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Introduction and Aim

Previous research suggests that regular cannabis use may be linked to several physical health problems. Relevant studies, however, have had major limitations, including: (1) most of the studied cannabis users also smoked tobacco;(2) mean age of participants was below that at which serious health problems tend to emerge; (3) likely under-reporting of cannabis use; and (4) too few heavy cannabis users in the sample. This study aimed to address these limitations by:

- comparing individuals who (1) smoke cannabis and no tobacco (even for mixing), (2) smoke both cannabis and tobacco, (3) smoke tobacco only, and (4) use neither substance.
- including only individuals aged 40+.
- using a survey format that allowed participants to be anonymous.
- including only individuals who use the relevant substance on at least four days per week.

Method

Participants

350 adults aged 40+

Measures

- Demographic information
- Current and previous cannabis use
- Current and previous tobacco use
- Current and previous alcohol use.
- Body mass index (BMI)
- Diagnosed medical problems
- Physical Health Questionnaire (PHQ)
- Short Form 36 (SF-36)

Method

Procedure

The survey was advertised via the NCPIC website, Google, online forums, careers websites, rural and urban newspapers, Centrelink, community centres, and GP offices. Individuals who were interested in completing the survey contacted one of the researchers by email or telephone to check eligibility and receive the survey either online or by post. Participants were reimbursed for their time with a \$40 gift voucher.

Analyses

- Group comparisons were run on demographic variables, BMI, and substance use-related variables.
- Chi-square tests were applied to check for group differences in diagnosed medical problems.
- MANOVAs were used to test for group differences on the PHQ and SF-36 subscales.

Results

Table 1
Group scores on demographics, substance use, and BMI

| Variable | Cannabis only (n = 59) | Cannabis + tobacco (n = 88) | Tobacco only (n = 80) | Neither substance (n = 123) |
|-------------------|----------------------------|-----------------------------|----------------------------|-----------------------------|
| Mean age (SD) | 50.31 (7.96) | 48.22 (6.16) | 49.08 (7.09) | 50.57 (7.66) |
| % Male | 67.8 ^{3,4} | 73.9 ^{3,4} | 30 ^{1,2} | 46 ^{1,2} |
| Education % | | | | |
| Primary school | 5.1 | 4.5 | 5.0 | 1.6 |
| Year 10 | 1.7 | 0.0 | 1.3 | 0.8 |
| Year 12 | 3.4 | 38.6 | 30.0 | 6.5 |
| Diploma/trade | 15.3 | 12.5 | 15.0 | 6.5 |
| Some uni | 30.5 | 21.6 | 25.0 | 22.8 |
| Degree | 16.9 | 11.4 | 8.8 | 8.9 |
| Post grad | 16.9 | 6.8 | 10.0 | 26.8 |
| Other | 10.2 | 4.5 | 5.0 | 26.0 |
| Overall | 4.04 (1.54) ^{1,3} | 3.13 (1.48) ^{1,4} | 3.26 (1.54) ^{1,4} | 4.46 (1.51) ^{2,3} |
| Drinking quantity | 3.00 (3.27) ² | 5.43 (5.15) ^{1,4} | 4.53 (4.02) ⁴ | 2.85 (3.03) ^{2,3} |
| Regular cigs/day | - | 11.42 (20.19) | 16.52 (42.05) | - |
| Joints/day | 2.45 (1.96) ² | 3.96 (2.81) ² | - | - |
| BMI | 26.06 (4.49) | 25.83 (5.13) | 27.11 (5.45) | 26.43 (4.89) |

¹= significantly different from Cannabis Only group; ² = significantly different from Cannabis and Tobacco Group; ³ = significantly different from Tobacco Only group; ⁴ = significantly different from Neither Substance group, *p* < .05.

Results

Demographics, substance use, and BMI

Table 1 shows group scores on demographic, substance use and BMI measures. Significant group differences were found on all measures aside from age and BMI.

PHQ & SF-36

The MANOVA carried out on the PHQ subscales was significant, $F(4, 345) = 2.17, p = .01$. The only significant subscale difference involved fewer headaches in the Cannabis Only group relative to the Cannabis and Tobacco group (see Table 2).

The MANOVA carried out on the SF-36 subscales was also significant, $F(8, 339) = 2.20, p = .049$. Where significant subscale differences were found, they generally involved the Neither Substance and Cannabis Only groups reporting better health outcomes than the two tobacco-smoking groups (see Table 2).

Table 2
Group means (SDs) on PHQ and SF-36 Subscales

| Variable | Cannabis only (n = 59) | Cannabis + tobacco (n = 88) | Tobacco only (n = 80) | Neither substance (n = 123) |
|----------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| PHQ | | | | |
| PHQ Sleep | 13.65 (4.94) | 15.18 (5.32) | 14.60 (4.68) | 13.41 (5.04) |
| PHQ Headaches | 6.78 (3.87) ³ | 7.96 (4.37) | 9.50 (4.87) ² | 8.10 (3.92) |
| PHQ Intestinal | 8.91 (4.56) | 10.90 (5.37) | 11.12 (5.03) | 10.30 (5.22) |
| PHQ Respiratory | 6.46 (3.43) | 7.31 (3.89) | 7.31 (3.57) | 6.93 (3.41) |
| SF-36 | | | | |
| Physical functioning | 87.19 (15.63) | 81.63 (19.18) ⁴ | 83.16 (14.74) | 89.21 (15.97) ² |
| General health | 71.61 (14.71) ^{2,3} | 61.79 (16.91) ^{1,4} | 64.04 (16.40) ^{1,4} | 72.63 (16.77) ^{2,3} |
| Pain | 77.31 (24.59) | 68.41 (23.19) ⁴ | 75.41 (21.70) | 77.78 (20.01) ² |
| Social role | 83.84 (9.63) ² | 77.85 (16.85) ^{1,4} | 81.14 (12.28) | 83.48 (12.01) ² |
| Physical role | 88.77 (18.81) | 81.25 (21.10) | 83.91 (20.00) | 88.10 (19.06) |
| Emotional role | 85.03 (20.69) | 79.73 (22.24) ⁴ | 83.13 (19.93) ⁴ | 91.60 (15.88) ^{2,3} |
| Vitality | 65.11 (16.74) | 58.30 (17.67) ⁴ | 59.62 (19.19) ⁴ | 66.53 (19.16) ^{2,3} |
| Mental health | 78.42 (15.42) | 72.05 (21.03) ⁴ | 73.97 (17.64) ⁴ | 78.83 (17.45) ^{2,3} |

Note: Higher scores on the PHQ indicate worse health; higher scores on the SF-36 indicate better health.
¹ = significantly different from Cannabis Only group; ² = significantly different from Cannabis and Tobacco Group; ³ = significantly different from Tobacco Only group; ⁴ = significantly different from Neither Substance group, *p* < .05.

Results

Table 3
Group percentages for medical diagnoses

| Diagnosis | Cannabis only | Cannabis + tobacco | Tobacco only | Neither substance |
|---------------------|--------------------|--------------------|--------------------|------------------------|
| Emphysema | 8.5% ⁴ | 8.0% ⁴ | 6.3% ⁴ | 0% ^{1,2,3} |
| Kidney/Urinary | 10.2% ⁴ | 8.0% ⁴ | 11.3% ⁴ | 25.2% ^{1,2,3} |
| Cancer | 10.2% | 14.8% | 17.5% | 15.4% |
| Pneumonia | 15.3% | 17.0% | 11.3% | 17.1% |
| Bronchitis | 40.7% | 31.8% | 50.0% | 35.0% |
| Hernia | 13.6% | 13.6% | 8.8% | 8.1% |
| Intestinal disorder | 20.3% | 15.9% | 16.3% | 13.8% |
| Hypertension | 20.3% | 17.0% | 16.3% | 22.0% |
| Other cardio | 8.5% | 18.2% | 11.3% | 8.9% |
| Cholesterol | 28.8% | 22.7% | 25.0% | 25.2% |
| Arthritis | 30.5% | 22.7% | 23.8% | 22.0% |
| Gallbladder | 5.1% | 5.7% | 10.0% | 13.0% |
| Diabetes | 3.4% | 5.7% | 1.3% | 9.8% |
| Mental health | 13.6% | 15.9% | 12.5% | 8.1% |

Note: ¹ = significantly different from Cannabis Only group; ² = significantly different from Cannabis and Tobacco Group; ³ = significantly different from Tobacco Only group; ⁴ = significantly different from Neither Substance group, *p* < .05.

Diagnosed medical conditions

Rates of diagnosed medical conditions are shown in Table 3. All three substance-using groups had significantly higher rates of emphysema than the Neither Substance group ($ps < .001$), and did not differ significantly from one another. However, all members of the Cannabis Only group diagnosed with emphysema were former daily tobacco smokers. The Neither Substance group reported significantly more kidney/urinary problems than the other three groups ($ps < .001$). There were no significant differences among groups in other medical conditions.

Conclusions

Findings suggest avenues for future exploration, including the potentially harm-reducing effects of not mixing tobacco with cannabis.

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