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Clinical guidelines on self-harm and suicide prevention: taking uncertainty into account in the evidence base

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ABSTRACT

The National Institute for Health and Care Excellence (NICE) guideline for self-harm advises against the use of risk assessment tools to predict future occurrence of repeat self-harm or suicide in individuals who have self-harmed, or to inform decisions regarding their treatment and discharge. In this perspective article, we discuss shortcomings in the process of developing this guideline, including: (1) limitations in the NICE evidence review underpinning these recommendations, which resulted in very minimal evidence being included; (2) developing definitive recommendations and drawing strong conclusions regarding the limited predictive ability and potential harms of tools, which were almost entirely based on the committee's expertise and experience and (3) not acknowledging the uncertainty and gaps in the evidence base, particularly around model impact, acceptability and feasibility. We highlight new evidence since this 2022 guideline, including examples of international work assessing model implementation and cost-effectiveness. We propose that there is an urgent need for more rigorous primary research assessing model impact, feasibility and acceptability, as well as empirical work addressing concerns about potential harms and misuse of tools, notably the denial of care. While prediction models should not be prematurely implemented in clinical practice without adequate validation and impact assessment, well-developed and validated tools in this area have the potential to improve clinical care for individuals who self-harm. Future updates to the guideline should be informed by emerging higher quality evidence in the field.

The National Institute for Health and Care Excellence (NICE) guideline for self-harm[1] was published in September 2022. It covers the assessment, management and prevention of recurrence for individuals who have self-harmed. The guideline advises against the use of risk assessment tools and scales, as well as global stratification into risk categories (eg, low, medium or high) to predict the future occurrence of repeat self-harm or suicide, or to inform decisions regarding treatment and discharge. In this perspective, we highlight shortcomings in the evidence review commissioned by NICE that underpinned these recommendations, and raise concerns regarding the guideline development process.

The recommendations of NICE on risk assessment tools are in line with the 2016 Royal Australian and New Zealand College of Psychiatrists clinical practice guideline for the management of deliberate self-harm.[2] In the USA, the 2024 Department of Veterans Affairs/Department of Defense (VA/DoD) clinical practice guideline for assessment and management of patients at risk for suicide[3] offers a more balanced position. While this 2024 guideline recognises suicide risk screening using validated tools as an important component of routine care for preventing suicides within healthcare settings, it states that the effects of implementing suicide prediction models on rates of suicide and self-harm, and on other outcomes such as healthcare costs, remain to be evaluated. The VA/DoD guideline also highlights currently unresolved issues around linkage to interventions, ethical concerns and potential for models to exacerbate existing biases within healthcare systems.

The 2022 NICE guideline recommendations on risk assessment tools were based on an evidence review that only included two studies.[4 5] Both were prospective cohort studies and compared the classification performance of risk assessments conducted by different healthcare professionals (emergency department and specialist mental health staff in Kapur *et al*[4]; psychiatrists and mental health nurses in Murphy *et al*[5]) in predicting risk of repeat self-harm within 12 months of presentation to hospital with a self-harm episode. In both studies, clinicians completed comprehensive assessment forms that collected information on sociodemographic and clinical factors, and were asked to provide their own clinical assessment of risk of repeat self-harm (categorised into low, moderate or high) as part of the assessment. Overall, the studies showed no difference in the predictive accuracy of risk assessment when it was carried out by specific staff.

The small number of studies included in the evidence review is partly due to the review question formulated by NICE—"to identify the benefits and harms of risk assessment and formulation, including models or tools based on machine learning and artificial intelligence, for individuals who have self-harmed". The review question focused on the *impact* of risk assessment tools on a range of critical (self-harm repetition, suicide, service user satisfaction) and important outcomes (quality of life, distress, service utilisation), which were chosen by the committee and prespecified in the protocol. Direct evidence on the benefits and harms of implementing risk assessment tools and prediction models in clinical practice requires evidence from prospective impact studies, which use a comparative design

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to evaluate the effect of using the tool on clinical decision-making, patient outcomes or cost-effectiveness of care (compared with usual care).[6] Although impact studies are necessary for conclusive evidence regarding whether the use of a tool in clinical practice improves these outcomes relative to usual care, they are scarce in risk prediction research across all medical specialties, not just for tools modelling risk of self-harm and suicide. In our view, the wider question concerning the predictive performance of tools—whether they can adequately predict the outcome for their intended use—is also of relevance to these recommendations. There is a large body of evidence on the performance of prediction models for self-harm and suicide,[7] including models estimating the risk of repeat self-harm or suicide following an episode of self-harm that were published before the search date for this evidence review.[8–12] NICE has prioritised evidence on model impact over predictive performance in the current guideline. However, in our view, this narrow evidentiary focus is not justified, and future updates to the guidance on risk assessment tools should be based on more comprehensive evidence review strategies, including the need to consider evidence on the predictive performance of models. Notably, the two studies that were included in the NICE evidence review[4 5] are not impact studies either, as they do not compare different types of risk assessment with each other in terms of their effect on self-harm and suicide rates; rather, they describe the predictive performance of clinical risk assessment by different professionals in terms of classification. The committee has stated that these two studies were included "because they were the best evidence available". It is unclear to us why these studies were prioritised over other evidence on predictive performance by the systematic reviewers.

In their discussion and interpretation of the evidence, the guideline committee stated that due to concerns regarding the paucity and quality of the evidence, the recommendations concerning the use of risk assessment tools were primarily based on their own expertise and experience.[13] Despite the very small number of studies included in the evidence review, the guideline makes strong claims regarding the limited predictive ability of risk assessment tools, their potential harms outweighing any benefits associated with using them, as well as the implications of use of tools in services for resource use and cost-effectiveness of care; none of these claims is supported by an empirical evidence base, but rather is based on the committee's knowledge and experience. The committee highlighted their concern that risk assessment tools may be used to withhold care on the basis of the level of risk, which could in turn lead to repeat self-harm and negatively impact service user satisfaction. Denial of care is a valid and important concern; however, whether the use of tools leads to this more than the alternative of current clinical practice (without the use of tools) is an empirical research question, for which there is currently no evidence. Paradoxically, despite stating their concern over the paucity and quality of evidence, the committee stated that developing recommendations for further research in this area was not necessary (page 12 of Evidence Review G),[13] as recommendations could already be made based on their knowledge and experience. We find this problematic. In contrast, the 2024 VA/DoD Suicide Risk Clinical Practice Guideline Work Group identified suicide prediction models and other risk assessment/stratification strategies as a priority research topic,[3] proposing several recommendations to advance our understanding in this area. Similarly, an expert panel convened by the National Institute of Mental Health in 2019[14] highlighted a number of priority research questions addressing how statistical and clinician predictions of suicide risk could be optimally combined to improve risk assessment.

While the scope of the NICE guideline is limited to a specific population—individuals who have self-harmed, the new NHS England guidance 'Staying safe from suicide',[15] which was published in 2025, has generalised the NICE recommendations against the use of suicide risk prediction tools to a broader population,[16] suggesting that these recommendations should be adopted by all mental health practitioners in England across both community and inpatient settings. We consider this generalisation of the NICE recommendations beyond their original scope, without drawing on an updated evidence review, an example of poor practice in translating scientific evidence into best clinical practice guidelines.

Since the publication of the 2022 NICE guideline on self-harm, the literature on suicide risk prediction has grown substantially,[7] including the publication of new models for predicting risk of repeat self-harm and death by suicide in this population.[17 18] While much of the published literature suffers from methodological shortcomings, these are largely avoidable issues in study design, conduct and analysis, and addressing them can significantly improve the quality of research in the field.[7] Crucially, however, there is a lack of research assessing the impact of implementing suicide prediction models in routine care, as well as their acceptability to clinicians and the feasibility of their use. There is an urgent need for research addressing this important gap in the evidence base, although a few promising examples of emerging work in this area in other patient populations exist. In the USA, a pragmatic cluster randomised controlled trial (RCT) to evaluate the implementation of a suicide prediction model developed and validated in mental health clinics is currently under way.[19] This study aims to assess the impact of model use on the rate of suicide attempts compared with usual care, as well as exploring system-level determinants of implementation, clinical acceptability and use of the model. Another pragmatic RCT[20] recently assessed the effectiveness of a clinical decision support system for suicide risk screening to prompt in-person assessments, providing useful insights into how models may best be integrated into clinical workflows. From a cost-effectiveness perspective, economic modelling work has shown that implementing suicide prediction models can be cost-effective in UK secondary care (for individuals with severe mental illness),[21] and in a US primary care population.[22]

In conclusion, the strong and definitive recommendations of the current NICE self-harm guideline (and derivative NHS England guidance) against the use of risk assessment tools and scales are not supported by the very minimal evidence included in the review underpinning these. In our view, this highlights shortcomings in the process of developing this guideline; the narrow evidentiary focus of the NICE review question on model impact studies led to the exclusion of relevant evidence on the predictive performance of prediction models and tools. Given the paucity of evidence, NICE made recommendations that were based solely on the expertise and individual experience of the guideline committee members. The NHS England guidance generalised these NICE findings to a wider population, for which no updated evidence review was conducted. At the same time, we do not think that tools should be prematurely implemented in clinical practice, without adequate validation in new patients and a careful evaluation of their impact on clinical decision-making, patient outcomes and cost-effectiveness of care. Despite the publication of many suicide prediction models in recent years, there is a major evidence gap around their implementation; rigorous research assessing model impact, feasibility and acceptability, including more qualitative work,[23 24] is urgently needed. Guidelines should encourage research in these

areas to address the gap in the evidence base. Finally, concerns about the potential harms and misuse of tools, such as the denial of care, also apply to current clinical practice; whether the use of prediction models has a negative effect on this (compared with standard care) is an important question that should be addressed empirically. Suicide risk assessment and prediction is a rapidly expanding field, and well-developed and validated tools in this area have potential to act to complement and supplement clinical decision-making, improving clinical care for individuals who self-harm and helping to more effectively target finite resources in stretched healthcare systems. We think that future iterations of the NICE guideline should be informed by emerging high-quality evidence in the field and consideration of a broader range of issues, as discussed in this piece.

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