

**Supplementary Table 1.** Health deficits and associated scores in the deficits accumulation index.

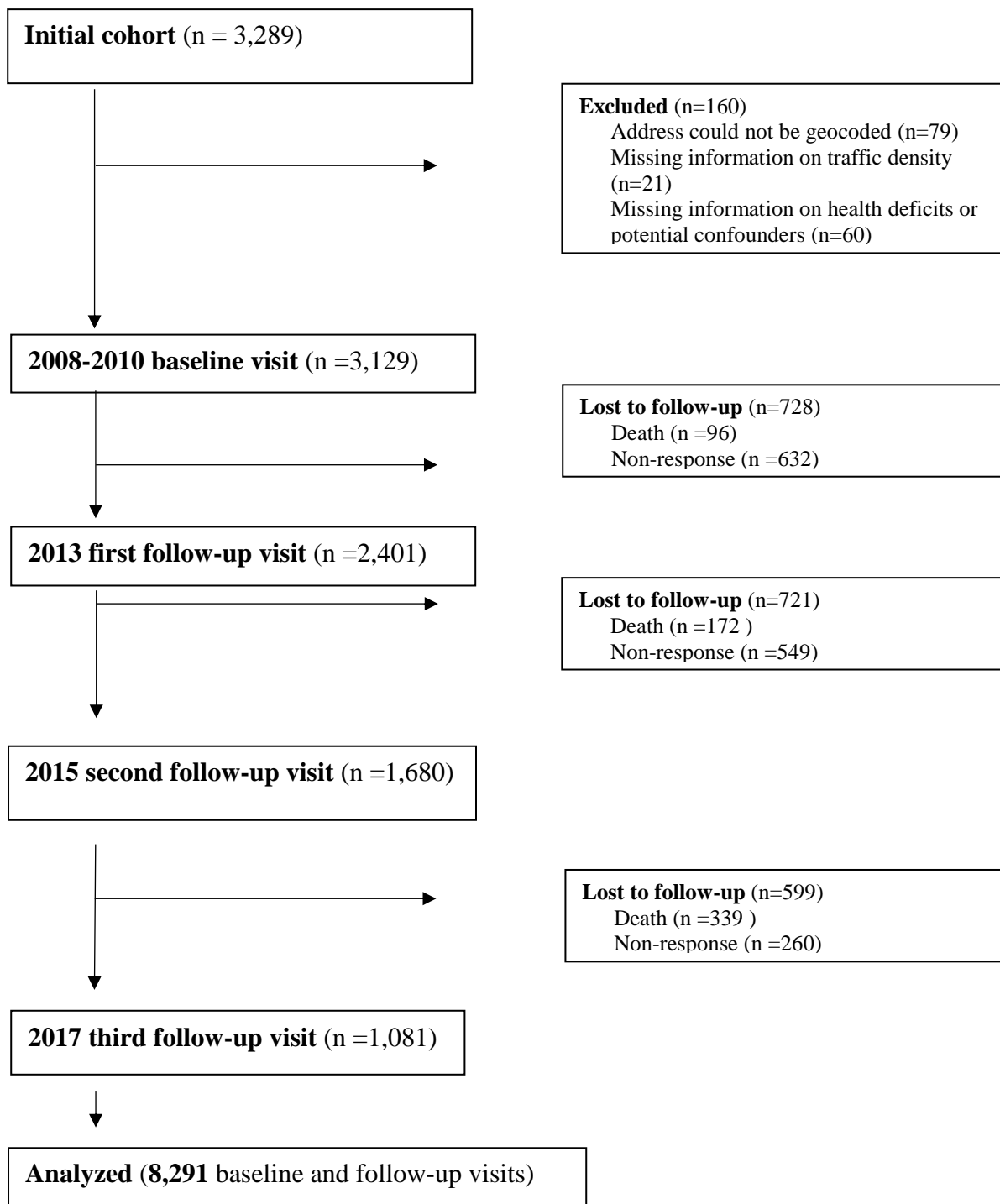
<b>Health deficit</b>	<b>Score</b>
<b>Physical and cognitive impairments</b>	
<i>Self-care disability</i>	
Help bathing	no=0, yes=1
Help eating	no=0, yes=1
Help dressing	no=0, yes=1
Help using the toilet	no=0, yes=1
Incontinence	no=0, yes=1
<i>Disability in instrumental activities of daily living</i>	
Help shopping	no=0, yes=1
Help preparing meals	no=0, yes=1
Help with housework	no=0, yes=1
Help taking medications	no=0, yes=1
Help with finances	no=0, yes=1
<i>Agility disability</i>	
Limitation in bending or kneeling	no=0, yes=1
<i>Mobility disability</i>	
Limitation to lift/carry a shopping bag	no=0, yes=1
Limitation in climbing one flight of stairs	no=0, yes=1
Limitation to walk several blocks	no=0, yes=1
Limitation in moderate activities	no=0, yes=1
Decreased life-space mobility	no=0, yes=1
<i>Limitation in lower-extremity physical performance</i>	
Poor balance	no=0, yes=1
Slowness	no=0, yes=1
Unable to complete five chair stands	no=0, yes=1
<i>Low strength</i>	
Lowest grip strength quintile according to sex and BMI	no=0, yes=1
<i>Cognitive impairment</i>	
Mini-Mental State Examination score	$\geq 24=0$ , $20-23=0.25$ , $18-19=0.5$ , $11-17=0.75$ , $\leq 10=1$
<b>Self-rated health and vitality</b>	
Self-rated health	excellent=0, very good=0.25, good=0.5, fair=0.75, poor=1
Doing less as a result of physical health	never=0, rarely=0.25, sometimes=0.5, mostly=0.75, always=1
Limited in activities as a result of physical health	never=0, rarely=0.25, sometimes=0.5, mostly=0.75, always=1
Health interfered with social activities	never=0, rarely=0.25, sometimes=0.5, mostly=0.75, always=1
Pain interfered with normal work	never=0, rarely=0.25, sometimes=0.5, mostly=0.75, always=1
Not having energy	never=0, rarely=0.25, sometimes=0.5, mostly=0.75, always=1
Unintentional weight loss	no=0, yes=1

(Table continues)

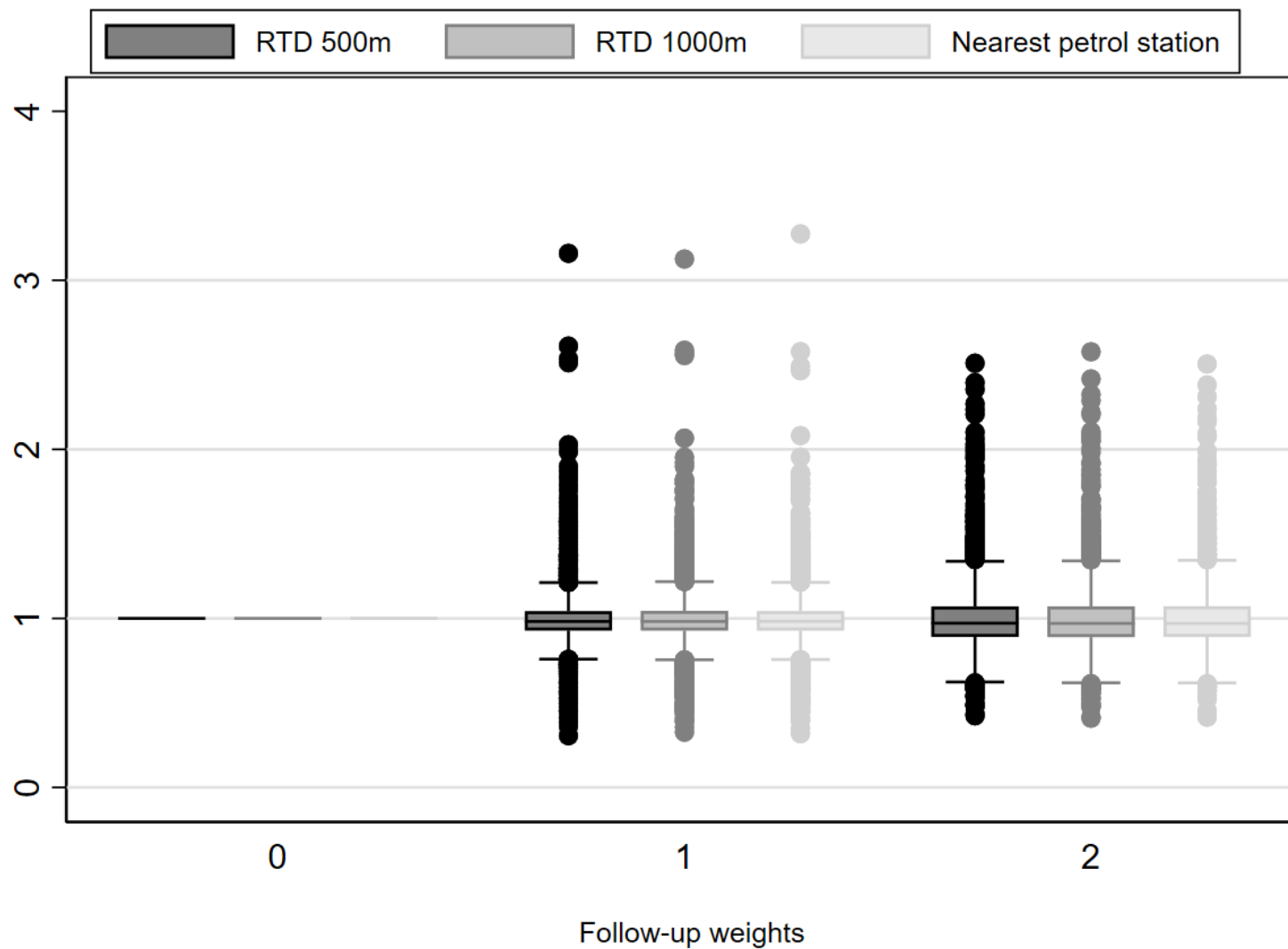
**Supplementary Table 1** (continued).

<b>Health deficit</b>	<b>Score</b>
<b>Mental health</b>	
Accomplishing less because of emotional problems	never=0, rarely=0.25, sometimes=0.5, mostly=0.75, always=1
Doing activities less carefully than usual	never=0, rarely=0.25, sometimes=0.5, mostly=0.75, always=1
Not feeling calm and peaceful	never=0, rarely=0.25, sometimes=0.5, mostly=0.75, always=1
Feeling down-hearted and blue	never=0, rarely=0.25, sometimes=0.5, mostly=0.75, always=1
Not being able to face up to problems	no=0, yes=1
Feeling helpless	no=0, yes=1
<b>Morbidities, polypharmacy, and use of health services</b>	
<i>Morbidities</i>	
Heart attack	no=0, yes=1
Heart failure	no=0, yes=1
Stroke	no=0, yes=1
Cancer	no=0, yes=1
Respiratory disease	no=0, yes=1
Arthritis	no=0, yes=1
Osteoarthritis	no=0, yes=1
Hip fracture	no=0, yes=1
Parkinson's disease	no=0, yes=1
Periodontal disease	no=0, yes=1
Diabetes	no=0, yes=1
Depression	no=0, yes=1
Underweight/severe obesity (body mass index)	18.5–<35=0, <18.5 or ≥35=1
Hypertension	no=0, yes=1
<i>Polypharmacy</i>	
No. of medications	0–2=0, 3–4=0.5, ≥5=1
<i>Use of health services</i>	
Frequency of outpatient health care in last 12 months	rarely=0, once/twice a year=0.25, every two/three months=0.5, once/twice a month=0.75, almost every day=1
Overnight stay in hospital in last 12 months	no=0, yes=1

**Supplementary Figure 1. Study flow diagram.**

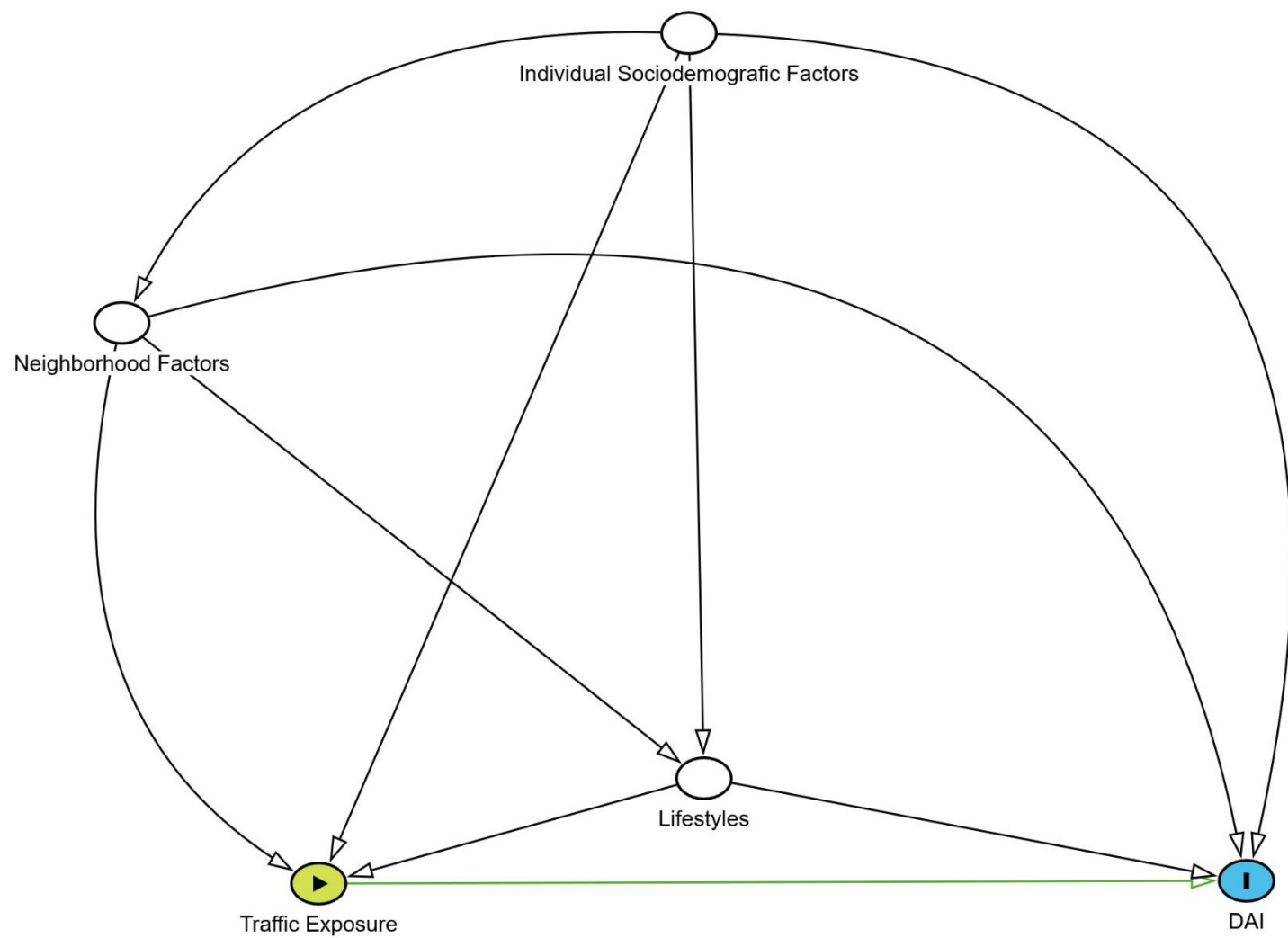


**Supplementary Figure 2.** Distributions of stabilized censoring weights by follow-up visit in the Seniors-ENRICA cohort, 2008–2010 to 2017.

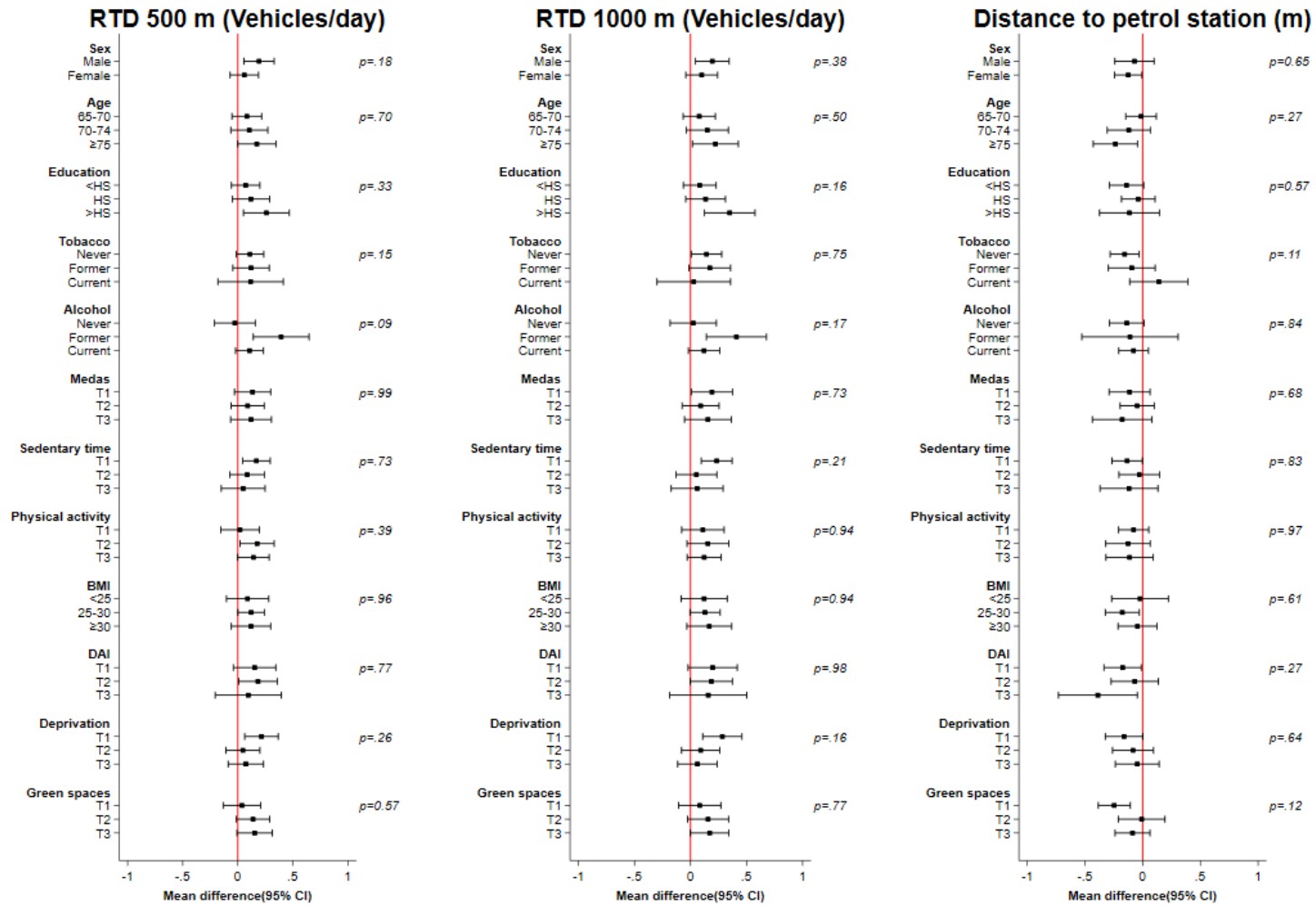


Weights were set at 1 at the first follow-up visit and the boxes for the second and third follow-up visits are shown.

**Supplementary Figure 3.** Proposed directed acyclic graph for the relationship between residential traffic exposure metabolites and the accumulation of health deficits.



**Supplementary Figure 4.** Differences in health deficits accumulation by traffic-related exposure variables in subgroups of participants in the Seniors-ENRICA cohort, 2008–2010 to 2017. Subgroup-specific average differences in deficits accumulation index at each follow-up visit and 95% confidence intervals (CIs, horizontal lines) by category of exposure variables were obtained from repeated measures regression models with interactions between the exposures (expressed as interquartile range) and the corresponding subgroups; with clustered robust standard error to account for the repeated measures for each participant and spatial correlation at the census tract; adjusted for age, sex, education, smoking status, alcohol drinking, Mediterranean diet score, body mass index, recreational physical activity, sedentary behavior, baseline levels of deficits accumulation index, Social Deprivation Index at the census tract, and residential exposure to natural spaces; weighted by the inverse of the conditional probabilities of censoring given follow-up levels of the above factors.



T1-T3: First to third tertiles; Adherence to Mediterranean Diet Score; BMI: Body Mass Index; DAI: Deficits Accumulation Index; Deprivation: Social Deprivation Index