



Towards understanding the nature and need of delirium guidelines across nations and cultures

Dimitrios Adamis^{1,2} · Alastair Macdonald³ · Geraldine McCarthy⁴ · Alessandro Morandi^{5,6} · Giuseppe Bellelli⁷ · David Meagher⁸

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Abstract

Background Delirium is associated with a variety of adverse healthcare outcomes but is highly predictable, preventable and treatable. For this reason, numerous guidelines have been developed for delirium recognition, prevention and management across different countries and disciplines. Although research is adduced as evidence for these guidelines, a constant finding is the lack of implementation if they exist at all. Implementation is a human behaviour that can be influenced by various factors including culture at a micro- and macro-level. Hofstede’s model proposes that national cultures vary along six consistent dimensions.

Aim Using this model, we examined the nature of delirium guidelines across countries in relation to Hofstede’s six cultural dimensions.

Methods Data collected for each country on: the six dimensions of Hofstede’s model, number of delirium guidelines approved by a National professional body of each country (through searching databases), the annual old-age dependency ratio for each country.

Results Sixty-four countries had the completed six dimensions of Hofstede’s model. Twenty of them (31%) had one or more delirium guidelines. The total number of different delirium guidelines was 45. Countries with formal delirium guidelines have significantly lower power distance among their members, are more individualistic societies, have lower levels of uncertainty avoidance and higher old-age dependency ratio compared to those without delirium guidelines.

Discussion/conclusion The development and implementation of delirium guidelines vary across countries. Specific combinations of cultural dimensions influence the production of delirium guidelines. Understanding these important cultural differences can facilitate more widespread acceptance and implementation of guidelines.

Keywords Delirium · Guidelines · Culture · Hofstede’s cultural model

✉ Dimitrios Adamis
dimaadamis@yahoo.com

¹ Sligo Mental Health Services, Clarion Rd, Sligo, Ireland

² Research and Academic Institute of Athens, Athens, Greece

³ Clinical Outcomes Research, Institute of Psychiatry, Psychology and Neuroscience, King’s College London, London, UK

⁴ Sligo Medical Academy, NUI Galway and Sligo Mental Health Services, Clarion Rd, Sligo, Ireland

⁵ Department of Rehabilitation and Aged Care “Fondazione Camplani” Hospital, Hospital Ancelle, Via Aselli 14, 26100 Cremona, Italy

⁶ REFiT Bcn Research Group, ParcSanitari Pere Virgili and Vall d’Hebrón Institute of Research, Barcelona, Spain

⁷ University of Milano-Bicocca, San Gerardo Hospital, Monza, Italy

⁸ Cognitive Impairment Research Group (CIRG), Graduate-Entry Medical School University of Limerick, Limerick, Ireland

Introduction

Delirium is a common disorder especially in older persons and in those with pre-existing cognitive impairment. It has a heterogeneous clinical presentation that can include a wide range of neuropsychiatric and cognitive disturbances like disturbed attention, impaired awareness, psychotic symptoms and disturbed sleep–wake cycle. These typically occur acutely (over hours or days) and in many cases fluctuate during the course of the illness. Various reports have highlighted that delirium is under-recognised, under-detected and undertreated [1–3]. However, a plethora of publications have asserted similar claims for other common mental disorders that include anxiety disorders [4, 5], sleep disorders [6, 7], eating disorders [8], Attention Deficit Hyperactivity Disorder (ADHD) [9], depression [10] and schizophrenia [11]. These reports emphasise that each condition is undetected, underdiagnosed and undertreated and highlight the need for research that focuses upon improving awareness and detection. In any nosology, the first step is to identify the unit to be classified. Reification is unavoidable, but in medicine, it has become so unconscious that its limitations are not always considered. Psychiatrists are perhaps more sensitive to these issues than physicians, but the delirium puzzle nicely exposes ingrained assumptions. What sort of thing is it? Is it a symptom, a sign, a random combination of both, a disorder, a syndrome, a disease, a diagnosis or something else? Is it a binary entity or a dimension, like hypertension? We do not explore these relevant issues further here but it is clear that these questions, and their answers, are culturally determined, and thus so is whatever agreement is reached about what sort of thing delirium is.

The historical context of guidelines in medicine

Guidelines represent an important means by which consistency in definition and practice can be promoted, while increasing awareness of a disorder. Guidelines have existed since the beginning of clinical medicine (e.g., Hippocrates' Aphorisms) varying in formality from verbal advice to published statements from experts in textbooks or monographs. These frequently underpinned distinct schools of medical thought and/or particular therapeutic traditions. An example of this therapeutic tradition was the use of interventions, such as enemas or blood-letting, which have at times been applied to the management of nearly every illness dating back to ancient Egypt and right up until the beginning of the twentieth century [12]. The vagaries of such practices are hilariously captured in *'The Good soldier Švejk'* by Hašek [13] where Dr Grünstein in

his afternoon ward rounds prescribes alternatively to each patient "Enema and aspirin" or "Stomach pump and quinine". Formal guidelines as we know them now emerged in the 1990s and have proliferated alongside the growth of Evidence-Based Medicine (EBM).

Evidence-based guidelines are systematically developed statements which summarise the evidence available to help practitioners and patients make decisions about appropriate health care for specific illness or disorders. The principles of evidence-based medicine are applied to the process of guideline development. They typically place the opinions of experts at the lowest level of the hierarchy of evidence and emphasise higher level evidence, such as systematic reviews, meta-analysis and clinical trials [14, 15].

The socio-political context of guidelines in medicine

Since the 1980s, there have been a number of important societal and political changes which have shifted the dynamic between healthcare providers and society [16] and have impacted upon many aspects of health care, including the development of medical guidelines.

Participation of citizens in governance

There has been increasing emphasis upon the input of citizens into the governance of systems. The influence of increasing globalisation has brought with it a variety of challenges that individual state governments must deal with collaboratively (e.g., financial crises, international trade and globally positioned companies, health and social inequalities, environmental problems, international organisations, and recently the COVID-19 pandemic). The control of individual governments over the activities within their nations has therefore diminished as governments must increasingly collaborate with stakeholders to identify consensus in public policy decisions to avoid public dissatisfaction. Citizen participation in decision-making processes has increased [17, 18]. Therefore, over recent decades, there is the twin effect of reduced power of state governments because of globalisation along with higher expectations within the general public regarding how they can influence the actions of governments which in turn is empowered by social media, lobbying and the increasing prominence of non-governmental organisations.

Consumerism

A second change is the decline of the welfare state. This can be tracked back to the Reagan (USA) and Thatcher (UK) periods of government in the 1980s during which a new political philosophy became dominant wherein so-called 'new liberal' policies promoted privatisation and market

approaches with less involvement of the state. Along with new developments of technology (internet) which make the public more aware and more informed, this has promoted an individualist consumerist society in which the public have greater awareness of standards and higher expectations regarding the service that they demand. Since the public contribute to services through taxation it demands greater accountability and higher standards. [16, 19].

Reduced societal trust in the medical profession

A third change relates to the level of trust in professionals and public services. Traditionally, members of the public have typically presumed that medical practitioners can be inherently trusted and that they adhere almost unfailingly to the Hippocratic ‘*First do no harm*’ oath. However, high profile cases of incompetence and / or wrong doing in health care, have captured the public attention and been explored in detailed enquiries and have stimulated policy makers to introduce more robust systems of measurement, quality control, risk assessment and monitoring to protect the public against the potential for poor practice [16, 20]. These include practice guidelines and operational protocols to promote consistency in practice and provide a benchmark against which practice can be compared where suboptimal outcomes occur. As guidelines and protocols began to appear in medicine inevitably delirium also became the focus of guidelines developed by hospitals and relevant professional bodies.

Evaluation of guidelines in delirium

A small number of studies have examined the content and utility of guidelines for the management of delirium. Young and George [21] compared the impact of guidelines (British Geriatrics Society) across five (randomised) UK hospitals and found that the implementation of guidelines alone has very little impact upon the process of care or the outcomes of delirium. In a similar study, Mudge and colleagues [22] evaluated Australian guidelines [23] in a trial of their implementation on a medical ward compared with a control ward. In the intervention ward, there was a trend towards reduced use of antipsychotics, no incident case of delirium and significantly less patients were discharged with persistent delirium. However, the duration of hospitalisation was significantly longer and more costly in the intervention group. Furthermore, a study investigated the diagnostic efficacy of guidelines by comparing the NICE guidelines for delirium as a screening method in relation to CAM and DRS-R98 [24] and found that there was a low agreement of NICE with either CAM or DRS-R98 (for CAM the kappa was 0.247 and for DRS-R98 the kappa was 0.149). Finally, a study by Bush and co-workers [25] evaluated existing delirium

guidelines using the Appraisal of Guidelines for Research and Evaluation (AGREE II) instrument and found limited evidence that delirium guidelines are subject to actual evaluation of their usefulness beyond their publication. Moreover, the quality of delirium guidelines varied considerably across the six AGREE II domains with the lowest scores evident for ‘Applicability’ and ‘Editorial Independence’ domains.

It is thus evident that delirium guidelines lack consistency, are poorly evaluated in respect of their impact upon real world practice, and their implementation is uncertain. This raises the question as to why there is an increasing volume of published guidelines (often with multiple different contradictory guidelines within individual jurisdictions) despite limited application of those that are already in existence?

In an effort to address these issues, we consider this subject from a socio-cultural/anthropological perspective. While some variation in the utilisation of guidelines can be attributed to epistemological differences (based in local research and the speed of dissemination of new knowledge), we hypothesised here that an additional significant factor relates to the desire for individual countries/cultures to produce guidelines given the politico-social changes described above. For this endeavour, we applied the Hofstede’s model of national cultural differences and explored how ratings on this scale relate to differences in terms of delirium guideline existence and content. Furthermore, as delirium is more prevalent in older people, it was also hypothesised that countries with more aged populations will have more activity in respect of delirium guidelines compared to countries with younger populations.

Hofstede’s national culture model

According to Hofstede’s model, societal cultures have inherent values which they follow, often unconsciously, in a manner of “*broad tendencies to prefer certain states of affairs over others*” [26]. He outlined six dimensions of national culture that represent independent preferences within states for how affairs are approached and that can distinguish countries [27]. The six dimensions are: power distance (PDI), individualism (IDV), masculinity (MAS), uncertainty avoidance (UAI), pragmatic long-term versus normative short-term orientation (LTO) and indulgence versus restraint (IVR).

Power distance index (PDI) reflects the acceptance amongst less powerful members of society that power is distributed unequally. In societies with lower power distance, people are more active in their efforts to equalise the distribution of power and demand justification for inequalities of power.

Individualism versus collectivism (IDV): In cultures that score high in this dimension, there is a greater expectation

that members will take individual responsibility for providing for themselves and their immediate families. In the opposite spectrum, ‘Collectivism’, individuals have greater expectation that their relatives or members of a particular group will provide and help them.

Masculinity versus femininity (MAS): Cultures which score high in this dimension represent a more competitive ‘masculine’ society with preference for achievement and success. In contrast, lower scores reflect greater ‘Femininity’ where society is more orientated towards consensus and prefers co-operation, modesty, and quality of life.

Uncertainty avoidance index (UAI): this dimension captures the degree to which the individuals of a society feel uncomfortable with uncertainty and ambiguity. Cultures with high scores in this dimension maintain rigid codes of belief and behaviour, while those with low scores maintain a more relaxed attitude in which practice counts more than principles.

Long-term orientation versus short-term normative orientation (LTO): Countries which score low on this dimension, prefer to maintain traditions and norms and view societal change with suspicion. In contrast, those with high scores are more open to change and encourage preparation for the prospect of future change.

Indulgence versus Restraint (IVR): ‘Indulgence’ is the degree to which a culture allows relatively free gratification of basic and natural human drives related to enjoying life. In contrast, ‘Restraint’ is the degree to which a society suppresses gratification of needs and regulates them by strict social norms. Higher scores in this dimension indicate greater levels of indulgence in a society.

Methods

Databases and search strategy

To identify delirium guidelines, we searched the following databases: Medline (Pubmed), EMBASE (Ovid), CINAHL, PsycINFO (Ovid) and Cochrane Reviews. In addition, the grey literature was searched using the databases OpenGrey (which is focused in the European grey literature) and the worldwidescience.org (which included grey literature from all the world) without limitation of language. Search keywords with Boolean combinations were: “delirium” or “acute confusion” and “guidelines” or “consensus” or “clinical pathways”. A search was also performed with the search engine Google and Google Scholar. In addition, the references of relevant published papers were inspected for applicable publications of delirium guidelines which could have been missed using the other approaches.

The six dimensions of the Hofstede’s model for each country were extracted from the Hofstede Insights official database (<https://www.hofstede-insights.com/>).

Inclusion and exclusion criteria

The inclusion criteria for delirium guidelines were: approved by a National professional body *and* developed using evidence-based or consensus approaches. Guidelines that have been created for use only within a local hospital or have been implemented in one hospital for research purposes were excluded. Similar guidelines that have been developed by scientific organisations that have multinational coverage have been reported here but were excluded from the analysis.

For the dimensions of Hofstede’s model only, countries with data available to score all six dimensions were included.

Procedure

The search was conducted in two ways: first, the relevant guidelines were identified through the databases using the two inclusion criteria and then, a second search was performed using Google and Google scholar using the name of each country plus the words “delirium guidelines” and “delirium clinical pathways”.

Aging population

For this calculation, the annual old-age dependency ratio was used from data obtained from the United Nations Department of Economic and Social Affairs, Population Dynamics. The old-age dependency is calculated as the ration of the population which is 65 and above divided by the population which is between 20 and 64 years old at the 1st of July 2020 and is expressed as percentage $[(65+/20-64) (\%)]$. A higher number indicates greater percentage of aging persons within the population.

Statistical analysis

The name of each country, their rating on the six Hofstede indices, and the number of delirium guidelines available in their jurisdiction were entered into a spreadsheet and analysed with IBM (SPSS) v24. software. Descriptive statistics (counts and percentages) and non-parametric tests (Mann–Whitney test and Spearman’s rank correlation) were used for the comparisons and correlations.

Results

Descriptive statistics

Delirium guidelines

Forty-four ($n = 45$) different delirium guidelines were identified. Some were for general adult populations and others for more specific subpopulations (see Table 1 in supplementary material). Brazilian guidelines have been excluded from further analysis as they were not specific to delirium but also related to agitation. Some countries have more than one delirium guideline with different guidelines according to specific clinical populations or disciplines. Table 1 shows countries with one or more guidelines together with the six dimensions of Hofstede's national culture model. In this table one guideline produced by a combination of USA and Canadian professionals (Pathways for Clinical Care Workgroup (PaCC)—paediatric delirium) has randomly been assigned to Canada. In contrast, the multinational delirium guidelines (European Society of Anaesthesiology) were not assigned to any country.

Hofstede's national culture model

Sixty-four ($n = 64$) countries were retrieved with the completed six dimensions of Hofstede's model. Twenty (31%) had one or more delirium guidelines (Table 1; Fig. 1).

Bivariate statistics

Comparison between countries

Those countries with at least one delirium guideline were compared to those which do not have guidelines in terms of the six dimensions of the Hofstede's model (Mann–Whitney test). The results are shown in Table 2.

As can be seen from Table 2, the countries which have delirium guidelines differ from those without in three dimensions of Hofstede's model. Countries with delirium guidelines have significantly lower power distance among their members, are more individualistic societies, and have lower levels of uncertainty avoidance compared to those without delirium guidelines. In addition, significant difference was found in terms of population age where countries with delirium guidelines have higher age dependency ratio compared to those without guidelines (Mann–Whitney $U = 228.5$, $z = -2.976$, $p = 0.003$).

Table 1 Countries with delirium guidelines

| Countries | N DG | ADR | PDI | IDV | MAS | UAI | LTO | IVR |
|-------------|------|-------|-----|-----|-----|-----|-----|-----|
| USA | 9 | 28.40 | 40 | 91 | 62 | 46 | 26 | 68 |
| Canada | 8 | 29.80 | 39 | 80 | 52 | 48 | 36 | 68 |
| Netherlands | 4 | 34.30 | 38 | 80 | 14 | 53 | 67 | 68 |
| UK | 3 | 32.00 | 35 | 89 | 66 | 35 | 51 | 69 |
| Germany | 2 | 36.50 | 35 | 67 | 66 | 65 | 83 | 40 |
| Ireland | 2 | 25.00 | 28 | 70 | 68 | 35 | 24 | 65 |
| Australia | 2 | 27.70 | 38 | 90 | 61 | 51 | 21 | 71 |
| China | 1 | 18.50 | 80 | 20 | 66 | 30 | 87 | 24 |
| Italy | 1 | 39.50 | 50 | 76 | 70 | 75 | 61 | 30 |
| Portugal | 1 | 38.60 | 63 | 27 | 31 | 99 | 28 | 33 |
| Japan | 1 | 52.00 | 54 | 46 | 95 | 92 | 88 | 42 |
| Spain | 1 | 32.80 | 53 | 51 | 42 | 86 | 48 | 44 |
| France | 1 | 37.30 | 68 | 71 | 43 | 86 | 63 | 48 |
| Taiwan | 1 | 23.90 | 58 | 17 | 45 | 69 | 93 | 49 |
| Norway | 1 | 29.60 | 31 | 69 | 8 | 50 | 35 | 55 |
| Finland | 1 | 40.10 | 33 | 63 | 26 | 59 | 38 | 57 |
| Switzerland | 1 | 31.30 | 34 | 68 | 70 | 58 | 74 | 66 |
| Iceland | 1 | 26.6 | 30 | 60 | 10 | 50 | 28 | 67 |
| India | 1 | 11.30 | 77 | 48 | 56 | 40 | 51 | 26 |
| Denmark | 1 | 34.9 | 18 | 74 | 16 | 23 | 35 | 77 |

Number of guidelines, age dependency ratio and dimensions scores in the Hofstede national Cultural Model

N DG number of delirium guidelines, *ADR* age dependency ratio, *PDI* power distance, *IDV* individualism, *MAS* masculinity, *UAI* uncertainty avoidance, *LTO* pragmatic long-term versus normative short-term orientation, *IVR* indulgence versus restraint

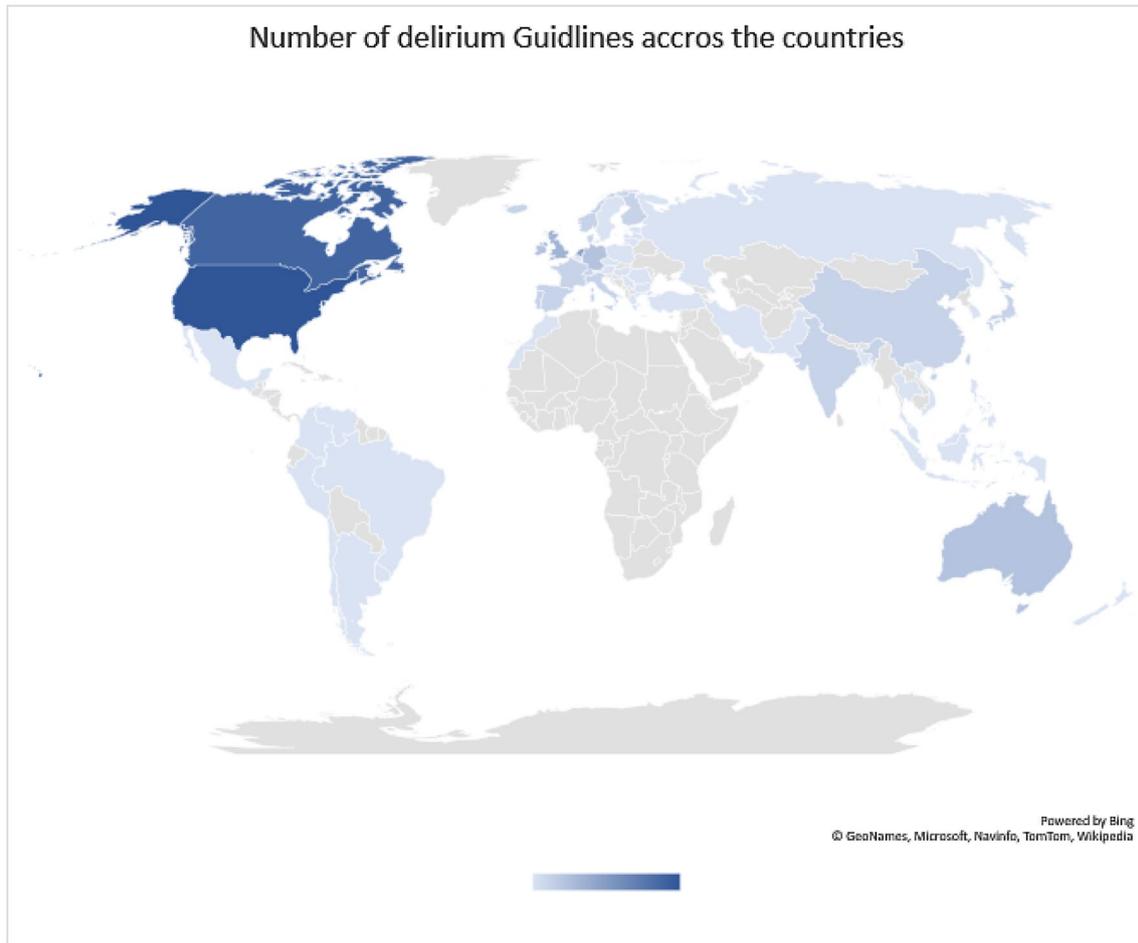


Fig. 1 Map. Countries with grey colour do not have data on Hofstede's model. Gradient blue shows the number of guidelines from 0 (very light blue) to 9 (very dark blue)

Table 2 Comparison of Hofstede dimensions scores for countries with and without delirium guidelines (Mann–Whitney test)

| | PDI | IDV | MAS | UAI | LTO | IVR |
|-----------------------|--------------------|--------------------|---------|--------------|---------|---------|
| Mann–Whitney <i>U</i> | 186.5 | 180.0 | 405.0 | 280.0 | 373.5 | 342.5 |
| Wilcoxon <i>W</i> | 396.5 | 1170.0 | 1395.0 | 490.0 | 1363.5 | 1332.5 |
| <i>Z</i> | – 3.673 | – 3.769 | – 0.507 | – 2.318 | – 0.963 | – 1.413 |
| <i>P</i> | < 0.0001 | < 0.0001 | 0.612 | 0.020 | 0.335 | 0.158 |

PDI power distance, *IDV* individualism, *MAS* masculinity, *UAI* uncertainty avoidance, *LTO* pragmatic long-term versus normative short-term orientation, *IVR* indulgence versus restraint

In bold the significant ($p < 0.05$) values

Correlation of Hofstede's dimensions with the number of guidelines in any country

Spearman's correlation test was performed between the number of delirium guidelines and the six indices (see Table 3). There were significant associations between the numbers of delirium guidelines and the indexes of Power distance, Individualism, and Uncertainty avoidance. Countries with a higher number of delirium guidelines were significantly more likely

to have lower power distance, lower levels of uncertainty, and to have higher levels of individualism. Also, a significant correlation was found between number of guidelines and age dependency ratio (Spearman's $\rho = 0.41$, $p = 0.001$).

Table 3 Spearman's correlation test between Hofstede's six dimensions and number of delirium guidelines

| | PDI | IDV | MAS | UAI | LTO | IVR | NDG |
|------------|-------------------|-------------------|---------|--------------|-----------|--------|-------|
| PDI | | | | | | | |
| rho | 1.000 | | | | | | |
| <i>p</i> | | | | | | | |
| IDV | | | | | | | |
| rho | − 0.633** | 1.000 | | | | | |
| <i>p</i> | 0.000 | | | | | | |
| MAS | | | | | | | |
| rho | 0.103 | 0.077 | 1.000 | | | | |
| <i>p</i> | 0.420 | 0.543 | | | | | |
| UAI | | | | | | | |
| rho | 0.222 | − 0.208 | − 0.040 | 1.000 | | | |
| <i>p</i> | 0.078 | 0.099 | 0.756 | | | | |
| LTO | | | | | | | |
| rho | − 0.036 | 0.171 | − 0.034 | 0.024 | 1.000 | | |
| <i>p</i> | 0.780 | 0.177 | 0.790 | 0.848 | | | |
| IVR | | | | | | | |
| rho | − 0.343** | 0.134 | 0.122 | − 0.160 | − 0.509** | 1.000 | |
| <i>p</i> | 0.005 | 0.290 | 0.337 | 0.205 | 0.001 | | |
| NDG | | | | | | | |
| rho | − 0.486** | 0.520** | 0.093 | − 0.327* | 0.093 | 0.219* | 1.000 |
| <i>p</i> | < 0.001 | < 0.001 | 0.464 | 0.008 | 0.465 | 0.082 | |

PDI power distance, *IDV* individualism, *MAS* masculinity, *UAI* uncertainty avoidance, *LTO* pragmatic long-term versus normative short-term orientation, *IVR* indulgence versus restraint, *NDG* number of delirium guidelines

*Correlation is significant at the 0.05 level (2-tailed)

**Correlation is significant at the 0.01 level (2-tailed)

In bold the significant ($p < 0.05$) values

Discussion

The results indicate an association between aging population in certain counties with delirium guidelines and an association of culture and the production of delirium guidelines. Regarding the former, it is not surprising as delirium is highly prevalent in older persons and thus specialised later life services have been developed to address this need. Regarding the latter finding, the association between culture and delirium guidelines is more complex and relates in part to socio-political phenomena.

Specifically, countries in which delirium guidelines exist are significantly more likely to have lower power distance, to be more individualistic and to have a lower degree of uncertainty avoidance, as described in Hofstede's model. Similarly, countries with more than one delirium guideline (specific to certain populations or to certain discipline professions) are more likely to have lower power distance, lower levels of uncertainty avoidance and higher levels of individualism. To the best of our knowledge, no previous research has considered the influence of culture on delirium

guidelines. A related study by Borg [28] found that greater infection prevention and control activity was associated with cultures that are low in uncertainty avoidance and power distance, and high in individualism and masculinity.

Although we cannot conclude that there is a cause–effect association or a direct relationship between cultural dimensions and the development of delirium guidelines, some evidence supports this possibility. For example, in cultures with low power distance ‘subordinates’ are more likely to be consulted or involved in the decision-making process. Similarly, patients are more inclined to engage with medical practitioners collaboratively as equals, and doctors are expected to empower patients by actively supplying information and treatment options. This information needs to be clear, concise, effective and, importantly, consistent in content from doctor to doctor. Guidelines are an effective means of encouraging such consistency. In addition, in low power distance countries instruments of accountability (such as audits or KPIs) are popular [28] and tend to be used as a measurement of consistency among doctors, teams or services. Comparison requires a “standard” that guidelines can provide and that can be used to assess adherence. Finally, low

power distance countries are mostly wealthier countries with a large middle class where the political leaning is towards the new liberal ideology with health systems based in one organisation founded by the state from taxation that is inherently more consumeristic in orientation. Middle-class values have a disproportionate influence upon the institutions of a country, (e.g., government, education system and health care system) compared to lower- or upper-class values because the people who populate and provide the institutions are typically middle class. Moreover, often the representatives of lower-class groups, such as union leaders or members of parliament, are better educated, and have adopted many middle-class values. In addition, lower-class parents often aspire towards middle-class ambitions for their children [27]. Given that delirium and other guidelines are produced by consensus from stakeholders who share the same values they inevitably capture middle-class attitudes and thus produce, expand, and promote what is called ‘mediocracy’ [29, 30].

In addition, low uncertainty avoidance cultures are more tolerant of ambiguity. These countries typically have a strong belief in expertise and their organisations include more specialists. They tend to engage and address strategic problems with greater inherent uncertainty than operational problems. In contrast, in high uncertainty avoidance cultures organisations focus more upon operational problems, rely more on generalist than specialist practitioners and typically emphasise common sense over expertise [27, 31]. Therefore, it is not surprising that delirium guidelines are more prevalent in these societies. Moreover, guidelines are more strategically orientated than operational, produced by highly training specialists and experts in the subject, and have a higher degree of ambiguity despite being based upon best research evidence. This, in part, reflects the need to appreciate that research evidence derived from large samples does not necessarily directly apply to the specific individual in a one-to-one consultation where there may be many relevant factors that are not accounted for within delirium best practice guidelines. In addition, high uncertainty avoidance countries respond better to situations of certainty and are resistant to change as this is typically associated with uncertainty [28]. Therefore, new delirium guidelines tend to be embraced less enthusiastically (or ignored) compared with lower uncertainty avoidance countries.

Finally, the results of this study indicate that counties/cultures with individualistic approaches are more likely to have delirium guidelines and, in many cases, multiple guidelines. Perhaps the multiple guidelines reflect also the individualistic approach to delirium management. Individualism correlates strongly with national wealth and has also been linked to national rates of innovation [32, 33]. In individualistic countries a common feature is the cost–benefit calculation of any intervention [34] and organisations in these countries are more likely to implement techniques for identification,

measuring the cost and effectiveness and financial benefits of different approaches. Therefore, in these countries guidelines for earlier detection of delirium, prevention and treatment are *conditio sine qua non* to measure and estimate cost effectiveness at a national level.

This study suggests that there are significant cultural factors that influence the production of delirium guidelines. We have not examined existing delirium guidelines from an epistemological perspective and previous work suggests that there are few evaluation studies of the impact of delirium guidelines [25] with limited evidence for implementation of existing delirium guidelines and their impact. However, this can also be explained from Hofstede’s cultural model. The dimensions of each country reflect the average trends, and does not mean that all the individuals in the same country share the same attitudes. Moreover, inside any country there are also typically multiple regional differentiations. Thus, delirium guidelines are typically implemented by teams or services that have lower power distance, more individualism and lower degree of uncertainty avoidance and in such settings “forcing” the implementation of the guidelines is less likely.

Limitations of the study

One limitation of this work is that we used one cultural model which has been criticised as being static. However, extensive work has been done using the Hofstede’s model not only in health, but in other areas as well, like in organisations, management and leadership, education and politics and it has been shown to be a useful and reliable model. A second limitation is that despite the extensive search we may have missed some guidelines that are not present in databases or the internet. However, with the increasing routine use of such resources to support information dissemination, this is less likely to have impacted upon our findings. Also, it is important to recognise that cultural differences do not necessarily reflect positive or negative characteristics as different characteristics can be advantageous in addressing different challenges.

Implications of the study

Irrespective of their methodological quality, content validity, evaluation and implementation delirium guidelines are influenced by cultural factors. This is relevant to the translatability of delirium guidelines from one country to another where cultural values may impact upon their acceptance and implementation. Greater awareness of these cultural factors can assist in improving the implementation of delirium guidelines and, assuming that the guidelines are scientifically sound, improve outcomes for this complex and serious condition.

Conclusion

Specific combinations of cultural dimensions (power distance, individualism and uncertainty avoidance) influence the production of delirium guidelines. “Copy- paste” approaches to developing delirium guidelines from one country to another without taking into account these important cultural differences are likely to impede the likelihood of their receiving widespread acceptance and implementation.

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Data availability All the data are available in the given websites.

Declarations

Conflict of interest None.

Ethical approval Given that the study did not involve any human or animals participants and is based on freely available data we did not seek any ethical approval.

Informed Consent For this type of study Informed Consent is not required.

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