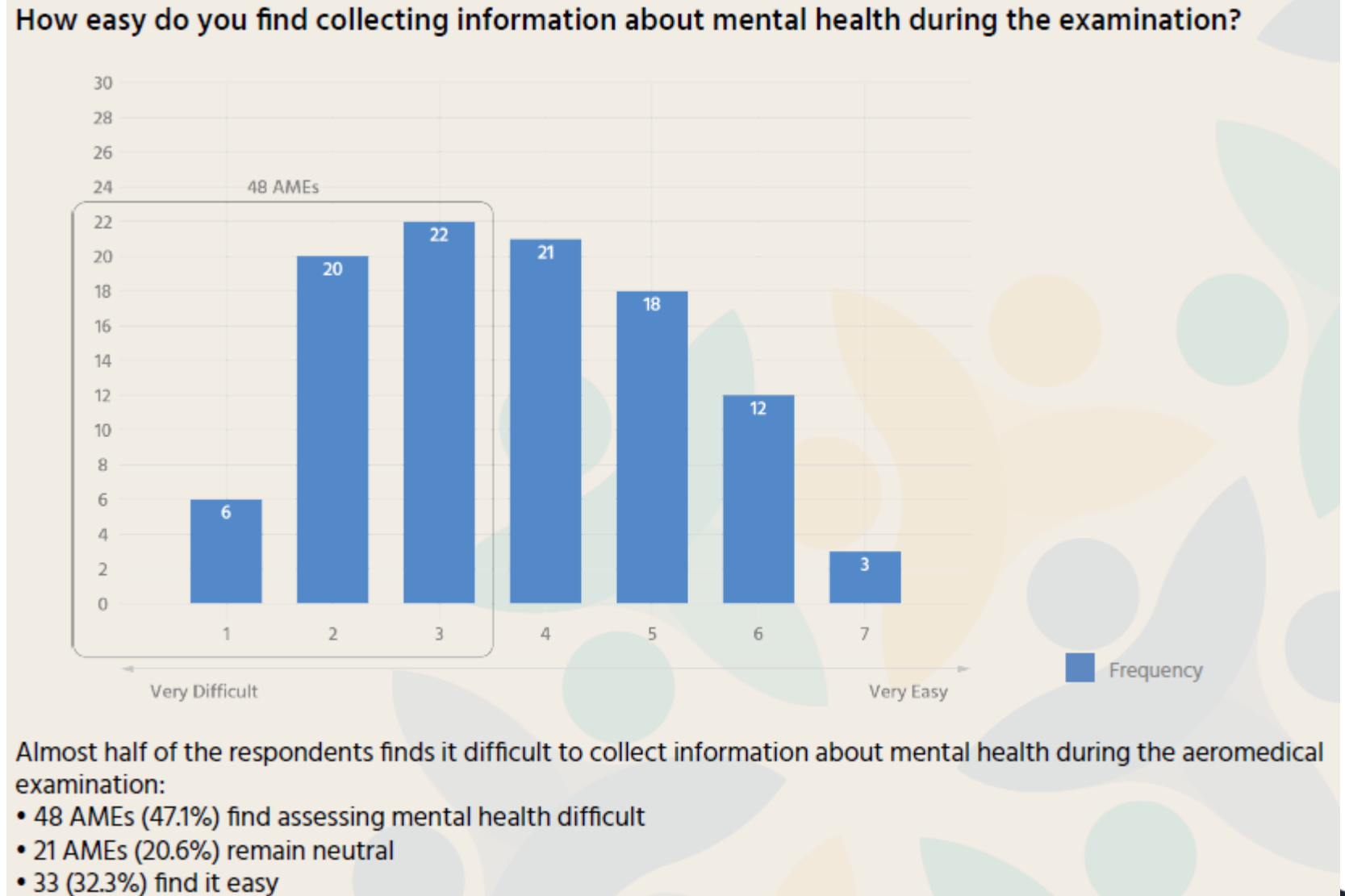


Assessing mental health is not an easy task



Framing the problem: the AMEs experience

Only the 32,3% of the respondents find it easy to collect information about mental health during the aeromedical examination, and a considerable percentage (20%) doesn't have any opinion on how easy this is.

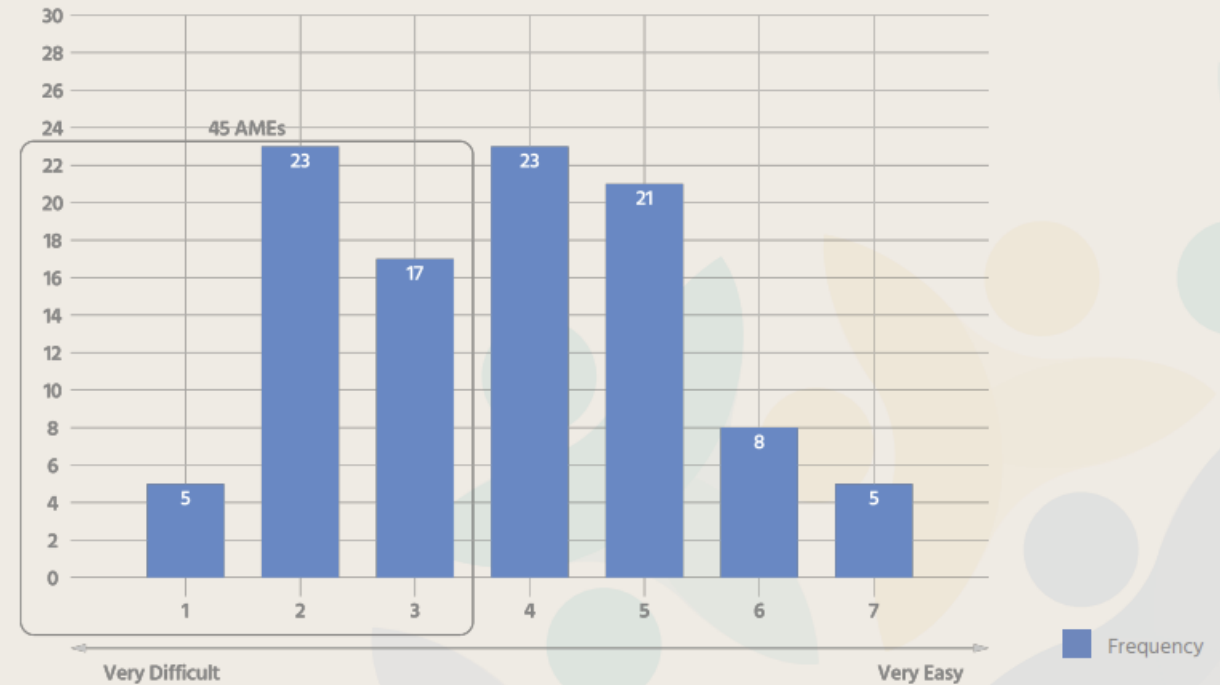


Framing the problem: the AMEs experience

Only the 33,3% of the respondents find it easy to detect mental symptoms during the aeromedical examination, and a considerable percentage (22,5%) doesn't have any opinion on how easy this is.

Detection of mental health issues

How easy do you find detecting mental disorders' signs and symptoms?



- 45 AMEs (44.2%) find detecting mental disorders' signs and symptoms difficult
- 23 AMEs (22.5%) remain neutral
- 34 AMEs (33.3%) find it easy



Framing the problem: AMEs reported procedures

- AMEs' most used procedure is to assess mental health independently
- High heterogeneity in psychodiagnostics methods used both for the initial and revalidation/renewal assessments
- Most AMEs make use of the Mental health Specialist's (MHS) advice only if specific needs arise
- Almost half of the respondents don't have usable and effective criteria to decide whether to refer to the mental health specialists



What psychodiagnostic tools exist today?

Questionnaires

Specific
Customised
Self-report
Focused

Tests

Standardized
Objective
Reliable
Valid
Test norms
Theory-dependent

Interviews

Specific
Customised
Accurate

Digital phenotyping

Promising, but still
under
development...



Tests: 2 types

TESTS OF MAXIMUM PERFORMANCE:

- examples: intelligence and aptitude tests, attention tests
- **right** and **wrong** answers & **time limit**
- the person is asked to **give the best** of him/herself
- scores based on how much s/he is able to solve a certain task
- evaluation of the person's **cognitive functioning**

TESTS OF TYPICAL PERFORMANCE:

- examples: psychodiagnostic tests, personality tests
- answers **reflecting latent attributes**
- the person is asked to **describe** her/himself in certain situations
- scores based on the theoretical background of the test
- evaluation of the **typical behaviour** of the person

What type is more prone to response bias?

(Pedrabissi and Santinello, 1997)

3 pitfalls of tests

1. Tests are based on statistics, so they are **prone to errors**.
2. Tests norms **not available** for aviation professional profiles.
3. Tests are standardized **objective** measurement instruments. The investigated dimension, therefore, is the objective one; therefore, **the subjective dimension of the experience must be evaluated with other instruments**.
4. Tests **examine some aspects but excludes the possibility of measuring others**.



Can personality tests be used for mental health assessment?

- Personality tests are **measures for personality traits and capabilities rather than disorders**.
 - suitable for psychological assessment
 - not suitable for screening for and diagnosing mental disorders
- Although certain personality traits, such as a high level of neuroticism, may increase chances of developing mental disorders, for many people this will not be the case. Regarding a personality trait as a mental disorder then would lead to **false-positive findings**, and of course would be **discriminatory** against the applicants involved, as it would wrongfully assume that a personality trait is the same as a mental disorder.



4 tips to overcome these challenges

- Select the most appropriate tests
- check if the reference model (features investigated by the test) fits assessment needs. **Tests manuals** usually contain this information and can be consulted in specialized libraries and bookstores.
- **avoid** taking the results of the tests **literally**
- **integrate test's results with other assessment measures**
- **discuss** them **together** with the applicant



We recommend not to use tests as standalone assessment measures

Recommendation #29	For both class 1 and class 3 initial and revalidation/renewal, it is recommended to address mental wellbeing and mental complaints during the aeromedical interview, that may be supported by psychodiagnostic tests and/or questionnaires. For the aeromedical assessment of mental health, no psychodiagnostic test and/or questionnaire can be used to replace such interview.
Recommendation #31	Personality tests are not meant to diagnose and assess mental disorders. They can be used in the framework of the psychological assessment of pilots and ATCOs to evaluate their fitness with the required organizational profiles they are applying for, in the framework of the selection process. Today, the psychological assessment is only required for pilots' selection. It is recommended to extend the requirement for psychological assessment to ATCOs.
Recommendation #32	Psychodiagnostic tests taken as stand-alone assessment measures do not enable a mental health diagnosis.
Recommendation #33	When complementing the aeromedical interview about the mental health with psychodiagnostic tests, it is recommended to use tests that are validated in the reference aviation population.



How to select the best psychodiagnostic test?

For use in the routine medical examination of aviation professionals, ideally a test should be:

- Concise, so that it can be completed within a limited amount of time
- A reliable screening instrument for the presence of common mental disorders
- Able to be administered and interpreted with no or a small amount of training
- Available for free or at a low cost
- Available in the native language of the subject
- Not be experienced as intrusive
- Not be vulnerable to underreporting of mental complaints
- Have been adjusted to and validated for use in the airline pilot / ATC population

Unfortunately, no such test exists. In that respect, there is no state of the art of using tests when screening for mental disorders in the medical evaluation of aviation professionals



Suggested interview checklist

For all aeromedical examinations, suggested interview checklist is as follows (Hudson & Herbert, 2017):

- **The Job**
- **Commuting**
- **Applicant's role and attitude in accidents or incidents, problems in training or proficiency checks**
- **Coping strategies** under periods of psychological stress
- **Family arrangements**
- **Interpersonal and relationship issues**
- **Security**
- **Finance**
- **Hobbies & holidays**



Suggested approach for the interview

wave the questions provided by the available questionnaires / interview checklist into the conversation with the applicant during the aeromedical examination as part of a general health promotion discussion that addresses a variety of health issues, such as mood, quality of sleep, current sources of stress, stress coping abilities, and alcohol and/or substance use.

Recommendation #38	AMEs are advised to try to build a trustful relationship with the applicant and to use the questions provided by the available questionnaires and “wave them in” into the conversation with the applicant during the aeromedical examination as part of a general health promotion discussion.
Recommendation #39	It is recommended that AME’s further develop their interviewing skills.



One assessment, three functions

- The importance of the three components: the aeromedical, the clinical and the one linked to the prevention of potential adverse effects of mental issues
- Assessing mental health, therefore, means not only applying standardized methods to collect information ("taking tests"), but also integrating the information derived from the tests with other information (anamnesis, physical examination and interview).
- Working with tests also means not only having skills on the application of tests, but also having clinical and relational skills ("doing assessment").

Recommendation #40	There are no scientific arguments for applying different diagnostic procedures in case of class 1 and 3 examinations.
Recommendation #41	As the onset of mental disorders can be at any point during one's lifetime it seems not logical to follow a largely different diagnostic approach in the interview for initial or renewal examinations.



What AMEs want

- Standardized questionnaires and interviews
- More time for the assessment
- Periodical evaluations performed by the MHS



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<https://www.easa.europa.eu/en/research-projects/mesafe-mental-health>



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