Letter to the Editor Regarding the Article "Geriatric Assessment of the Portuguese Population Aged 65 and Over Living in the Community: The PEN-3S study". On Clinically Significant Depression and Validity of Cut-off Points.

Carta ao Editor Relativa ao Artigo "Avaliação Geriátrica da População Portuguesa Com 65 ou Mais Anos a Residir na Comunidade: Estudo PEN-3S". Depressão Clinicamente Significativa e Validade dos Pontos de Corte.

Keywords: Activities of Daily Living; Aged; Aged, 80 and over; Depression; Geriatric Assessment; Loneliness; Portugal
Palavras-chave: Actividades da Vida Diária; Avaliação Geriátrica; Depressão; Idoso; Idoso com 80 anos ou mais; Portugal; Solidão

We read with interest Madeira *et al* paper on geriatric assessment,[1] which unveiled important findings about the physical and psychological health of older adults in a nationally representative sample. The authors brought together data on general health, as well as nutritional, cognitive and functional status of participants; remarkably, depression symptoms and loneliness were also evaluated. In fact, depression and loneliness have circular relationships, influencing cognition in old age, and perceived social isolation is a major health risk.[2] The paper elegantly endorses multidimensional non-disease specific models to address quality of life in aging.[1]

We would like to comment on the results of the Geriatric Depression scale (GDS-15) (high-level major depression estimates assuming 'GDS-15 caseness' as a robust predictor). In a community survey, our group used comprehensive assessments, valid for geriatric depression.[3] The prevalence was 4.4% (95% CI 2.8 - 8.1) using ICD-10 criteria. However, EURO-D (the SHARE study depression screening tool) estimates were 18.0% (95% CI 16.0 - 20.1). This broader definition ('clinically significant depression') means 'depression that competent clinicians would consider needing therapeutic interventions', including the non-pharmacological ones. Prince *et al* made this point by discussing the pros and cons of narrow criteria (e.g. ICD-10), which arguably miss much of the community impact of depression. Asking ourselves what is the purpose of our measurement (i.e. a case for what?) must precede choice of method.[4]

That is why we would also like to comment on the MMSE, GDS-15 and UCLA Loneliness Scale cut-off points. Interpreting the results of rating scales by dichotomizing scores is difficult. The validity of cut-off-points is never fully established, often reflecting the characteristics of samples rather than the intrinsic properties of scales. Even with reported cut-off points, the trade-off between sensitivity and specificity is the price for replacing gold-standards, no matter how impractical these might be. Transcultural validity issues further complicate the picture. We cannot avoid this *conundrum*, but we acknowledge the limitations in predicting 'caseness' - no matter what cut-off point is chosen, among other doubts any researcher might have regarding particular scales (Table 1). We remain curious, for instance, about Madeira *et al* GDS-15 score distribution, depression symptoms in cognitively impaired participants, or how

Table 1 – Cut-points for health measurement scales: conundrums and examples

Following a cut-point suggested by international literature?			
- What about its exact validity? How was it determined? What would it mean to score above (or below) it? - Any studies in different cultures/ settings (e.g. community versus hospital or primary care), namely the same of the present study? - Following Prince et al[4] before trying to define a 'case' shouldn't we ask 'a case for what?'			
Examples*:	**Are there alternatives to the cut-points used?**	**Probable 'false negatives'?**	**Observations**
Mini Mental 'State Examination (MMSE): national cut-points - Guerreiro *et al* (1994)	Morgado *et al* (2010); doi: 10.1111/j.1468-1331.2009.02907.x Santana *et al* (2016); doi: 10.20344/amp.6889	Minor cognitive impairment, mainly executive dysfunction, fronto-temporal dementia.	Revised Portuguese MMSE's norms also reflect improved education standards in recent decades.
Geriatric Depression Scale (GDS-15) for 'depression': international cut-point - Pocklington *et al* (2016)	Apóstolo *et al* (2018); doi: 10.5944/rppc.vol.23.num.2.2018.21050 A similar cut-point ≥ 4.5 was suggested in this Portuguese convenience sample [DSM 5 depression diagnosed by clinicians; sensitivity = 96%/specificity = 53%; AUC = 0.79 (95% CI 0.69 - 0.87)]. The AUC was 'moderate', and a validated geriatric psychiatry interview was not used as gold-standard.	Those below a score that predicts 'major depression' (but experiencing significant symptoms, disability and low quality of life).	The meta-analysis informing Madeira *et al* cut-point choice acknowledged selective reporting as a limitation. Study setting (community versus service-based) could be influential.
UCLA Loneliness Scale for 'loneliness': national cut-point - Pocinho *et al* (2000)	The cut-point corresponds to Pocinho *et al* convenience sample mean score (using their 16-item and not the original 20-item version of the scale). The scale arguably displays non-normal, bimodal characteristics.[5]	Again, how to define a case? And what for?	Maybe difficult to establish definitive cut-offs.[5]

AUC: area under the curve; *as drawn from and cited by Madeira *et al*[1]

results could change with the recently revised MMSE cut-off points (Table 1). Concerning loneliness, reliance on cut-off points definitely calls for prudence[5] and we wonder about the potential of the 3-item version for community use. Far too often, dichotomized scores are better suited as continuous data. Technically, dichotomization frequently implies loss of statistical power.[4] In most cases the assessment of complex psychological constructs seldom fits simple, categorical models of nature, such as black and white without grey areas. Madeira *et al* publication is also important by lending itself to this discussion.

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