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OVERDOSE PREVENTION AMONG HARD-TO-REACH PEOPLE WHO USE GHB





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OVERDOSE PREVENTION Among People who use GHB at Home In the Netherlands and Belgium (2014 - 2015)

An exploration of the personal and environmental characteristics associated with overdosing and the opportunities for risk reduction



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PREFACE

The following pages present Mainline's research report 'Overdose prevention among hard-to-reach people who use GHB at home'.

It is the result of many conversations held with people from all over the Netherlands and in the northern part of Belgium (Flanders) who use GHB. We went from North-Brabant where people speak of *'potje pakken'* (downing a cap) to Alkmaar where a tube is called 'zero-five'; from Twenter and where young people spoke about *'een dopje tappen'* (drawing a cap) to Heerenveen where using GHB is called *'borrelen'* (tippling). Also in Amsterdam many people were interviewed who regularly 'smack down G' (*G'tje klappen*). And last but not least, the Belgians who speak of *'straffe vloei'* (stiff liquid) when talking about GHB. A name derived from the nickname 'liquid XTC'.

Using GHB and passing out seem inextricably linked. The fact that slang terms exist for it within groups of friends underscores the importance of this study. While people in Brabant speak of *'lellepoten'* (acting funny/drunk/tired) when someone acts funny as a result of a GHB overdose (often in combination with amphetamines), the same behaviour is known as *'wappen'* or *'in de warre zijn'* (being confused) in Twenterand. And what the Dutch call *'outgaan'* (passing out), the Belgians call *knock gaan* (going KO).

It was an adventurous time: following police cars, interviews in peoples' homes, late at night at hangouts, on the couch at the dealer's and in jail. First of all, we would like to thank all respondents for their candid conversations with us. It was remarkable how often we were welcome to come round the back unannounced and interviewed a member of the family at the kitchen table with mum and dad present. In addition, we would like to thank the organisations that introduced us to contacts that used GHB in the region. Without your help it would not have been possible to talk with as many as 146 respondents.

Hopefully, this report may contribute to the development of suitable prevention measures for reducing the risks of GHB and passing out, especially among people who use GHB predominately at home and alone.

Amsterdam, September 2015

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SUMMARY

'Overdose prevention among hard-to-reach people who use GHB at home'

This study explores the personal and environmental characteristics associated with overdosing and the opportunities for risk reduction. The studie was conducted in 2014 and 2015 in the Netherlands and Belgium.

Conclusions

Under investigation was what sort of harm-reduction interventions can be developed with a view to reducing the risk of a GHB-related (Gamma-hydroxybutyrate) overdose and the associated health damage. The study's conclusion is that the harm reduction measures to be developed are strongly dependent on the subgroup based on the GHB experience, their information needs and their level of knowledge on the topic of overdosing.

Within this study, three distinct groups were identified:

1. PEOPLE WITH MODEST GHB EXPERIENCE (lifetime use: 1-50 times)

are the ones most eager to avoid passing out. This group is interested in hearing stories of other people who use, harm-reduction tips and the long-term effects of GHB.

A possible intervention befitting this often higher educated audience are informative online / offline articles about sex, drugs and health where experiential stories are supplemented with expert knowledge. This group often cites sexual arousal as a motivation for using GHB. Other possibilities include: strengthening bonds within peer groups, such as appointing someone to keep track of time and dosages, and developing a GHB helpline where people can seek advice anonymously.

2. PEOPLE WITH CONSIDERABLE GHB EXPERIENCE (lifetime use: 50 to 200 times)

say they pass out occasionally due to their frequency of use. They are interested in tools that facilitate safer use. Under the influence you lose your inhibitions, your vision and sense of time.

A possible intervention is to distribute syringes with which the dosage can be measured more precisely in millilitres. The use of a timer can also be encouraged. These tools can be integrated with a 'G-app': an application on smartphones with information about GHB and passing out. An added value of an app can be a monitoring function that makes your substance use within the time period visible. With the help of self-control tips, periods of non-use can subsequently be strengthened.

3. PEOPLE WITH ABUNDANT GHB EXPERIENCE (lifetime use: more than 200 times)

have the highest risk of coma. Although respondents experienced passing out as GHB's main drawback, at the same time they see it as an unavoidable part of their use. This group has, compared with less experienced subgroups, a knowledge gap in the field of overdose prevention and first aid in the event of an overdose. They wait much longer calling on an ambulance, and don't bother trying to keep the subject of the overdose awake, choosing instead to 'just let them be'.

This subgroup, compared to the other groups, have a greater need for information or help

with GHB, especially regarding the long-term consequences and avoiding a relapse. Changing the attitude towards passing out, requires connecting with their world. For example, an in-road could be found in the inconveniences experienced by these people as a consequence of passing out, such as car accidents, house fires and physical discomforts (forgetfulness, weight gain and movement disorders).

How to reach this group with abundant GHB experience at home?

Outreach work is a good way to reach this group with abundant GHB experience at home. This takes a lot of time and effort. But even within this study we were able to visit the hidden group at home by making the first contact via professionals and people who use GHB. The direct contact is an important added value for both the professional and the client. In addition to motivating conversations, knowledge quizzes or educational games create ways to actually start the conversation. Also, equipment that encourages safe use, such as dosage syringes and timers, can be provided. Furthermore, this research reveals that people who cite feeling 'more self-confidence and greater social ease' as the main motivation for using GHB suffer comas more often. For this reason, it seems like a good idea to work with them to improve their social skills and strengthen their self-regulation mechanisms. Furthermore the use of peers can facilitate knowledge transfer in the language of the target group. Moreover, this method may offer people who used GHB in the past something meaningful to do with their day. To influence the attitude towards passing out, an awareness campaign (in the form of a video) is an appropriate intervention. Finally, it is advisable to examine whether substitution treatment (with a longer half-life than GHB) a good harm-reduction method. People who use may be less inclined to overdose from taking several doses a night in order to get some sleep.

Recommendations

Overdose prevention is of the greatest necessity for the group of people with abundant GHB experience. The recommendation is to start with a 'Comprehensive GHB Prevention, Harm reduction and Treatment package' in which existing and developing interventions in the area of GHB complement each other. Although there are currently a lot of interventions, there still exists a gap in the area of prevention. The above-mentioned harm-reduction interventions may be able to meet this need. Within this research, these people were mostly encountered in villages outside the Randstad*. This group is often not reached by prevention activities at nightlife venues, and in addiction the focus is on abstinence. People who are not (yet) ready for this often fall between the cracks. Harm-reduction can indeed lead to relatively safe and informed use of GHB and overdose prevention can reduce the risk of brain damage or even death.

With guidance from the results of this research and the feedback from the European partners, Mainline Foundation has developed and tested a pilot intervention video which is made by and for people with abundant GHB experience. This video aims to enhance the knowledge of the risks of overdosing in order to change the attitude towards losing consciousness.

*) Randstad: This is a combination of four big cities in the Netherlands.

GLOSSARY

- Coupon Each recruiter gets three coupons for use in recruiting respondents. Each coupon consists of two parts on which the same ID number is printed: the recruiter tears off the reference coupon and gives it to a potential respondent. He retains the other part as proof to obtain his / her remuneration.
- 2. **Overdose (OD)** An overdose is defined as complete loss of consciousness (C, 2005), reduced consciousness and the inability to stay awake (Degenhardt L, 2003). In the questionnaire, the concept is more specifically defined according to the symptoms of a coma with respect to the maximum score on the Glasgow Coma Scale: does not open their eyes, emits no sound and does not respond to painful stimuli for at least 30 minutes (Teasdale G JB, 1974) and (Teasdale G MG, 1979).
- 3. **Overdose-Prevention Tool** A prevention tool designed to prevent overdoses (in this case from GHB) and to reduce the risks.
- 4. **Peer** is a group member; someone from the target group with the same background and communication characteristics.
- 5. **Peer education** An educational method in which someone from the target audience (much the same background and values) gives information to people in the target group.
- 6. **Randstad** A combination of four cities in the west of the Netherlands, and the most important centres: Amsterdam, Rotterdam, Utrecht and The Hague.
- 7. **Recruiter** A person who has filled out a questionnaire and received three coupons to recruit peers. From that moment, the person is no longer a respondent but a recruiter.
- 8. **Respondent** Respondents are people who have completed a questionnaire.
- 9. Respondent Driven Sampling (RDS) This is a randomized sampling method that makes it possible to make more accurate estimates about a particular research population. Researchers select 'seeds' on the basis of certain characteristics, who then approach other people in their network with special coupons to get their involvement, too. In this way, without the involvement of researchers, recruitment chains are built.
- 10. **Key informants** Persons who participate in an in-depth interview (in addition to respondents, these may also be institutional key informants such as police officers, ambulance personnel and first aid assistants) in the context of the exploratory research.
- 11. **People who use GHB mainly at home** Their use of GHB occurs more than half the time in a home setting (alone or with friends)
- 12. **Saturation** Saturation is the point at which the sample characteristics no longer change no matter how many more individuals are recruited to participate.
- 13. **Recruitment Chain** A chain of respondents and recruiters that has been built as a result of a seed.
- 14. **Seed** Someone selected by the researchers on the basis of his / her characteristics and network. A seed is the beginning of a chain.

1. INTRODUCTION

Background

In 1960 Henri Laborit isolated the substance gamma-hydroxybutyric acid (GHB) from mammalian tissue. After that, various groups have used the substance. Initially, (and to this day) it was prescribed for the treatment of narcolepsy. It has also been in use as an anaesthetic agent. In the 80s GHB became popular with body builders because of its alleged effect on muscle growth. Once the substance was sold in smart shops in the 90s GHB gained popularity as a recreational drug. After a lull, GHB use increased between 2007 and 2012, yet this time also outside of Randstand among marginalised groups, young people who use on the streets, and people who use GHB at home.

GHB causes loss of inhibition, people who use it reported enhanced self-confidence, and on top of that, it is sexually stimulating. Another reason for its popularity is that it is relatively cheap, approximately 50 Euros per quart of a litre (the average dose is 5 millilitre at a time). And with a recipe from the Internet GHB is relatively easy to make oneself from the cleaning agent GBL, lye (e.g. drain cleaners), and (distilled) water.

"At the time (2008) there were two cleaning products manufacturers where we lived in Vriezenveen, Uberclean and Wonderclean. Banners hung everywhere and everyone walked around with branded lighters. I went with a jerry can on the back of the bicycle to the factory and came home with enough GBL to yield a large pail of GHB. The neighbours came with a saucepan to get a portion too."

Measures by the Public Prosecution Office such as adding GHB to list 1 of the Opium law in 2012 and curtailing the sale of GHL in 2013 have influenced the price and availability of GHB, but has had less of an effect on its use.

Compared with other substances, a relatively small group of people use GHB, estimated at 22.000 people in 2013 (NDM, 2013-2014). However, GHB related incidents are relatively high in number and are often of a serious nature. In 2012, about 1200 people people who use GHB were admitted to the emergency department after losing consciousness, and in 2013, 22% of the 3481 reported drug incidents were GHB-related. Thus GHB (in combination with XTC), in terms of drug incidents, demands the greatest involvement of emergency and ambulance services at huge social costs (MDI, 2013). In addition to preventing (health) damage and life-threatening situations, overdose prevention can also save a lot on health costs. Frequent and especially daily use can lead to severe physical and psychological dependence, and abrupt cessation can cause severe and life-threatening withdrawal symptoms. The number of clients in addiction services in 2013 with GHB as their primary problem drug is similar to 2012 at 769, after a sharp rise from 59 clients in 2007. Finally, the relapse rate after treatment is high. Within three months of detoxification, 70% are using again (NDM, 2013-2014).

Mortality rate as a result of GHB-use is difficult to establish. GHB has a half-life of 22-53 minutes, rapidly breaks down in the body and is therefore only briefly (5 to 12 hours) detectable in blood or urine (Jones et al., 2009; Verstraete, 2004). Apart from that, the presence of GHB doesn't tell the whole story because there can be large variations in tolerance. GHB can also form in the body after death, which can make the contribution of GHB to the death difficult to determine. This may cause an under-reporting of deaths as a consequence of GHB use. Another complicating factor is that the cause of death statistics from the Central Bureau for Statistics (CBS) has no specific code under which GHB-related deaths can be registered. In 2012, GHB was mentioned 13 times on the cause-of-death form, an increase in comparison with previous years. But it is unknown how often GHB has been indirectly responsible for a death (CBS, 2012). Globally, there were around 400 GHB-related deaths recorded in clinical literature in 2010 (Zvosec et al., 2010).

How serious a local problem this can be is demonstrated by a quote by a respondent from Noord-Brabant:

"I have, in the meantime, lost 17 friends as a result of GHB. They were guys who, just like me, encountered the substance 10 years ago in Belgium and then started making, using and trading it themselves. They died as the result of an overdose, withdrawal symptoms, car accidents and suicide."

The mortality rate in the above quote is difficult to support with hard numbers. However, it is evident that the respondent makes a link between GHB and the deaths, both as a direct and indirect result of use.

Rationale for this study

GHB is difficult to dose accurately. The difference between a dose with the desired effect and a dose causing someone to be overcome with drowsiness and become unconscious is minimal. An overdose can end fatally because of respiratory depression or even respiratory arrest. There is also a risk of choking on inhaled vomit during unconsciousness. The risk of an overdose is higher when GHB is used in combination with alcohol or other tranquilizing substances such as benzodiazepines.

Several substances have been tested (Kohrs et al., 2004; Zvosec et al., 2007) to combat the symptoms of GHB overdose, but without success. A specific antidote is yet to be found. Acute treatment usually consists of clearing the airway and monitoring of vital functions.

Previous research has shown that 84% of the people who use GHB problematic have experienced losing consciousness after using GHB. 43% have been admitted to the emergency room and 20% have been treated by First Aid. They don't see passing out as a problem, as demonstrated by the group that is repeatedly seen in the emergency department (GHB Monitor, 2013).

In the Netherlands, the problematic use of GHB is most prevalent among marginalised groups and people who use GHB at home in the north, east and south of the Netherlands (Voorham, L. 2012).

Precise figures from Flanders (Belgium) on the total number of people who use GHB problematic are still lacking. But in Belgium, too, there are indications that in recent years more and more people are turning up at addiction centres and emergency services with both acute problems and addiction problems as a result of using GHB (VAD, 2011)

People who use the drug at home form a varied and complex group that can roughly be divided into two groups: people who use GHB together (at house parties), and people who use alone. The last group is often dependent on GHB. A previous study of overdose among Amsterdam clubbers and party goers (Korf, DJ. 2013) indicates that using GHB in the company of friends reduces the risk of overdose, but does not eliminate it. Additionally, this study reveals that people who repeatedly (more than twice) overdosed after taking GHB more often use in private settings.

People who use GHB at home frequently suffer from sleep disorders and often become socially isolated. They entertain themselves throughout the day / night by watching TV or surfing the Internet. The group of people who use GHB mainly at home estimated to be the largest subgroup of people who currently use GHB (67%), which equates to 15,142 individuals. This group often only appears on the radar of support services after years of hidden and high-risk use. (GHB Monitor, 2013).

Overdose prevention was previously only a necessity for people who use heroin. But in a changing society in which people are experimenting with new types of substances, there appears to also be an urgent need for increased knowledge about the risks of overdosing from substances other than opiates. Especially for the group of people who use problematic, namely the people who use at home, seeing as existing harm-reduction activities are primarily focused on people who use recreational at social venues.

This urgent need was the reason for Mainline to start this investigation. Mainline has 25 years of expertise in the area of harm reduction (including overdose prevention) and knowledge of working with marginalised groups of people who use drugs. The procedure is the same: the target group is actively sought out and outreachworkers talk to them about their use, their aid and information needs, their techniques of use and the self-regulation measures they apply themselves. This information shows how it may be possible for Mainline Foundation and other organizations to provide support in reducing the risks.

The research falls within the scope of the priority area 'Prevention' of the Drug Prevention and Information Programme (DPIP) of the European Union (JUST / 2011-2012 / DPIP / AG). This called for proposals to develop an innovative harm-reduction strategy to reduce drug-related deaths among people who use several (non-opioid) substances. Furthermore, the research is in line with priority 19.2 of the EU Drugs Strategy 2013-2020 (European Union, 2012), which centres on improving the availability and effectiveness of prevention programs and on raising awareness about the risk and consequences of the use of illicit drugs and other psychoactive substances. In other European countries, too, are hidden populations who use new psychoactive substances and non-opioid drugs that are not yet reached through prevention activities. The research results will therefore be widely distributed across Europe.

Research objectives

The goal of this study is overdose prevention among people who use GHB. The sub-goals are:

- 1. To make contact with hard-to-reach people who use GHB in the Netherlands and Belgium who predominantly use GHB at home.
- 2. To explore the personal and characteristics of use Substance, Man & Environment, or Drug, Set & Setting (Zinberg, 1984) that increases the risk of a GHB overdose.
- **3**. To develop an overdose-prevention intervention tailored to the needs of the target group and their habits of use.
- 4. To implement an overdose prevention intervention.
- 5. To ignite a discussion on the applicability of findings from this study to overdose prevention among people using new substances in other European countries.
- 6. To disseminate the research results (research method and overdose-prevention intervention) across Europe.

Research questions

The central question of this study is:

What type of harm reduction interventions can be developed to reduce the risk of a GHB overdose and related harm to health?

To answer the central question three sub-questions are formulated as follows:

- 1. What does the group of people who use GHB predominantly at home look like?
- 2. Which personal and environmental characteristics increase the risk of an overdose?
- 3. Which measures or precautions do people who use GHB take to prevent overdose?

Chapter 2 details the design and implementation of the study, followed by the adjustments made in the methods and research design. Chapter 3 describes the results of the questionnaire and the in-depth interviews and questionnaires, divided into sub-questions above. The results are interpreted and discussed in chapter 4. In the conclusion, the sub-questions are answered first. From this an answer to the central question of this study about what types of harm-reduction interventions should be developed to reduce the risk of GHB overdoses and related health damage. In chapter 5, several recommendations are made in the area of GHB interventions. These intervention ideas were discussed during the European Focus Group discussion with national and international partners. Following this feedback, an intervention pilot was developed, implemented and evaluated. The report of the focus group discussion and the project plan of the video intervention are included as appendices.

2. RESEARCH DESIGN AND METHODOLOGY

Respondent-driven sampling and other recruitment methods

In the project's early stages, use of the respondent-driven sampling (RDS) method (Heckathorn, 1997) was attempted. This variation on the snowball sampling method allows for more precise estimates on a certain study population through its use of random sampling. Researchers select a pair of suitable 'seeds'; these are respondents with a large network who are willing and able to put themselves at the service of the study. After their participation, these first respondents are given coupons with which they themselves can actively recruit new participants from their network. When someone carrying a coupon then participates in the study as well, the recruiter receives a reward. The intention is to randomly select respondents, without the involvement of the researcher, in order to create the longest possible chains. Through coupon numbering and some additional network-related questions, the RDS method gives insight into the social network structures of more hidden populations. This method is cost-effective and has been applied successfully in previous studies into hidden populations such as people who inject drugs, sex workers and homeless people (Frost, S.D.W. 2006).

For several of the locations it turned out not to be possible to fully adhere to this method within the available timeframe. For this reason, adjustments were made to the methodology at some of the locations. In other cases, other methods were employed. A description of the original research method and the project implementation is provided below. This will be followed by the reasons for and description of adaptations made to the research method and design.

Research design

Exploration

In the exploratory phase of this study, four focus-group discussions were held with various professionals who are in contact with people who use GHB through their work. These regional meetings took place in Rucphen (Noord-Brabant), Vriezenveen (Overijssel), Heerenveen (Friesland) and Heerhugowaard (North Holland). Individual exploratory discussions were held in other areas, often by telephone. In this way a picture was created of the local issues, and of the professionals who could bring us in contact with people who use GHB and show us the hangouts where we might encounter them through outreach activities.

Recruitment

Advertising to recruit respondents was spread across the width of our present network of addiction treatment professionals, harm reduction organisations and social services. New collaborations were formed with clinics, the police and youth care organisations. An invitation was also spread online through various websites (and Facebook pages) including those of Mainline Foundation, *apexx*, Unity and drugsforum.nl, though also, for instance, through the locally targeted site jongtwenterand.nl. In most cases, initial contact with a potential seed went through a professional. It was through this first contact that researchers tried to get into contact with other

people who use GHB from the seed's network. With a smaller proportion of respondents, the first contact was made via the initiative of the respondent in response to an (online) appeal. Respondents were also recruited through outreach activities, for example by visiting known hangouts.

Criteria for inclusion

The main criterion for inclusion was that the individual had taken GHB on a minimum of 10 occasions over the last year. Home-use was not made a criterion of inclusion, seeing as most people who use GHB occasionally do so at home. This enabled a comparison between the various degrees of home use. Respondents received a 10 Euros compensation for participating in an approximately 60-minute interview. Bringing in other target group members could earn respondents another 10 Euros (following the respondent's participation), with a maximum of 3 respondents per person. The main criterion for inclusion for the in-depth interviews was that the respondent had experienced passing out. An in-depth interview lasted about 90 minutes, for which respondents received 15 Euros compensation.

Instrument

The semi-structured questionnaire was created in collaboration with the Bonger Institute, which also conducted research involving GHB use in rural areas, in relation to the GHB market and related disturbances. The questionnaire included questions about general substance use, GHB use (motivation, drawbacks experienced, location of use and passing out / falling into a coma) and the demographic characteristics of respondents. The questions about the GHB market (availability) and related disturbances (contact with the police) included in the Bonger Institute's research are excluded from this report. A topic list was drawn up for the in-depth interviews with a focus on the cause of overdose, ways to prevent this from happening and ideas for an overdose-prevention tool.

Study region

Initially, the selection of the study regions was based upon the map shown below, originally from a study of the number of GHB-related clients in 2007 and 2012 as published by the National Alcohol and Drugs Information System (LADIS, 2013).



The most recent map shows clearly where in the Netherlands the so-called 'hotbeds' of problematic GHB-use are located (indicated in red): in North-Brabant, Flevoland, Twenterand and Friesland. In the end, the study was not limited to these areas, but respondents from almost every province were interviewed (with the exception of Zeeland and Groningen). Regarding Belgium, the study based itself on the most recent data available on the subject of GHB treatment (Wetenschappelijk Instituut Volksgezondheid, 2013). This indicates that GHB use is mostly concentrated in the northern areas (Flanders). Here, interviews were held with respondents from Tienen, Antwerp, Ghent and Diest.

Data collection

The data were collected between May and October 2014. Mainline Foundation and the Bonger Institute completed 66% of the questionnaires, 23% were distributed peer-to-peer by respondents within their own networks, and 11% by drug support professionals. 49% of the interviews took place at respondents' own homes, 16% at a drop-in centre, social shelters or youth centres; 13% in clinics or drug support services, 12% on the streets, in parks, at a hangout or at funfairs, and 8% in/outside bars and cafés (8%). In addition, three interviews were held in the workplace and one in a penitentiary institution. 47% of respondents were recruited by another participant (peer-to-peer), 29% were introduced by professionals – for instance drug support services or the police – 13% responded to an online/offline call for participants, and 12% were found during Mainline Foundation's regular outreach work.

Analysis

The research data from the 146 semi-structured questionnaires were analysed with SPSS 19.0. First, the raw data were cleaned. A number of operations were then carried out on the data file to prepare it for analysis: existing variables recoded in order to create new (combined) variables. Descriptive statistics were used primarily in the analysis: frequencies, crosstabs and means. Chisquare tests or t-tests were used to determine whether there are significant differences between subgroups. Unless otherwise specified, all the relationships mentioned in this report are statistically significant with a significance level of 95%. The 15 in-depth interviews were transcribed and the key quotes incorporated into a compilation document organised by subject. The outreach observations and the results of the national focus group discussion with professionals and people with personal substance use experience are included in the analysis and are discussed at the end of the next chapter. Observations made during outreach work and the outcome of the national focus group discussion with professionals from related fields and people with personal substance use experience have been included in the analysis and are doft the next chapter.

Adaptations to methodology

Recruitment and questionnaire were moved offline

During the planning stage of the present study, an online questionnaire was considered, because the target group spends much time online and in that way a wide target area could be covered with relatively little effort (cost-effective).

However, upon preliminary investigation the decision was made not to use an online questionnaire or a Web-RDS application. Developing a computer program that could guarantee an optimal level of reliability would be a highly complex as well as costly affair. Moreover, a previous online RDS study among nightlife participants in The Hague had seen very low return rates over the first couple of months (Dekkers, C. 2010). And there was still no way of knowing if the target group would actually be reached. In these considerations the promised rewards played an important part as well, as they could result in abuse.

Hence, the decision was made to shift to direct contact with the target group and to have outreach workers carry out questionnaires. This offline method required a lot more work hours than initially planned. Still, this direct contact with the target group also meant that much more valuable, qualitative data could be collected which was also more reliable. An added advantage will come out of the bonds of trust and rapport created with the respondents, through which future implementation of harm reduction activities might be improved.

From respondent-driven sampling to 'multi-method' sampling

Since that the group of people who use GHB in the Netherlands and Belgium largely remains hidden behind closed front doors, RDS seemed at first a very suitable method of getting to this target group. Practice proved differently, however, as especially outside the Randstad area this method was not a success, while within Randstad RDS would eventually gain momentum – if after a substantial run-up period. The following paragraphs will list the characteristics of the different subgroups as well as why RDS was a successful approach for them or not.

1. GHB-dependent people who mostly use at home

This was a group encountered in North-Brabant among other places. They welcomed researchers into their homes without hesitation and spoke very openly about their experiences with GHB as well as naming the people in their circle who used as well. Contrary to what might be expected, however, RDS chains, in which each respondent tries to recruit new ones by handing them a coupon, were not easily formed. Moreover, after several reminding phone calls and promises from respondents that they would recruit others, RDS did not work. This did not seem to be related to respondents' willingness to cooperate. As mentioned above, outreach workers were invited into respondents' homes without hesitation and they were, by and large, met with genuine interest. Key actors (outreach workers and other professionals) blame memory loss as a result of long-term GHB use and passing out repeatedly for the failure to pass on coupons, among other things.

The decision was then made to adapt the RDS method and additional methods with the aim of still starting up the RDS chains were attempted, such as organising, a 'pizza party'. At such an event, a respondent would invite people from his GHB network, thus combining on one night business (carrying out the questionnaires) and pleasure (pizza and company). On three occasions this method failed, because, although invitations were eagerly accepted, potential participants failed to show up on the night itself.

Asking respondent to call someone from their network immediately after the interview to ask if they would also like to participate proved to be a much more effective recruitment method for this group. In this way, respondents were not even given the chance to forget about the request and researchers could go to the next respondent straight away. This was only possible because many within the target group are without employment and as such spend much time at home. Where it was not possible to proceed directly to the house of the person recruited by a respondent, or when a respondent couldn't get hold of his/her friend, the lead was actively followed up by phone. Others were recruited if they happened to be present or entered the respondent's house at the time of interviewing. In such cases, the person in question was asked straight away whether he or she would be willing to participate as well.

A report from a house call in North-Brabant (recorded in May 2014) illustrates the above:

"I dialled the number of a girl in Roosendaal that I got from a respondent from Etten-Leur we interviewed earlier on a tip we got through an outreach worker from Novadic Kentron. We could come by her house straight away. When we arrived, her boyfriend and a neighbour who both used GHB were there as well in the living room. Meanwhile, their child was just dawdling around the room. The boyfriend turned out to be a dealer, so while we were there a young man came by to buy GHB. We were heartily introduced and we made an appointment to go visit him after we'd finished there. This guy turned out to be living in anti-squat housing, in an empty school building with other young people. When got there, he had already asked another girl to participate as well."

2. Closed communities

Respondent-driven sampling also did not work for the more closed communities in the east of the country (Twenterand, Heerenveen). Respondents did know other people who used GHB, but were not willing to supply their names. There is a real fear of being known and registered by the police as a 'person who use GHB'. These respondents also stated there was too much talk going on in their towns, meaning the one to supply a name would always be found out. Shame and suspicion seem to be important factors here. As a result, respondents in these regions were mostly people already on the radar of the police and/or support services. And in the cases where outreach workers did manage to meet people who use GHB solely through network connections, without involving the police, it took a lot of time (for instance three home visits within one week) for them to earn enough trust. Because of the limited time available at a given location, the possibilities for this were limited in this study.

The RDS method was successful (given some time) with other respondent networks, whether or not in a somewhat altered shape (detailed below).

3. Recreational use in the Randstad area

People who used GHB recreationally were mostly people interested in drugs and their effects in general, and were interested in contributing to research on the topic. They were often well educated, used drugs frequently either when going out or at home and also sampled different substances, but did so responsibly and with awareness of the risks involved. RDS, however, still took a long while before taking off, and respondents had to be called and texted repeatedly before they started to deliver other people from their network. The practical advantage of office of Mainline Foundation being located in Amsterdam was important here, as this made it possible to easily meet with single respondents and on different occasions. In Amsterdam, in the end, chains of up to five people were achieved – though this took over five months.

It was observed that the somewhat more extroverted individuals tended to respond to the advertising online and offline. They seemed to have no problem talking to an unknown interviewer about their drug use. To enable deeper probing of networks of friends and acquaintances, the questionnaires were sometimes given to a 'seed' to carry out. These were respondents who had already participated in the study and had received instructions with the questions that would allow them to interview others. This had the added advantage that some people who would never have been willing to discuss GHB-related topics with an outsider still ended up filling out a questionnaire. In this way, interviews could take place at a time and place of the respondent's choice, and the seeds reported that it often sparked interesting discussions about drug use. By assigning a reward for recruiting other respondents, seeds could be held accountable for submitting fully completed questionnaires on time. Respondents had to fill in their name and bank account number so that the compensation could be transferred afterwards. This way, the possibility of seeds exploiting the situation was largely prevented. One major disadvantage to this method is the absence of first hand observations and the possibility of further questioning on certain topics, meaning these questionnaires provided fewer qualitative data.

4. People at the clinic who have used GHB heavily

Most people encountered in this setting turned out to be very willing to participate in the study. An interview was seen as a welcome break from the clinic's daily schedule. For the study this was a very interesting target group, for it consisted of people who had heavy habits who could evaluate their use from a clear perspective. After they were interviewed during one night, clients were familiar with the goals and methodology of the study, after which they actively recruited among other clients. New respondents were recruited in this manner at a clinic in Vught. Due to time constraints within this and space limitations within the treatment program, this was not possible at other clinics.

5. Young people who are often outdoors

At first, the young people we approached in the streets or at hangouts were somewhat suspicious. Though after the first respondents had participated, the RDS train got up to speed. The reward for bringing in respondents had a galvanising effect here and lines of communication between respondents were short. Many of the young people in this group were after all there anyway, so participating took relatively little effort. We also witnessed respondent calling peers who were not yet there. This resulted in meeting new respondents on a second nightly visit of the hangout, in this case in the Betuwe area (Gelderland).

Adaptations to research design

Respondents were ultimately recruited in several different ways and at different locations, and (supplementary) outreach methods were enlisted, such as the snowball sampling method, informal networking, interviews at a clinic and introductions through key figures. Considering the encountered obstacles for RDS detailed above, implementing this method entirely according to protocol was not successful. The limited budget for outreach activities, the demarcated research period and corresponding limited presence in the field may be blamed for this.

The result of our method is a varied sample representing the perspectives on GHB overdose as provided by groups of people who use GHB from across the spectrum. Given the additional methods that were used, we have interpreted the research population as a *convenience sample*. This is a non-representative sampling methodology in which respondents are selected on the basis of availability. For the purpose of the research, indexing the experiences with GHB overdose in all their diversity and a consequent formulation of harm-reduction interventions, this analysis provides sufficient robustness.

3. RESULTS

In this chapter the results of the questionnaire will be discussed along the lines of the three subquestions of this study. For the last sub-question, about overdose and the prevention, not only the results of 146 questionnaires will be presented, but also the results of the fifteen in-depth interviews. These 15 individuals are different from the 146 respondents who completed the questionnaires. In the discussion of this sub-question, the observations of the outreach work relating to the different types of people who use GHB and their information needs will be described, as will a concepts for an overdose-prevention tool.

3.1 What does the group of people who use GHB predominantly at home look like?

The research population for the questionnaire consisted of 146 respondents.

Demographic characteristics

Regional distribution

The majority of respondents (126) were from the Netherlands; the other respondents (20) were from Belgium. Although an even regional spread was not a requirement of this study, the table below shows that people from all over the country were interviewed, except for the provinces of Groningen, Zeeland and Drenthe. In the analyses results for people from the Randstad area (36%) are sometimes compared with those of people outside of it (including Belgium) (64%).

Netherlands (126 respondents)			
Province	Numb.	Places	
North-Holland	43	Amsterdam (31), Hoofddorp (5), Winkel (2), Hilversum (1) Alkmaar (1),	
		Haarlem(1), Heerhugowaard (1), Nieuwe Niedorp(1)	
North-Brabant	17	Roosendaal (5), Etten-Leur (4), Eindhoven (3), Vught (3), Oss (1), St.	
		Willibrord (1), Breda (1)	
Limburg	16	Venlo (12), Tegelen (3), Velden (1)	
Overijssel	16	Westerhaar (8), Den Ham (4), Vroomshoop (4),	
Gelderland	13	Lienden (2), Beesd (11)	
Friesland	12	Leeuwarden (5), Sneek (5), Heerenveen (1), Dokkum (1)	
Flevoland	7	Almere	
South-Holland	1	Dordrecht	
Utrecht	1	Utrecht	
Belgium (20 respondents)			
Flanders	20	Tienen (8), Antwerp (5), Ghent (3), Diest (3)	

Table 1: Regional distribution of respondents

General characteristics of respondents

Of the respondents 28% were female. There was a wide spread in age (ranging from 15 to 53 years), with a mean of 28 years. 74% were ethnic Dutch, 26% were of non-Dutch origin (from which 11% were from Belgium).

The questionnaire asked respondents to indicate the highest level of education they had completed. This yielded the following data: 14% only completed primary education, 30% completed pre-vocational secondary education and 30% completed secondary vocational education. The other respondents finished senior general secondary education or higher. Respondents from Randstad completed a higher level of education more often than people outside of it. Respondents with a lower level of education or without a job were encountered more often outside the Randstad. The proportion without work or not studying was 21% in the Randstad and 39% outside the Randstad, and in Belgium this group accounted for 79%.

Of the respondents 36% lived alone, 23% lived together with a partner (with or without children), 20% lived with parents/family/guardians, 10% lived together with friends, 7% lived in a social shelter and 3% were homeless. On average, respondents had lived in their respective situations for 5.4 years. Half of the respondents knew at least 15 other people in their network used GHB. A few respondents, however, in North-Brabant, Limburg and North-Holland with very much experience reported peaks of 100 to 400 people.

Belgium versus the Netherlands

While interpreting these numbers it should be taken into account that 20 of the respondents were from Belgium, most of whom were found through support services, In comparison to the 126 respondents from the Netherlands, who were recruited in all sorts of ways. The percentage of women among the Belgian group is lower and their mean age slightly higher. Compared to the Dutch respondents, more of the Belgian respondents lived in social shelters. They had a lower level of education and they were less often in employment.

	Belgium	Netherlands
Percentage of women	16%	30%
Average age	32 years	28 years
Homeless or in a shelter	20%	9%
In education or training	5%	28%
In employment	16%	60%
Lower level of education	56%	9%

Table 2: Comparison of the characteristics of respondents from the Netherlands andBelgium

Drug use patterns

According to Zinberg (1984) drug use patterns and benefits or disadvantages of substance use can be explained as the result of the interaction between the characteristics of the substance (Drug), the characteristics of the person using the substance (Set), and the social environment (Setting). Because such an approach provides a good starting point for prevention and harm reduction, the results will be described from this perspective.

Drug

GHB was part of a poly-substance use pattern for all respondents. They all had a lot of experience with a range of different substances, often even in the last month.

General substance use

On average, these respondents started smoking and drinking alcohol at the age of 14, and began smoking cannabis a year later. If we look at current use (last month) we see that a large majority smoked tobacco and drank alcohol. Two-thirds smoked cannabis and almost all used hard drugs: amphetamine headed the list (61%), but also XTC (43%) and cocaine (38%) were often used, followed by ketamine (27%) and nitrous oxide (19%). 45.2% used GBL at least once (average starting age: 21 years) and 16% also used it in the last month.

Substance	At least once	Last time		Starting
		Last year	Last month	age
Tobacco	99%	96%	92%	13,7
Alcohol	99%	93%	83%	14,0
Cannabis	97%	82%	66%	15,3
Amphetamine	96%	87%	61%	17,9
XTC	97%	69%	43%	17,6
Cocaine	96%	65%	37%	18,5
Base coke	39%	21%	12%	20,8
Ketamine	82%	54%	27%	21,0
Heroin	18%	16%	14%	20,2
Nitrous oxide	73%	51%	19%	20,5
GBL	45%	29%	16%	21,5
Magic mushrooms	66%	16%	3%	19,1
Pharmaceuticals	79%	69%	53%	19,1

Table 3: Prevalence and average starting age of substance use (excluding GHB)

Of the respondents 91% had used amphetamines, 61% even in the previous month. In addition, 39% of respondents had used base coke at least once, and 18% heroin. Although the proportion of respondents who continue to use is lower (base coke 12% and heroin 14% in the previous month), and Mainline Foundation has easy access to this group through contacts in existing support services, these are relatively high percentages. As a result, these groups have been analysed in

greater detail. About half of the group that used base coke had also used heroin at least once, the other half had not. There were no respondents who had used heroin but had never used base coke. The people who only used base coke were usually men living outside the Randstad. Their average age was 30 and they started using base coke (and GHB) at the age of 22. The people that used both these substances were relatively older (avg. age 34), were mostly from Belgium, had frequently a lower level of education and were not in education, employment or training. Moreover, they did not use GHB more or less often than the other groups of respondents. This group started using heroin at the age of 19, started using heroin on average one year later. But they started experimenting with GHB much later (mean age 26 years).

Also, recent use of GBL, cannabis, cocaine, heroin and pharmaceuticals was higher in Belgium than it was in the Netherlands. Dutch respondents, however, used nitrous oxide more often and ketamine slightly more often. With regard to other substances (alcohol, amphetamines, tobacco, XTC, magic mushrooms) there were no differences between Belgian and Dutch respondents.

Use of GHB alternatives

45% of respondents had experiences with GBL (gamma-butyrolactone). This is one of the of the ingredients of GHB, which in pure form is even stronger than GHB, but is also more harmful because of the risk of chemical burns to the stomach and oesophagus. Recent use (last month) was lower (16%).

A few respondents said they used alternative substances because of the unavailability of GBL. The substance in question was 'GABA powder', which has a similar, but less intense, effect to GHB. One of the respondents used 1,4-butanediol. This is a solvent with a similar effect to GHB, but whose effects work faster and last longer. Finally, the substance 'phenibut': an amino acid with the same effects as GHB, but whose effects last longer. Respondents mostly used this in order to sleep longer without waking up from withdrawal symptoms.

Use of pharmaceuticals

53% of respondents used pharmaceuticals. Of this group, 49% used sleeping pills and sedatives (this is 31% of all respondents). These are mainly benzodiazepines such as oxazepam, temazepam, diazepam and bromazepam. There was no relationship between the use of sleeping pills or sedatives and education levels, gender, age or region. There was however, a relationship with country: Belgian respondents were more likely to use sedatives (53%) than the Dutch (28%). People who use base coke were also more likely to use sedatives (50%) than people who do not use base coke (26%). We saw no such relationship with people who used amphetamines (or other substances).

The more respondents used GHB, the more sedatives they took. 19% of all respondent takes Ritalin/Concerta. The group that used Ritalin used GHB relatively a bit less often, but the dose taken did not differ from respondents who did not use Ritalin. It is not known if these pharmaceuticals were obtained through a GP or otherwise.

First-time use of GHB

On average, people who use GHB started using when they were 21.8 years old. The median was somewhat lower, at twenty, which means there was a relatively large group that only started to use GHB at a later age. A few respondents started using GHB before the turn of the millennium, though most respondents first experienced GHB after 2007. On average, the respondents from Belgium started to use GHB a couple of years earlier (2004) compared to the Dutch respondents (2008).



Most of the respondents (86%) got GHB for free the first time they used it (47% asked for it, 39% did not). The others bought the substance, of which 2% was offered the drug and 13% specifically requested it.

"I ran into an old mate who offered me a bottle cap. I didn't know what the stuff was and how much you should take. After two caps I passed out and fell off the barstool. My friends took me to the hospital where I regained consciousness only after a couple of hours."

Frequency of use

Respondents were asked to indicate the frequency with which they used GHB by counting every occasion or day on which they took GHB as one single use occurrence (regardless of the number of sips or caps taken). On average, the respondents used on seven occasions in the last month. Over the last year the average number of occasions was 87. At the time of the interview, 72% of respondents used less often than in the year before, 17% said they used more often, and 11% reported their frequency of use was the same as one year ago.

Given the high peaks in the frequency of use within the research population, the respondents' selfmade estimations of the total number of occasions on which they used GHB have also been considered. Respondents were divided into three groups based on their estimated total number of occasions they used GHB:

- Moderately experienced (1-50 times): 26%
 "I use G to take the edge off a hangover I get from other substances."
- 2. Considerably experienced (50-200 times): 24% "For four years, every Sunday was G-Day."
- 3. Very experienced (>200 times): 50% "When I was most into it, I took 200 ml per day."

Dosage

An inquiry was made into the average dose of GHB that respondents took at a time. The results show much variation. The answers ranged from 0.3 millilitres to a maximum of 60 millilitres. The average was 4,9 millilitres (median was 4 ml).

People who use GHB have different methods to measure their dose. 25% said they did it with the help of a bottle cap (e.g. from a soft drink bottle), 23% measured accurately (using a measuring syringe) and 16% used a whole vial. Less often were reported: a small (vial) cap; quarter of a vial, half a vial, or three-quarters of a vial; or taking a sip out of a bottle.

What is remarkable is the wide variation in the estimated amount of millilitres per measuring device. Respondents, for instance, who used a whole vial, provided estimations of their dose ranging from 3.0 to 6.0 millilitres.

The number of doses per occasion (day/night/party including after party) varied from one to forty doses, with a median of six doses. The amount of time in between doses varied from half an hour to thirty hours (median 1,5 hours).

"GHB is just like cocaine, after you've taken one dose, you want to keep topping up. People who use GHB are always concerned about when they can take their next hit. Recently, I was on G at an after party for thirty hours."

Set Motivations for using GHB

Respondents were asked in an open-ended question to mention three benefits about GHB. The answers were then clustered, categorised and tallied. The motivations reported most often were: 'feeling more self-confident, being more sociable' (52%). *"Using GHB gave me more self-confidence and I am able to start a conversation with girls."*

Almost of equal importance were feelings of: 'happiness and euphoria, and having lots of energy' (51%). *"After a cap I feel less reluctant to do boring things, such as cleaning."*

After that, respondents mentioned 'the relaxed, happy and warm high' (46%), 'Being able to forget daily worries, being able to let go, muting of emotions' (41%) and 'an enhanced sexual response' (38%). "Downing a shot of G together is the same as asking someone to have sex with you. I become a caveman and want to have sex everywhere."

Further benefits that were mentioned were: 'no hangover', 'feeling drunk without using alcohol' (among others mentioned by sports fanatics and people who want to avoid alcohol checks), 'cheap', 'easy to produce at home', 'passing out' ("*It makes time go really fast.*"), 'being able to sleep' (after having used uppers), 'builds muscles', 'feeling normal' (after having built up tolerance), 'soothing' (in the case of panic and anxiety), 'alleviates physical pain', and the combination with other substances (e.g. taking away the rough edges of amphetamines).

The data were examined to see if a connection existed between the type of person that uses GHB (based on the total number of occasions respondents had used GHB) and the motivations for people to use GHB. It appeared that the people who have modest experience with GHB often used it for the 'relaxed high'. Loss of inhibition was the most cited motivation of the considerable experienced people. The people with abundant experience took GHB most often for the 'happy feeling and the energy' and 'to forget daily worries/mute emotions'.

Drawbacks of using GHB

According to the respondents, the most important negative thing about using GHB is the 'risk of passing out' (48%). *"While I was out lying at the bottom of the stairs, my daughter was waiting at the school gate."*

The taste was also not appreciated (47%). Another drawback was the 'risk of becoming addicted' (41%). *"Bloody wonderful drug, but I lost a lot. School, family..."*

Also mentioned: 'the difficulties in determining the right dose' (26%), 'nausea/throwing up' (25%), 'short-term memory loss' (25%), the 'bad reputation of the substance' (13%) and 'dizziness' (13%). Disadvantages the respondents mentioned less often were: 'it makes you antisocial', 'it can cause convulsions', and 'it makes you aggressive/fired up'.

Some respondents mentioned enhanced sexual response (after a while) as a drawback: "After taking GHB I got strange thoughts and I sent embarrassing texts with sexual overtones to people I wouldn't normally send such texts to. The next morning I was enormously embarrassed." But also: "My girlfriend would always have sex with other guys after having a shot of GHB." And: "The second time I used GHB I had sex with a guy, which I later regretted. I can remember I was sexually aroused at the time, but also that I lost consciousness a couple of times during sex."

It was also mentioned that the effects of GHB became a drawback only after a longer period of use: *"After a while, sex was no longer special without GHB."*

Setting Location where GHB is used

GHB was mostly used at home among our group of respondents. Of the last ten times that respondents had used GHB, for 88% this happened at home. 53% of respondents also used GHB at (house)parties, and 55% while going out. 28% say they used GHB outside and 22% while in transit. 6% said they had used GHB at school or at their workplace.

The core of people who typically use at home are considered the majority who used GHB predominantly at home (38%). When this group was compared to the rest of the research population, the number of women and the age of the people in the group (avg. 32 years old) and the number of respondents that is not in education, employment or training turned out to be relatively high.

Social setting

On the last ten occasions on which respondents used GHB, 71% did this at least once together with friends and 45% used it at least one time while alone. Furthermore, 36% used at least one time together with a partner and 32% together with friends and their partner. Finally, 11% used GHB together with strangers, and 5% together with family.

When the group (14%) that *usually* used GHB at home (six or more times out of the last ten occasions) was compared to the rest of the research population, a number of differences became apparent. They were usually people with very much experience (used on more than 200 occasions in their life). They were also more often men and their age average was higher (30 years). Moreover, the people in this group more often had a lower level of education and were not in education, employment or training.

There was a correlation between using alone and using at home, but this was not a one to one relation. Of the group that *also* used at home, 59% *also* uses alone. Of the group that *usually* uses at home, 23% *also* uses alone. Of the group that *never* used at home, only a few *sometimes* used the substance alone.

	Usually alone	Sometimes alone	Never alone	Total
	(n=20)	(n=45)	(n=81)	
Women (%)	1	31	31	28
Mean age (years)	30	27	29	28
Homeless; in sheltered	15	16	5	10
housing (%)				
In education (%)	10	20	32	25
In employment (%)	25	53	63	55
Low level of education (%)	30	14	11	15

Table 4: Groups of respondents based on percentage of using alone

Overdosing

An overdose can be defined as a complete loss of consciousness (Duff, C. 2005), and/or as limited consciousness and inability to stay awake (Degenhardt L, 2003).

Within this study a distinction was made between G napping and going into a coma. G napping was taken to mean an uncontrollable urge to sleep, but people could still be woken up. A coma is defined in the questionnaire by the employment of the maximum scale on the Glasgow Coma Scale (Teasdale G, J.B., 1974). This means that a person does not open their eyes after receiving a painful stimulus (for instance, a trapezius squeeze), does not make any sound, and does not move for a period of at least 30 minutes.

"The first time I took GHB, I didn't feel anything, so I kept re-dosing. Finally, I sagged down into my seat and was out for seven hours. Afterwards I felt really ill."

G-nap

Almost all of the respondents (92%) had, at one time or another, experienced falling asleep after having used GHB. Most respondents regard a G nap as passing out. *"It simply means the lights go out. You'll think you've been asleep, but you just carpeted out."*

Only eleven respondents never experienced a G nap.

Coma

Seven out of ten respondents (68%) had fallen into a coma at least once. The number of times ranged from one to 1800 times with an average of 56. This high average was mostly caused by a few respondents who said they had fallen into a coma extremely often, ranging from more than a hundred times to one respondent who said to have been in a coma 1800 times. The median of six times in a lifetime provides a more truthful image. Almost half (48%) of the respondents had fallen into a coma in the last year, and 14% in the last month.

"In two years time, I ended up in hospital with an overdose 87 times. Sometimes I just thought it was funny to wake up in hospital again. I would yell: 'Can't you think of anything else? Just let me sleep next time. How am I supposed to get home in my boxers this time?' I've been clinically dead three times now because of GHB. I was woken up with a defibrillator."

In 89% of cases this overdose was taken unintentionally. The respondents who said that they purposefully induced a coma (11%) gave the following motivations for it:

- In order to be able to sleep (6x)
 "Otherwise I'll wake up after two hours because of withdrawal symptoms. I take four soda bottle caps to sleep for four hours, then I take two caps to wake up again and function normally."
- Angry with myself / wanted to end it all (4x)
- Forgetting everything around me (3x)
 "It makes time go really fast" and *"I simply go on till I drop."*

3.2 Which personal and environmental characteristics increase the chances of overdose?

The results were analysed to find out which factors increase the risk of overdose. Because 92% of respondents had at one time or another dozed off after taking GHB (G nap), the risks of falling into a comatose state will receive priority here. With regard to G napping a short description of the most important risk and risk reducing factors will be provided first.

Risk factors of the G-nap

There was no correlation between demographic characteristics, such as age, gender and region, and the chance of a G nap. A correlation was found, however, for frequency of use. 8% of respondents had never dozed off after having used GHB. These were most often respondents who used GHB fewer than a hundred times. Of the respondents who did use more often than a hundred times, 99% is familiar with a G nap.

Using alone also seemed to be correlated to how often a G nap occurs. The respondents who never used GHB alone (without others present) are less familiar with G napping than respondents who did use alone.

The strongest correlation was found between the number of times on which respondents had dozed off because of GHB use and whether or not they had been in contact with support services. On at least one occasion, respondents who had sought professional help because of GHB or use of other substances had more often dozed off because of GHB than respondents who never sought help.

Drug

Frequency of use

There is a strong relationship between coma and frequency of use. When GHB is used more often, the risk of coma increases. Of the group of very experienced respondents (more than 200 times) 90% had been in a coma at least once, and that had happened to 68% in the last year. They used more often, took slightly higher doses, but most importantly, they took more doses per occasion.

Of the people with modest experience these percentage was considerably lower (48% had been in a coma at least once; 29% in the last year). Duration of use is not correlated with the number of times someone has fallen into a coma.

Dosage

A relation existed between dose size and the occurrence of coma during the last year. Of the respondents who took a dose of more than four millilitres 67% fell into a coma in the last year. For the respondents who took doses of 4 millilitres or less, that percentage was 35. For people who took a whole vial at a time the risks of falling into a coma were highest.

Number of doses per occasion

The number of doses per occasion was also related to whether or not respondents had ever gone into a coma. Of the people who used more that 5.5 doses per occasion 86% had fallen into a coma at least once. Of the respondents who used less than 5.5 doses per occasion 57% had fallen into a coma at some point.

Combination with other substances

There were 101 respondents who had fallen into a come as a result of taking GHB. 82% of those had co-ingested GHB with another substance. In 39% of the cases this was alcohol and in 76% of the cases it concerned another substance (half of these amphetamine). 44% of respondents had co-ingested GHB with one other substance, 20% with two, 8% with three and 3% with four substances.

Given the high number of respondents using amphetamine, this subgroup was examined in more detail. It revealed that taking amphetamine is more common among people who use cannabis, ketamine, nitrous oxide, ecstasy and cocaine than among who people who do not use these substances. We did not see a similar relationship among those who used other substances (heroin, base coke). There was no difference by country, region or gender. However, there is a difference in education levels: use of amphetamine is more common among the higher educated respondents (94% had used it last year) compared with those with a lower education (middle-level vocational education or lower, 77% had used it last year). Respondents who'd used amphetamine recently were also younger (average age 27) than respondents who do not use amphetamine (average age 32).

Respondents were of the opinion that they could tolerate more GHB if they combined it with amphetamines. One respondent said: *"After taking amphetamine, you keep downing caps."* This is consistent with the findings of this research. Respondents who have used amphetamines in the past year took, on average, 7 doses of GHB per occasion, compared to an average of 3.7 doses per occasion by people who did not use amphetamines. No difference was found between the two groups in dosage amount in millilitres. However, because 86% of respondents used amphetamines, establishing a relation may not be possible.

Set

General personal characteristics

No relation exists between gender, age and coma. There was, however, a relation between coma and level of education. Of the respondents with a lower level of education (only completed prevocational secondary education) 86% had fallen into a coma at least once compared to respondents with a higher level of education (56%). This held also for respondents without work/not in training.

Motivation for use

People who said they used GHB in order to 'feel more self-confident, being more sociable' had more often fallen into a coma compared to respondents that listed other motivations.

Setting

People who used at home used GHB on more occasions and also used more frequently in the last month. People who used at home used the same amount per dose (4 to 5 millilitres), but they used more doses (six to eight) per occasion than people who did not use at home (avg. four doses). Yet, there is no clear relation between using at home and the risk of falling into a coma.

Of those people who had fallen into a coma in the last month because of an overdose of GHB (n=19), 73% of the comas occurred at home, on a party, or while going out, so not while being out on the street, in a park, or at a hangout.

Using alone and coma

A correlation was found between using alone and having fallen into a coma. Of the people who never used alone, fewer had ever fallen into a coma (59%) and fewer had fallen into a coma in the last month (37%), compared to the number of respondents that do use alone, of which 78% had at least fallen into a coma once and 59% fell into a coma in the last month. Within the group of respondents who usually use alone was the highest percentage of people that had gone into a coma at least once (90% at least once, 71% in the last month). The last time that respondents went into a coma was in 69% of the cases together with friends and 23% alone.

Randstad and region

Fewer respondents from Randstad have ever fallen into a coma (42%) than respondents from outside Randstad (84%). This difference was also visible when looking at the number of respondents that fell into a coma in the last year: 27% within Randstad and 64% outside of it.

People from outside Randstad who used GHB used on average a larger dosage and took more doses on one occasion. There is also a significant difference in the total number of occasions on which they had used GHB. Of the respondents from Randstad 12% had used GHB more than 500 times, compared to 51% of respondents outside of Randstad. The same trend becomes visible when looking at the use of GHB during the last year: on average GHB was used 55 times in Randstad compared to an average of 105 times outside of it. For the frequency of use in the last month there was a visible trend of more frequent use outside the Randstad (8 times a month on average) than inside the Randstad (on average 5 times a month).

Of the 73 respondents with abundant experience, only 13 were from the Randstad (60 from outside the Randstad, including 11 from Belgium). Due to the large difference in groupsize, it is difficult to compare these groups with significant difference.

Because most respondents from Randstad were from Amsterdam, this difference can be seen here as well: Of the respondents from Amsterdam 36% have fallen into a coma at least once and for 6% this happened recently. Outside of Amsterdam 81% had fallen into a coma at least once and for 56% this happened recently.

3.3 Which measures or precautions do people who use GHB take to avoid an overdose?

First aid in the event of overdose

The respondents were asked what they do if someone passes out in their presence because of GHB. The open-ended answers were clustered in categories. 43% of respondents would keep an eye on that person and check their breathing. 42% would call an ambulance. A third of the respondents (32%) would do nothing. "Just leave them alone. They'll come to after a while." Additionally, 30% said they would put someone in the recovery position and 16% would actively try to keep the person awake.

Other measures that were mentioned were: giving them a painful stimulus; giving them amphetamine; cold water (shower / wet towel); warm blanket and making someone vomit.

First aid in the case of overdose according to region

Clear differences could be distinguished per region as to the kind of help people would provide in the case of an overdose. Belgian respondents were most often inclined to call an ambulance (74%). In Randstad this was mentioned too, (50%), though outside of Randstad this was mentioned relatively less often (28%). Belgian respondents more often mentioned putting someone under a cold shower (21%). In Randstad, respondents relatively more often said they would 'keep an eye on someone / check their breathing' (56%), 'put someone in the recovery position' (44%), and 'administering a painful stimulus' (19%) compared to respondents from outside of Randstad and from Belgium. 52% of respondents living outside of Randstad said they would 'do nothing' if someone passed out and would 'simply leave him or her alone'.

First aid in case of OD	Randstad	Outside of	Belgium
		Randstad	
Ambulance	50%	28%	74%
Keeping an eye on someone	56%	35%	37%
Do nothing	8%	52%	21%
Recovery position	44%	25%	5%
Keeping someone awake	23%	7%	32%
Painful stimulus	19%	4%	0%
Give amphetamines	12%	4%	11%
Cold water (shower/wet towel)	8%	4%	21%
Induce vomiting	4%	3%	0%
Warm blanket	2%	3%	5%

Table 4: First Aid in the case of overdose according to region

First aid in case of overdose according to GHB experience

Looking at the level of GHB experience, we could see a relation between people who were very experienced and the kind of aid they offer in case of an overdose. In relation to the other respondents, this group would call for an ambulance (significantly) less often, and they would also not try to keep someone awake (not significant). They would more often 'just leave him alone' or put them in the recovery position. The choice of other forms of aid was not related to the level of GHB experience (on the basis of lifetime use occasions).

Overdose prevention

The respondents were asked how best to prevent an overdose. Several open answers could be given and these were clustered and categorised. 63% said taking the correct dose could prevent an overdose. A fourth (27%) said not topping up too early could prevent OD and also a fourth (27%) mentioned keeping track of time. 54% indicated that the time between doses plays a role. Of this group, 27% said not topping up too early could prevent OD (without being specific about methods for registering time) and 27% were explicit about keeping track of time. 16% Advised against using GHB altogether. These are mostly people with abundant experience who feel that passing out is simply part of it. 13% said 'You should know how much you can handle'. *"You should be well aware of how much you can take and it differs for each person. That is why the first time it often goes wrong, but also after a period of not using or after you lost weight. You will have to rediscover the right dose for yourself."* Belgian respondents significantly more often mentioned 'using the right dose' (84% compared to 60% in the Netherlands) and 'do not combine it with other substances' (21% compared to 5%).

Checking the strength of GHB

One third of the respondents went by intuition in assessing the strength of GHB, and one third did not check it but always bought from the same dealer. Respondents who said they had an "other" way of checking mentioned: checking viscosity ("*The thicker the stronger*"), tasting (*"The saltier the stronger*"), shaking (*"Bigger bubbles mean it's stronger*"), and first testing it on the tongue (*"If it burns it's not right and you have to dilute with water*").
D.I.Y. tips for overdose prevention

People who use GHB have their own diverse and pragmatic solutions and self-regulation mechanisms to prevent passing out. There is no research (yet) that could prove if these measures are safe and/or effective. The measures are presented here by subject:

- Dosing
- Using a syringe

Taking a smaller dose each time

Never take more than 3 millilitres (women) or 4 millilitres (men) per dose

Do not take whole vials

Induce vomiting when you know you have taken too much

Cold shower / wet wash cloth in the neck / sprinkling water in the neck

Boiling out GHB, powder is easier to dose (but could burn GHB)

Measuring before leaving home and keeping it in water balloons (the colour of the balloon colour signifies the amount of millilitres)

Measuring beforehand and keeping it in 1 ml capsules (sold by chemists)

Measuring beforehand and keeping in contact-lens cases

Frequency

Always wait at least 2 hours between dosing

Take only one dose per occasion

Keeping track of time	
Use timer on phone	
Write down time on your hand	
Take Screenshot from time of ingestion	
Setting a G-alarm	

Friend group

Electing a medicine man (someone responsible for the bottle, who keeps track of dosage and frequency)

Never use alone

Take at the same time as someone else (two remember more than one)

Make a deal with your friend group: 50 Euros penalty for passing out

Keeping a schedule on paper to keep track of time and dose

Keep talking to people/ keeping people awake

Eating

Don't take GHB on an empty stomach

Eating something sweet when you feel you're going to pass out

Squirting lemon juice in your mouth

Take a Dextrose tablet

Drink sugar water

Combination with other substances

Do not take pharmaceuticals (benzodiazepines/sleeping pills) or heroin/methadone before using GHB

Do not combine with other downers (such as alcohol/ketamine)

Snort amphetamine/cocaine if you feel you're going to pass out

Other prevention tips
Keep moving
Only use if you feel healthy (physically and mentally)
Listen to your body and don't try to push the limits
If you feel good, don't top up (that's almost always too much)
Dilute GHB with water
Don't keep a bottle at home
Do not use GHB

Information needs

The respondents were asked if they needed more information or help regarding GHB use. It is remarkable that 81% initially said they were not interested. *"What could they tell me? I already know everything there is to know."* Comparatively, the people with abundant GHB experience (used more than 200 times in their lives) have the greatest need for information (27%) compared to 6% of the considerably experienced, and 16% of the moderately experienced respondents. There is also a relation between the type of first aid people would provide and their need for information. Respondents who would call for an ambulance in the event of overdose had a relatively greater need for information about GHB (28% compared to the average of 19%). The respondents who said they 'just leave someone alone' appeared to have a smaller need for information (47%) than the Dutch (14%).

Respondents who indicated a need for more information mention they would like to know more about: (answers to an open-ended question, by category)

- Harm reduction information (stories of personal experiences, tips for self-regulation, opportunities for testing, how to act in the case of an overdose) (9x)
- Information about long term effects (brain, stomach, bladder, throat) (7x)
- Reliable information about the substance (on the Internet) (4x)
- Primary prevention of drug use (for instance in schools) (3x)
- Information about quitting, prevention of relapse, GHB substitutes (3x)

Although respondents initially claim to know all there is to know about GHB, it seems there is still need for information, particularly among very experienced respondents and Belgian respondents.

Help-seeking behaviour

Engagement with support services

50% of respondents had been in contact with support services about their GHB use or about drug use in general. Most of them belonged to the group of very experienced respondents (> 200 times) (75%), the rest of them are not very experienced respondents (<50 times). Remarkably, all Belgian respondents (n=20) are in contact with support services.

The comparatively frequent use of pharmaceuticals (53% in the last month) prompted an investigation into how co-use of pharmaceuticals correlates with being in contact with drug support services. Of the respondents who were in contact with drug support services, 75% used pharmaceuticals. Of the respondents who had never been in contact with support services 46% used pharmaceuticals. Respondents were not asked how they obtained these pharmaceuticals.

Contact with support services

On the whole, the more often someone had used GHB, the higher the chance that they had sought help for their use of GHB or for substance use in general. Yet, there were people who avoided support services at all costs: 10 respondents (out of 49) who used GHB over 500 times had never contacted support services. They were Dutch respondents of whom two live within Randstad and eight outside of it. Their average age was 28 years and half of them were in employment at the time.

Results of in-depth interviews

A total of 15 people participated in in-depth interviews, all of them from the Netherlands, their ages varying between 20 and 40. The core characteristics that increase the chances of overdose are the same as with the rest of the research population; a number of quotes from these participants have been added to this chapter. The analysis of the in-depth interviews will be limited to sub-question 3, and as such focuses on self-suggested measures to prevent overdose as well as self-indicated information needs. The most significant concepts for an overdose prevention tool are represented including a brief analysis of the answers given.

Overdose prevention

Respondents take various measures to avoid overdosing. From this it can be seen that the majority of people typically try to avoid passing out. Some measures have a social component (alerting someone, paying attention to each other), but the majority are related to the drug itself (dosage, frequency, know what you're taking, combination with other substances). There are also tips that relate to how you feel, and how much you have eaten and slept (set). It is notable that while one respondent says just keep moving to avoid passing out (probably in the early stage), another recommends lying down (as it is probably already too late to avoid the dangerous situations caused by passing out).

Roi	"On an empty stomach, I would take 0.3 millilitres less than average."
Roi	"I would tell a mate who also used GHB that was going to take G, so that at
	least one person knew, should anything happen."
Ro2	"Never buy GHB from someone you don't know and always use out of the same
	batch."
Ro2	"Keep an eye on each other. Women especially are very vulnerable after
	having used GHB."
Ro4	"Keep in mind that every shot can have a different effect, depending on how
	much sleep you got, how quickly you took your dose and so on and so forth."
Ro5	"Do not take more than 5 ml. People go for a full bottle cap (7 ml) way too
	easily. Alternatives are using a measuring syringe or a vial."
Ro5	"Combinations with downers (alcohol or Valium) are a no-go – or uppers, for
	that matter. If you combine GHB with amphetamine, you'll feel less of the GHB,
	meaning you could easily use too much."
Ro5	"Check your GHB. The pH should be around seven. If it burns on your tongue,
	there is too much GBL in it. You should also look at the colour. Quality GHB is
	colourless. There is a lot of crap out there (not enough distilled water, wrong
	order of the process, low-quality GBL from China)."
Ro5	"Keep in mind that dose sizes are different for boys and girls."
Ro6	"You have to respect the rule to only top up after two hours; and sometimes it
	may still go wrong. It's almost impossible."
Ro7	<i>"If you think you've taken too much, keep moving. If at that point I lie down or</i>
	get into a car, I'm finished."
Ro8	"Try to recognise the signs that accompany passing out. Sometimes you can
	prevent it, but it's definitely tricky."
Ro9	"Stick to a single vial. It's tough, but you've just got to be strong."
R10	"Lie down when you start to feel you're going to pass out."
R11	"Stay active and have someone who keeps you awake."
R12	"The best thing is to use a notepad and a measuring syringe."
R14	"To be honest, I think nothing would have worked for me."
R15	"Mark the GHB bottle, so you don't accidentally take a gulp thinking it's water."

Suggestions for overdose-prevention tools

1. Smartphone application

The idea of a smartphone application for GHB raises many ethical and practical issues for respondents. On the one hand, they are curious about what such an app will look like, but on the other hand they admit they would probably only use it once. Moreover, harm-reduction advice depends very much on the individual. However, existing functions on the smartphone are used to keep track of the time and dosage.

Roi	"in which you can fill out your weight and height, after which you get a dosage guideline. For example, do not use more than 3.5 millilitres. I would try it once, but not every time. And also, an app would carry a huge burden of responsibility. What if people start saying: "The app said it was OK!"
Ro2	"But that means that, at a rave, while things are already starting to get blurry, you'd have to fill out all these things on your phone just setting an alarm would be easier."
Ro4	"It could be interesting to try once, but I don't think I would use the app more often."
R11	"I would go for a broader approach with this app, with different drugs and information like prevention, dosage and an emergency button that can direct- dial emergency services or the first aid team at an event. It should be as basic as possible so people under whatever influence could still use it. And when you enter the type of drug you plan on using, you could be given tips and information on combinations. And it could be used to keep track of what you use over a long-term period, to provide feedback on that as well. But it is important that this information be kept secure."
R13	"It could be a good idea to be able to write down your intrinsic motivation for why you don't want to pass out. The app could then remind you of this; for example that you wouldn't be able to walk your dog. Everybody's got something that they wouldn't want to happen. For a certain group of people this would be a much stronger motivation than the health risks related to passing out."

2. Spreading harm reduction information through flyers

R11	"Reading a flyer at a rave, while you're buzzing obviously not. You might at
	home though, at a quiet moment."

3. Harm reduction information on websites / forums

Respondents say that a lot of information about GHB already exists, but that it is difficult (in forums) to distinguish what's reliable from what isn't. General information sites (e.g. of rehabilitation clinics) lack experience stories of people who use with practical tips. There is a need for a platform with reliable information that reflects the reality of people who use and is also fun to read.

Roi	"To me, harm reduction seems to be a good approach. I always read the new
	apexx issues. Combining interesting stories and advice is a good way of
	getting information across. That way, people will be more likely to read it."
Roi	"Humour is always a hit on the internet. Information that automatically finds its
	way to you is better (for instance on your Facebook timeline) than having to
	look for it (downloading an app, opening it)."
Ro3	"Show on YouTube what kind of things could go wrong."
Ro8	"Get the message across that people are not just doing this to themselves, but
	also to the people around them. You wouldn't want to burden your friends, or
	the other way around. Use with caution, yeah I don't know, I think being aware
	of your own responsibility is very important."
R15	"There is quite a lot of information available, but I would like to know more
	about how other people experience it and how they deal with it. Especially
	when you are starting to become addicted. These experiences would have to
	be moderated by professionals. They could for instance look into or further
	investigate themes they often come across."

4. Dosage tool

Respondents indicate that the dosage recommendations are tricky because the dosage is heavily dependent on the individual. A tool that makes measuring dosage easier by displaying the amount in millilitres is seen as having added value.

Roi	"If it were handed out, people would use it more often than when they had to
	go to a pharmacy to get it."
Ro2	"It would be a good idea to develop vials with millimetre measurements on the
	glass and to hand out measuring syringes."
Ro9	"If you've been using for a long time, like I have, you know exactly what each
	amount stands for. Well maybe not if you've had three already."
R14	"I do think it would be difficult to develop, as the dosage is dependent on
	personal factors such as body size and condition."

5. Timer (to keep track of time in between doses)

Most respondents realize that keeping track of time between doses is a major component in avoiding an overdose. The usually intend to do this, but not all respondents have found methods they can still use after several doses.

Ro5	"No-one is going to actually use that."
Ro8	"I just keep track of the time myself. But maybe it is a good idea for people who
	don't do that; who keep topping up too soon."
R15	"You need a frame of reference. Time flows in odd directions while you're buzzing."

6. Information sessions by people with personal substance use experience

Most respondents find the experiences of peers a useful addition to educational material because these are people who know what they're talking about, and respondents can recognize themselves in the stories.

Ro3	"You can only speak from experience, really; so someone who was actually addicted
	to GHB should be trained to help others, because they know what they're talking
	about. Someone who's just read some book doesn't."
Ro5	" By someone from 'the scene' who can warn you about negative consequences."
R12	"Look at people's personal situation. People with personal problems are the ones
	that are likely to get a drug problem."

7. Primary prevention at schools:

It is striking that most respondents would advise others not to use, and are also of the opinion that this should be the general advice given to young people.

Ro3	"Show what it can do to you, what can happen. Show the most gruesome pictures.
	Most people use GHB for the first time when they're about 16, but some probably
	start earlier as well."
R13	"I was taught in school how addictive heroin is. I didn't know a thing about GHB."
Ro9	"Say that people shouldn't use it."

8. Testing GHB concentration in blood

Ro3	"A little test you can perform on yourself, with which you can see how much you have
	already taken; a measurement of the GHB concentration in your blood. For example
	by taking a cheek swab or a sweat sample from under one of your feet. If this were to
	be offered in clubs, scores of people would try it - even if just for fun."

9. Committing to rules of behaviour regarding overdose within friend groups

The quotes of respondents show how much of an impact passing out frequently has among groups of friends. People who regularly take GHB together make agreements that make for a level of personal responsibility. It is striking that these agreements were mentioned particularly in the Randstad, where respondents are generally more knowledge-aware in their use of drugs.

Ro2	"Everyone acts as if it's not a big deal (I do as well) - "Just a G nap, just let him sleep
	it off", but I actually think this is bad."
R12	"I made a deal with friends that if one of us passes out at a party he has to pay 50
	Euros into the common fund we've got for food and drink. It applies when we can no
	longer get through to the respective person with words, but he does still respond to
	pain. We made this agreement because we don't think passing out at parties is
	acceptable. Experimenting with drugs is normal among my friends, but we want
	everyone to deal with it responsibly. Each member of the group can get into one
	situation that requires outside help, but if it happens again he'll be in trouble with
	the whole group."
R15	"I'm a fan of the trip sitter idea. One group member has the bottle of G and knows
	exactly who took what and when. Especially when you're still exploring and getting
	to know your own limitations, things can easily go wrong with GHB But the whole
	group has to commit to the method, that's the only way."

10. Bottle with dispenser that regulates the time and dose size

R15	"It could make use of personal code linked to an account on which you've filled out
	your personal information. Or it could sound an alarm if you top up too early. Still,
	this could be difficult, as tolerance to substances also is a factor. And it's very
	authoritarian, which makes you think whether people would actually be willing to
	use it."

11. Wristband measuring vital functions (possibly linked to smartphone):

Few respondents got excited about the idea of a wristband that measures vital functions. This has mainly to do with the fact that such a band would be recognisable, which significantly reduces the likelihood of people wearing it.

Ro4	"Before I pass out I start moving around a lot (which sometimes includes convulsions) and I start talking incoherently. I also get hot and sweaty. Maybe a wristband that can measure vital functions, linked to a smartphone, could send an alarm signal to friends in those cases?"
Ro9	"No-one would wear one of those to a club; though maybe at home they would."

Information needs

Most respondents initially claim to know all there is to know about GHB. There is, however, still a need for experience stories of other people who use with which they can identify, and practical tips they can use to reduce the risks of taking GHB. Although this need is partly met by existing drugs forums, respondents also say it is difficult to make a distinction in these forums between reliable and unreliable information.

Roi	"I don't necessarily check the news that much, but I'm interested in reading what
	people have to say about it."
Ro2	"I visit drug information websites like Unity and I think documentaries on GHB are a
	good thing as well. What I saw there was like what I saw in real life with my friends
	and me."
Ro3	"I've seen it all and done it all, so for me it wouldn't change anything; maybe for
	other people."
Ro4	"I've always made it myself, from start to finish, so I know exactly what goes in it. I
	think I pretty much know everything there is to know, like with those affected lobes,
	which most people don't know about."
Ro6	"You're the one in charge."
Ro8	"Before I try something new I want to be fully informed on all possible effects and
	dangers, I really search drug information websites and forums for information. It
	can be confusing not knowing exactly what's true and what's not."
Ro9	"When I started using GHB I did look up information on the internet. Now I've used
	it so often, I pretty much know what can happen."
R10	"Yes, we need more information on the use of 1,4-Butanediol or BD as a popular
	replacement drug for GBL in the Netherlands. People should be more careful
	linking 1,4-Butanediol to GHB (on Wikipedia for instance), because this way people
	discover a lot sooner."
R11	"I already know quite a bit, so I only really look up specific details or drugs I'm less
	familiar with. I actually spread information, mostly; friends also come to me with
	questions."
R12	"I think apexx.nl is a great initiative, but it could be expanded quite a bit and cover
	more topics."
R13	"Information about how addictive GHB can be needs to be spread. This information
	should be more closely targeted towards its audience; simply pointing out that
	something is dangerous will not work. You have to build up trust and only then will
	the information be taken into consideration. Otherwise you will lose people's
	confidence."
R14	"I think it's interesting to read the experiences other people have had with GHB.
	These can be pretty familiar. Maybe it could work to deter others. Personally I
	talked to 12 to 14-year-olds about my experiences. I think it's an effective means of
	preventing use at a later age."
R15	"I think people could benefit from each other's experiences and approaches, in
	order to keep using GHB (together with friends) an enjoyable experience."

Analysis of in-depth interviews

Judging from the above data from the in-depth interviews, it appears that the information needs correlate strongly with the experience level of people. In general, people who use GHB believe they know all they need to know, but they are also interested in the stories of other people who use GHB. Some people are aware of the problem of passing out and are very inventive in coming up with pragmatic solutions to help them avoid overdosing. This mainly involves practical methods of taking a dose and ways of keeping track of time. Of interest also are the discussions among groups of friends regarding passing out. This shows what influence it has on the atmosphere within a particular setting. To make such arrangements possible within groups of friends, it will first be necessary to align their norms and values (attitudes) with regard to passing out.

At the same time the answers given reveal a sort of sceptical attitude towards the possibility of avoiding passing out. This is especially true in the instance of multiple doses, because there is a danger of an unpredictable stack effect whereby someone under the influence is no longer considered to be in a state to observe any preventative measures, whatever they may be.

In order to include the above tips in harm-reduction advice, it is necessary to first understand whether they actually help prevent an overdose and whether their use is reasonably responsible.

Concepts for an overdose prevention tool

The respondents were asked whether they felt the need for more information or support in relation to their GHB use. Most of the respondents said they did not require any more information, because they think they already know everything there is to know. Yet, this is not consistent with the results of the study, which reveals that among specific subgroups who do not use these substances there is a lack of knowledge about avoiding an overdose or what to do when someone passes out. This explains why after the questionnaires had been filled in, 'off the record' requests were made for suggestions for an overdose-prevention tool. The in-depth interviews explored these issues more thoroughly. Based on this input, three concepts emerged: a GHB-themed issue of *apexx* magazine, a smartphone G app and a dosage tool with a G watch. These concepts are detailed below.

1. GHB theme issue of *apexx* magazine

The first concept concerns *apexx*, a digital youth magazine on drugs, sex and health issues published by the Mainline Foundation. Over the course of the study, enough interesting data and intense real-life stories were collected to easily fill a special GHB edition of the magazine. For instance, as sexual arousal was an often-mentioned incentive for using GHB, an article about the link between GHB and sex could be interesting. But debunking some of the myths that exist among people who use GHB should also be considered – such as the alleged possibility of assessing the strength of the GHB solution by reading its PH-value. Another idea is to provide an overview of the various utensils with their volumetric capacity in millimetres, as research shows that there is much confusion on this topic. *Apexx* can also be accessed via smartphone, as well as be distributed in print. Respondents met previous issues with approval during this study.

2. Dosage tool with G watch

The second concept is a dosage tool with a G watch. When it comes to GHB, dosage and the intervals between doses are a very precise affair as well as the most important causes of overdosing. While most people who use GHB are well aware of the fact, things can still easily go wrong. When intoxicated, it is hard to see clearly and you lose track of time. This is why a tool that could make the tasks of measuring dosages and keeping track of time easier and also feasible in less-sober states will be beneficial. It could be, for instance a vial or bottle with millilitre markings (not in ink, as this dissolves in the GBL ingredient in GHB), a pouring lid for adequate dosage (which, for example, cannot exceed 3 ml) and a torch function, as measuring dosages in the dark is even more of a challenge. This dosing tool could be linked to a timer, a so-called G watch, to keep track of the time between doses. Perhaps, this tool could be integrated with a monitoring smartphone app, which would allow you to keep a record of your use.

3. G app for smartphones

The last concept concerns a G app for smartphones. There are already several existing apps available. For instance the app 'Van alcohol tot XTC', developed by Iriszorg, which is about the effects and risks of various substances. The Trimbos Institute has also developed an app. This application is mostly meant for clubbers to enable them to stay in contact with one another, but it also provides information about substances and what to do if something goes wrong. One of the ideas that came up during the development of this app was the integration of a tool for people who use GHB. In the end this idea was not implemented because of the different needs of the participating countries. For this reason, a G-app could fill the gap, specifically targeted at people who use GHB. In the present study, respondents suggested several functionalities such an application should possess. Examples include a dosage tool with the functionality of calculating the size of the dose you should take based on gender, height, and weight, and substance combination. As topping up too quickly (linked, among other things, to an altered perception of time) is mentioned as one of the most significant causes of overdosing, a G watch (tool with which to easily keep track of time) must not be overlooked. Other suggested functionalities were: general information about GHB, what to do in case someone passes out, advice about selfcontrol, a monitor that shows drug use over time (plus incentives to start a period of not using) and an overview with all sorts of utensils and their respective volumetric capacities in millimetres. The way the app and harm reduction advice are shaped is crucial for its success among the target group. We are considering an apexx-like infotainment approach. An emergency button could also be integrated: a number you can dial the minute something starts to go wrong. Many people indicated they were not inclined to call for an ambulance. Instead they would rather speak with someone with personal substance use experience who can give advice without passing moral judgment.

4. DISCUSSION AND CONCLUSION

Discussion

In this chapter, various interpretations and explanations are given based on the perspective of the researchers, comparable studies and the opinion of professionals and and people with personal substance use experience who were involved in the national focus group discussion.

People with abundant experience

The group of people with abundant GHB experience use most often and therefore run the greatest risk of an overdose. In connection with the stacking effect after multiple doses, the decreased concern about falling into a coma appears to play a role in the frequency of passing out. At the same time, this group rarely sees passing out as a problem they can prevent. It is something they've experienced often and they typically wake up when it does. As a result, people with abundant GHB experience become more careless and reckless. In addition, passing out serves a function for some people, such as helping them to fall asleep or making time pass faster. The very lax attitude of this group regarding passing out makes it potentially difficult to focus prevention on overdose. Nevertheless, the fact that they are the most likely subgroup for passing out and falling in to a coma, overdose prevention is very important for them. Moreover passing out was mentioned by respondents in this study as the main drawback of using GHB. And the majority of respondents said that they had fallen into a coma by accident. Just a few respondents indicated that this was by choice, for example to fall asleep or to pass the time fast. Respondents do not experience passing out as an unavoidable part of their use. This group has, compared with less experienced subgroups, a knowledge gap in the field of overdose prevention and first aid in the event of an overdose. Further questioning revealed that they do care about the downside related to passing out (like burning holes in the sofa or having your house burgled) and the physical side effects (like convulsions, tooth loss, fluid retention, and short-term memory loss). It is therefore advisable to avoid concentrating solely on the 'overdose' problem with this group, but to take a broader approach to their use. Education can focus on, for example, how to prevent the consequences and side effects of passing out and falling into a coma.

Self-confidence and loss of social inhibitions plays an important role in the motivation of this group of people with abundant GHB experience for using the drug. This suggests an insecure and vulnerable group for which the agent performs an important psychological stimulatory function. It is typically a self-discovered solution to existing psychological and social problems. That makes this group more susceptible to risky behaviour and dependency. In order to help to this group, it's important to fit in with the social psychological functions of GHB without moral judgment about using. It is also worthwile to examine people's stage of change (Prochaska JO, DiClemente CC, Theory of change, 1992) and what are the possiblities to reduce the harm.

Inside versus outside Randstad

Broadly speaking, this study focuses on two groups. In the Randstad we mostly encountered highly educated respondents. They were considerably more likely than the other respondents to have a job or be studying. With respect to the extent of use, they can't really be characterized as people

with abundant GHB experience. Outside the Randstad, and specifically also for the Belgian respondents, the respondents were generally less educated and more often unemployed and / or even homeless. Comas are a very common occurrence, especially among the people with abundant GHB experience (who are usually less educated, unemployed and living outside the Randstad). They are potentially/possibly/perhaps more indifferent and reckless than the people with less experience (who are more educated, more likely to have a job or be studying), and take considerably more doses per occasion.

It should be noted that the respondents in the study who live outside the Randstad were more often found through support services (because the RDS method did not work). This is in contrast to the Randstad, where respondents were more often recruited through peers. As a result, it is possible that the proportion of respondents displaying problematic use of GHB was higher outside Randstad. On the other hand, the image that emerges corroborates the findings of earlier studies, i.e. that problematic use predominantly occurs outside Randstad (Voorham L, 2012). The question as to why people who use GHB and who live within Randstad are apparently satisfied with using less often and using lower doses remains intriguing. During the outreach activities, observations were made that reported a culture of much rougher social interaction in rural municipalities than in urban areas. In these rural areas, people also use during the week and are more likely to 'just leave someone alone' in the event of an overdose. During the outreach activities, it was noticed that there is a much harder drug use culture in rural communities compared to the Randstad. People also use weekdays and let each other rather "just lie" in an overdose. The difference in drug-use culture is somewhat similar to the distinction criminologist T. Nabben makes in his research. He describes on one hand the young 'marginals' from the villages who work hard during the week and get 'fucked up' at weekends. They are more reckless in their use. The people with abundant GHB experience differ with the described group because they often have no training or job. Although the extreme drug-use culture seems to be the same for the respondents outside the Randstad within this study. The other group within Randstad comprises the 'agenda hedonists': studying or working 20s who schedule their use and mostly use when they're free at the weekends. Their use is much more aware and controlled. (T. Nabben, 2014). Even within this study the respondenst from the Randstad were people who use more recreational.

Besides education level, there is another possible explanation for the difference in knowledge and attitude towards passing out between respondents inside and outside the Randstad. This is the effectiveness of specific preventative measures, such as the awareness campaign '*Outgaan is nooit ok*' ('Passing out is never ok') (GGD Amsterdam, 2012). The GGD Amsterdam conducted this campaign in collaboration with several club owners and festival organizers. The goal was to make people aware of the consequences of passing out, not only for themselves but also for the other partypeople. Although the used sampling method in this study differs for these regions, respondents in the Randstad who use GHB certainly seem to have a different attitude towards passing out. Moreover, they have more knowledge about first aid in case of of overdosing.

Netherlands versus Belgium

The Belgian respondents were a minority in the research population, and furthermore were all recruited through the drugs services. The results must therefore be interpreted with caution, though they were nonetheless interesting. While the Netherlands has a certain 'segmentation of the markets' (older people of conventional substances like heroin and base coke, and groups of people who use new substances), the Belgian respondents in this study often had more experience with both 'old' and new substances, including GHB. Belgian respondents described the rise of GHB use as frightening, and how little knowledge people who use and professionals had of the drug. This picture is confirmed by the results of this study, which revealed that Belgian respondents have less knowledge of overdose prevention and first aid in the event of a GHB overdose. Perhaps that they are more likely than the Dutch respondents to call for an ambulance, because of the lack of knowledge about what to in case of an overdose. They were also more likely to say they needed information or assistance with GHB. The respondents suggested taking the open approach to drugs education as practised in the Netherlands.

Use of pharmaceuticals

Over half of the respondents also used pharmaceuticals such as benzodiazepines (Valium), and Ritalin. Aside from this alarmingly high percentage, it is interesting to note that a high percentage of them had never been in contact with drug support services. The major question (which unfortunately cannot be answered with the present data) is whether they obtained these pharmaceuticals through their GP or by other (illegal) means. Furthermore, it's not clear how these pharmaceuticals interact when co-ingested with GHB and other substances. Except of the combination benzodiazepines with GHB, when the risk of overdose increases. Another interesting observation concerns the effect of GHB on people with AD(H)D. Some respondents with AD(H)D indicated that GHB for them has an opposite effect (as is the case with amphetamines). GHB is for them an upper instead of a downer. "Amphetamine calms me down while GHB makes me hyper" and "I can stay awake for 3 days on G and Keta". There is virtually nothing in existing literature about the effects of GHB on people with AD(H)D. In this study, 19% of respondents used Ritalin or Concerta (it is not known whether they have AD(H)D). This group used GHB relatively less frequently, but the dosage was no different than that of people who do not use Ritalin. Further research is needed to get a clearer picture of this.

Problems with sleep

Another point of discussion is the problem of sleep among people who use GHB. People who are dependent on GHB are often awoken by withdrawal symptoms. This disrupts their sleep and sometimes also their day / night rhythm. In order to still get some sleep, they take an overdose of GHB and actually put themselves in a coma. Half of the respondents also used sleeping pills and sedatives, which also increase the risk of passing out. They then take amphetamines during the day to feel fit again. This is very similar to the cocaine-heroin-benzodiazepines patterns of use of the generation from the 80s and 90s of the twentieth century (Grund, J-PC 1993). Perhaps the same functional relationship exists among people who use GHB, amphetamines and benzodiazepines in reaction to the disrupted day / night rhythm and the lack of a good night's sleep. An important priority would be to restore this day / night rhythm and a good period of rest

through the night. It is, of course, preferable to achieve this by natural means (possibly with professional help), by going to sleep and waking up at the same times every day. Another possibility is a temporary course of alternative sleep medication. Besides sleep medication, which is also addictive, there are other agents with a longer half-life than GHB (such as a GABA-agonist). This may reduce the need for people who use GHB to put themselves in a coma a few times a night. Furthermore, they will be more rested during the day, which is beneficial to behavioural change and other daytime activities. However, it is necessary to first determine whether such a substance is indeed less harmful than GHB, and also in the long term.

Substitution therapy could also be of assistance to this group of people with abundant GHB experience in putting them on the radar of support services. They often lose contact with care professionals as soon as they fall back into use because interventions for this group mainly focus on abstinence. In addition, people who use GHB are were denied by some institutions for social care due to the high risk of overdose. This is just like in the 80s when many people who used heroin and/or base coke were not reached by the then drug services because they focused mainly on abstinence. Eventually, harm-reduction activities emerged that allowed people to be considered within the framework of their use in order to encourage safer use or improve their health and quality of life. The needle exchange and methadone programs, which were not focused on reduction and abstinence but rather maintenance and some self-control, are hereby an example. It appears that history is repeating itself in the group of highly experienced people who use GHB, who currently fall between the cracks with regard to support services. Dosage tools and therapy for this group would most likely contribute to greater control over their use and rest on other habitats. This perhaps provides some new perspectives on the current situation of this group, which often appears hopeless.

Overdose prevention

Despite the lax attitude towards passing out displayed by certain subgroups, passing out is mentioned as the main disadvantage of GHB. The qualitative data also reveals that people actually do think about how they can avoid passing out. It is the task of prevention workers to ensure the successful implementation of these inventive and pragmatic solutions. Certain elements could perhaps be reinforced with experts' knowledge and distributed as harm-reduction advice. These are bottom-up solutions that better fits to this target group.

Another striking discovery was the varying estimations of the number of millilitres per measuring device. Respondents who used a whole vial, for instance, provided estimations of their dose ranging from 3.0 to 6.0 millilitres. People confirm overdose can be avoided by 'using proper doses'. But when it's not clear how much they take exactly, it may well be worth advocating the use of a measuring syringe or developing another type of dosage tool. These are important possibilities for overdose prevention interventions.

Motivation for use

Interesting are the motivations given for use and how these differed between the three distinct subgroups. This is important for the development of prevention methods that reflect the reality of the audience. For the people with modest GHB experience, relaxed intoxication is often a

motivation to use GHB. They use the drug recreationally as an occasional means of relaxation (e.g. at weekends). Among the people with considerable GHB experience, 'loss of control' is cited as the main motivation. For this group, the agent is a means of shaking off inhibitions occasionally, or even completely. For people with abundant GHB experience, "the joyous, euphoric feeling and the energy" is the main motivation. Many people in this group are dependent on the drug and feel listless and sick without it. After a dose of GHB they feel good again and have energy to get through the day. They also take GHB to "forget everything for a bit / suppress emotional sensitivity". The substance serves the function of allowing them to forget about their problems that were already present, and which accumulate as a consequence of use. They find it difficult to deal with problems and emotions and suppress these feelings through continued use.

Information needs per group type

Based upon research observations, the qualitative data from the in-depth interviews and questionnaires, we were able to clearly define different types of groups of people who use GHB, as well as their GHB use habits and their information and care needs. The types of people who use GHB have been characterised as follows:

Group A: Moderate experience (lifetime use: 1 to 50 times)

The category of people with modest GHB experience (26% of respondents) generally takes conscious care of their health and would prefer to avoid passing out (because of the stigma, for example). If it does happen by accident, it often scares them into using less or quitting altogether. This group is interested in first-hand experience stories, harm-reduction tips and the long-term effects of GHB.

Group B: Considerable experience (lifetime use: 50 to 200 times)

The people with considerable GHB experience (24% of respondents) have a different information need. This group indicated that, in part because of their frequency of use, things occasionally do go wrong and they pass out. This is not deliberate, but they do push their borders. A time-checking tool could be advantageous for this group that sometimes loses track of their own limitations. A dosage tool could also be useful; when sober they still know how much they can take, but after a few doses they can get themselves into trouble. Lastly, a monitoring tool could be interesting for this group. It could provide a long-term overview of their use habits, and a period of non-use could be reinforced with practical self-regulation and control advice.

Group C: very experienced (lifetime use: more than 200 times)

The people with abundant GHB experience (50% of respondents) largely deny the seriousness of their use habits. They initially seem to show little interest in information about their health. It should be noted here that some of the people in this group had only just stopped, and we spoke to them at a clinic. Respondents from this group indicated that they think information should be targeted at primary prevention as well as the prevention of relapse. They do not express much confidence in the value of overdose prevention, as they see overdosing as an inherent part of frequent GHB use. What did spark their interest, however, were the grievances related to passing out. These come in varying degrees of severity: from burning holes in the sofa to house fires, and

include experiences such as 'friends' stealing things from the house, falling down a staircase, children not being picked up from school, as well as falling asleep while driving a car or riding a road scooter. This group had also had to deal with physical side effects. Respondents mentioned convulsions (and the related physical consequences, such as nodules appearing on a hand because of contortion of a little finger), chafes on hands and feet, tooth loss, fluid retention, short-term memory loss and kidney damage. Any harm-reduction message would have to fit in with these people's reality.

Feedback and additional ideas resulting from the National Focus Group

Discussion

On January 28th 2015 a focus group discussion was organised in which several researchers, care professionals and people with personal substance use experience in the field of GHB in the Netherlands participated. The goal of this meeting was to gather feedback on the suggestions for an overdose-prevention tool and to collect additional ideas.

- An app about GHB was considered the most difficult idea to realize because it is difficult to get drug-related apps accepted by app stores. Additionally, the private and sensitive nature of data about GHB use was a consideration. As an alternative it was suggested that people who use GHB could be made more aware of existing functionalities on their smartphones (such as keeping dosage notes and a timer function) and how these could lead to safer GHB use.
- Both the GHB-themed edition of the magazine *apexx* and the dosing tool with timer were seen as prevention activities that could contribute to raising awareness and opening up the discussion about safe use (e.g. dosage). However, participants were in doubt as to whether these particular interventions would also appeal to the group of abundant experienced people. Perhaps outreach work through the use of peers can contribute. It was also suggested that the style of the magazine *apexx* be simplified for this subgroup, with videos replacing articles, for example.

New ideas suggested during the focus group discussion were:

- A GHBob: someone within the group of friends who stays sober and keeps an eye on everyone's dosage and intervals (a respondent had earlier referred to this individual as the 'Medicine Man').
- A GHB helpline: a phone number you can call anonymously to ask for advice in the event of an overdose (from someone with personal substance use experience or a professional) instead of calling for an ambulance
- Primary prevention in schools (if necessary with the use of people with personal substance use experience). As a experience expert said: "I knew from an early age how addictive heroin is. As a result I never used heroin. I knew nothing about GHB. The first thing I heard about it from other people was how fantastic it was and that it doesn't give you a hangover. I would have preferred to have been told as a kid that GHB is similar to heroin."
- An awareness-raising campaign aimed at reducing the practical inconveniences and physical hazards of passing out frequently, targeted at the group of people with abundant

GHB experience who usually use at home. For example in the form of a video that can be shared online using the model of the 'Outgaan is nooit ok' ('Passing out is never ok') campaign by GGD Amsterdam.

It was concluded that all discussed ideas contribute to raising the awareness of people who use about overdosing, but that none of the ideas suit every subgroup. Each proposed interventions in isolation can only have a relatively small effect on reducing the risks. But they do provide different ways to keep in touch with 'hidden' groups and to continue a dialogue on safe use. All participants underlined the importance of this, given the high number of overdoses occurring among the group of people with abundant GHB experience. Plus the fact that there is currently no form of assistance relevant to this group. Because even if these people aren't yet ready to stop, overdose prevention is of great importance to this group, given the risks of brain damage or even death. And also because of the high costs associated with repeated hospitalizations. Raising awareness, working together to find pragmatic solutions to reduce risks and strengthening self-control mechanisms are harm-reduction techniques that have been successful in helping older people who use heroin practice relatively safe and aware methods of use. The condition for success is that people are actively approached at home and that professionals put themselves in the reality of their world. This approach might also provide a role for peers. It would include a package of harmreduction interventions that complement each other and fit the different needs of the subgroups.

CONCLUSION

The central question of this study is:

What type of harm-reduction interventions can be developed in order to reduce the risk of a GHB overdose and the related health damage?

In order to answer this question, answers to the sub-questions shall be given first.

1. What does the group of people who use GHB predominantly at home look like?

Of the 146 respondents from the Netherlands and Belgium, 88% also used GHB at home. Of these, 38% used GHB predominantly at home. This group consisted of relatively older people (average age 32) who were more often than not in education, employment or training. Of the entire research population, the majority were ethnic Dutch, and 72% were male with an average age of 28.

All are people who use several kind of substances and half of them also used pharmaceuticals such as benzodiazepines (Valium) and Ritalin. Respondents from outside Randstad also use base coke sometimes. Use of heroin by people who also use GHB was predominantly encountered among Belgian respondents. Most respondents used GHB for the first time at age 21. The most important self-reported benefits of using GHB: feeling more self-confident and sociable, and having euphoric energy and a happy high. Passing out, the unpleasant taste and the risk of addiction were named as the main disadvantages. GHB was mostly used with friends, but half of the respondents also used GHB occasionally alone. The research population may be divided into three groups based on the number of occasions on which a person used GHB in their lifetime: people with modest experience (1-50 times), people with considerable experience (50-200 times) and people with abundant experience (200 times or more). Of the latter group, most used GHB predominantly while alone. Nearly all respondents had experienced passing out when using GHB, and seven out of ten had fallen into a coma at least once. Half of the respondents have had or were in contact with drug support services.

2. Which personal and environmental characteristics increase the risk of an overdose?

Drug: It is not so much the less experienced but rather the very experienced group (>200 times) who are at greatest risk of an overdose. The very experienced group use GHB more often, in slightly higher doses and, most importantly, take more doses per occasion. In three quarters of the instances where a person went into a coma, GHB was co-ingested with other substances, most commonly alcohol and amphetamines. Combination-use with alcohol increases the chance of passing out as this, like GHB, is a downer. By combining GHB with amphetamines, people can stay awake for longer and, in general, take more GHB. Eventually, the person passes out from the multiple doses, the so-called 'stack effect'.

Set: Gender and age displayed no relation with risk of coma; a relation did exist, however, between coma risk and a lower level of education. The motivation for using GHB also seemed to play a role; people who used GHB in order to feel more self-confident and sociable have a fallen into a coma more often. Moreover, the people with abundant experience with a greater risk of an overdose are the ones that most often take GHB to mute their feelings and forget everything for a while.

Setting: The people with abundant experience were mostly encountered outside the Randstad. Coma risk did not seem to be related to use at home, but it did appear to be related to using GHB alone.

3. Which measures do people who use GHB take to avoid an overdose?

The first aid measures that people provide each other in the event of overdose differ per region. People from Randstad more often said they would check the person's breathing, put them in the recovery position and apply a painful stimulus. Outside Randstad, respondents more often simply 'leave them be'. Moreover, they felt less often inclined to call an ambulance. This was often the case among group of people with abundant GHB experience. Belgian respondents said they would call an ambulance and keep the person awake or put them under a cold shower. According to the respondents, the most important measures to prevent an overdose are: proper dosage, not topping up too soon, and keeping track of time. Belgian respondents more often mentioned not combining GHB with other substances. Respondents had found various practical solutions and self-regulation mechanisms to prevent passing out, such as making a screenshot of the time of ingestion, keeping active/moving, and not keeping a bottle of GHB at home. Four in five respondents said they did not feel a need for information or help regarding GHB. Those who did want information were mostly the very experienced people, people who called an ambulance in the event of overdose, and the Belgian respondents. Respondents suggested various ideas for an overdose-prevention tool, including: a smartphone app, online harm-reduction information, a dosage tool with integrated timer, information by peer advisers and convincing people to make agreements within friend groups about what constitutes accepted behaviour regarding passing out. Other ideas were a GHB helpline, an awareness raising campaign, and primary use prevention at schools.

What type of harm-reduction interventions can be developed to reduce the risk of a GHB overdose and related health damage?

The conclusion is that the type of harm-reduction interventions that need to be developed depend strongly on the subgroup based their GHB ¹experience and their information needs and level of knowledge about overdosing.

The people with modest GHB experience (used 1 top 50 times in their life) are especially interested in experience stories of other people who use and harm-reduction tips.

The people with considerable GHB experience (50 to 200 times) need self-control advice, including in the field of dosage and keeping track of time. The people with abundant GHB experience (more than 200 times) are particularly interested in the long-term effects of using GHB and regularly passing out. Information about quitting (permanently) was also mentioned.

Overdose prevention is of greatest necessity for the group of people with abundant GHB experience. In this study, that group consisted mostly of people from villages outside of the Randstad conurbation. They take more doses per occasion, and mostly alone at home. Although respondents experienced passing out as GHB's main drawback, at the same time they see it as an unavoidable part of their use. Compared with less experienced subgroups, this very experienced group has a considerable knowledge gap in the field of overdose prevention and first aid in the event of an overdose. These respondents did not regard passing out as a problem, and considered it, rather, to be an inherent part of using GHB. They are less often inclined to call for an ambulance, do not try to keep the person in question awake, and 'simply let them be'. The fact that this group, compared to others, indicate more often that they need information offers possible starting points for interventions aimed at attitude change with respect to passing out. Information can relate to the subject of GHB-related occurrences that they experience as inconvenient, such as mishaps (traffic accidents or house fires) and physical problems (weight gain, forgetfulness and movement disorders). This group's motivation for using - mainly to feel more sociable and self-confident - also provides entry-points for conversations. By strengthening social skills, the need for the drug to fulfil this function becomes gradually less important.

Another group with relatively little knowledge about prevention and first aid in the event of overdose were the Belgian respondents. Considering that they did indicate a desire for information, Dutch harm-reduction activities might contribute to the amount of knowledge among people who use GHB in Flanders.

People from the Randstad appear to be more aware of the measures to be taken in the event of overdose. Passing out is what they want to avoid the most. So for this group it is important to disseminate good and practical harm-reduction tips widely. These could be tips such as: do not use alone, use a dosage tool and a timer, dosage advice and drawing attention to the risk of overdose resulting from stacking of doses and the combination of GHB with other substances.

5. RECOMMENDATIONS

In this chapter, the idea of a *'Comprehensive GHB Prevention, Harm reduction and Treatment package'* is introduced. First, an overview of the GHB interventions that already exist or are already in development will be given. This will render evident the prevention activities currently still missing. Based on this, suggestions will then be made for the development of interventions per subgroup. These interventions have been presented to the European partners in this research. The decision about which intervention to develop and test in a pilot was made on the basis of this study's findings. This chapter ends with a description and evaluation of this pilot intervention.

5.1 Comprehensive GHB Prevention, Harm reduction and Treatment package

Various prevention activities emerged from this study that can contribute to reducing the risks of overdosing and raising awareness about overdosing among people who use GHB. The diversity in the types of groups who use GHB, however, requires an integrated approach in the field of GHB-prevention interventions. The existing interventions in the field of GHB are fragmented and an overview is lacking. Moreover, in the current range of interventions in the field of GHB there is scant attention paid to harm-reduction.

Based on the results of this study, we therefore advise a '*GHB Prevention, Harm reduction and Treatment package*', a comprehensive package that approaches problems from different angles. This idea is based on the WHO package for prevention, harm-reduction and treatment of HIV among people who inject drugs, which includes a variety of interventions that together contribute to the prevention of HIV problems (WHO, 2014). Overdose prevention is a part of this preventive package, and is complemented with other interventions that promote the health of people who use drugs. With an integrated approach to problematic GHB, an important step could be made in health promotion among people who use GHB frequently.

For the development of a comprehensive 'GHB Prevention, Harm reduction and Treatment package', information sharing and collaboration between each and all of the involved parties is of key importance. Interventions can be linked to one another and can work additional to one another. Good coordination is therefore essential.

5.2 Overview of existing GHB interventions

In order to provide a clear image of what interventions already exist and which have yet to be realised within the spectrum of prevention, treatment and aftercare, the interventions in the Netherlands have been classed according to the spectrum of interventions of Mrazek & Haggerty, 1994. Belgium has not been included. Perhaps this overview can serve as inspiration. Below are descriptions, on the basis of the intervention spectrum, of the various interventions that exist or are in development. It must be noted that the following overview is not comprehensive. However, it provides a rough indication of preventive sectors in which various interventions have been developed as well as the preventive sector in which there are still gaps.



Intervention spectrum for mental disorders (adapted from Mrazek & Haggerty, 1994)

PREVENTION

Universal prevention targets the general population or a section of the population that is not identified based on an individual risk factor.

• Information and education for students in secondary schools, possibly with the use of people with personal substance use experience. In the meantime, GHB has been included in the national education project 'The Healthy School and Stimulants'.

Selective prevention targets individuals or a subgroup of the population who are at a significantly higher than average risk of developing addiction problems.

- Local awareness raising campaigns in risk areas to prevent first-time use. An example is
 the intervention 'G-Spot' by the Trimbos Institute, Novadic Kentron and Unity which
 addresses the role of friends in first-time use at events and the link of GHB and sex.
 Another is the campaign 'Outgaan is nooit ok' (Passing out is never ok) by GGD
 Amsterdam, which aims to make clubbers aware of the consequences of passing out, both
 for themselves and for those around them.
- Training of professionals with a gatekeeper function, such as teachers and general practitioners, with the aim of joint detection of GHB use. Several courses exist in this area, but what's available could perhaps be more actively offered in specific risk areas.
- Training and increasing awareness among parties who are often in contact with the target group, but do not primarily have a duty of care, in order to improve the service chain. An example of this is the study by the Bonger Institute commissioned by the Dutch Police.

This research aimed to map out GHB 'hot spots' in rural areas, with a keen eye on police procedures in order to find out what the various forces can learn from each other.

 Initiating local monitoring networks for early-stage identification via triangulation of new usage trends. An example is the Local Pass Methodology, developed through the collaboration of various drug-prevention organizations from five different European countries.

Indicated prevention targets individuals who do exhibit signs, complaints or symptoms associated with problematic use of substances, but are not (yet) receiving abstinence-orientated treatment. Indicated prevention is aimed at preventing individuals from catching diseases or preventing further damage to their health through an intervention or treatment.

At present, there are few or no harm-reduction interventions designed for people who use GHB problematicly.

TREATMENT

Case identification/Standard treatment

 Detox treatments in clinics, whereby substance use is phased out in a controlled manner with the aid of pharmaceutical GHB or benzodiazepines. Clients are under the medical supervision of doctors and nurses as the body undergoes withdrawal. Treatment focussing on psychological dependence often follows GHB detoxification, in the form of discussions and training.

LONG TERM

Long-term treatment/after-care

- Given the high risk of relapse after GHB treatment, the study of which long-term treatments can help clients to stop permanently deserves more attention. An example is the pilot of the Radboud University Nijmegen in which people are prescribed Baclofen.
- The risk of relapse is largely determined by how people feel about the drug and their own
 addiction after treatment. What function does GHB serve for them and how is it that so many
 people who used GHB in the past still attribute positive traits to the drug? Novadic Kentron
 and Radboud University Nijmegen have begun exploratory research. It seems that increasing
 self-confidence of people who use GHB and learning how to deal better with problems are
 especially important themes in preventing relapse.
- Many people fall into a hole when they come out of the clinic. Actively guiding this group in finding work or other meaningful activities is therefore of great importance. An example is the project 'Recovering Together' from Novadic Kentron in which people who used GHb in the past guide clients who have registered for treatment using their own experience. An example of the next step is the training 'Personal Tutor with personal substance use experience of specific target groups'. This three-year program is a variant of the Personal Tutor training Specific Target Groups (Social Services) and focuses on people with personal substance use experience.

5.3 Recommended interventions by GHB subgroup

Although there are currently many interventions either in development or being implemented, there still remains a gap in the indicated area of prevention. These are interventions aimed at individuals who have all the signs, complaints or symptoms of potentially problematic substance use, but are not (yet) receiving abstinence-orientated treatment. The goal is to prevent further health damage for the people who have developed dependance. Additionally, overdose prevention can provide savings on the expensive healthcare costs of ambulance services and emergency care. Herein perhaps lies a role for prevention workers from addiction clinics (possibly with the use of peers) and outreach workers from child-welfare institutions or harm reduction organizatons like the Mainline Foundation.

In the development and implementation of interventions within the indicated prevention, it is important to make no moral judgement about substance use, but to seek (together), within the frames of use, methods by which the substance can be used with more awareness and safety, and the risks reduced. The message must not come across as pedantic, and should incorporate fun/funny elements (info-tainment). It is of great importance that the information style reflects the reality of the target audience so that people can recognize themselves in it. Here is an overview of the different subgroups (based on their GHB experience), their information needs and the possible harm-reduction interventions that could fit this group.

A. People with modest GHB experience (lifetime use: 1 to 50 times)

The people with modest GHB experience generally take conscious care of their health and are the group most interested in avoiding passing out. Passing out carries a stigma within this group, as evidenced by the agreements made within groups of friends. If it does happen by accident, it often scares them into using less or quitting altogether. This group is interested in first-hand experience stories, harm-reduction tips and the long-term effects of GHB, among other things.

• GHB-themed edition of apexx magazine

One possible intervention that fits people with modest GHB experience is online and offline information about sex, drugs and health. It emerged from this study that this group generally has a somewhat higher level of education. Informative articles with experience stories supplemented with knowledge from professionals may be of interest to this group. An example of this is the digital magazine *apexx.nl.* The target group consists of young adults aged 18 to 30 who use substances. Readers can also write for the magazine, with their contributions edited and supplemented with expert knowledge. Each article provides room for comments. Anyone interested in learning more about a specific substance is referred to other health agencies and information websites like Unity.

Over the course of the study, enough interesting data and intense real-life experience stories was collected to easily fill a special GHB edition of the magazine. For instance, as sexual arousal was an often-mentioned incentive for using GHB, an article about the link between GHB and sex could be interesting. In another article, some of the myths that exist among people who use GHB could be debunked by expert knowledge. Such as the myth that you can tell the strength of your GHB solution by reading it's PH-value. Another idea

is to provide an overview of the various utensils with their volumetric capacity in millimetres, as it emerged from the study that there is much confusion on this topic. *Apexx* can also be accessed via smartphone, as well as be distributed in print. Respondents met previous issues with approval during this study.

• GHBob / Medicine Man

The GHBob / Medicine Man is someone within the group of friends who stays sober and keep an eye on everyone's dosage and intervals. This arrangement works only if everyone in the group is in agreement. The idea could possibly be introduced by means of a campaign and reinforced.

• GHB helpline

Since calling for an ambulance is sometimes seen as a barrier to asking for help, people may be more inclined to call a GHB helpline. The helpline workers can be people with personal substance use experience and / or professionals. However, it is questionable whether such a helpline is ethical and whether it is feasible to provide good advice with one phone conversation (and, possibly, photo / video material). In any case this idea requires the cooperation of the ambulance service, just in case they are still required.

B. People with considerable GHB experience (lifetime use 50 to 200 times)

The people with considerable GHB experience indicate that, due to the frequency of use, it sometimes goes wrong. They do not pass out deliberately, but regularly seek their limits. Tools that help them measure dosage more accurately, keep track of time or make the time intervals between doses more visible will meet this group's needs.

• Dosage Tool with G-watch

Dosage and the intervals between doses are a very precise affair with GHB, and are the most significant causes of overdosing. While most people who use GHB are well aware of the fact, things can easily go wrong. When intoxicated, it is hard to see clearly and you lose track of time. This is why a tool that could make the tasks of measuring dosages and keeping track of time easier and also feasible in less-sober states will be beneficial. It could be, for instance, a vial or bottle with millilitre markings (not in ink, as this dissolves in the GBL ingredient in GHB), a pouring lid for adequate dosage (which, for example, cannot exceed 2 ML) and a torch function, as measuring dosages in the dark is even more of a challenge. This dosage tool could be linked to a timer, a so-called G watch, to keep track of the time between doses. Perhaps, this tool could be integrated with a monitoring smartphone app, which would allow you to keep a record of your use.

• G app for smartphone

During the study, respondents suggested various functionalities for inclusion in this smartphone application. Consider a dosage function that calculates how much you can take according to your gender, height, weight and the substance you are combining GHB with. As topping up too quickly (linked, among other things, to an altered perception of

time) is mentioned as one of the most significant causes of overdosing, such a monitoring function must not be overlooked. Other features mentioned include: general information about GHB, what to do in case someone passes out, advice about self-control, an overview with all sorts of utensils and their respective volumetric capacities in millimetres, and a monitor for tracking drug over time. Periods of non-use can be reinforced with practical self-regulation and control tips within the latter feature. An auxiliary help function could also be integrated; that way you have direct contact with a professional if something ever goes wrong. Various difficulties relating to the development of such an app emerged in talking to professionals and people who use GHB. Consider the probability of a drug-related app being accepted by Apple's app store, as well as the question of whether people are really prepared to divulge the private and sensitive information necessary for personally tailored harm-reduction advice to be offered.

C. People with abundant GHB experience (lifetime use: more than 200 times)

The people with abundant GHB experience largely deny the seriousness of their use habits and initially seem to show little interest in information about overdose prevention. According to these people, information should be targeted at primary prevention of GHB use as well as the prevention of relapse after treatment at a clinic. Passing out is simply an inherent part of regular GHB use. However, they are bothered by the inconveniences of passing out, such as house fires, having your things stolen and having car accidents. The physical side effects of frequent use were also an issue for this group. Consider convulsions, wounds, tooth loss, fluid retention, short-term memory loss and kidney damage.

This group largely uses at home and as a result is not reached by prevention activities that centre on nightlife venues. They are also not (yet) on the radar of Addition services. Or no longer, in the case of those who relapse following treatment. At the moment, people in this group are often only approached when they make a nuisance of themselves. If help is ever offered, it is usually geared towards abstinence. These people, who are not (yet) ready to quit, fall between two stools. This, despite knowing from experiences with older group of people who use heroin in the past that harm-reduction can indeed lead to relatively safe and knowledgeable use. Possible harmreduction techniques include: raising awareness, working together to find pragmatic solutions that reduce risks and strengthening self-regulation mechanisms. Because even when they are not yet ready to quit, overdose prevention, given the risks of brain damage or even death, is of great importance. The condition for success is that they are actively approached at home and that we put ourselves in the reality of their world. This approach might also provide a role for peers.

• Outreachwork by outreach workers (eventually together with peers)

With outreach activities, people are actively approached (where they hang out or at home) with the aim to starting a conversation about substance use. Use can be made here of the Presence Theory (Baart, A.J. 2007) and Motivational Interviewing (Miller, R.M. Rollnick, S. 2008), supplemented with personalized feedback on substance use. A playful atmosphere can be established with the help of knowledge quizzes or an educational game. It's not necessary for these conversations to focus directly on overdosing, but the subject can be approached by talking about the practical and physical risks and other complaints that come about as a result of passing out. Alternatives to the function provided by the drug can be jointly sought, and their self-control mechanisms can be strengthened. Peers can facilitate knowledge transfer in the language of the target group. Moreover this method may offer people who used GHB in the past something meaningful to do with their day. However, a lot of time will need to be invested in the selection and training of peers, the maintenance of local networks and the prevention of a relapse.

• Provision of equipment to promote safe use

Handing out equipment to promote safe use during outreach activities makes it easier to talk about the subject. People feel taken seriously when their habit is not condemned. Possible equipment: dosage syringes and timers.

• Awareness campaigns

Messages for specific subgroups can be precisely transmitted with the aid of a campaign. One example of this is an overdose-prevention campaign aimed at reducing the risks and practical and physical hazards of passing out frequently among people who use usually at home. An awareness campaign can be employed to (eventually) achieve attitude change. People with abundant GHB experience will first need to understand the gravity of the consequences of passing out before they experience it as a problem and adopt a less complacent attitude. A campaign in the form of a short video has the advantage that it can be easily shared as much by professionals during outreach activities as among people who use GHB. Furthermore, a video is often more accessible than written material for low educated people.

• Substitution Treatment

Some people, who are addicted to GHB, take an overdose in order to sleep. An investigation of how to stabilize the day/night and/or sleeping patterns of these people is recommended. A substitution treatment consisting of an agonist with a longer half-life than GHB might provide a solution. People may be less inclined to overdose from taking several doses of GHB a night. A condition of this treatment is that it is necessary to first determine whether such a substance is indeed less harmful than GHB, and also in the long term.

The intervention ideas for people with abundant GHB experience were discussed during the European Focus Group discussion with national and international partners. Following feedback from the discussion, an intervention pilot was developed, implemented and evaluated. The report of the focus group discussion and the project plan of the video intervention are included as attachments.

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ATTACHMENTS

Appendix I: Outcomes and feedback European focus group discussion

On March 25, 2015, Mainline Foundation organized a European Focus Group Discussion with nine Associate Partners including the UK, Czech Republic, Romania, Portugal, Belgium and the Netherlands. The purpose of the meeting was to obtain feedback on the research results of the GHB Overdose Prevention Research and to discuss the existing 'Comprehensive GHB Prevention, Harm reduction and Treatment package', which consists of different types of harm-reduction interventions. There was also a discussion about how hard-to-reach groups can yet be reached. Also discussed was the way the results of the study can be distributed and applied in other European countries. With the exception of the Dutch, Belgian and British partners, the drug GHB is relatively unknown. The other partners were therefore very interested in its rise in the Netherlands and Flanders with a view to the possible spread of GHB (and other new substances) in Europe.

The participants agreed that it is difficult to pick just one harm-reduction intervention solution given the diversity in subgroups based on the GHB experience. Hence the decision to focus on one method from available selection of interventions for one target group: people with abundant GHB experience who mainly use at home. The research revealed that people in this group have the greatest chance of an overdose but also have a lax attitude toward passing out. Therefore, besides passing on knowledge, the focus of the intervention was on attitude change with the ultimate goal of behavioural change. However, precise figures on the number of (fatal) overdoses and long-term effects of GHB use and frequency of passing out are still lacking. As a result, people who use GHB need to be convinced of the risks in a different way. Finally, it was concluded that none of the interventions on its own would be likely to prevent an overdose, and thus a combination of interventions is preferable.

Online dissemination / offline harm-reduction information

Among the identified advantages of online information was the fact that it allows a wide range of topics to be discussed via a medium that is accessible to a wide audience. The biggest drawback identified of providing information via online means was that there is already a huge number of existing websites and forums devoted to drug use. This could make a harm-reduction intervention in the form of a new website superfluous. In addition, it is difficult online to make a distinction between reliable and less reliable information. It was to this end that Mainline Foundation set up *apexx.nl* a few years ago: an online magazine that includes experience stories of people who use checked by and supplemented with knowledge from professionals. A themed issue on GHB was seen by the participants as a good way to share the knowledge, experiences and harm-reduction tips from this study. But the magazine in its current form, with in-depth articles, seems a less suitable overdose-prevention tool for people with abundant GHB experience.

Offline information (such as a brochure or magazine) is less cursory than online information and can be used to open up discussions on specific topics during outreach activities and by people who use GHB themselves. The Mainline magazine for heroin and people who use base coke is a good example of this. The advantage of offline information is that it can be selectively distributed (among specific subgroups). It was noted that harm-reduction information succeeds or falls on the choice of tone, and the use of appropriate language and sufficient footage.

Outreach work

Outreach work was seen as the best method to reach people who use at home. It was in this manner that Foundation Mainline, during this study, came into contact with a relatively hidden target audience. Making contact in this manner often happened via professionals and other people who use GHB, and was time-consuming. The advantage of direct contact is that it enables the building of relationships based on trust. Moreover, this method makes it possible to roughly determine the experience of GHB use, what he / she needs and how best to convey a prevention message in order for it to get through.

Peer education

Peer education was rated as the best way to convey a message to this target group. Peers are people with personal substance use experience, speak the language of the target audience and often provide access to new groups of people who use. By allowing people who use(d) GHB to talk about their own experiences, the lack of scientific knowledge, for example about long-term consequences, can be collected. Also, stories that match their own experience often make more of an impression than quantitative information about the risks. However, there are also certain practical and ethical dilemmas in the deployment of people who use GHB actively or people who used GHB in the past as peers. Building and maintaining a good peer network is time-consuming and the turnout and commitment not always reliable. Furthermore, when cooperating with people who used GHB in the past there is the chance of relapse when they are once again confronted with people who actively use. It is difficult for a national foundation such as Mainline to keep an eye on this when peers are out of sight of our field workers.

Awareness Campaign aimed at a specific subgroup

An awareness campaign was seen as a good intervention method for reaching a large group in a short time. A video can be easily shared online within subgroups and in this way penetrate networks that professionals would probably not reach. However, it is necessary to first properly establish whom the video is created for and how the message can best be conveyed so that people who use GHBactually watch the video. Given the low educational level of the group of people with abundant GHB experience, a video is probably better medium than written material. Furthermore, these people often spend most of their time at home and make extensive use of their smartphone and the Internet. Awareness campaigns were also seen as a promising method of intervention for parents or friends of people who use GHB. Among these groups is often a lack of knowledge about GHB. It was acknowledged that the disadvantage of this method was the difficulty of measuring its real impact (in this case awareness about the risks of an overdose) and controlling how long a message delivered in this manner lingers.

In summary, it can be concluded that the combination of outreach work supported by harmreduction information was seen as the most effective intervention for reaching hard-to-reach people who use GHB. In order to match the information to the reality of the audience, it is best to use stories of peers supplemented with knowledge from this study and from people with personal substance use experience. For the purpose intended – attitude change towards passing out – an awareness campaign was seen as an appropriate intervention. The low educational level of the target group and their frequent use of smartphones and the Internet make providing information via video preferable to written material. All these recommendations were included in the intervention Mainline Foundation has developed as a result of this investigation and implemented in a pilot. This tool may eventually be used in other European countries among people who use GHB or in modified form among hard-to-reach people who use other substances.

Appendix II: Pilot intervention

As a result of this study, a pilot intervention was developed and tested. Here follows a project plan that consists of the rationale and context of the intervention, the problem definition, purpose, audience, content and manner of distribution. This is followed by an analysis of the collected feedback on the intervention and the recommendations arising therefrom.

Project plan

Rationale and background

In the summer of 2014, Mainline Foundation researched 'Overdose prevention among hard-toreach people who use of non-opioid substances' in the Netherlands and Belgium. The goal was to reach hidden populations at home and explore the characteristics associated with overdosing. A total of 146 questionnaires were completed and 15 in-depth interviews conducted. From this it emerged that especially the people with abundant GHB experience fall into a coma more often, but they are rarely reached by prevention activities. On the basis of this study, Mainline Foundation recommends the development of a 'Comprehensive GHB Prevention, Harm reduction and Treatment package' whereby existing and gestating interventions relating to GHB complement each other. To fill the gap that currently exists in the area of harm-reduction activities for group of people with abundant GHB experience, several intervention options are proposed. These ideas have been discussed with national and European partners. Following that, a decision was made for a pilot intervention that was subsequently developed and tested as a result of this investigation.

The intervention proposal is consistent with the plans of the Ministry of Health, Welfare and Sport to examine what methods and form content in a GHB intervention plan can be given in order for (acute) health incidents to be prevented and addiction to be reduced. The Ministry recognizes the seriousness of the GHB issue and singles out the problem of home-use as a complication. They also recognize that the hidden nature of this subgroup demands new forms of outreach, treatment and prevention interventions. In consideration of the regional differences, the Ministry prefers regional customization (Rijn, M.J. van (2015).

Problem

The GHB Overdose Prevention Study shows that people with abundant GHB do often pass out. Although respondents experienced passing out as GHB's main drawback, at the same time they see it as an unavoidable part of their use. In terms of overdose prevention and first aid knowledge in the event of passing out, people in this group are less informed than people with less GHB experience. They wait longer to call an ambulance, and don't bother trying to keep the subject of the overdose awake, choosing instead to 'just let them be'. This group uses primarily at home and is thus not reached by prevention activities that take place at nightlife venues. Help from addiction centres focuses on abstinence. People who (in the first place) have no desire to stop, are thus often not be reached with prevention activities. This, despite knowing from experiences with older group of people who use heroin in the past that harm-reduction can indeed lead to relatively safe and knowledgeable use. Possible harm-reduction techniques include: raising awareness, working together to find pragmatic solutions that reduce risks and strengthening self-control mechanisms. Because even when people are not yet ready to quit, overdose prevention, given the risks of brain damage or even death, is of great importance.

In addition, drug incidents caused by GHB use are shown to be the most prevalent in the emergency room and with ambulance services (Monitor Drugs Incidents, 2013). Overdose prevention among this group can gain much social profit, while people with abundant GHB experience often pass out.

Purpose

The video-intervention aims to increase knowledge about the risks of passing out among people with abundant GHB experience. Through a better understanding of the risks is the ultimate goal of trying to change attitudes towards passing out and encouraging safer use. The intervention also aims to open up the discussion about passing out among these people and between professionals and people who use GHB.

Target audience

This video is primarily meant for people with abundant GHB experience who mainly use at home. As the research shows, this group is most at risk of a coma, but at the same time fail to recognise passing out as a problem. They use more often, take more doses per occasion and more often use alone (at home). In addition, the low level of educational and the motivation to use the drug (to feel more sociable and self-confident) are risk factors that increase the risk of a coma. Furthermore, there is very little knowledge within this group of overdose prevention and first aid in the event of an overdose. In general, they were mostly encountered outside the Randstad. To investigate whether the video also resonates with other subgroups of people who use and people who do not use, the video will be widely disseminated as part of this pilot.

Description of intervention

Based on the study, a number of topics were selected that are either directly or indirectly linked to overdosing and passing out. The script for the video was composed on the basis of these topics. The experiences of peers form the basis. This is supplemented with professional knowledge and harm-reduction tips.

Video

We have chosen video intervention because this medium is a better fit than information in written form with respect to the low educational level of the target audience. Moreover, people in this group are to be found mainly at home, and tend to make extensive use of their smartphone and the Internet. The video can be easily shared online within the network of people who use GHB. The video is 14 minutes in duration and can be seen on YouTube.com.

Peer-education

Based on the idea that people who use are the experts in the field of GHB and passing out, working with peers was essential. The peers were asked to speak from their own experiences

about how they handle this and what advice they would give other people who use GHB. In this way the message is precisely focused on the experiences of the audience. Although it was originally decided that peers (people who actively use or used in the past) would be used during outreach activities, an alternative method was chosen for this pilot intervention. The building of peer networks that also provide good preparation, counselling and aftercare proved to be too time consuming for this pilot. Thus an intervention was chosen in which three people with abundant GHB experience and one person who used GHB in the past tell their stories in a video. It was of great importance that the anonymity of those involved is guaranteed. Which is why the participants are unrecognizable and appear under pseudonyms. The characters are respondents from the research who were approached because of their personal experiences. The stories of the three people who actively use GHB are supplemented by the experiences of the person who used GHB in the past. This participant is good at reflecting on his period of use and long-term effects of passing out frequently. The collaboration with peers went well and contact was maintained following the recording. This revealed that the telling but also the revisiting of their personal story left a great impression on the peers and has even led to behavioural change. An evaluation of the participants is attached to this project plan.

Outreach work

The video can be shared online within subgroups. In this way networks that professionals have never been able to reach are being reached. In addition, the video can be used as a tool for professionals (during outreach activities) to start the conversation about overdosing and passing out. This method has the advantage that there is direct contact with the target audience and that the video can be supplemented with motivational guidance. For example: the use of tools for safe dosage and keeping track of time, the strengthening of self-regulation mechanisms and the search for alternatives to the function provided by the substance.

The content of the intervention

In the introduction of the video 'GHB & (F) OUTGAAN' (GHB and going bad') the peers talk about how they began using GHB and what they now think of the drug. Following the introduction is a text message explaining what GHB is and what it is made from, and stating that it has been on List 1 of the Opium law since 2012.

GHB and its consequences

Peers speak from their own experience about the consequences of frequent GHB use. The examples relate to addiction (for example not being able to go on vacation without GHB), physical symptoms (such as fluid retention), no longer being capable of thinking clearly, becoming more careless and forgetful, no longer being taken seriously by anyone, and passing out more often. This is followed by on-screen information about the difference in effect of small dose of GHB (feeling relaxed and sexually stimulated) and high / multiple doses (nausea and passing out).

Passing out

Peers give examples of situations in which they or others in their circle of acquaintances passed out. For instance, one girl talks about witnessing another girl being sexually assaulted by five men
while unconscious, and how she tried without success to wake her up. She indicates that this incident did scare her. The person who used GHb in the past talks about how he, when he was still addicted, took double doses to 'knock himself out' in order to sleep. On-screen text then explains the difference between sleep, loss of consciousness and respiratory arrest.

The consequences of passing out

The peers talk about the short and long term consequences of passing out (frequently). One peer talks about a car accident he caused, another about how vulnerable you are as a woman if you're unconscious and another about memory loss.

Must you always call an ambulance?

After this question appears on screen, one peer says this is usually not necessary. But he adds that there are plenty of situations where it is necessary, and how good it is then that someone makes the call. He admits that if only people who use (with their complacent attitude towards passing out) were present in such situations, accidents would have occurred. The person who used GHB in the past says that in the space of a few years he woke up in hospital on 87 separate occasions after passing out. Although at the time he thought this was unnecessary (because, in his opinion, he was taking up space in a bed that someone in greater need could be using), he realizes now, in retrospect, that this is not a sensible thought. The people who called to ask about him had no idea what had happened and were concerned.

First aid in the event of an overdose

Through on-screen text it is explained, step-by-step, what to do if someone passes out:

- Try to keep the person awake by means of pain stimuli: pinch the shoulder muscles or fingertips hard.
- Lay the person on their side with their head tipped back slightly. That way you prevent the person choking on their tongue or vomit.
- Prevent hypothermia: Cover the individual with a blanket or jacket.
- Person not responding to pain stimuli? Then ALWAYS call an ambulance. There are no legal consequences for doing so.

How can you avoid passing out?

All persons offer tips from their own experiences about avoiding passing out. Examples are: don't take too much, use syringes to keep the dose small, be aware that caps come in different sizes, wait until it takes effect and don't take another dose too soon after the first. Also, take into account whether you ate beforehand and if you have used other substances. These tips are supplemented with practical advice on harm-reduction, including dosage and keeping track of time.

The combination with other drugs

• Downers & GHB

One person talks about his experience with benzodiazepines; how addictive this drug is and how dangerous it is in combination with GHB. On-screen information explains that downers (alcohol,

cannabis, ketamine, sleeping pills and tranquilizers) increase the risk of passing out. The combination with GHB causes the breathing to be suppressed, which is life-threatening.

• Uppers & GHB

First, the personal experience of one peer who says that if he stays up a few days on amphetamines and then takes GHB, he passes out immediately. But since his body is by then exhausted, he doesn't just pass out but rather falls into a state of deep unconsciousness. Onscreen information then explains that uppers (amphetamines, cocaine, ecstasy) may delay passing out. But if you do pass out, the coma is deeper and lasts longer. Moreover, this combination can cause epileptic seizures and movement disorders.

Tips for other people who use GHB

Finally, the peers give practical tips on reducing or avoiding the risks of using GHB and passing out. Examples include not going out onto the streets if you have used GHB, being careful with how much GHB you take, using a syringe, not being complacent and acting tough in front of friends, and not taking GHB while in traffic or if you have a pan on a lit stove. Some self-control tips are also given: if you still want to take GHB, restrict its use to weekends. And even if you feel rotten the next day, avoid using again to make yourself feel better because the chance of becoming addicted is great. The video concludes with the message: Avoid life-threatening situations for yourself and don't ruin the evening/night for those around you. Passing out is NOT normal.

Dissemination of the intervention

The video was distributed online among respondents in the survey and on the Facebook page of *apexx.nl.* Viewers were asked to share the video with other potentially interested parties. The video has also been shared with professionals who collaborated in the research and who are in contact with the audience. These include partner organizations: Free Clinic, CGG VAGGA (Belgium) and Iriszorg (Iris Care), Trimbos Institute and the Rainbow Group / Correlation (Netherlands). Field workers from Mainline Foundation and other professionals showed the video to people who use GHB during their (outreach)work activities and afterwards asked them to fill in an online feedback form.

In the 14-day period of the pilot, the video was viewed 570 times on YouTube.com.

Evaluation of the intervention

Evaluation by the participants

The video was evaluated with the participants in the making of the video, who were asked what they thought of the shoot and the end result. Telephone conversations were conducted with all four participants. Moreover they have also completed an online evaluation. The results will be discussed here.

The shoot

All participants found the shoot fun. Three of them also found it exciting too and two persons instructive. One person found the shoot pretty emotional. In the end, one person said they found it very tiring, "I could not sit still and look straight into the camera."

Content

Two people did admit to seeing their use of the drug in a different light after the video: "Afterwards, I realized that I really do have a problem that I cannot solve easily." Two participants have even stopped using: "I continued using until the date that I was hospitalized. I did a detox and treatment. I have have had a relapse already, but now I stopped again." The participant who isn't going to take another look at his own use is the person who already guit 1.5 years ago. Two participants indicated that they are now thinking differently about avoiding passing out, namely: "No more using GHB." Two participants are thinking differently about first aid in the event of someone passing out. One of them said: "I had no idea about some of the things mentioned in the video." The other said: "Just take control of the situation yourself." One of the participants is now thinking differently about avoiding passing out: "Now I see, passing out is not so harmless than it seemed at the time that I was using. For the other participants the way they think about passing out is not changed: "That remains the same." Nonetheless, one of the participants said afterwards: "I was knocked out for longer and deeper the last time. Normally, I always knew how and what. But it went much too far the last time. When I woke up I had absolutely no idea of what had happened. When a trusted friend of mine became seriously alarmed after I 'knocked out', it was the last straw for me. Now I have reduced my GHB use and I try to avoid passing out."

Evaluation of the end result

All participants are positive about the end result of the video. One of them said: "It's really clear." Another person: "It's good that you are dealing with this because GHB is certainly a big problem." And another person: "I think this video is helpful for people who are using to wake-up!" One person has some suggestions: "I found the video relatively short. An also, in my opinion the chosen experience stories of people should be more shocking." Participants have also shown the video to friends, acquaintances and family. Close ones responded positively, but were also shocked by the stories. One participant said: "She found it amazing that I dared to take part." Another person said: "I told them that I will help people with te video and they agreed with me." One of the participants has showed the video to other clients during his treatment: "They were stuned by the risks of this substance."

The future

All participants were satisfied with the way their identity was disguised in the video and gave their permission for the video to be posted on YouTube.com. All would still choose to volunteer their time for such an intervention. One participant said: "I liked it and it's for a good cause." Another said: "I like to help other people by telling my stories." Another person: "I am open to all your ideas, because I think it is a good initiative and one I would like to be a part of. I really hope that people learn something from it and that it makes a difference." And the last: "I think there is not enough information available that fits people who are using."

Analysis of feedback questionnaire

After seeing the video, viewers were asked to fill in an online feedback form on SurveyMonkey.com. In total, 60 people gave their opinion of the video.

Recruitment

Of the total study population, 60% came across the video online, for example via e-mail or Facebook. The remaining 40% came across it offline, for example via a professional during outreach work.

Usage

Experience with GHB is categorised on the basis of estimates of the number of times that someone has used the drug in his / her life. It was revealed that 22% had used GHB 1 to 50 times in their life, 7% 50 to 200 times and 17% more than 200 times. Furthermore, 55% had no experience with GHB, in the case of friends / family and professionals, for example.

General impressions of the video

- Almost everyone (98%) found the video interesting. Of these, 22% found the video extremely interesting, 55% very interesting and 22% fairly interesting.
- 76% of viewers found the video (not at all) boring. 20% found the video pretty boring and 4% very boring.
- 31% thought the video was (very) recognizable. 22% found the video was pretty/fairly recognizable, 18% unrecognizable and 29% totally unrecognizable.
- Most viewers found the video instructive: 18% note that they found the video extremely instructive, 47% very instructive, and 29% fairly instructive. The remainder found the video not instructive (4%) or not at all instructive (2%).

Content

The majority of the viewers learned something from the video about the substance GHB (93%), the prevention of passing out (91%), first aid in the event of passing out (89%) and the consequences of passing out (91%). 44 people answered the open question about what aspect of the video has stayed with them most. 50% of viewers named the serious stories told by the persons who use GHB about the consequences of prolonged use. Of these, 31% specifically mention the severity of the addiction and 18% cited the example of the car accident from the video. Furthermore, 34% named the harm-reduction advice in the video as the thing that has stayed with them the most. The examples given: the importance of the avoiding passing out, measuring doses (using a syringe), keeping track of time, the difference between sleeping and passing out, combination use (with uppers / downers) and first aid in the event of passing out. The remaining 16% cite examples like: you come across it so easily, shock at the sink-unblocker ingredient, the age of the participants, the slow manner of speaking, and respect for the main participants for taking part.

Attitude with respect to passing out

73% indicated that they do not think differently about passing out. Unfortunately, they were not asked to elaborate on their response. Given the high percentage of people who do not use GHB (55%), it is probable that this response came mostly from people who already had a negative attitude towards passing out. 27% said that they think differently about passing out after watching the video. The explanation given refers to the fact that they have now been given an even clearer picture of the risks and as a result want to avoid it. Specific examples mentioned are: you must be careful with activities like cooking if you have used GHB, you can fall into a deeper coma with uppers, how dangerous it can be if you don't call for help when someone passes out, and that there are greater implications to passing out than 'just sleeping'.

Suggestions for improvements

62% offered suggestions for improving the video. The recommendations relate to both the content (47%) and the design (53%).

Disseminating the video

77% said everyone ought to see this video (thus people who do not use, too). 19% said the video is only suitable for people who have tried GHB. And 4% found the video suitable only for people wit abundant GHB experience.

Recommendations

In response to the feedback certain aspects of the video have been adjusted. After these improvements, the video was posted on YouTube.com and also translated into English. In this way, the video can be easily shared online, both in the Netherlands and other European countries.

The feedback from the intervention pilot reveals that almost everyone believes the video should be widely disseminated; thus also among less severe subgroups of people who use GHB and even people who do not use GHB. However, it is hereby necessary to state clearly the purpose and the (original) target group:

This video was made for and by people with abundant GHB experience. The video reflects the experiences of the highly experienced group who have long passed the casual stage of using. This group uses predominantly at home, and as a result are not reached through drug education at social events. Also traditional addiction care does not always resonate with this subgroup because of the focus on abstinence and these people are not (yet) ready to stop. Meanwhile, this faces the highest risk of a coma and accidents caused by passing out. This emerged from the European study: 'Overdose prevention among hard-to-reach people who use GHB.' This group often doesn't see passing out as a problem, but rather as inherent to the use of GHB. Since they see themselves as experts, they are less inclined to listen to professionals. Hence the decision to use peer-education in this video. What tips and tricks do people who use have to offer each other

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in order reduce the risks of passing out? In this way reflection on own use is stimulated as much as it does reflection on the complacent attitude towards passing out. Also, the video is a tool to stimulate the debate on these issues.

The video might also be useful as overdose-prevention tool for people who have been discharged from hospital after being delivered comatose to the emergency room. The video could also be included in relapse-prevention after treatment at a clinic. Another possibility is to show the video to young people (in secondary schools) in areas where GHB-use is problematic.

To ensure the video intervention is implemented in the right way, Mainline Foundation is developing training for professionals whose work involves dealing with people who use GHB. This research yielded enough interesting data and casuistry to get started with training in an interactive way. Detailed instructions will be given in the video about how professionals can use the video as a tool to engage in dialogue with people who use GHB about overdosing.

In the period September 2015 to February 2016, the video will also developed as an interactive game for people who use GHB. The results of this research are the basis of the study project 'Game development' of the Master Game Studies (Information Studies, Science Park, University of Amsterdam, Amsterdam). This is an interdisciplinary field at the intersection of computer science, psychology, (new) media and artificial intelligence. A group of students will examine the needs of the stakeholders in this project for five months (in this case the people with abundant GHB experience with a high risk of passing out). They will then translate this, in conjunction with theory (in this case theories about behavioural change), into innovative game concepts. Mainline Foundation will provide guidance on project content, and a behavioural psychologist will be appointed as academic advisor.