Prevalence of lack of interest and anhedonia in the general population of the UK Biobank

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INTRODUCTION

⇒ **Apathy** and **anhedonia** are **common** behavioral and psychological symptoms **across brain disorders**. Despite mainly common in presence of pathological conditions, apathy and anhedonia can also be **present in healthy people**[1]. A comprehensive **description of lack of interest and anhedonia in the general population is missing**.

⇒ The **UK Biobank (UKB)** includes 502,655 community-dwelling participants aged 37—73y, recruited between 2006 and 2010 in the UK. Extensive data were collected, including genetics, brain imaging, blood samples, family and medical hystory. No participant in the UKB received an apathy diagnosis (ICD10). However, **self-report** questions on **mental health** may be used as **apathy proxies.**

STUDY 1
Which items of the UK Biobank can be used as proxies for apathy?

Methods

⇒ 4 items (in the 'Psychosocial factors – Mental health' **self-report** questionnaire) were pre-selected by 3 clinicians/researchers (Table 1).

⇒ Following a **Delphi panel** methodology (survey + plenary meeting) **17 experts** in apathy in brain disorders (researchers, clinicians) rated:

⇒ "**How pertinent are the following items for apathy assessment?"**

Item/ Question	Mean **Ratings** (SD)
2060. Over the past two weeks, how often have you had little interest or pleasure in doing things?	3.6 (1.3)
4631. Have you ever had a time when you were uninterested in things or unable to enjoy the things you used to for at least a whole week?	2.8 (1.3)
5375. How many weeks was the longest period when you were uninterested in things or unable to enjoy the things you used to?	2.9 (1.5)
5386. How many periods have you had when you were uninterested in things or unable to enjoy the things you used to for at least a whole week?	3.1 (1.2)

Table 1. 1: not pertinent at all; 2: not very pertinent; 3: pertinent; 4: very pertinent; 5: completely pertinent.

Results

⇒ The experts highlighted the importance to specify a timeframe and a duration (e.g., in the last two weeks) to match the Apathy Diagnostic Criteria (DCA)[2].

⇒ **The only pertinent candidate was item 2060** (frequency of unenthusiams/disinterets in the last 2 weeks), with some limitations:
- Overlap between lack of interest (apathy), anedhonia and depression;
- Based on self-report, which may be biased.

⇒ « Nearly every day » is the response that best matches the DCA[2].

STUDY 2
What is the prevalence of lack of interest / anhedonia in the UK Biobank?

Methods

⇒ **501,717 participants** provided a response to item 2060 in the baseline assessment (age: mean= 56.5y, SD= 8.1y, age range 37y-73y; gender: % Males = 45.6%).

⇒ Responses to the self-report item 6145 (presence of **illness, injury, bereavement, stress - IIBS** - in last 2 years) were used to divide the population in **healthy subjects** (no reported IIBS, N= 272,371) and **IIBS subjects** (N=222,034)**.**

⇒ The prevalence of apathy was calculated for **healthy vs. IIBS subjects** (Fig. 1a) and **subjects with diagnoses** (based on self-report item 20002) included in the categories: cerebrovascular diseases (**cvad**, N= 9,047), neurodegenerative disorders (**ndd**, N= 2,743), neurological injury/traumas (**ninj**, N= 1,617), and neuropsychiatric diseases (**npsy**, N= 30,209) (Fig. 1b).

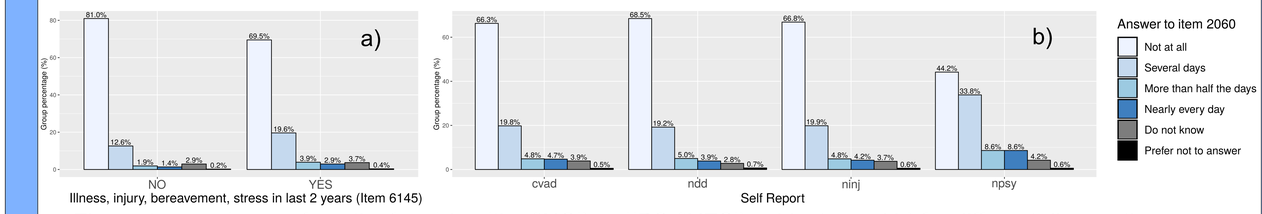

Figure 1: prevalence of apathy for a) healthy ('NO') vs IIBS ('YES') subjects, and b) for different diagnostic groups

Results

⇒ Converging with previous studies[1], around **2% of the general population** report the presence of lack of interest and anhedonia (1.4% of healthy subjects, 2.9% of IIBS subjects).

⇒ Percentages of affected people are higher in pathological conditions known to have high apathy and anhedonia prevalence: **4.7 in CVAD, 3.9% in NDD, 4.2 in NIJI, 8.6 in NPSY.** However, these percentages are lower compared to those expected (around 50%)[3]. Why?
- People in the UKB may be in the very early stages of the disease (mean age= 65 years);
- Self-report in these populations may not be reliable (anosognosia, cognitive decline).

CONCLUSIONS and FUTURE DIRECTIONS

⇒The UK Biobank may represent a useful tool to detect the prevalence of lask of interest / anhedonia in the **general population**. It may offer the unique opportunity to investigate also the **neural correlates and genetics** of these conditions. BUT, being based on self-report, data obtained on patients with disorders linked to cognitive decline should be taken with caution.

References & Aknowledgements

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3. Husain M. & Roiser J. (2018). Neuroscience of apathy and anhedonia: a transdiagnostic approach. Nature Reviews

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