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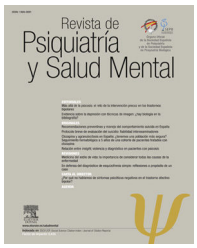

EDITORIAL

Current challenges in research on suicide☆

Retos actuales en la investigación en suicidio

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Suicide and suicidal behaviour are a public health problem of the first magnitude. Annually, about one million people die worldwide[1] from committing suicide and around 4000 in Spain.[2] The prevalence of suicidal behaviour varies geographically and there are many countries with unreliable data. However, this is a global problem, not only in advanced societies: in fact, 75% of suicides occur in countries with a low or medium level of development.[1] It should also be considered that for every suicide committed, there are 20 attempts.[1] This causes significant suffering for the people involved and also costs for the healthcare system.

For 40 years now, research into the field of suicide has accounted for 10% of what has been published in the field of Psychiatry (Pubmed). Nevertheless, an appreciable decrease in the death rate due to suicide and suicide attempts is not being achieved. It is therefore urgent to reflect on how research has focussed on suicidal behaviour in order to find strategies to help prevent this. Four aspects in particular, due to their importance for clinical practice, are addressed in this editorial: (1) the validity of the risk stratification strategy for identifying patients at risk of suicide; (2) the validity of the instruments of assessment; (3) the measures and proposed treatments to prevent patients who are at risk from committing suicide; and (4) from a more nihilistic perspective, whether or not we are actually researching into what we really have to research and where we have to do this.[3]

One of the axioms of the prevention of suicidal behaviour which has focussed much of the research, is that it is possible to classify patients as low or high risk from identifying suicide risk factors. This premise is not, however, supported by several recent meta-analyses and[4–6] classic risk factors demonstrate very low specificity and low predictive value. Large et al., in a summary of the state of research on suicide over the last 40 years, find that 95% of patients classified as high risk do not die by committing suicide, while half of all suicides are committed by patients who were classified as low risk.[6]

As suicide is an infrequent event, and given the low sensitivity of our risk categorisation, our classification systems do not identify suicides in low risk groups.

Secondly, the instruments (scales) which assess the risk of recurrence after a suicide attempt are not sufficiently valid or reliable and their predictive value is clinically insufficient.[7,8] Most of the scales which explore the aforementioned risk factors do not demonstrate greater validity than clinical evaluation or than models based on

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administrative and sociodemographic data gathered from clinical histories.[7] In a 2016 meta-analysis, Chan et al. found only 7 studies evaluating the efficacy of the use of scales in predicting suicide risk, and these demonstrated little sensitivity and specificity as regards the prevention of suicide.[8]

Thirdly, numerous interventions have been put forward to prevent suicidal behaviour in clinical populations, especially among those who have attempted suicide. The results of different treatments are limited, and the World Health Organization's ''Brief Intervention and Contact'' is the only intervention that has demonstrated efficacy in a recent meta-analysis.[9]

Finally, it should be noted that our models of suicide risk come from the study of samples from developed countries, where there is investment in research, while the highest rates of suicide are in rural areas in low and middle income countries.[3] On this point, it is even more striking that studies are conducted on clinical samples in an academic setting, when a significant percentage of consummated suicide victims had not contacted specialized services.[10,11] As a result of all the above, it is questionable whether or not the models that have been constructed to explain suicidal behaviour can be generalized across the board.

At this point, we must accept that the current state of research does not enable us to predict suicide and that the level of prevention that the different interventions achieve is low. But beyond becoming nihilistic on this, the situation described poses an interesting challenge and highlights the need for a change in the approach to the problem of studying suicide.

Franklin et al. have appropriately proposed moving on from studying risk factors to defining risk algorithms, and even monitoring patients over shorter periods of time.[5] As regards the first proposal, the key is the use of new techniques of analysis that adopt an inductive approach such as machine learning techniques. Our group has used these techniques with interesting results from studying the weight of different risk factors in patients with suicide attempts[12] and in repeater patients,[13] while Kessler et al.[14] have used them in a prospective study on suicide in US soldiers, and Liu et al.[15] in the creation of an algorithm to predict the recurrence of suicidal ideation in people with low mood. With respect to follow-up on and monitoring of patients, ubiquity and the use of smartphones will make this task easier. Without doubt, these will make the implementation of Ecological Momentary Assessment (EMA) techniques in the study of suicide both feasible and acceptable to patients. The EMA will allow real-time follow-up on patients, repeatedly evaluating risk factors and characterizing suicidal behaviour in a more precise and personalized way.[16] The non-intrusive EMA measures are especially promising. There are also studies that use the information collected by different sensors on the patients' smartphones and analyse patterns of use. Two recent studies have described behavioural changes that can be correlated with depressive symptoms.[17,18] The use of these techniques, applied to the study of suicide, will enable us to identify personal patterns of change at times of risk.

With the particularities and difficulties of our field of study, what we are approaching with these proposals is personalized and non-stratified medicine, which is already providing promising results in other fields such as oncology.[19] Approaching the formulation of suicide risk from the standpoint of personalized medicine would involve integrating knowledge from different areas such as psychiatry, genetics or engineering, among others.

To conclude, the results of traditional research into the field of suicide pose an important challenge. A major move forward in the approach to this phenomenon is needed, moving on from the study of risk factors and stratification to the algorithms of risk and individualization, with a personalized perspective that makes full use of the potential offered by existing technologies.

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