Data in brief 27 (2019) 104415

Contents lists available at ScienceDirect

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Data Article

# Data regarding the effect of cannabis consumption on liver function in the prospective PAFIP cohort of first episode psychosis

Javier Vázquez-Bourgon [a, b, c, *], Víctor Ortiz-García de la Foz [a, b], Irene Suarez-Pereira [b, d], Paula Iruzubieta [e], María Teresa Arias-Loste [e], Esther Setién-Suero [a, b, c], Rosa Ayesa-Arriola [a, b, c], Marcos Gómez-Revuelta [a, b, c], Javier Crespo [c, e], Benedicto Crespo Facorro [a, b, c]

[a] *Department of Psychiatry, University Hospital de Valdecilla, Instituto de Investigación Valdecilla (IDIVAL), Santander, Spain*
[b] *Centro de Investigación Biomédica en Red de Salud Mental (CIBERSAM), Instituto de Salud Carlos III, Spain*
[c] *Department of Medicine and Psychiatry, School of Medicine, University of Cantabria, Santander, Spain*
[d] *Neuropsychopharmacology & Psychobiology Research Group, University of Cádiz, Instituto de Investigación e Innovación en Ciencias Biomédicas de Cádiz, INiBICA, Edificio "Andrés Segovia", Cádiz, Spain*
[e] *Gastroenterology and Hepatology Unit, University Hospital de Valdecilla, Instituto de Investigación Valdecilla (IDIVAL), Santander, Spain*

ARTICLE INFO

*Article history:*
Received 18 June 2019
Received in revised form 6 August 2019
Accepted 12 August 2019
Available online 25 October 2019

*Keywords:*
Cannabis
Psychosis
Liver
Liver steatosis
NAFLD

ABSTRACT

The presented article describes data from secondary analyses, related to the research article entitled "Cannabis consumption and Non-Alcoholic Fatty Liver Disease. A three years longitudinal study in first episode non-affective psychosis patients" [1]. We present detailed data regarding the socio-demographic and baseline clinical characteristics of a sample of 390 drug-naïve patients with a first episode of non-affective psychosis, and the differences between cannabis users and non-users in those characteristics. Tables also show the results from cross-sectional and longitudinal statistical analyses exploring the relation between cannabis

DOI of original article: https://doi.org/10.1016/j.pnpbp.2019.109677.
* Corresponding author. Department of Psychiatry, University Hospital de Valdecilla, Instituto de Investigación Valdecilla (IDIVAL), Santander, Spain.
*E-mail address:* javier.vazquez@scsalud.es (J. Vázquez-Bourgon).

https://doi.org/10.1016/j.dib.2019.104415

Antipsychotic treatment
Mental health

consumption and liver function, after excluding those patients with hazardous alcohol drinking.



Specifications Table

| | |
|---|---|
| Subject area | *Psychiatry; Hepatology* |
| More specific subject area | *First episode psychosis; NAFLD* |
| Type of data | *Tables, text file* |
| How data was acquired | *Prospective cohort study, including clinical evaluation.* |
| Data format | *Raw and Analyzed* |
| Experimental factors | *Effect of cannabis consumption on the incidence of liver steatosis (NAFLD).* |
| Experimental features | *Patients diagnosed with a first episode of non-affective psychosis, and being drug-naïves, were included in a prospective cohort (PAFIP). Patients were treated with antipsychotic medication. Clinical, cognitive and physical examinations were carried out prospectively during the 3-years follow-up period.* |
| Data source location | *Autonomous region of Cantabria, Spain.* |
| Data accessibility | *Data available at the following public data repository:*<br>*Repository name: Mendeley Data*<br>*Data identification: Crespo Facorro, Benedicto; Vázquez-Bourgon, Javier (2019), "Cannabis use and liver steatosis", Mendeley Data, v1.*<br>*Direct URL to data:* https://doi.org/10.17632/hwn48wt7j6.1 |
| Related research article | *Vázquez-Bourgon J, Ortiz-García de la Foz V, Suarez-Pereira I, Iruzubieta P, Arias-Loste MT, Setién-Suero E, Ayesa-Arriola R, Gómez-Revuelta M, Crespo J, Crespo Facorro B. Cannabis consumption and Non-Alcoholic Fatty Liver Disease. A three years longitudinal study in first episode non-affective psychosis patients. Progress in Neuro-Psychopharmacology & Biological Psychiatry. 95* (2019) 109677. https://doi.org/10.1016/j.pnpbp.2019.109677. |

**Value of the Data**

- Cannabis consumption is associated with key clinical and sociodemographic characteristics of the psychosis, such as age of onset, DUP or symptoms severity.
- After ruling out a probable confounding effect of alcohol drinking, cannabis was associated with a smaller risk of NAFLD in the first 3 years after psychosis breakout.
- Cannabis effect on liver tissue might be through the modulation of weight gain.

## 1. Data

We present in this article data derived from secondary analyses of a previous study on the relation between cannabis consumption and NAFLD in a Spanish cohort of drug-naïve patients with a first episode of non-affective psychosis [1]. Raw data has been made accessible through the public data repository "Mendeley Data" at https://doi.org/10.17632/hwn48wt7j6.1.

Table 1 describes some of the main clinical and socio-demographic characteristics of the global study sample and of each cannabis groups (consumers and no consumers).

Table 2 describes the baseline and 3-years liver function tests differences between groups (cannabis users vs non users), after having excluded those patients with a moderate-severe alcohol consumption.

Table 3 shows the longitudinal differences in liver function tests between groups (cannabis users, discontinuers, non-users), after having excluded those patients with a moderate-severe alcohol consumption.

**Table 1**
Baseline sociodemographic and clinical characteristics.

| | Cannabis users | No cannabis users | Total | Stats[a] | | |
|---|---|---|---|---|---|---|
| | Mean (SD) | Mean (SD) | Mean (SD) | *df* | *F* | *P* |
| Age at admission, years | 25.2 (6.0) | 33.7 (9.9) | 30.4 (9.5) | 1; 389 | 90.59 | < 0.001 |
| DUP, months | 7.3 (10.3) | 16.3 (36.7) | 12.8 (29.7) | 1; 386 | 8.56 | 0.004 |
| DUI, months | 18.1 (21.49) | 26.3 (45.25) | 23.98 (37.86) | 1; 376 | 4.22 | 0.041 |
| SANS-SAPS at inclusion | 21.4 (7.6) | 19.6 (7.6) | 20.3 (7.7) | 1; 388 | 5.24 | 0.023 |
| Initial antipsychotic doses [b] | 215.3 (86.4) | 206.0 (82.8) | 209.6 (84.2) | 1; 389 | 1.13 | 0.289 |
| | % (N) | % (N) | % (N) | *N* | $X^2$ | *P* |
| Sex, males | 80.0 (120) | 40.4 (97) | 55.6 (217) | 390 | 58.60 | < 0.001 |
| Education level, secondary or lower | 58.7 (88) | 37.5 (90) | 45.6 (178) | 390 | 16.67 | < 0.001 |
| Family socioeconomic status, Not/Low qualified | 52.0 (78) | 49.8 (119) | 50.6 (197) | 389 | 0.18 | 0.375 |
| Unmarried | 88.0 (132) | 65.0 (156) | 73.8 (288) | 390 | 25.28 | < 0.001 |
| Living with family | 72.7 (109) | 74.2 (178) | 73.6 (287) | 390 | 0.11 | 0.416 |
| Student | | | | | | |
| Unemployed | 45.3 (68) | 39.2 (94) | 41.5 (162) | 390 | 1.45 | 0.136 |
| Diagnosis, schizophrenia | 54.5 (81) | 50.8 (121) | 52.2 (202) | 387 | 4.70 | 0.453 |
| Hospitalization at inclusion | 72.0 (108) | 65.3 (156) | 67.9 (264) | 389 | 1.91 | 0.101 |
| *Drug consumption* | | | | | | |
| Tobacco smoking, yes | 88.7 (133) | 37.5 (90) | 57.2 (223) | 390 | 98.70 | < 0.001 |
| Alcohol consumption, yes | 85.2 (127) | 29.3 (70) | 50.8 (197) | 388 | 114.94 | < 0.001 |
| Hazardous alcohol consumption, yes [c] | 4.9 (19) | 2.8 (11) | 7.7 (30) | 388 | 0.152 | 0.435 |
| *Concomitant treatments* | | | | | | |
| Anticholinergics, baseline | 4.7 (7) | 3.3 (8) | 3.9 (15) | 389 | 0.462 | 0.336 |
| Hypnotics, baseline | 33.6 (50) | 28.9 (69) | 30.7 (119) | 388 | 0.95 | 0.195 |
| Benzodiazepines, baseline | 66.4 (99) | 58.2 (139) | 61.3 (238) | 388 | 2.66 | 0.064 |
| Antidepressants, baseline | 1.3 (2) | 1.7 (4) | 1.5 (6) | 388 | 0.07 | 0.578 |
| Mood stabilizers, baseline | 0 (0) | 0.4 (1) | 0.3 (1) | 387 | 0.63 | 0.615 |

[a] Statistical analyses: Un-adjusted analysis of variance (ANOVA) for continuous variables and chi-square test for categorical variables. Abbreviations: DUP: Duration of untreated psychosis. DUI: Duration of untreated illness. SANS: Scale for the Assessment of Negative Symptoms. SAPS: Scale for the Assessment of Positive Symptoms.
[b] Equivalent doses of antipsychotic medication following Gardner et al., 2010 criteria.
[c] Alcohol consumption thresholds for the diagnosis of NAFLD: 140 and 210 g of alcohol per week in women and men, respectively (Leoni et al., 2018).

And Table 4, presents the clinical impact of cannabis use over the 3 years period, again after having excluded those patients with a moderate-severe alcohol consumption.

## 2. Experimental design, materials and methods

### 2.1. Population description

To obtain the present data, we included adult patients presenting a first episode of non-affective psychosis between 2001 and 2015 (full description of inclusion criteria in Pelayo et al., 2008), for whom we had information of cannabis use (yes/no) both at baseline and at 3-years follow-up [2]. Patients were evaluated at baseline and periodically thereafter until year 3. Anthropometric measures and fasting blood samples for lipid, glycemic and liver determinations, were collected. Main NAFLD and liver fibrosis scores (FLI, FIB-4 and NAFLD fibrosis scores) were calculated accordingly to previous literature [3–5]. Cannabis and other drugs were recorded from patients self-reports.

Table 1 shows the main clinical and socio-demographic characteristics of the study sample, and of each consuming groups (cannabis users and no users), at study entry. It also contains the results from the statistical analyses comparing these two groups regarding their clinical and sociodemographic characteristics. Patients reporting cannabis consumption were significantly younger than the non-consumers. They also presented a shorter duration of untreated psychosis, and more severe psychotic symptomatology at study entry. More patients among the cannabis group reported smoking tobacco and drinking alcohol than in the no-cannabis group.

**Table 2**
Baseline and 3-years liver function tests in first episode psychosis, excluding patients with severe alcohol consumption.

| | Baseline | | | | | 3-years | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Cannabis users | No cannabis users | Stats[a] | | | Cannabis users | No cannabis users | Stats[a] | | |
| | Mean (SE) | Mean (SE) | *df* | *F* | *P* | Mean (SE) | Mean (SE) | *df* | *F* | *P* |
| *FLI algorithm factors* | | | | | | | | | | |
| BMI (kg/m$^2$) | 21.9 (0.4) | 24.0 (0.3) | 1; 342 | 12.585 | <0.001 | 24.1 (0.9) | 27.3 (0.3) | 1; 334 | 10.049 | 0.002 |
| Waist circumference (cm) | 81.6 (1.7) | 84.3 (1.1) | 1; 180 | 1.346 | 0.247 | 78.7 (3.3) | 91.2 (0.9) | 1; 207 | 12.912 | <0.001 |
| Triglycerides | 83.5 (4.5) | 79.3 (2.9) | 1; 282 | 0.512 | 0.475 | 85.3 (11.9) | 110.9 (3.5) | 1; 333 | 4.158 | 0.042 |
| *Liver laboratory tests* | | | | | | | | | | |
| AST | 23.5 (2.1) | 27.8 (1.3) | 1; 313 | 2.375 | 0.124 | 24.3 (1.9) | 24.4 (0.6) | 1; 334 | 0.001 | 0.973 |
| ALT | 21.8 (2.9) | 28.9 (1.9) | 1; 335 | 3.205 | 0.074 | 26.3 (3.9) | 29.9 (1.2) | 1; 335 | 0.753 | 0.386 |
| GGT | 29.2 (4.9) | 15.7 (3.2) | 1; 316 | 4.276 | 0.039 | 26.1 (9.4) | 27.0 (2.8) | 1; 334 | 0.008 | 0.930 |
| AP | 83.3 (9.6) | 92.0 (7.2) | 1; 123 | 0.417 | 0.520 | 66.2 (5.5) | 65.6 (1.9) | 1; 125 | 0.010 | 0.920 |
| Bilirubin | 0.71 (0.09) | 0.80 (0.07) | 1; 103 | 0.513 | 0.476 | 0.68 (0.09) | 0.59 (0.03) | 1; 122 | 0.863 | 0.355 |
| Albumin | 4.54 (0.04) | 4.54 (0.03) | 1; 305 | 0.006 | 0.939 | 4.54 (0.05) | 4.53 (0.01) | 1; 322 | 0.039 | 0.844 |
| *Other laboratory tests* | | | | | | | | | | |
| Platelets | 250.4 (7.9) | 249.6 (5.1) | 1; 267 | 0.005 | 0.941 | 252.5 (12.5) | 243.7 (3.9) | 1; 321 | 0.437 | 0.509 |
| Leptin | 6.6 (1.1) | 9.5 (0.7) | 1; 264 | 3.680 | 0.056 | 10.0 (2.2) | 14.8 (0.6) | 1; 324 | 4.274 | 0.040 |
| hsCRP | 0.17 (0.09) | 0.16 (0.06) | 1; 154 | 0.009 | 0.926 | 0.14 (0.12) | 0.29 (0.03) | 1; 201 | 1.495 | 0.223 |
| *Hepatic disease indexes* | | | | | | | | | | |
| FLI | 15.8 (3.5) | 18.8 (2.2) | 1; 153 | 0.432 | 0.512 | 7.4 (7.9) | 38.6 (2.1) | 1; 202 | 14.169 | <0.001 |
| FIB-4 score | 0.69 (0.05) | 0.68 (0.03) | 1; 250 | 0.031 | 0.876 | 0.73 (0.05) | 0.69 (0.01) | 1; 318 | 0.738 | 0.391 |
| NAFDL score | −3.54 (0.14) | −3.41 (0.09) | 1; 242 | 0.508 | 0.477 | −3.35 (0.19) | −3.05 (0.06) | 1; 311 | 2.277 | 0.132 |

Abbreviations: FLI, fatty liver Index; BMI, body mass index; GGT, Gamma-glutamyltransferase; AST, aspartate aminotransferase; ALT, alanine aminotransferase; AP, alkaline phosphatase; hsCRP, high sensitivity C-reactive protein; FIB-4, fibrosis 4 score; NAFLD, non-alcoholic fatty liver disease fibrosis score.

[a] ANCOVA model: parameter was used as the dependent variable, cannabis use was the fixed factor and age, sex, and tobacco and alcohol consumption use were used as covariates.

**Table 3**
Longitudinal differences in liver function tests, after 3 years of antipsychotic treatment, excluding patients with severe alcohol consumption.

| | Cannabis users | Discontinuers | Non-users | Statistics[a] | | |
|---|---|---|---|---|---|---|
| | Mean diff (SE) | Mean diff (SE) | Mean diff (SE) | *df* | *F* | *P* |
| *FLI algorithm factors* | | | | | | |
| BMI (kg/m$^2$) | 3.0 (0.7) | 4.5 (0.4) | 3.6 (0.2) | 2; 331 | 2.791 | 0.063 |
| Waist circumference (cm) | 2.4 (2.8) | 7.3 (1.8) | 7.2 (1.0) | 2; 171 | 1.336 | 0.266 |
| Triglycerides | 7.8 (12.2) | 27.0 (7.5) | 35.7 (4.4) | 2; 272 | 2.118 | 0.122 |
| *Other liver laboratory tests* | | | | | | |
| AST | 0.89 (4.03) | −0.91 (2.56) | −3.34 (1.45) | 2; 303 | 0.522 | 0.594 |
| ALT | 6.5 (5.7) | 5.7 (3.5) | 1.7 (2.1) | 2; 325 | 0.499 | 0.608 |
| GGT | 7.3 (6.6) | 7.5 (4.2) | 7.2 (2.5) | 2; 306 | 0.002 | 0.998 |
| AP | −5.4 (16.3) | −18.2 (10.3) | −30.4 (7.2) (6.5) | 2; 121 | 0.902 | 0.409 |
| Bilirubin | −0.26 (0.11) | −0.03 (0.08) | −0.22 (0.05) | 2; 98 | 2.556 | 0.083 |
| Albumin | 0.001 (0.09) | −0.020 (0.05) | −0.028 (0.03) | 2; 259 | 0.040 | 0.961 |
| *Other laboratory tests* | | | | | | |
| Platelets | −10.3 (11.9) | 1.2 (7.1) | −13.4 (4.2) | 2; 254 | 1.473 | 0.231 |
| Leptin | 4.6 (2.7) | 7.1 (1.6) | 5.4 (0.9) | 2; 247 | 0.563 | 0.570 |
| hsCRP | −0.005 (0.22) | 0.060 (0.12) | 0.102 (0.07) | 2; 145 | 0.115 | 0.892 |
| *Hepatic disease indexes* | | | | | | |
| FLI | −3.7 (6.6) | 19.6 (4.2) | 19.8 (2.3) | 2; 144 | 5.826 | 0.004 |
| FIB-4 score | 0.022 (0.09) | −0.035 (0.05) | 0.047 (0.03) | 2; 237 | 0.803 | 0.449 |
| NAFDL score | 0.21 (0.23) | 0.38 (0.15) | 0.58 (0.08) | 2; 224 | 1.274 | 0.282 |

Abbreviations: FLI, fatty liver Index; BMI, body mass index; GGT, Gamma-glutamyltransferase; AST, aspartate aminotransferase; ALT, alanine aminotransferase; AP, alkaline phosphatase; hsCRP, high sensitivity C-reactive protein; FIB-4, fibrosis 4 score; NAFLD, non-alcoholic fatty liver disease fibrosis score.

[a] ANCOVA model: mean differences after 3 years of treatment were used as dependent variables, evolution of cannabis use was the fixed factor and age, sex, and tobacco and alcohol use trajectories use were applied as covariates.

**Table 4**
Comparison of proportion of subjects with pathological liver functions tests, at baseline and at 3-years in each cannabis consumption group, excluding patients with severe alcohol consumption.

| | 3 year follow-up | Baseline | % difference | N | p[a] |
|---|---|---|---|---|---|
| | % (n) | % (n) | | | |
| **AST, > 35 UI/L** | | | | | |
| Continuer | 6.9 (2) | 13.8 (4) | −6.9 | 29 | 0.687 |
| Discontinuers | 9.7 (7) | 15.3 (11) | −5.6 | 72 | 0.424 |
| Non-users | 7.8 (16) | 14.6 (30) | −6.8 | 206 | 0.044 |
| Total | 8.1 (25) | 14.7 (45) | −6.6 | 307 | 0.015 |
| **ALT, > 40 UI/L** | | | | | |
| Continuer | 16.7 (5) | 10.0 (3) | 6.7 | 30 | 0.625 |
| Discontinuers | 22.0 (18) | 8.5 (7) | 13.5 | 82 | 0.019 |
| Non-users | 16.6 (36) | 12.4 (27) | 4.2 | 217 | 0.253 |
| Total | 17.9 (59) | 11.2 (37) | 6.7 | 329 | 0.013 |
| **GGT, > 32 UI/L** | | | | | |
| Continuer | 10.0 (3) | 0 | 10.0 | 30 | – |
| Discontinuers | 23.0 (17) | 6.8 (5) | 16.2 | 74 | 0.002 |
| Non-users | 19.9 (41) | 10.7 (22) | 9.2 | 206 | 0.001 |
| Total | 19.7 (61) | 8.7 (27) | 11.0 | 310 | <0.001 |
| **Leptin, > 10 ng/ml** | | | | | |
| Continuer | 10.0 (2) | 0 | 10.0 | 20 | – |
| Discontinuers | 42.6 (26) | 13.1 (8) | 29.5 | 61 | <0.001 |
| Non-users | 64.5 (109) | 36.1 (61) | 28.4 | 169 | <0.001 |
| Total | 54.8 (137) | 27.6 (69) | 27.2 | 250 | <0.001 |
| **hsCRP, > 0.3 ng/dL** | | | | | |
| Continuer | 0 | 11.1 (1) | −11.1 | 9 | – |
| Discontinuers | 20.5 (8) | 7.7 (3) | 12.8 | 39 | 0.125 |
| Non-users | 24.2 (24) | 7.1 (7) | 17.3 | 99 | 0.001 |
| Total | 21.8 (32) | 7.5 (11) | 14.3 | 147 | <0.001 |
| **FLI, ≥ 60** | | | | | |
| Continuer | 0 | 0 | 0 | 12 | – |
| Discontinuers | 28.1 (9) | 6.2 (2) | 21.9 | 32 | 0.022 |
| Non-users | 25.0 (25) | 9.0 (9) | 16.0 | 100 | <0.001 |
| Total | 23.6 (34) | 7.6 (11) | 16.0 | 144 | <0.001 |

Abbreviations: FLI, fatty liver Index; GGT, Gamma-glutamyltransferase; AST, aspartate aminotransferase; ALT, alanine aminotransferase; hsCRP, high sensitivity C-reactive protein.
[a] McNemar test for repeated measures.

### 2.2. Secondary analyses excluding patients with moderate-severe alcohol consumption

Due to the well-known deleterious effect of alcohol on liver, and despite being one of the study's exclusion criteria presenting an alcohol dependence, we considered appropriate carrying secondary analyses after exclusion of those patients with alcohol consumption qualifying for moderate-severe drinking. For this, moderate-severe alcohol use was defined using the accepted alcohol consumption thresholds for the diagnosis of NAFLD: 140 and 210 g of alcohol per week in women and men, respectively [6]. Tables 2–4 contains the results from the statistical analyses, both cross-sectional and longitudinal, after excluding these patients (n = 40).

## Acknowledgements

This study was conducted as part of a clinical trial “Searching for early biomarkers of long-term hepatic, metabolic and endothelial dysfunction in non-affective psychosis. A 10-year follow-up study.” ClinicalTrials.gov Identifier: NCT03481465. The present study was carried out at the Hospital Marqués de Valdecilla, University of Cantabria, Santander, Spain, under the following grant support: Next-Val 2017 and Inn-Val 2018 IDIVAL grants (NVAL 17/24 and INNVAL 18/30). The authors wish to thank all members of the PAFIP research team and all patients and family members who participated in the study.

## Conflict of Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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