GPAQ Software v1.2.0 Documentation

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Abstract

GPAQ is a questionnaire that assess the physical activity (PA) behavior of people during work, displacements or hobbies. From this information, one can estimate the number of minutes per week spend by this person practicing moderate (MPA), vigorous (VPA), or no PA; and then translate it into metabolic equivalents (MET)-minutes per week. The `gpaq.py` software does it automatically.

Keywords: GPAQ, python.

1 What are the requirements

Before using the `gpaq.py` software, you need to install **python3** from `https://www.python.org/downloads/`. We also recommend installing the **anaconda** distribution from `https://www.anaconda.com/download/success`, since it contains every needed modules.

You then need to download the repository containing the software from `https://github.com/MatthieuGG/GPAQ-scores/archive/refs/heads/main.zip`, and uncompress the file.

Now is time for the data preparation. You need to transpose your paper, PDF or online questionnaires into csv files, and put them all in the same folder. Please find an example of original paper GPAQ filled at `https://github.com/MatthieuGG/GPAQ-scores/blob/main/sample.pdf`. You can provide one document per participant, or one document containing them all (one line per participant). See example of file structure in `https://github.com/MatthieuGG/GPAQ-scores/tree/main/data`. Basically, you should respect this lines and columns organisation and naming:

Table I: Input data structuring

ID	P1	P2	P3a	P3b	P4	P5	P6a	P6b	P7	P8	P9a	P9b	P10	P11	P12a	P12b	P13	P14	P15a	P15b	P16a	P16b
Participant 1																						
...																						

2 What does the software do?

The `gpaq.py` software first checks that the folder containing the data as well as the data files exist, that data files are correctly structured, that there is no duplicate, missing values or inconsistent values, that the logic between items is respected (ex: if "no physical activity during transport" is selected in item 7, then items 8 and 9 should be empty), and that values range make sense (ex: no more than 24h within a day). If any issue is present in the data, the corresponding print will appear in the terminal.

The software then calculates the different values of PA (MPA, VPA, MVPA), and saves the results as csv files. The structure of this file is:

Table II: Output data structuring

ID	P1	...	P16b	VPA work	MPA work	travel	VPA hobbies	MPA hobbies	sed	work	hobbies	VPA	MPA	MVPA
Participant 1														
...														

We based our calculation on the GPAQ guides from the World Health Organisation (`https://www.who.int/docs/default-source/ncds/ncd-surveillance/gpaq-analysis-guide.pdf`) and the ONAPS recommendations (`https://onaps.fr/wp-content/uploads/2020/10/Interpre%CC%81tation-GPAQ.pdf`).

3 How to use the software?

3.1 Terminal functions and options

From the terminal, you have to go in the folder where the `gpaq.py` file is. To do so, use the `cd` function:

```
cd [path where gpaq.py is]
```

You can now call the function in the terminal using this line command:

```
python3 gpaq.py [-d input path] [-o output path] [-ind]
```

The options are:

- `[-d input path]`: defines the path to your data. If you don't provide one, default is /data/ in the same folder.
- `[-o output path]`: defines the path to your results. If you don't provide one, default is /results/ in the same folder.
- `[-ind]`: saves individual files. If you don't precise this, default is one concatenated file.

3.2 Example of use

- `"cd /Users/Me/Downloads/GPAQ scores main"` will go where the gpaq.py file is located.
- `"python3 gpaq.py"` will use the `"/data"` folder in `"GPAQ scores main"` as an input, and create or use the `"/results"` folder in `"GPAQ scores main"` for the output, saving one unique csv file for all subjects.
- `"python3 gpaq.py -d /Users/Me/Desktop/gpaq/myData/ -o /Users/Me/Desktop/gpaq/myResults/ -ind"` will use the `"/Users/Me/Desktop/gpaq/myData/"` folder as an input, and create or use the `"/Users/Me/Desktop/gpaq/myResults/"` folder for the output, saving one csv file per subject.

4 How to cite this work?

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