SUPPLEMENTARY MATERIALS

Supplementary Methods

CP cohort inclusion and exclusion criteria [1–6]

Participants were included in the study if they were (1) interested and able to participate in the study and (2) able to walk across a 35-foot (10.6m) walkway, with or without assistive devices, at least three times.

Determining cases with probable MDD and GAD across different cohorts

For all cases of probable major depressive disorder (MDD) and probable generalized anxiety disorder (GAD), we used the respective cut-off points for each of the scales employed in the respective cohorts. Each cohort has different scales and hence we employed the scales' respective established cut-offs for establishing probable cases.

MCI cohort

GDS
The 15-item Geriatric Depression Scales (GDS) was used to assess depressive symptoms. The participants rated 15 items with either Yes (1) or No (0) response categories. The possible scores range from zero to 15, with a higher score indicating a higher depressive symptom. The cut-off for probable MDD was established as GDS≥5 [7].

GAI
The 20-item Geriatric Anxiety Inventory (GAI) was used to assess anxiety symptoms [8]. The participants rated the items with either agree (1) or disagree (0). The possible scores range from zero to 20, with a higher score indicating a higher anxiety symptom. The cut-off for probable GAD was established as GAI≥9 [8].

HC cohort

For both the Zung's instruments, they are 20-item assessments of depressive and anxiety symptoms. Participants rated each item depending on how they felt during the past week using a 4-point likert scale ranging from 1 to 4. A higher score indicated more severe symptoms. The cut-offs were SDS≥42 and SAS≥36 based on previous studies [9, 10].

CP cohort

CES-D
A higher total score indicated a higher number of depressive symptoms. The cut-off was set at ≥16 [11].

Furthermore, using the Structured Clinical Interview for Diagnostic and Statistical Manual of Mental Disorders, Revised Third Edition (SCID), the "gold standard" clinical tool for diagnosing depression, CES-D has high sensitivity (92%-100%) and specificity (84%-87%) in correctly classifying cases with depression [12, 13].

PROMIS emotional distress—anxiety— short form

Subjects were asked questionnaire to assess anxiety symptoms during the past 7 days on a 5-point likert scale ranging from 0-5. A higher score indicated a higher anxiety symptoms. The raw scores were then converted into T-scores. A cut-off of T-scores ≥55 indicated some level of clinically-significant anxiety [14].

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