

QUESTIONNAIRE REVIEW

The CAGE questionnaire

The CAGE questionnaire is, along with TWEAK, AUDIT (Alcohol Use Disorders Identification Test) and FAST (Fast Alcohol Screening Test), one of the most popular alcohol screening questionnaires. It was developed by Dr John Ewing in the USA and published in 1984 [1] as an easy-to-use tool to identify severe alcohol dependence.

It consists of four questions:

1. Have you ever felt you should Cut down on your drinking?
2. Have people Annoyed you by criticizing your drinking?
3. Have you ever felt bad or Guilty about your drinking?
4. Have you ever had a drink first thing in the morning to steady your nerves or get rid of a hangover (Eye-opener)?

Administration

The questionnaire can be self-administered or administered by a health-care professional. It is important that it is stressed that the questions relate to the whole of the patient's life, not just the current circumstances.

Scoring and interpretation

Each question is scored 1 for 'yes' and 0 for 'no'. The higher the score the greater the indication of alcohol problems. A total score of 2 or greater is considered clinically significant and has the specificity and sensitivities outlined below. The most important question is the final question regarding alcohol as an eye-opener as it denotes that the patient is undergoing withdrawal in the mornings.

Clinical usage

The questionnaire should not be preceded by any questions on alcohol intake as its sensitivity is dramatically improved by an open-ended introduction [2]. Questions on alcohol usage should be posed after completion of CAGE.

Validity and performance

The CAGE questionnaire has been extensively evaluated for use in identifying alcoholism [3] and is considered a validated screening technique. It is reported to have a sensitivity of 93% and a specificity of 76% for the identification of excessive, i.e. problem, drinking and a sensitivity of 91% and specificity of 77% for the identification of alcoholism

[4]. This compares well with the measurement of gamma-glutamyl transpeptidase, which is abnormal in only a third of patients having more than 16 'drinks' per day.

A study undertaken in Belgium in a primary care setting compared the CAGE questionnaire with other blood parameters such as mean corpuscular volume, liver function tests and carbohydrate-deficient transferrin (CDT). The CAGE was found to have a sensitivity of between 68 and 93% in men studied, but with lower levels of performance in women and compared well against blood parameters that showed low degrees of accuracy and for which the authors concluded were of no use in detecting alcohol abuse or dependence in the primary care setting. They also concluded that the %CDT could not be used to screen general practice populations [5]. The CAGE questionnaire has been reported to be insensitive to the detection of alcohol problems in white female populations [6].

Variations

The CAGE questionnaire is not valid for the detection of substance misuse. A variation, the CAGE-AID is used for such purposes and substitutes 'drink' with 'drink or drugs' in each of the four questions. It has been evaluated [6] and reported to have a sensitivity of 0.70 and specificity of 0.85 for two positive responses.

Comparison with other alcohol screening questionnaires

The CAGE questionnaire has been compared with other alcohol screening questionnaires including FAST and AUDIT. A study involving a total of 2185 patients completed questionnaires at four UK centres, London, Southampton, Bristol and Cardiff. CAGE was found to have a sensitivity of 40% and a specificity of 98% when compared with the AUDIT questionnaire that was used as the gold standard [7]. The study, which was conducted in an accident and emergency department setting, reported that CAGE only identified 40% of hazardous drinkers and had a lower sensitivity (93 versus 40%) and higher specificity (88 versus 98%) than the FAST questionnaire [8]. This is not surprising as the CAGE questionnaire is designed to detect alcohol dependence rather than hazardous drinkers. This illustrates the importance of the selection of the correct tool. The time taken for administration of the CAGE is ~14 s compared with 12 s for the FAST questionnaire and 78 s for AUDIT [8]. A review of the AUDIT questionnaire has been published previously in this journal [9].

Access and copyright

The CAGE questionnaire can be accessed via www.patient.co.uk/doctor/cage-questionnaire. Reproduction of the questionnaire requires permission from the original publishers, the *Journal of the American Medical Association*. The CAGE-AID questionnaire can be found at www.integration.samhsa.gov/images/res/CAGEAID.pdf. Permission to reproduce this questionnaire can be obtained from Dr Richard Brown, MD, Wisconsin, USA.

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