

Mental health and substance use by students in higher education

Factsheet for prevention workers and student counsellors about the relationship between mental health and the substance use by students in higher education

Core points

- This factsheet outlines the relationship between mental health and the substance use by students in higher education in the Netherlands.
- Research shows that there is a (possible) relationship with the substances below:
 - Alcohol
 - Cannabis
 - XTC
 - Magic mushrooms and/or truffles
 - Cocaine
 - ADHD medication (improper use)
- It is important for student counsellors and prevention workers to be aware of this relation in conversations with students, as it may affect the provision of appropriate help and support to the student in question.

Introduction

Being a student is a delicate phase of life, in which many things are changing in the lives of young adults. Many students will live on their own for the first time, which decreases the parental control. Many of them also move from their familiar surroundings to a new city. They also tend to make new social contacts in their time as students. The time as a student is an experimental phase in which the use of alcohol and drugs (also: substance use) among young adults changes and in which the substance use is traditionally relatively high¹⁻³.

International research shows that mental health and substance use influence each other⁴⁻⁶. It is important for both prevention workers and student counsellors to know about the relationship between mental health and substance use among students. This can help them in detecting the (underlying) problems in this target group. This factsheet lists the facts regarding this relationship among students in higher education in the Netherlands.

Mental health and Substance use by Students in higher education Monitor

Much of the information in this factsheet is derived from the Mental health and Substance use by Students in higher education Monitor (2021)^{7,8} (hereafter: 'student monitor'). For this student monitor, the Trimbos Institute, the RIVM (National Institute for Public Health and the Environment) and GGD GHOR Nederland (mother institution for all municipal health and medical assistance services in the Netherlands) investigated the substance use and mental health of students in higher education in the Netherlands in the spring of 2021. This was the first time it took place on a national level.

Over 28.000 students took part in this research, which amounts to a 12% response rate. The study was corrected for non-response by means of weighting. It cannot be ruled out that there is a selection among the students who took part in the student monitor. Therefore, it is not certain whether the prevalence figures from the student monitor are representative for all students in higher education in the Netherlands. The prevalence figures do show an indication of which substances are more or less used by students. Most students do not use drugs and this is clearly indicated in the student monitor.

The research took place during the third wave of the Covid-19 pandemic. The results of the study have been influenced by this. Students reported changes in their substance use and they said they experienced more mental health problems due to the Covid-19 pandemic. In the coming years the student monitor will be repeated every other year.

Definition of mental health

In research, several definitions of mental health are being used⁹. The student monitor used a continuum of mental health that runs from mental well-beingⁱ to mental health problemsⁱⁱ and finally to mental disorders^{iii,8}. For the student monitor the researchers looked mainly at the level of mental well-being and the occurrence of mental health problems. These have been divided into the following subcategories:

- The degree of mental well-being:
 - **Life satisfaction:** the grade a student assigns to their life.
 - **Positive mental health:** self-acceptance, autonomy, positive feelings and life satisfaction and having a life purpose and positive relationships with others.
 - **Resilience:** the ability to deal with stress and setbacks and possibly becoming even stronger because of it.
- The occurrence of mental health problems:
 - **Psychological internalising symptoms:** emotional problems such as anxiety and feeling depressed.
 - **Emotional exhaustion symptoms:** feeling mentally drained, like a battery that cannot be charged again but still needs to provide energy.
 - **Life weariness:** wishing to die or to go to sleep and not wake up anymore.

A number of possibly influencing factors from a personal, social and societal context were also investigated, namely:

- Stress
- Performance pressure
- Sleep problems
- Loneliness

In this factsheet we base our definition of mental health on mental well-being and the occurrence of mental health problems as well. The emphasis is on the last, because research into mental health is often solely focussed on symptoms of depression and anxiety.

i Students that score high in the experience of happiness, who feel well and are satisfied with their own life

ii Students that do not meet the criteria of a disorder, but who experience mental health problems to a higher or lesser degree

iii Depressive disorder, anxiety disorder or burnout

Substance use by students in higher education

The student monitor looked into the lifetime prevalence^{iv} and the use in the last year^v by students. The results are shown in table 1.

Table 1 - Substance use by students in higher education⁷

Substance	Lifetime prevalence (%)	Use in the last year (%)
Alcohol	94	85
Cannabis (hashish, weed, marihuana)	53	34
Nitrous oxide (laughing gas)	28	9
XTC (ecstasy, MDMA)	23	13
Magic mushrooms and/or truffles	14	7
Cocaine	12	7
Ketamine	9	6
2C-B	9	5
ADHD medication (improper use)	9	4
LSD	5	2
4-Fluoramphetamine (4-FA, 4-FMP)	4	1
GHB or GBL	2	2

This factsheet only describes the relationship between substance use and the mental health of students for substances for which the relationship has been studied (in the student monitor or in other research), namely:

- Alcohol
- Cannabis
- XTC
- Magic mushrooms and/or truffles
- Cocaine
- ADHD medication (improper use)

Mental health among students

The student monitor studied the mental health of students⁸. Below are some of the results.

Mental well-being

Life satisfaction: On average students grade their life with 6.0 out of 10. Almost half of the students (45%) grade their life with a 7.0 or higher.



^{iv} The usage at some point in life, despite the frequency

^v The usage at last year, despite the frequency

Positive mental health: On average, students score a 3.6 on a 6-point scale for positive mental health. This means that students experience an average positive mental health.

Resilience: On average, students score a 2.9 on a 5-point scale for resilience. This is a low-average score.

Mental health problems

Psychological internalising symptoms: Almost half of the students (51%) have psychological internalising symptoms. Almost a quarter of the students (23%) have light psychological internalising symptoms, 16% have moderate symptoms and 12% have severe symptoms.

Emotional exhaustion symptoms: 68% of students struggle with emotional exhaustion symptoms.

Life weariness: A quarter of the students (25%) say that in the past month they have (almost) always, often, sometimes, or now and then had the wish to die or to go to sleep and not wake up again anymore. In most cases this involves students who said they had the wish to die or to go to sleep and not wake up again anymore now and then (14%) or sometimes (7%). In over 4% of the cases, they filled out often or (almost) always.

Alcohol and mental health

The student monitor shows that 94% of the students drank alcohol at least once in their life⁷. The alcohol usage in the last year among students is 85%. About one in ten students drinks excessively^{vi} and one in six drinks heavily^{vii}.

The student monitor did not find a relationship between the alcohol consumption and mental health of students⁷. However, this relationship was found in other studies. Students with risky alcohol consumption are said to suffer more from psychological internalising symptoms (see the box "Definition of mental health") than students with a low-risk alcohol consumption or students who don't drink at all¹⁰. Students with risky alcohol consumption are also less satisfied with their lives and experience loneliness more often than students with low-risk alcohol consumption. The relationship between risky alcohol consumption on the one hand and life satisfaction and psychological internalising symptoms on the other hand has been found in other studies as well¹¹⁻¹³.

The student monitor did find a relationship between alcohol consumption and experiencing a lot of sleeping problems⁷. Other studies confirm this relationship^{14,15}. Some students use alcohol as self-medication in order to be able to sleep¹⁶.

Cannabis and mental health

The student monitor shows that 53% of the students used cannabis at least once in their life⁷. The usage in the last year among students is 34%. A small part of the students (8%) say they use cannabis at least on a weekly basis. That is seen as frequent use of cannabis.

In the student monitor, a relationship was found between psychological internalising symptoms and emotional exhaustion symptoms (see box "Definition of mental health") on the one hand and frequent cannabis use on the other hand⁷. That means that students with psychological internalising symptoms or emotional exhaustion symptoms more often are frequent cannabis users. Other studies have demonstrated these relationships before¹⁷⁻¹⁹. However, the direction of this relationship hasn't been identified. On the one hand this means that it is possible that part of the students uses cannabis to cope better with emotional, psychological and/or social problems (a coping motive), as research shows²⁰. On the other hand, it is also possible that students develop psychological and/or emotional problems due to their frequent use of cannabis.

Also, the student monitor shows that frequent cannabis use occurs more often among students who feel somewhat or really lonely and students who experience a lot of stress and performance pressure⁷. A possible explanation can be found in the relaxing and numbing effects of cannabis. Finally, frequent cannabis use also occurs more often among students who have a lot of trouble getting to sleep. Some students use cannabis as self-medication in order to be able to sleep²¹.

XTC and mental health

The student monitor shows that 23% of the students used XTC (ecstasy) at least once in their life⁷. The usage in the last year among students is 13%. The active ingredient in XTC is called MDMA.

vi Men: more than 21 glasses a week. Women: more than 14 glasses a week.

vii Men: at least once a week have six or more glasses on a single day. Women: at least once a week have four or more glasses on a single day.



The student monitor did not find a relationship between the XTC use and mental health of students⁷. Apart from the student monitor, little research has been carried out regarding this relationship within the student population. However, American research has shown that there is a relationship between hallucinogens and psychological internalising symptoms in students²². Hallucinogens include MDMA (the active ingredient in XTC). The study doesn't explicitly mention which hallucinogens have a relationship with psychological internalising symptoms. So, it is uncertain whether this applies to MDMA as well.

Several countries have been experimenting with using MDMA as a means in treatment of psychological problems. In the Netherlands, a state committee is set to issue an advice on the pros and cons of medicinal use²³.

Magic mushrooms and truffles and mental health

The student monitor shows that 14% of the students have used magic mushrooms and/or truffles at least once in their life⁷. The usage in the last year among students is 7%. Psilocybin and psilocin are the active ingredients in magic mushrooms and truffles. These substances cause the user to experience reality in a different way²⁴.

In the student monitor the relationship between magic mushrooms and truffles and student's mental health was not studied. There is also little to be found in literature about this relationship within the student population. However, as was mentioned under the heading "XTC and mental health", American research has shown that there is a relationship between hallucinogens and psychological internalising symptoms in students²². Psilocybin and psilocin are also hallucinogens. The study doesn't explicitly

mention which hallucinogens have a relationship with psychological internalising symptoms. So, it is uncertain whether this applies to magic mushrooms and truffles as well.

Cocaine and mental health

The student monitor shows that 12% of the students have used cocaine at least once in their life⁷. The usage in the last year among students is 7%.

In the student monitor the relationship between cocaine and students' mental health was not studied. Other studies have shown the relationship between cocaine use and psychological internalising symptoms^{3,25}. In those studies, students who suffer from symptoms of depression or anxiety symptoms report using cocaine more often.

ADHD medication and mental health

The student monitor shows that 9% of the students have improperly used ADHD medication at least once in their life, meaning without having had a prescription from the doctor⁷. The usage in the last year among students is 4%. This involves the substances methylphenidate (brand name Ritalin or Concerta), dexamphetamine, and modafinil. These are drugs that doctors prescribe to patients with ADHD and/or narcolepsy among others. Students use these substances because they expect it will lead to improved concentration and that they will have more energy to be able to continue studying or partying for longer. Consequently, these drugs are mostly used when studying or during exams (85%). However, research has not unequivocally shown that improper use actually has these effects²⁶.

The student monitor shows that students with a lower degree of positive mental health (see box "Definition of mental health"), students with

psychological internalising symptoms and students with emotional exhaustion symptoms more often improperly use ADHD medication⁷. The experience of a lot of stress, performance pressure or many sleeping problems also have been proven to correlate with the improper use of these substances. Other studies have also shown that psychological internalising symptoms (depression and anxiety) and high levels of stress are a risk factor²⁷⁻²⁹.

Shared risk factors

The student monitor examined which factors correlate with the mental health and which factors correlate with the substance use of students. This is important, because international research shows that prevention targeted to groups with a high risk is more effective than universal prevention^{viii,30-32}. A couple risk factors have been identified in relationship with mental health as well as with one or multiple substance(s)^{7,8}:

- **Dutch students with a migration background** have mental health problems more often and more often are frequent users of cannabis (compared to Dutch students without a migration background).
- **International students** have mental health problems more often and more often are frequent users of cannabis (compared to Dutch students without a migration background).
- **Full-time students** have mental health problems more often and more often are frequent users of cannabis (compared to part-time students).
- **Students who identify as LGBTQ+** have mental health problems more often and more often are frequent users of cannabis (compared to students who don't identify as LGBTQ+).
- **Students with impeding concentration, reading or maths problems** (such as ADHD, dyslexia or dyscalculia) more often have mental health problems, more often are frequent cannabis users and users of ADHD medication without a prescription (compared to students who don't have impeding concentration, reading or maths problems).
- **Students with an impeding psychological condition** (such as depression, anxiety disorder or eating disorder) more often have mental health problems, more often are frequent cannabis users and users of ADHD medication without a prescription (compared to students without an impeding psychological condition).

- **Students with higher current and expected student debt** have mental health problems more often, more often drink excessively and more often are frequent users of cannabis (compared to students with a lower current and expected student debt). Also, a higher proportion of these students have used XTC in the past month or inappropriately used ADHD medication in the past year (than students with lower current and expected student debt).

Implications for practice

This factsheet outlined the relationship between mental health and the substance use by students in higher education in the Netherlands. It is important that student counsellors and prevention workers are aware of this relationship. For when students look for help for their problems relating to mental health or substance use, it is possible that there are other influencing problems than they had originally reported. Asking about this is important in offering the right help and support.

Next to that, mental health problems can influence (the development of) substance use problems and vice versa. It is important that student counsellors and prevention workers are aware of this in the context of prevention and care.

Therefore, in conversations with students it is a good thing to ask students with mental health problems a general question about their substance use and which function the use of substances has for the student. Then you could ask whether these substances are possibly used as self-medication for mental health problems. The groups with a possibly higher risk of both mental health problems and substance use need to get extra attention. For more tips about detecting and discussing substance use, student counsellors can contact their own local institution for addiction care (IVZ). Many IVZ prevention departments offer a training in "students' mental health and substance use" for student counsellors.

References

1. Arnett, J. J. *A theory of development from the late teens through the twenties*. *Am. Psychol.* 55, 469–480 (2000).
2. Laar, M. W. van et al. *Nationale Drug Monitor 2021*. (2021).
3. Caravaca-Sánchez, F., Aizpurua, E. & Stephenson, A. *Substance use, family functionality, and mental health among college students in Spain*. *Soc. Work Public Health* 36, 221–231 (2021).
4. Baingana, F., Al'Absi, M., Becker, A. E. & Pringle, B. *Global research challenges and opportunities for mental health and substance-use disorders*. *Nature* 527, S172–S177 (2015).
5. Lai, H. M. X., Cleary, M., Sitharthan, T. & Hunt, G. E. *Prevalence of comorbid substance use, anxiety and mood disorders in epidemiological surveys, 1990-2014: A systematic review and meta-analysis*. *Drug Alcohol Depend.* 154, 1–13 (2015).
6. Volkow, N. D. *The reality of comorbidity: Depression and drug abuse*. *Biol. Psychiatry* 56, 714–717 (2004).
7. Dopmeijer, J. M. et al. *Monitor mentale gezondheid en middelengebruik studenten hoger onderwijs 2021 - Deelrapport II Middelengebruik van studenten in het hoger onderwijs*. (2022).
8. Dopmeijer, J. M., Nuijen, J., Busch, M. C. M., Tak, N. I. & Verweij, A. *Monitor mentale gezondheid en middelengebruik studenten hoger onderwijs 2021 - Deelrapport I Mentale gezondheid van studenten in het hoger onderwijs*. (2022).
9. Bon-Martens, M. van, Kleinjan, M., Walters, B. H., Shields-Zeeman, L. & Brink, C. van den. *Delphistudie Definitie mentale gezondheid*. (2022).
10. Sæther, S. M. M., Knapstad, M., Askeland, K. G. & Skogen, J. C. *Alcohol consumption, life satisfaction and mental health among Norwegian college and university students*. *Addict. Behav. Reports* 10, 100216 (2019).
11. Jensen, P., Haug, E., Sivertsen, B. & Skogen, J. C. *Satisfaction with life, mental health problems and potential alcohol-related problems among Norwegian university students*. *Front. Psychiatry* 12, 1–14 (2021).
12. Pedrelli, P., Borsari, B., Ketchen Lipson, S., Heinze, J. E. & Eisenberg, D. *Gender differences in the relationships among major depressive disorder, heavy alcohol use, and mental health treatment engagement among college students*. *J. Stud. Alcohol Drugs* 620–628 (2016).
13. Tembo, C., Burns, S. & Kalembo, F. *The association between levels of alcohol consumption and mental health problems and academic performance among young university students*. *PLoS One* 12, 1–13 (2017).
14. Valerio, T. D., Jin Kim, M. & Sexton-Radek, K. *Association of stress, general health, and alcohol use with poor sleep quality among U.S. college students*. *Am. J. Heal. Educ.* 47, 17–23 (2016).
15. Luquiens, A., Falissard, B. & Aubin, H. J. *Students worry about the impact of alcohol on quality of life: Roles of frequency of binge drinking and drinker self-concept*. *Drug Alcohol Depend.* 167, 42–48 (2016).
16. Goodhines, P. A., Gellis, L. A., Kim, J., Fucito, L. M. & Park, A. *Self-medication for sleep in college students: Concurrent and prospective associations with sleep and alcohol behavior*. *Behav. Sleep Med.* 17, 327–341 (2019).
17. Keith, D. R., Hart, C. L., Mcneil, M. P., Silver, R. & Goodwin, R. D. *Frequent marijuana use, binge drinking and mental health problems among undergraduates*. *Am. J. Addict.* 24, 499–506 (2015).
18. Moraros, J., Thorpe, L. & Bird, Y. *The association between depression, anxiety and substance use among Canadian post-secondary students*. *Neuropsychiatr. Dis. Treat.* 14, 3241–3251 (2018).
19. Walters, K. S. et al. *Substance abuse, anxiety, and depressive symptoms among college students*. *J. Child Adolesc. Subst. Use* 27, 103–111 (2018).
20. Pol, P. van der et al. *Predicting the transition from frequent cannabis use to cannabis dependence: A three-year prospective study*. *Drug Alcohol Depend.* 133, 352–359 (2013).
21. Goodhines, P. A., Gellis, L. A., Ansell, E. B. & Park, A. *Cannabis and alcohol use for sleep aid: A daily diary investigation*. *Heal. Psychol.* 38, 1036–1047 (2020).
22. Grant, J. E., Lust, K. & Chamberlain, S. R. *Hallucinogen use is associated with mental health and addictive problems and impulsivity in university students*. *Addict. Behav. Reports* 10, 100228 (2019).
23. Kuipers, E. *Voortgang inrichting staatscommissie XTC (MDMA) [Kamerbrief]*. <https://open.overheid.nl/repository/ronl-2059b6e95938d772ea9a9accbe3149036bbdfb57/1/pdf/kamerbrief-over-voortgang-inrichting-staatscommissie-xtc-mdma.pdf> (2022).
24. DRUGSinfo. *Paddo's en truffels: wat je moet weten*. <https://www.drugsinfo.nl/paddos/wat-je-moet-weten-over-paddos>
25. Liu, Y., Ball, J. D., Elliott, A. L., Jacobs-Elliott, M. & Nicolette, G. *Diagnostic sequence of cocaine use disorder in relation to other mental health conditions among college students*. *J. Am. Coll. Heal.* 68, 575–578 (2020).
26. Roberts, C. A., Jones, A., Sumnall, H., Gage, S. H. & Montgomery, C. *How effective are pharmaceuticals for cognitive enhancement in healthy adults? A series of meta-analyses of cognitive performance during acute*



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- administration of modafinil, methylphenidate and D-amphetamine.* Eur. Neuropsychopharmacol. 38, 40–62 (2020).
27. Bruyn, S. De. *The misuse of prescription stimulants as study aids among Flemish higher education students.* (2021).
 28. Khosravi, M., Sarhadi, M. & Kasaeiyan, R. *The illicit methylphenidate use among college students: Prevalence, attens, and associated factors.* Arch. Pharm. Pract. 11, 160–170 (2020).
 29. Lueck, J. A., Costantini, R. & Knobloch, M. *The making of an addiction: Examining psychological determinants of prescription stimulant abuse among college students.* Health Commun. 35, 946–954 (2020).
 30. Lammers, J. *Curbing young adolescents' alcohol abuse: Time to revisit the Prevention Paradox?* (2019).
 31. Conrod, P. J. *Personality-targeted interventions for substance use and misuse.* Curr. Addict. Reports 3, 426–436 (2016).
 32. Edalati, H. & Conrod, P. J. *A review of personality-targeted interventions for prevention of substance misuse and related harm in community samples of adolescents.* Front. Psychiatry 10, 1–9 (2019).