

2023-2024

THÈSE

pour le

DIPLÔME D'ÉTAT DE DOCTEUR EN MÉDECINE

Qualification en MEDECINE DU TRAVAIL

Assessing psychological distress among medical students: a systematic review and meta- analysis of tools available

EVALUATION DE LA DETRESSE PSYCHOLOGIQUE CHEZ LES
ETUDIANTS EN MEDECINE : UNE REVUE SYSTEMATIQUE DE
LA LITTERATURE ET META-ANALYSE DES OUTILS
DISPONIBLES

L'HÔTE Delphine

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Sous la direction de M. LEVAILLANT Mathieu

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Admise dans l'intimité des personnes, je tairai les secrets qui me seront confiés. Reçue à l'intérieur des maisons, je respecterai les secrets des foyers et ma conduite ne servira pas à corrompre les mœurs. Je ferai tout pour soulager les souffrances. Je ne prolongerai pas abusivement les agonies. Je ne provoquerai jamais la mort délibérément.

Je préserverai l'indépendance nécessaire à l'accomplissement de ma mission. Je n'entreprendrai rien qui dépasse mes compétences. Je les entretiendrai et les perfectionnerai pour assurer au mieux les services qui me seront demandés.

J'apporterai mon aide à mes confrères ainsi qu'à leurs familles dans l'adversité. Que les hommes et mes confrères m'accordent leur estime si je suis fidèle à mes promesses ; que je sois déshonorée et méprisée si j'y manque ».

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Liste des abréviations

BAI	Beck Anxiety Inventory
CNAES	Coordination Nationale d'Accompagnement des Etudiants et Etudiantes en Santé
DASS	Depression, Anxiety and Stress Scale
DSM	Diagnostic and Statistical Manual
GAD	Generalized Anxiety Disorder
GHQ	General Health Questionnaire
HADS	Hospital Anxiety and Depression Scale
ICD-10	International Classification of Diseases 10th Revision
ISMA	International Stress Management Association
JB	Joanna Briggs Institute
MHC-SF	Mental Health Continuum Short Form
MSSQ	Medical Student Stress Questionnaire
PMSS	Perceived Medical School Stress
PSS	Perceived Stress Scale
RPS	Risques psychosociaux
SQHP	Stress Questionnaire for Health Professionals

PLAN

SERMENT D'HIPPOCRATE

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EVALUTATION DE LA DETRESSE PSYCHOLOGIQUE CHEZ LES ETUDIANTS EN MEDECINE : UNE REVUE SYSTEMATIQUE DE LA LITTERATURE ET META-ANALYSE DES OUTILS DISPONIBLES

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RESUME

Introduction : Plusieurs études rapportent un taux élevé de détresse psychologique chez les étudiants en médecine (1–5). Les prévalences de dépression, anxiété, stress et le taux de suicides sont élevés dans cette population. Pourtant, il n’y a aucun consensus sur les outils à utiliser pour détecter ces symptômes dans ces études. Cette revue systématique explore les différents outils disponibles pour évaluer cette détresse chez les étudiants en médecine.

Matériels et Méthodes : Une revue systématique de la littérature a été réalisée à partir d’un protocole établi a priori. Les articles étaient inclus s’ils traitaient de l’anxiété, du stress ou de la détresse psychologique chez les étudiants en médecine et utilisaient des outils d’évaluation validés et traduits en anglais. Une méta-analyse a également été réalisée sur les prévalences de stress et d’anxiété.

Résultats : 121 articles ont été inclus, permettant d’identifier 22 outils différents. Les plus fréquents étaient le DASS (21,7%), suivi du GHQ et du PSS (14,7%). Seulement 2 des outils retrouvés, le MSSQ (5,4%) et le PMSS (3,9%) étaient spécifiquement conçus pour des étudiants en médecine. La méta-analyse retrouve une prévalence du stress à 47,5% et de l’anxiété à 44,6%.

Conclusion : De multiples outils pour évaluer la détresse psychologique existent et sont déjà largement utilisés. L’utilisation d’un questionnaire spécifique pour cette population ne semble pas indispensable car les outils dédiés à la population générale fonctionnent sur cette population spécifique. L’utilisation de questionnaires spécifiques peut, en revanche, mieux orienter vers des facteurs causaux spécifiques sur lesquels agir.

INTRODUCTION

Cette thèse vise à faire un état des lieux, par le biais d'une revue systématique de la littérature, des outils d'évaluation déjà utilisés dans le monde pour évaluer les risques psychosociaux chez les étudiants en médecine. Elle se fait en parallèle d'un travail mené par Luna POTIRON (interne de médecine générale), qui correspond à une revue systématique de la littérature des différents facteurs de stress chez les étudiants en médecine.

De nombreuses études montrent que la prévalence de dépressions chez les étudiants en médecine est plus élevée que dans la population générale, elle est évaluée à 28,8% par une revue systématique de la littérature (1) contre 3,8% dans la population générale d'après l'Organisation Mondiale de la Santé (6). Des études concernant l'anxiété et le burnout (2) chez les étudiants en médecine, ont également montré qu'il s'agissait d'une population à risque, tout comme le démontre également le fort taux de suicide dans cette population (3). Une étude sur la santé mentale des étudiants en médecine et des jeunes médecins, à l'initiative des syndicats des internes et des jeunes médecins en 2017 (7), ainsi que le rapport interministériel sur la qualité de vie des étudiants en santé, réalisé en 2018 (4), ont également permis de mettre en évidence et alerter sur ces différentes problématiques chez les étudiants en médecine. Des initiatives sont mises en place pour faire face à l'urgence et à la détresse des étudiants en santé. Parmi ces initiatives, on peut citer notamment la mise en place de la CNAES (Coordination Nationale d'Accompagnement des étudiants et étudiantes en santé), à la suite du rapport du 3 avril 2018 du Dr Donata Marra. Cependant, il n'y a pas à ce jour, d'outil validé pour l'exploration des risques psychosociaux chez les étudiants en médecine. En effet, du fait des contraintes spécifiques auxquelles est exposée cette population, les outils utilisés habituellement pourraient ne pas être adaptés.

Cette revue de la littérature est donc réalisée avec pour but d'analyser les outils à notre disposition et leur pertinence dans le dépistage des risques psycho-sociaux chez les étudiants en médecine.

ASSESSING PSYCHOLOGICAL DISTRESS AMONG MEDICAL STUDENTS: A SYSTEMATIC REVIEW AND META-ANALYSIS OF TOOLS AVAILABLE

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INTRODUCTION

The mental health of medical students has been a concern for many years. A growing number of scientific reviews published aimed at assessing their psychological distress. This is partly because of the increasing rate of psychological distress in this population (1–5), but also because several studies suggest that occupational well-being could positively contribute to the quality of patient care (8).

The prevalence of depression in medical students is higher than in the general population: 28.8% according to Mata et al. in 2014 (1) vs. 3.8% according to the Institute of Health Metrics and Evaluation, based on 2019 data (6). The same holds true for anxiety (33.8% according to Tian-Ci Quek et al. in 2019 (9) vs. 4.1% according to Javaid et al. In 2023 (10)). A systematic review of the literature published by Rotenstein et al. in 2016 (3) showed that the 12-month prevalence of suicidal ideation in medical students was 11.1% and 1.6% for suicide attempts according to the World Health Organization's data (11). However, international data on suicide rates among medical students are not available.

Psychosocial risks are divided into several categories: psychological distress (anxiety and stress), harassment and external violence. Due to the specific nature of their studies, medical students are exposed to particular risks, especially with regard to the factors responsible for psychological distress (12). Several studies revealed that, in medical students', the volume of information to learn, forms of evaluation, competition, time constraints and fear of failure were stressors that could be responsible for this distress (13–15). Other studies showed that specific stressors such as ethical challenges and exposure to human suffering were also present (16–18). Those risks are too rarely assessed, and the tools used to assess psychosocial risks may not be appropriate for this specific population. As the tools used to assess psychological risks depend on the

type, this study is focused only on the one used to assess psychological distress and not violences.

Because there is no international recommendation on the assessment of psychological distress in medical students and since there are a multitude of existing tools to assess it, we, therefore, chose to conduct a systematic review of the literature to identify those instruments and evaluate their relevance. A second aim is to perform a meta-analysis on the articles included on prevalence of psychological distress among this specific population.

METHODS

This systematic review was conducted according to the recommendations of the Joanna Briggs Institute Manual for Evidence Synthesis for systematic reviews (19). Prior to commencing the review, authors agreed upon the eligibility criteria, search strategy, data extraction and quality assessment. The review protocol was registered on PROSPERO, no. CRD42023393859.

Search strategy and screening

We developed a search strategy using the keywords “mental wellness”, “anxiety”, “psychosocial”, “stress”, “burnout”, “medical student”, “medical resident”, “medical intern”, “questionnaire”, “survey” and “evaluation”. (**Supplementary Table I**). The search was conducted on 25 January 2023 and included studies from 1 January 2013 to 1 January 2023. We chose to examine only the last decade, as risk factors may change over time, and therefore assessment tools. Two databases were searched, MEDLINE and Web Of Science.

Screening for inclusion was carried out independently by two reviewers (DL and LP). In case of disagreement, a meeting was organized between the two reviewers to reach a final decision. In case of persistent disagreement, a third reviewer was involved (ML). The literature was first screened by title and then by abstract according to the inclusion and exclusion criteria. The remaining full-text articles were screened for final inclusion.

Inclusion and exclusion criteria

Studies were eligible if they assessed psychological distress, stress or anxiety in medical students using a reproducible instrument. Instruments assessing burnout were excluded from this review because burnout is not always considered a psychosocial risk factor, but rather a pathology, depending on the source (20).

This resulted in the following eligibility criteria. Firstly, the studies had to assess psychological distress, stress or anxiety in the correct population, so papers targeting students in other disciplines or doctors who had already graduated were not included. Second, studies had to use published questionnaires with an English version available. Thirdly, we excluded studies that investigated stress during a specific task (e.g. during an operation, an examination...) or that only investigated coping strategies. Because of the risk of including the result of the same study several times, we only included original studies (i.e. systematic reviews were excluded). Only articles published in English were included.

We decided not to include reviews that investigated pathologies such as depression, as these are outside the scope of psychosocial risks.

Data extraction

Data were extracted according to a predefined grid (**Supplementary Table II**). Information extracted included author, year of publication, country, number of participants, response rate and mode (self-administered or not), male/female ratio,

whether the study was multicentred or not, area studied, questionnaires used and, if available, prevalence of stress, anxiety and depression.

The quality of included reviews was assessed using a modified version of the JBI critical appraisal checklist for analytical cross-sectional studies questionnaire (21). We modified it by removing three items as they referred to confounding factors and the included studies were not designed to prove an association (**Supplementary Table III**). Articles meeting all 5 criteria were considered to be of good quality. Those that met only 3 or 4 criteria were considered to be of average quality, and those that met 2 or fewer criteria were considered to be of poor quality.

Data synthesis and analysis

The analysis was purely descriptive, as the aim was to report all available tools and their frequency of use. We described the frequency of use of each tool quantitatively. For each tool, we assessed the mean prevalence of stress, anxiety and depression to see whether certain tools systematically found higher or lower prevalence than others.

A meta-analysis on prevalence of anxiety and stress was performed based on studies for which full data were available. We also conducted a sensitivity analysis with the inclusion of only good quality studies.

This study received no funding and authors were not conflicted in any way.

RESULTS

A total of 1,413 articles were identified through the MEDLINE database and 1,972 through the Web Of Science database. After removing duplicates, 2,295 articles

remained. Of these, 1,817 articles were excluded based on their title not meeting the eligibility criteria. An additional 325 articles were excluded based on their abstract, leaving a final set of 153 articles for full-text review.

Finally, 121 articles were included in the study (**Figure 1**). Although quantitative studies were not an eligibility criterion, none were found. The studies included were conducted in 44 countries, with 64 in Asia (52.9%), 20 in Europe (16.5%), 18 in Africa (14.9%), 9 in South America (7.4%), 7 in North America (5.8%), and 2 in Oceania (1.7%). One study was a collaborative paper from 9 countries over 4 continents. The review included studies with a total sample size of 69,543 students and a mean response rate of 74.0%. Based on 114 studies that reported the sex-ratio, 38.0% of the total sample were men and 62.0% were women.

The quality of the studies varied, with 107 rated as good, 13 as average, and 1 as poor. A total of 10 different tools were used among the 14 studies of poor or average quality. Two tools, the stress arousal checklist (22) and the SQHP (23), were each used only in one study that was rated as average and was not found in any good quality study. All the other tools were used in at least one study of good quality. Of the instruments used in more than one study, only the GAD and the MSSQ were used exclusively in good quality studies.

Instruments used

Among all included studies, a total of 22 different tools were used. Thirty-three studies used at least one other questionnaire in association with this main tool, mainly assessing burnout, alcohol consumption, or substance abuse.

The tools used in the included studies were created between 1970 and 2013. Only two of them were specifically designed for medical students : the Perceived Medical School

Stress (PMSS) and the Medical Student Stress Questionnaire (MSSQ) (14,24). Fourteen of them were designed for general population, three for students in general and two for health practitioners. The shorter questionnaire was the GAD-2 with only two items, which is a short version of the GAD scale (25), used for a rapid assessment or to be used by phone. The longest one was the long version of the GHQ (26) with 60 items. Shorter versions of the GHQ exist with 12 to 30 items. All the questionnaires were self-assessment tools that could be filled out electronically or on paper. The time taken to answer the questionnaires varied between 1 to 2 minutes for GAD to 10 to 20 minutes for the DASS-42.

Nine tools were used in more than one study. **Table I** summaries the key characteristics of those.

Table II shows the fields explored by the different items of each one of the five most used tools. Among those 5 tests, only one item was explored by all, the nervousness. Four of them explored physical symptoms, irritability, ability to enjoy activities and to focus and complete tasks. Only 2 explored dark thoughts and suicidal ideation. The DASS and the GHQ appeared more focus on general health, with many items on physical symptoms and cognitive functions, whereas HADS and Kessler target more inner turmoil such as nervousness and restlessness. PSS examines emotions related to loss of control and feeling overwhelmed, which are not commonly addressed in other questionnaires.

Thirteen tools were used only in one study each. None of them were specifically designed for medical students. Seven of these tools focused on stress and psychological distress in the general population (27–33), two focused on physicians but not students (23,34), and three focused on students but not in the medical field (35–37).

The Depression Anxiety Stress Scale (DASS) (38) was the most commonly used instrument, appearing in 28 studies (21.7%). It was followed by the General Health Questionnaire (GHQ) in 19 studies (14.7%) and the Perceived Stress Scale (PSS) (39) in 19 studies (14.7%) (**Figure 2**). 13 assessment tools were used only once (**Supplementary Figure 1**).

Six of the instruments were used in several versions, including different numbers of items. The DASS was used in its 14-, 21-, and 42-item versions. A large majority of the studies using the DASS used its 21-items version (67.9%). 7.1% used the short version, and 25.0% the long version of the DASS. The GHQ was used in 15 studies, with 84.2% using the 12-item version and 15.8% using the 28-item version. The PSS was used in 14 studies with the 10-item version (73.7%) and in 5 studies with the 14-item version (26.3%). The Hospital Anxiety and Depression Scale (HADS) (40) was used in its complete version and in a version with only the anxiety part. The Kessler scale (41) was used in both its 6 and 10 item versions, and the Generalized Anxiety Disorder (GAD) scale was used in both its 2 and 7 item versions. (**Figure 2**)

The answer rate differed significantly among the various tools used. It is noteworthy that the DASS-42, which had the longest response time, had an answer rate of 79.2%, surpassing that of most other tools. **Table III** and **Table IV** report the answer rates of the different tools.

Meta-analysis

The included studies report average rates of stress and anxiety at 47.5% and 44.6% respectively. The sensitivity analysis only exploring studies with good methodological quality showed no difference with a prevalence of stress at 46.8% and anxiety at 44.5%.

Among the tools used in multiple studies, the MSSQ had the highest average rate of stress at 79.8%. This rate was estimated based on only two studies, as the others did not provide any prevalence. The PSS was the second tool to report the highest average rate for stress, based on 16 studies, with an average rate of 58.8%. The lowest rate was found with the Kessler at 35.3%, based on the results of 9 studies (**Table III**). The GAD had the lowest average rate for anxiety at 25.9% based on eight studies, while the HADS had the highest rate at 49.0% based on eight studies (**Table IV**).

These results show a high degree of variability between studies, which may be due to several factors. Inconsistencies in the population under study were observed, as some studies focused solely on medical students in specific years. Additionally, the number of participants varied greatly between studies, with the largest study including 11,754 participants (110) and the smallest including only 55 (170). On average, studies included 580 participants, with a median of 315. Furthermore, certain questionnaires may have multiple thresholds, resulting in variations in the average rate depending on the threshold selected by each study.

DISCUSSION

This review included a total of 121 studies. There were 22 different assessment tools used. Over half of the studies (51.2%) used only three tools: the DASS, the GHQ, and the PSS. The DASS was the most commonly used tool, with 28 studies using it. 13 tools were used only in one study. The number of participants in the included studies varied widely, ranging from 55 to 11,754.

The wide variety of tools used in these studies shows that no single tool stands out for the assessment of stress and anxiety in medical students. The Depression Anxiety and

Stress Scale (DASS) is the most commonly used tool, with both its 42-item and 21-item versions covering a wide range of signs of anxiety, stress, and depression. The General Health Questionnaire (GHQ), the second most commonly used tool, explores many symptoms of stress.

The PSS, HADS and Kessler scale provide little or no assessment of somatic symptoms or general state. Many somatic disorders are caused by severe and prolonged stress (42), making the absence of items on this topic a limitation to their use. Additionally, they do not evaluate negative thoughts or suicidal ideation, as their focus is on assessing stress rather than depression. However, when using a screening tool to assess psychological distress in a population at high risk of suicide (3), it is interesting that if only one tool is used to assess psychological distress, it covers this area.

Research suggests that questionnaires with a completion time of more than 10 minutes have a lower response rate (43). Therefore, it may be beneficial to consider shorter versions of questionnaires when selecting one. However, this study found that the DASS-42, despite being one of the longest tools, had one of the best response rates.

Most tools are not designed specifically for medical students and do not consider the unique aspects of the medical curriculum. Dyrbye et al. (44) identified stressors that are specific to this curriculum, including ethical conflicts and exposure to human suffering and death. Only two of the tools, the MSSQ and the PMSS, are designed specifically for medical students. The PMSS items are related to the medical studies curriculum but do not specifically examine the stressful aspects of medicine mentioned above. If reworded, it seems that it could be applied to other fields. In contrast, the MSSQ asks questions about concrete aspects of day-to-day life faced by medical students during the clinical practice stage, such as dealing with patients' illnesses and

deaths, the difficulty of discussing personal issues with them, or being unable to answer their questions. It is important to note that the MSSQ is a validated tool in only a few countries, primarily in Asian countries. Additionally, the PMSS, although older, has not been widely used in studies. To improve the understanding and assessment of stress factors affecting medical students, it would be beneficial to translate and validate these tools in more languages and countries.

Given the large number of already existing tools for exploring psychological distress in medical students, there is a substantial overlap of items between questionnaires. It may be beneficial, in the future, to conduct a more detailed study of these items and group them, in order to create a more concise tool.

Although medical students may face specific stressors, it can be assumed that they experience and are impacted by stress and anxiety in the same way as the general population. Therefore, non-specific questionnaires may be just as relevant in assessing their stress levels, particularly during the first years of the curriculum. In this case, the use of the DASS-21 is particularly relevant as it assesses a wide range of symptoms and provides scores for depression, stress, and anxiety. During the clinical practice phase of the studies, the value of the specific instruments may lie in their ability to highlight problems for an individual or a group of people so that they can be worked on. Therefore, if the goal of stress assessment is to identify factors that can be improved to enhance the situation, using the MSSQ appears to be particularly relevant. If the objective is to evaluate an individual's psychological distress, regardless of the factors responsible for the situation, the DASS-21 appears again to be appropriate. This is also what Vitaliano et al. reported in 1984 (14) with the development of the PMSS as a tool to identify the most distressing pressures in medical students, which could aid in the development of intervention strategies.

Despite the large number of studies included and the use of multiple tools, the results indicate that the estimated prevalence of stress and anxiety can vary significantly depending on the tool used. This might suggest that some of them underestimate or, on the contrary, overestimate the stress or anxiety rate. In the future, it would be beneficial to evaluate stress and anxiety using different tools on the same sample to determine whether the results are consistent between the different tools.

Data in literature are also highly variable, a report in France in 2017 (7), estimated the prevalence of anxiety in a large sample of medical students and young practitioners at 66.2%, which is higher than what was found in this review. However, a meta-analysis of 69 studies by Tian-Ci Quek et al. (9) in 2019 reported a rate at 33.8% which is lower than the findings of this review. The variability in rates found in different studies may explain the differences in results between various systematic reviews. Differences in prevalence found in studies may be attributed to variations in study populations, assessment tools, academic years studied, and the country where the study was conducted. In addition, some tools can be used with different thresholds. For example, different quotes of the GHQ exist and can be used (45–47), potentially giving different results with the same tool. Most of the studies included in the analysis also identified differences between their findings and those reported in the literature. It is important to note that this variability is amplified by the fact that all the tools used in the included studies presented a wide range of rates. The prevalence of stress found in this review is consistent with the worldwide prevalence of stress reported in the meta-analysis by Jahrami et al. in 2023 (48), which was 41.7%.

Strength and limitations

This systematic review has several strengths. Firstly, it is the first study to conduct a review of the literature on the tools used to assess psychological distress among this

specific population. Additionally, we used an a priori protocol with a pre-designed search strategy, data extraction grid, and quality assessment strategy, with two independent reviewers. The inclusion of a large number of studies in this review indicates its relevance and ensures that the results are representative of the current state of the art. It is also a strength that we included studies from many countries and different health care systems, which may help to shed light on lesser-known assessment tools.

However, this study has several limitations. Firstly, all the studies included in this analysis relied solely on self-assessment tools. This may be due to the lack of commonly used tools that are not self-reported, or it may reflect a selection bias. Additionally, interpreting the average rates is limited by the presence of multiple thresholds among different studies that used the same assessment tool, as well as slight differences in the populations of the included studies, which involved students from different years. Furthermore, certain studies employed scales that were excluded because they lacked validation or had not been translated into English. Additional research is required to translate and validate these scales in order to evaluate their significance.

Another limitation concerns the response rate, which may be low in some studies due to the study design rather than the tool used. For instance, Rolland et al., in 2022 (110), conducted a French study in which 76,500 medical students were identified as eligible to receive the questionnaire by email. In practice, some faculties did not send the survey in time or may not have sent it at all. As a result, the researchers had to reach out to participants through social media. This difficulty in reaching participants may explain the particularly low response rate. The large sample size with such a low response rate significantly impacts the overall response rate of the HADS, which was the tool used in this study. Therefore, the results should be treated with caution.

CONCLUSION

Even if this review includes studies that use various tools to assess psychological distress in medical students, 50% of them use only three tests (the DASS, the GHQ and the PSS), none of which were designed specifically for medical students. If the aim is to identify specific issues to improve conditions, it may be worth considering using a tool specifically designed for this population, such as the MSSQ, alone or in addition. Many tools already exist and have proven to be efficient in evaluating stress and anxiety. Therefore, at this stage, it is more important to use these questionnaires more widely to detect psychological distress in medical students than to create new ones. Prevalence of stress and anxiety found in the meta-analysis confirms that prevalence's of stress and anxiety are higher in medical students than in the general population. This highlights the need for improved care and better assessment of psychological distress in medical students.

CONCLUSION

Le grand nombre d'outils utilisés dans ces études montre qu'aucun outil ne se démarque dans l'évaluation du stress et de l'anxiété chez les étudiants en médecine. Un point approfondi a donc été réalisé concernant chacun d'entre eux pour permettre de choisir au mieux un outil adapté à ce que l'on cherche à évaluer.

Outils évaluant l'anxiété

L'anxiété pouvant être considérée comme un symptôme ou une pathologie, elle est évaluée par les différents outils comme l'un ou l'autre.

Le Beck Anxiety Inventory (BAI) évalue l'anxiété en tant que symptôme. Il est composé de 21 items qui mesurent les retentissements somatiques, affectifs et cognitifs en lien avec l'anxiété. Contrairement à la plupart des autres outils, il utilise une échelle de gravité plutôt qu'une échelle de fréquence.

La Generalised Anxiety Disorder Scale-7 (GAD-7) a été initialement mise au point pour identifier le trouble anxieux généralisé sur la base des critères du DSM-IV. Elle est composée de 7 items, et est également validée dans une version à deux items. Elle évalue la fréquence des symptômes cognitifs et affectifs de l'anxiété. La GAD-7 peut également être utilisée pour évaluer le trouble panique, le trouble d'anxiété sociale et l'état de stress post-traumatique.

L'Hospital Anxiety and Depression Scale (HADS) a été initialement conçue pour identifier la présence de symptômes anxieux ou dépressifs et permettre une orientation vers des soins psychiatriques si nécessaire mais n'est pas destinée à fournir un diagnostic. Elle se compose de 7 items pour la dépression et 7 pour l'anxiété et fournit un score distinct pour chaque.

Outils évaluant la détresse psychologique

La détresse psychologique fait référence à des symptômes non spécifiques de stress, d'anxiété et de dépression. Deux questionnaires, le GHQ et l'échelle de détresse psychologique de Kessler, ont été utilisés dans les études pour l'explorer.

L'échelle de détresse psychologique de Kessler a été créée à partir d'un ensemble de questions provenant d'échelles d'évaluation préexistantes. Ces questions ont ensuite été sélectionnées pour répondre aux critères du DSM-III pour la dépression et le trouble anxieux généralisé. Il existe 2 versions, avec 6 ou 10 items.

Le General Health Questionnaire (GHQ) est un outil couramment utilisé dans les études pour évaluer le bien-être global, aussi bien dans ses dimensions somatiques que psychologiques. Il existe plusieurs versions du questionnaire, dont le nombre d'items varie de 12 à 60. Il existe plusieurs cotations et seuils possibles, qui peuvent varier d'une étude à l'autre, rendant plus difficile l'interprétation des données quantitatives entre les études.

Outils évaluant le stress

Plusieurs modèles existent concernant le stress. Le modèle transactionnel du stress, développé par Lazarus et Folkman en 1987 (49) peut être utilisé afin de comprendre comment ont été créés certains outils d'évaluation du stress. Ce modèle suggère que deux types d'évaluations sont faites par les individus lorsqu'ils sont confrontés à une situation qui peut engendrer du stress. L'évaluation primaire consiste à déterminer si l'événement ou la situation peut être dangereux sur la base de l'expérience et des connaissances de l'individu. Si le stimulus est jugé dangereux, une seconde évaluation est effectuée pour analyser les ressources disponibles pour y faire face. Si le résultat

de ces deux évaluations est que les ressources demandées dépassent les capacités, du stress apparaît.

La Perceived Stress Scale (PSS), suivant le modèle de Lazarus et Folkman, explore l'évaluation secondaire, la perception des capacités et des ressources dont nous disposons par rapport aux situations que nous vivons.

La Depression, Anxiety and Stress Scale (DASS) est un outil mis au point pour mesurer la dépression, l'anxiété et le stress. L'anxiété est évaluée à l'aide d'items sur la présence de symptôme reflétant une hyperactivité du système nerveux autonome, les manifestations de l'anxiété selon les situations et les affects qui lui sont liés. Les items relatifs au stress évaluent la difficulté à se détendre, la nervosité, l'irritabilité, l'impatience et l'hyperréactivité. Cette échelle explore également la présence d'idées noires ou suicidaires, en lien avec les items sur la dépression.

Le Medical Student Stressor Questionnaire (MSSQ) se distingue de tous les outils cités ci-dessus car il est conçu spécifiquement pour les étudiants en médecine. Il a été créé en 2010 et est principalement utilisé en Asie. Le questionnaire est disponible en deux versions, l'une de 20 items et l'autre de 40 items. Il évalue le stress lié à six types de facteurs de stress : lié aux études, aux relations interpersonnelles, à l'enseignement et à l'apprentissage, à la vie sociale, au désir et l'envie d'être dans le cursus médical et aux activités de groupe. Pour chaque catégorie, il évalue le niveau de stress qui lui est associé, ce qui donne un score moyen de stress global et par domaine. Il a l'avantage d'explorer des domaines qui ne sont explorés par aucun autre questionnaire et permettre une compréhension plus fine des causes du stress.

Le Perceived Medical School Stress (PMSS) est également un outil spécifiquement conçu pour les étudiants en médecine. Il comprend 13 items et a été développé sur la base d'entretiens avec des étudiants en médecine et des thérapeutes prenant en charge des étudiants en souffrance. Il évalue différents facteurs de stress comme la difficulté à

supporter les responsabilités liées aux fonctions de médecin, le sentiment que les études de médecine effacent les traits de personnalités de chacun, le sentiment que les études sont plus une menace qu'un défi, la perception d'être livré à soi-même. Les réponses attendues sont un degré d'accord avec les affirmations. Bien qu'ancien, ce questionnaire est finalement peu utilisé dans la littérature. Cependant, il présente l'intérêt d'évaluer des facteurs de stress qui ne sont pas présents dans d'autres questionnaires.

En conclusion, cette revue de la littérature permet de cibler un peu mieux les champs couverts par chacun des nombreux questionnaires existants. L'évaluation ainsi que la prise en charge de la souffrance psychique des étudiants en médecine est un enjeu crucial. La connaissance des outils à notre disposition est indispensable pour envisager de mettre en place un système efficace d'évaluation et de dépistage de la détresse psychologique chez les étudiants en médecine. Dans cette étude, nous avons volontairement fait le choix de ne pas traiter des violences subies par les étudiants en médecine car cela représente un versant très différent des risques psycho-sociaux, qui est évalué par d'autres outils. Cependant, en pratique, pour une prise en charge globale des RPS, il semble indispensable d'explorer également ce domaine. A ce jour, il n'existe pas non plus de dispositif systématisé dans les études de médecine permettant de repérer les victimes de violences et permettre une prise en charge. Il pourrait être intéressant à l'avenir qu'un travail soit fourni pour apporter également ces informations sur cet autre versant des RPS.

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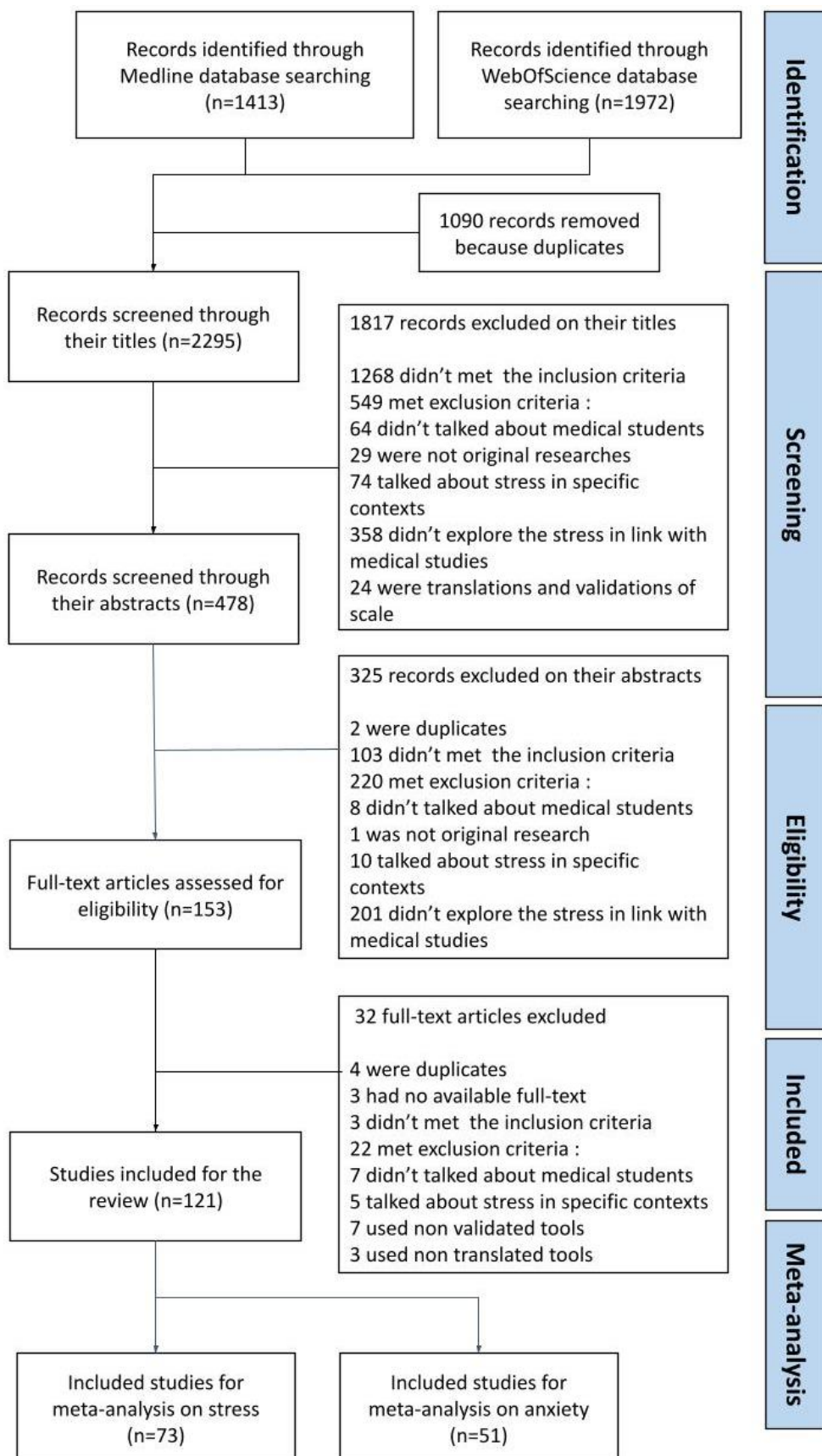


Figure 1

Flow chart for the selection of eligible studies.

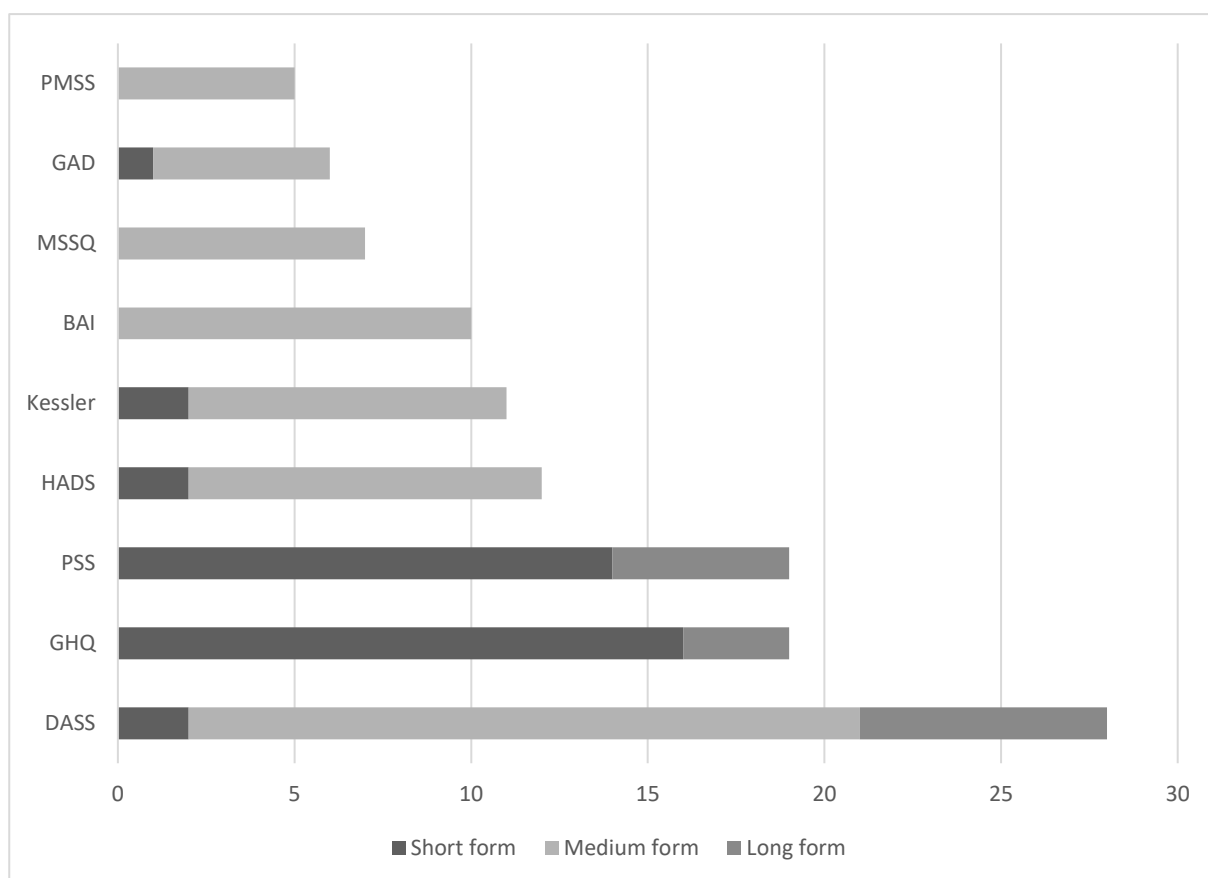


Figure 2

Number of studies using the nine most used tools

Table I

Main characteristics of the nine tools most used in the included studies.

Tool	Number of studies using the tool	Year of creation	Field explored	Symptom assessment period	Number of items	Type of scale	of Designed specifically medical students	Time to answer
DASS (38)	28	1993	Anxiety, Depression, Stress	Last week	21, 42	Frequency scale	No	42 : 10-20min 21 :5-10min (50)
GHQ (26)	19	1970	Psychological distress	Last weeks	12, 20, 28, 30, 60	Severity scale	No	28 : 5min (51) 12 : 2min (52)
PSS (39)	19	1983	Stress	Last month	4, 10, 14	Frequency scale	No	10 : 5-10min (53)
HADS (40)	12	1983	Anxiety, Depression	Last week	14	Frequency scale	No	2-5min (54)
Kessler (41)	11	2002	Psychological distress	Last 30 days	6, 10	Frequency scale	No	/
BAI (55)	10	1988	Anxiety	Last week	21	Severity scale	No	5-10min (56)
MSSQ (24)	7	2010	Stress	/	20, 40	Severity scale	Yes	/
GAD (25)	6	2006	Anxiety	Last 2 weeks	2, 7	Frequency scale	No	7 : 1-2min (57)
PMSS (14)	5	1984	Stress	/	13	Degree of agreement	Yes	/

Table II

Number of items exploring each field in the five most used tools.

Items	DASS-21	GHQ-28	PSS-14	HADS	K10
Physical symptoms (tiredness, slowdown, headaches...)	4	3		1	1
General condition		4			
Impact on sleep		2			
Irritability	3	2	2	1	
Edginess	2	2	1	2	2
Restlessness	2			2	2
Ability to enjoy usually pleasant activities	3	2		4	1
Ability to concentrate and complete tasks	1	5	3		1
Fear of panicking or that something bad could happenend	2	1		3	
Devaluation		1			
Hopelessness		1			1
Feeling of uselessness	1	2			1
Feeling depressed, down-hearted	1				1
Dark thoughts, suicidal ideation	1	3			
Feeling of losing control, of being overwhelmed	1		7		
Anger			1		
Loss of interest in her appearance				1	

Table III

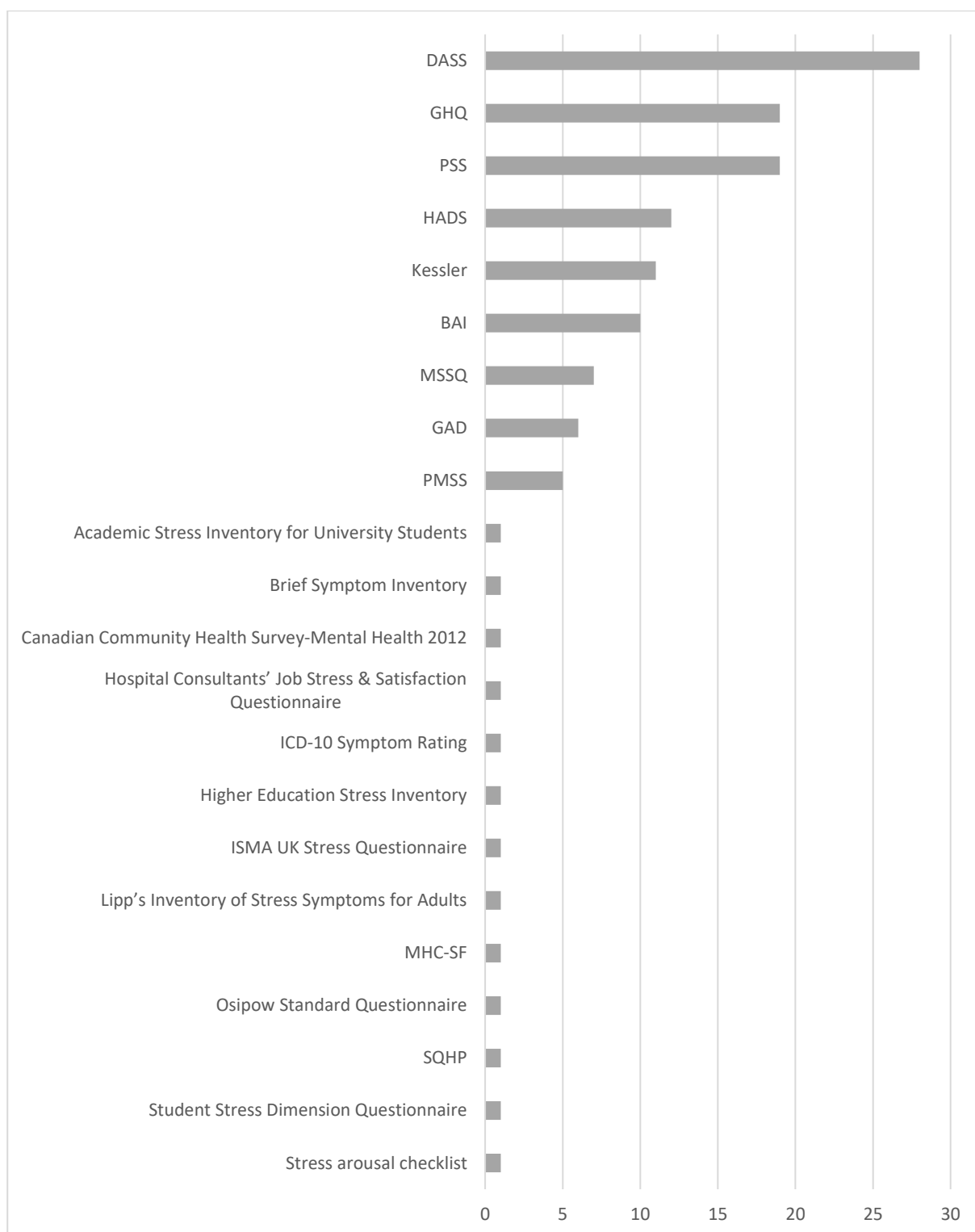
Answer rate and average rate of stress measured by each tool.

Tool	Number of studies reporting stress with the tool	Answer rate	Average measured stress (range)
DASS	23	72.4%	37.9% (14.4%-63.4%)
PSS	16	61.7%	58.8% (14.4%-96.9%)
GHQ	16	58.1%	52.7% (23.3%-9%)
Kessler	9	42.2%	35.3% (18.1%-84.7%)
MSSQ	2	70.2%	79.8% (74.6%-84.0%)
PMSS	2	85.0%	51.1% (35.0%-61.7%)
Global	73	58.2%	47.5% (14.4%-98.6%)

Table IV

Answer rate and average rate of anxiety measured by each tool.

Tool	Number of studies reporting stress with the tool	Answer rate	Measured anxiety
DASS	25	73.1%	45.3% (12.0%-78.6%)
BAI	8	69.3%	36.3% (13.2%-51.1%)
HADS	8	17.9%	49.0% (19.8%-68.2%)
GAD	7	63.8%	25.9% (11.3%-69.0%)
Global	51	27.9%	44.6% (11.3%-81.7%)



Supplementary Figure 1

Number of included studies using each tool.

Supplementary Table I

Search Strategy.

Database	Keywords and Query
MedLine (via PubMed)	((("psychosocial"[Title/Abstract] OR "anxiety"[Title/Abstract] OR "burnout"[Title/Abstract] OR "mental well*" [Title/Abstract] OR "stress"[Title/Abstract]) AND ("medical stud*" [Title/Abstract] OR "medical resident*" [Title/Abstract] OR "medical intern*" [Title/Abstract]) AND ("questionnaire*" [Title/Abstract] OR "survey*" [Title/Abstract] OR "evaluat*" [Title/Abstract]) AND ("medline"[Filter] AND "loattrfull text"[Filter] AND 2013/01/01:2023/01/01[Date - Publication] AND "english"[Language]))
Web of Science	(TI=((psychosocial OR anxiety OR burnout OR "mental well*" OR stress) AND ("medical student*" OR "medical intern*" OR "medical resident*")) AND (questionnaire* or survey* or evaluat*)) OR (AB=((psychosocial OR anxiety OR burnout OR "mental well*" OR stress) AND ("medical student*" OR "medical intern*" OR "medical resident*")) AND (questionnaire* or survey* or evaluat*)) and Article (Document Types) and All Open Access (Open Access) and English (Languages)

Supplementary Table II

Data extraction grid.

Title, Name of authors, year of publication
Country
Students' year of study
Field explored
Instrument used
Number of participants
Sex ratio
Response rate
Stress, anxiety, and depression prevalence
Response mode
Uni or multicentered study

Supplementary Table III

Quality assessment grid.

Were the criteria for inclusion in the sample clearly defined?
Were the study subjects and the setting described in detail?
Were objective, standard criteria used for measurement of the condition?
Were the outcomes measured in a valid and reliable way?
Was appropriate statistical analysis used?

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Evaluation de la détresse psychologique chez les étudiants en médecine : une revue systématique de la littérature et méta-analyse des outils disponibles

RÉSUMÉ

Introduction : Plusieurs études rapportent un taux élevé de détresse psychologique chez les étudiants en médecine. Les prévalences de dépression, anxiété, stress et le taux de suicides sont élevés dans cette population. Pourtant, il n'y a aucun consensus sur les outils à utiliser pour détecter ces symptômes dans ces études. Cette revue systématique explore les différents outils disponibles pour évaluer cette détresse chez les étudiants en médecine.

Matériels et Méthodes : Une revue systématique de la littérature a été réalisée à partir d'un protocole établi a priori. Les articles étaient inclus s'ils traitaient de l'anxiété, du stress ou de la détresse psychologique chez les étudiants en médecine et utilisaient des outils d'évaluation validés et traduits en anglais. Une méta-analyse a également été réalisée sur les prévalences de stress et d'anxiété.

Résultats : 121 articles ont été inclus, permettant d'identifier 22 outils différents. Les plus fréquents étaient le DASS (21,7%), suivi du GHQ et du PSS (14,7%). Seulement 2 des outils retrouvés, le MSSQ (5,4%) et le PMSS (3,9%) étaient spécifiquement conçus pour des étudiants en médecine. La méta-analyse retrouve une prévalence du stress à 47,5% et de l'anxiété à 44,6%.

Conclusion : De multiples outils pour évaluer la détresse psychologique existent et sont déjà largement utilisés. L'utilisation d'un questionnaire spécifique pour cette population ne semble pas indispensable car les outils dédiés à la population générale fonctionnent sur cette population spécifique. L'utilisation de questionnaires spécifiques peut, en revanche, mieux orienter vers des facteurs causaux spécifiques sur lesquels agir.

Mots-clés : Détresse psychologique, stress, anxiété, étudiants en médecine, questionnaires, risques psychosociaux

Assessing psychological distress among medical students: a systematic review and meta-analysis of tools available

ABSTRACT

Introduction: Medical students are reported to experience high rates of psychological distress, including depression, anxiety, stress, and suicide. However, there is no consensus on the tools used to detect these symptoms. This systematic review aims to explore the various tools available for assessing distress in medical students.

Materials and Methods: A systematic literature review was conducted following an established protocol. Articles were included if they addressed anxiety, stress, or psychological distress in medical students and used validated assessment tools translated into English. A meta-analysis was also conducted on the prevalence of stress and anxiety.

Results: 121 articles were included, identifying 22 different tools. The DASS was the most commonly used tool (21.7%), followed by the GHQ and the PSS (14.7%). Only two of the identified tools, the MSSQ (5.4%) and the PMSS (3.9%), were specifically designed for medical students. The meta-analysis revealed a stress prevalence of 47.5% and an anxiety prevalence of 44.6%.

Conclusion: there are multiple tools available for assessing psychological distress that are already widely used. The use of a specific questionnaire may not be necessary for this population, as tools designed for the general population can also be used for this specific group. However, specific questionnaires may provide a more accurate indication of the causal factors that require action.

Keywords : psychological distress, stress, anxiety, medical students, assessment tools, psychosocial risks