

The use of Threshold Assessment Grid triage (TAG-triage) in mental health assessment

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ABSTRACT

Introduction Clinical assessment is an essential but potentially time-consuming component of mental health-care provision. The Threshold Assessment Grid (TAG) is a brief structured assessment tool which is applied to written referrals with the aim of identifying the severity of mental illness and suitability for further psychological treatment by assessing perceived risk, safety concerns and clinical factors.

Method The TAG criteria were used to structure a brief TAG-triage face-to-face assessment. As the use of triage has not been evaluated within a military occupational mental health service, differences in clinical and occupational outcomes were compared following either standard face-to-face assessment or receipt of TAG-triage interview among members of the UK Armed Forces who were referred for mental health assessment. During a period of service development, 56.6% of patients referred to a military mental health team received TAG-triage assessment (n=419) and 43.5% were assessed as usual (n=323).

Results There were no significant differences in rank, age, sex and Service background between patients allocated to the two forms of assessment. Patients presenting following acts of deliberate self-harm were as likely to receive TAG-triage as they were to undergo standard assessment, suggesting that clinicians were willing to use TAG-triage for more challenging cases. Patients receiving TAG-triage were as likely to receive further therapy and be allocated a clinical diagnosis as those undergoing standard assessment. Short-term and longer-term occupational outcomes following discharge from care, represented by medical fitness to carry out one's military role, were similar among the TAG-triage and standard assessment groups.

Conclusion TAG-triage appeared to offer a viable alternative to standard face-to-face mental health assessment and could promote more efficient use of clinical time.

INTRODUCTION

The initial clinical assessment of mental health disorder is potentially the most time-consuming component of the overall episode of care within an occupational mental health service. The UK Armed Forces (UK AF) operate an occupationally focused mental health service provided by clinical staff based in Departments of Community Mental Health (DCMH) throughout the UK and overseas.¹ Open source information about DCMH activity suggests that 20.0%–24.0% of referred military personnel are found to have no formal psychiatric disorder following face-to-face assessment.² Mental health assessments that conclude that no further specialist mental health input is required represent

Key messages

- ▶ The threshold assessment grid is a method of assessing the urgency of written mental health referrals. This study suggests that it can be successfully adapted to structure a brief face-to-face mental health triage assessment.
- ▶ The TAG-triage assessment appeared to have equivalent utility to a full mental health assessment when identifying clinical risk.
- ▶ Compared to a full mental health assessment, long term occupational outcomes were similar when using TAG-triage to structure the initial patient contact.

a substantial time investment which constrains the availability of DCMH staff to carry out genuinely urgent assessment and deliver specialist care. A departmental audit was conducted in a DCMH prior to introducing a new assessment format, which demonstrated that referral letters were sometimes brief and lacked clinical detail, thus limiting the ability to accurately assess the urgency and associated timeframe for assessment. The disparity between the information provided by some referrers and the requirement for information on the part of the mental health team has been noted in the civilian literature.³ A number of referrals were annotated 'urgent' and therefore required formal assessment within one working day to conform with prevailing DCMH performance indicators. Despite referrers receiving guidance, there was sometimes a marked difference in the conceptualisation of urgency between referrers and the DCMH team. Implementation of a brief assessment initiative was motivated by concern that clinician time was not being used to full advantage in relation to the clinical assessment component. The use of Threshold Assessment Grid (TAG) theoretically provides a vehicle for educating referring agencies about the need to accurately identify and document clinical risk when making a referral to the DCMH, an attribute noted in previous NHS studies.⁴

The TAG⁵ is a valid and moderately reliable⁶ method of assessing mental illness severity from written referrals⁷ and the TAG total score reliably estimates the severity of mental illness.^{8,9} The TAG system has potential benefits, including reducing assessment time for referrals that are subsequently deemed not to be psychiatric disorder cases and for those not requiring further specialist care.¹⁰ After prolonged use of the TAG system to assess referral letters and perceiving potential benefits, an



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additional brief face-to-face TAG-triage interview based on the TAG framework was developed with the aim of using the time available for assessment more efficiently. The DCMH manager anticipated that the implementation of the TAG-based interview could help DCMH staff to take a more systematic approach to quantify risk.

The TAG-triage framework

The average assessment time for a new military patient is often around 90 min, varying with the complexity of the case and associated administration time. TAG-triage offers an alternative where the interview component can be completed in about 25 min. On completion, those deemed to be at increased clinical risk are prioritised and allocated an earlier follow-up appointment than those thought to be at lower risk. Non-mental health cases are signposted to alternative sources of help.

This paper reports a service evaluation assessing whether there were any substantial disadvantages associated with receipt of brief face-to-face TAG-triage compared with standard mental health assessment among military personnel.

METHOD

Data collection

This study was a secondary analysis of data collected by a DCMH for a study approved by the Ministry of Defence Research Ethics Committee. The DCMH provided mental healthcare to predominantly Royal Air Force (RAF) and Army personnel serving in units within a defined geographical catchment area. During the period of service development, socio-demographical, clinical treatment and outcome information was recorded for all patients referred from military primary healthcare facilities to the DCMH; records were stored in a purpose designed electronic database.

Sample

Following receipt of a referral from a primary care medical officer, patients received either brief TAG-triage assessment appointments or standard assessment. Following an initial pilot period, brief TAG-triage was offered for approximately 1 year followed by a gradual return to standard mental health assessment. Overall, 419 (56.6%) patients received TAG-triage assessment and 323 (43.5%) patients underwent standard mental health assessment. Emergency referrals received by telephone or face to face from referring agencies were dealt with using either standard assessment, rather than TAG-triage, or a TAG-triage interview conducted within a shorter time period following receipt of the referral.

Completing the TAG-triage interview

The TAG framework for written referrals assessed seven domains consisting of deliberate self-harm (DSH), unintentional self-harm, risk from others, risk to others and concerns about survival, psychological and social well-being.¹¹ There are unique military occupational risks associated with carrying weapons, working with explosives and conducting safety critical tasks particularly in the operational setting. Therefore, an eighth occupational risk domain was added to assess how psychological symptoms might impact on risk to self and others while performing military roles. Each domain was rated using a Likert scale indicating increasing risk or concern severity from none, through mild and moderate to severe and very severe. The 'very severe' rating was only available for domains where life-saving emergency action by specialist mental health teams may have been required.

Following validation studies within civilian settings, the recommended optimal cut-off uses either a total TAG score of ≥ 5 , or the endorsement of at least two moderate domains to ensure that both sensitivity and specificity are optimised.¹² Using such scores ensures that the optimal number of referrals receive appropriate further assessment.

A face-to-face interview format was developed which was modelled on the eight TAG-written referral domains in an attempt to introduce standardisation. The assessing clinicians were asked to allocate a score to each of the domains which were then summed to give an overall score. The cut-off score of ≥ 5 was used in the interview version of TAG.

Clinicians considered the risk of intentional self-harm, unintentional self-harm (representing safety), risk from others and risk to others (representing risk). For survival, the level of concern about any lack of basic amenities, resources or living skills (representing needs and disabilities) were recorded. For the psychological and social domains, the level of disability or distress arising from thinking, feeling or behaviour was rated and for occupational risk, clinicians rated their level of concern about the ability of the referred person to safely carry out their military role. Simple scoring allocated 0 points to ratings of none, 1 to mild, 2 to moderate, 3 to severe and 4 to very severe in each of the domains. A checklist and instructions were provided for guidance.

Upon interview completion, clinicians completed a written summary in accordance with written guidance regarding the areas to cover when assessing each domain. This included details of the presenting problem, previous psychiatric history, medication use and physical problems. The amount of information required appeared exhaustive; however, the domains could be covered rapidly when working with military personnel, as the majority of mental health problems were not severe and most personnel were functioning at a high level in the social and occupational domains. This freed the clinician to explore risk of DSH and harm to others in more depth. Interview scores were then summated and presented to the multidisciplinary team along with written summary recommendations.

Analysis strategy

Four socio-demographical characteristics were selected as independent variables a priori as they have known associations with mental health. First, serving in the Army was adjusted for as such personnel are more likely to serve in a combat role than RAF personnel and combat exposure is related to poorer mental health.¹³ Second, women often access care more frequently than men;¹⁴ third, holding junior rank is associated with worse mental health.¹⁵ Last, although age was collected as a continuous variable, the information was dichotomised to compare those aged ≤ 24 years to older personnel as youth is associated with poorer mental health.¹⁶ Rank and age variables may have additional effects; DCMH clinicians, particularly junior ranks, may have felt compelled to carry out full assessments for senior and commissioned ranks. In a similar way, intentional self-injury of any kind could have influenced the decision to conduct a standard assessment rather than TAG-triage and was included as an additional confounder in the analyses.

In addition to a binary variable recording whether patients were or were not offered further therapy, the form of therapy was categorised as assessment and advice only, psychological therapy and, third, the receipt of psychoactive medication with or without additional therapy. Treatment intensity was coded as brief therapy (up to 6 sessions), intermediate therapy (7–12 sessions) and prolonged therapy (≥ 12 sessions). Clinical diagnosis was recorded in full;

however, a dichotomous variable was formed where patients either did or did not receive a clinical diagnosis.

Two occupational outcomes were examined following completion of therapy; short-term occupational fitness consisted of a dichotomised variable where a person was medically graded as fully fit to deploy versus any form of deployment restriction including being recommended for discharge from the AF on medical grounds. Longer-term occupational fitness was categorised using the same principles. Longer-term outcomes for up to 4 years following discharge from the DCMH were obtained from linked personnel records under a data sharing agreement with ethical approval as part of a larger study of occupational outcomes.

Statistical analyses

Pearson's χ^2 test was used to assess the statistical significance of the association between receipt of TAG-triage or standard assessment and socio-demographical and military characteristics. The association of assessment type with a range of clinical outcomes was further assessed using binary logistic regression to generate ORs with 95% CIs. These were further adjusted for the four selected socio-demographical factors and DSH occurring in the period immediately prior to referral. For some variables, there was a small amount of missing data, therefore, subcategory n's and %'s may not sum to sample totals described in the results section of this paper.

RESULTS

Overall, 742 military personnel participated in the study: 323 (43.5%) received assessment as usual and 419 (56.5%) underwent TAG-triage. In total, 14.3% (n=60) of those assessed by TAG-triage had scores ≥ 5 , indicating that they were more serious cases and might benefit from further psychological therapy; 85.7% (n=359) had lower scores with 44.9% of all TAG-triage cases (n=188) scoring 0 or 1.

Written referral TAG-assessment prior to face-to-face assessment

In total, 42.1% (n=136) of standard assessment (n=323) and 98.8% (414/419) of TAG-triage referrals were assessed using the written referral TAG system prior to standard assessment or face-to-face TAG-triage interview. Allocating a written referral TAG score prior to assessment had no significant effect on the rate of receipt of further therapy following assessment between the two forms of face-to-face assessment. Of the referrals that received a written referral TAG score prior to face-to-face assessment (n=534), 71.5% (n=382) went on to receive further therapy following assessment compared with 70.4% (n=126) of those cases that did not receive a written referral TAG score (n=179) ($\chi^2=0.09$, df=1, p=0.77). Despite there being no significant effect on receipt of further therapy, given the disparity in the distribution of written referral TAG scoring between the TAG-triage and standard assessment groups, receipt of a pre-assessment TAG score was adjusted for in the logistic regression analyses. The study process is shown in [Figure 1](#).

Socio-demographical factors and assessment allocation

Patients were mostly from the RAF (79.0%) with the remainder serving in the Army (21.0%). Women constituted 31.4% of those referred to the DCMH although representing only 9.6% of the UK AF.¹⁷ Personnel under the age of 25 years were somewhat under-represented forming 21.9% of the DCMH referrals, whereas the expected UK AF rate was 28.2%. The rank structure of the referral group was broadly similar to the UK AF; however, commissioned ranks were under-represented when

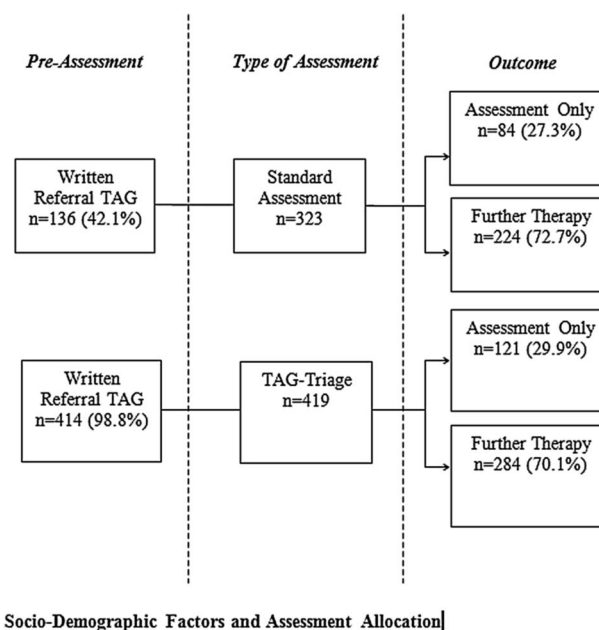


Figure 1 Written referral, TAG-triage, standard assessment and therapy allocation. TAG, Threshold Assessment Grid.

compared with whole force figures (12.3% vs 17.1%). For each of the socio-demographical variables examined, the proportions of personnel receiving either TAG-triage or standard assessment did not differ significantly ([Table 1](#)).

Assessment allocation and clinical outcomes

There were no significant differences among the various measured clinical outcomes following TAG-triage or standard assessment in both unadjusted and adjusted logistic regression analyses ([Table 2](#)).

Short-term and longer-term occupational outcomes following standard assessment and TAG-triage

Although there was a borderline trend for greater numbers of personnel to be returned to their unit without any short-term

Table 1 Socio-demographical factors

Characteristic	Standard assessment n (%)	TAG-triage assessment n (%)	χ^2 , df, p Value
Service background			
RAF (565)	242 (76.8)	323 (80.8)	1.64, 1, 0.20
Army (150)	73 (23.2)	77 (19.2)	
Sex			
Male (509)	226 (70.0)	283 (67.5)	0.50, 1, 0.48
Female (233)	97 (30.0)	136 (32.5)	
Age group			
17–24 years (161)	61 (19.0)	100 (24.0)	0.50, 1, 0.48
≥ 25 years (576)	260 (81.0)	316 (76.0)	
Rank group			
Junior rank (237)	95 (29.5)	142 (33.9)	3.24, 3, 0.36
Junior NCO (237)	107 (33.2)	130 (31.0)	
Senior NCO and WO (176)	84 (26.1)	92 (22.0)	
Commissioned officer (91)	36 (11.2)	55 (13.1)	

NCO, Non-commissioned Officer; RAF, Royal Air Force; TAG, Threshold Assessment Grid; WO, Warrant Officer.

Table 2 Assessment type and clinical outcomes

Clinical outcome (n)	Standard assessment	TAG-triage assessment	OR 95% CI	AOR* 95% CI	AOR† 95% CI	AOR‡ 95% CI
Clinical decision						
Assessment only (205)	84 (27.3)	121 (29.9)	1	1	1	1
Further therapy (508)	224 (72.7)	284 (70.1)	0.88 (0.63 to 1.22)	0.86 (0.61 to 1.21)	0.76 (0.48 to 1.18)	0.75 (0.47 to 1.18)
Therapeutic input						
Level 2 brief therapy (1–6 sessions) (540)	240 (77.9)	300 (74.1)	1	1	1	1
Level 2 intermediate therapy (7–12 sessions) (99)	34 (11.0)	65 (16.0)	1.53 (0.98 to 2.39)	1.54 (0.97 to 2.42)	1.53 (0.98 to 2.39)	0.86 (0.53 to 1.41)
Level 2 prolonged therapy (12+ sessions) (74)	34 (11.0)	40 (9.9)	0.94 (0.58 to 1.53)	0.97 (0.59 to 1.59)	0.94 (0.58 to 1.53)	0.53 (0.28 to 1.00)
Therapy type						
Assessment only (178)	72 (23.4)	106 (26.2)	1	1	1	1
Psychological therapy (434)	184 (59.7)	250 (61.7)	0.92 (0.65 to 1.32)	0.86 (0.60 to 1.25)	0.94 (0.58 to 1.51)	1.12 (0.58 to 1.77)
Medication ± additional therapy (101)	52 (16.9)	49 (12.1)	0.64 (0.39 to 1.05)	0.64 (0.39 to 1.07)	0.51 (0.27 to 0.94)	0.66 (0.36 to 1.21)
Referred following DSH act						
No DSH (698)	304 (94.1)	394 (94.0)	1	1	1	1
DSH (44)	19 (5.9)	25 (6.0)	1.02 (0.55 to 1.88)	1.01 (0.52 to 1.95)	0.65 (0.32 to 1.33)	0.65 (0.31 to 1.38)
Assigned diagnosis						
No diagnosis assigned (87)	36 (11.1)	51 (12.2)	1	1	1	1
Diagnosis assigned (653)	287 (88.9)	366 (87.8)	0.90 (0.57 to 1.42)	0.83 (0.51 to 1.33)	0.93 (0.51 to 1.68)	0.83 (0.44 to 1.56)

*AOR—adjusted for Service background, engagement type, sex, ≤25 years of age versus older, rank, referred following DSH attempt.

†AOR—adjusted for allocation of a written referral TAG score prior to face-to-face assessment.

‡AOR—adjusted for all factors.

AOR, adjusted OR; DSH, deliberate self-harm; TAG, Threshold Assessment Grid.

medical employment restrictions following standard assessment, the difference in short-term occupational fitness levels were not significant in both unadjusted and adjusted logistic regression. Using the same analytical approach, there were no significant differences in outcome between the two forms of assessment for longer-term occupational outcome (Table 3).

DISCUSSION

The key findings of this evaluation were that, compared with receipt of standard assessment, patients in receipt of TAG-triage did not appear to be clinically disadvantaged in any way. On the contrary, they were as likely to be offered further therapy and to receive a clinical diagnosis as those in receipt of standard assessment. Acts of DSH occurring in the period immediately preceding referral did not appear to influence the decision of the assessing clinician to opt for a full standard assessment rather than TAG-triage, even though this was an option available to them. In the short term, patients receiving TAG-triage were as likely to regain or maintain full occupational fitness as those receiving standard assessment. Longer-term

occupational outcomes were similar among the TAG-triage and standard assessment groups.

This study used an adapted version of the TAG to structure a brief interview which sought to identify patients who might have benefited from further psychological therapy or support following assessment. Overall, the results suggested that the clinical severity of cases referred to the DCMH was generally low with total TAG-triage scores indicating that only 14.3% of referrals would have been regarded as requiring further specialist mental healthcare in NHS settings. In practice, however, nearly three-quarters of patients went on to receive further therapeutic input. A lack of concurrence among mental health team workers in characterising the severity of mental health cases has been noted elsewhere in the literature¹⁸ and is apparent in this study in the disconnect between TAG-triage-derived scores and the offer of further therapy. Although the TAG framework was designed to identify cases of serious mental disorder, there are different requirements for a military occupational mental health service, where the aim is to maintain a high state of functionality among individuals affected by psychological symptoms. The

Table 3 Assessment type, short-term and longer-term occupational outcomes

Occupational outcome (n)	Standard assessment	TAG-triage assessment	OR 95% CI	AOR* 95% CI	AOR† 95% CI	AOR‡ 95% CI
Short-term outcome						
Deployable (550)	245 (83.1)	305 (78.0)	1	1	1	1
Limited or non-deployable (136)	50 (16.9)	86 (22.0)	1.38 (0.94 to 2.04)	1.00 (0.62 to 1.61)	1.39 (0.93 to 2.07)	1.01 (0.62 to 1.66)
Long-term outcome						
Fully deployable or completed service (286)	117 (66.1)	169 (69.3)	1	1	1	1
Limited, non-deployable or discharged (135)	60 (33.9)	75 (30.7)	0.87 (0.57 to 1.31)	0.67 (0.41 to 1.12)	0.86 (0.57 to 1.31)	0.70 (0.42 to 1.17)

*AOR—adjusted for Service background, engagement type, sex, ≤25 years of age versus older, rank, referred following deliberate self-harm attempt.

†AOR—adjusted for allocation of a written referral TAG score prior to face-to-face assessment.

‡AOR—adjusted for all factors.

AOR, adjusted OR; TAG, Threshold Assessment Grid.

results of this preliminary study suggest that the TAG-triage approach described in this paper might be suitable for occupational health services to help them to decide when to request specialist mental health support. If the TAG-triage criteria were to be strictly enforced, the time spent assessing new cases could be substantially reduced. However, the TAG system was validated among NHS samples and as such may not be directly applicable to a military cohort. The evaluation results suggest that brief assessment appears to be a potentially effective mechanism to ascertain the need for specialist care or more in-depth assessment and further work might build on this by identifying and incorporating the most pressing clinical risk factors to be taken into account in an occupational mental health context. Coupled with pertinent self-report questionnaires such as hopelessness,¹⁹ suicide risk²⁰ and alcohol scales,²¹ more efficient use could potentially be made of initial assessment time. Given that TAG-triage is currently an unvalidated procedure, there is an unquantified risk that serious or at-risk mental health disorder cases might be missed when using this brief form of assessment; however, 'serious' cases can be missed when a standard approach to mental health assessment is used. To assess the effectiveness of TAG-triage in this regard would require the continuation of the validation exercise until a serious case was missed and even then sufficient numbers of missed serious events would have to accrue in order to enable a robust comparison with the rate of serious cases missed using standard assessment. There is a fail-safe in the process as the responsible medical officer will receive a copy of the TAG-triage report and can request further assessment if additional information becomes available. Although we did not find that TAG-triage missed serious cases in this modest sample, robust risk management should be incorporated into any future studies of the process.

There may be a substantial time-saving to be gained during assessment if a triage clinic approach were to be adopted, given that clinical and occupational outcomes were similar irrespective of the form of assessment. This could potentially be in the region of at least 30 min for each referral. In addition, if stricter adherence to threshold recommendations were to be enforced, further time-saving and cost-saving²² could potentially be substantial as serving personnel who do not require mental health support could be redirected to more appropriate sources of help. TAG-triage could be employed in situations where the clinical burden outstrips the department's resources and DCMH managers are compelled to operate a waiting list. Implementing a TAG-triage approach would be a more constructive alternative to placing patients on a waiting list by allocating patients to targeted intervention, support groups, stepped care or alternative sources of help, particularly in those departments with the highest clinical burden.

Strengths and weaknesses

The major weakness of this study was that it was based on a service evaluation not a randomised controlled trial; therefore, potential sources of bias cannot be fully accounted for or minimised. Furthermore, the TAG written referral system was adapted from the validated seven-item scale to include the eight items used in this trial; therefore, further research should be undertaken to assess the validity of the approach within the UK AF. Additionally TAG was developed as a method of assessing written referrals rather than as a structure for a brief TAG-triage interview as was the case in this study. The study was conducted among a largely single Service sample and, although there are differences in prevalence rates for various disorders between the

Armed Services, the way that risk and mental healthcare delivery is managed for each Service is broadly similar. The study should ideally be replicated among a representative sample of the UK AF although there is no reason to believe that TAG-triage should function differently with non-RAF personnel. Strengths of the study include the use of a large sample and adjusted analyses which helped to reduce the influence of some sources of bias.

CONCLUSION

TAG-triage appears to offer a viable alternative to standard mental health assessment and could potentially give rise to more efficient use of clinical time. However, given that TAG may not be a wholly appropriate framework for assessing military referrals and for structuring a triage assessment, it is recommended that alternative approaches to structuring the TAG-triage assessment be evaluated. If a TAG-based interview is used to structure a triage assessment, then a robust validation study should be undertaken. The results of this service evaluation are therefore to be regarded as preliminary and further work may be required to assess whether a more sensitive or appropriate tool is required to assess suitability for treatment in a military occupational mental health context.

Contributors NJ compiled the study database, carried out all analyses and drafted the original manuscript. NG provided extensive comments on the first and the final publication drafts.

Competing interests NJ is a full-time reserve service member of the British Army. NG is an advisor to the Academic Centre for Defence Mental Health. Both authors are funded by the UK Ministry of Defence but have received no direction from the funding body in the reporting of the study findings and interpretation of the study results.

Ethics approval This study was a secondary analysis of data obtained for a clinical study for which Ministry of Defence Research Ethics Committee Approval was granted.

Provenance and peer review Not commissioned; externally peer reviewed.

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