

FINAL REPORT

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Subject: Comparison of methods and resulting drug use prevalence estimates of health surveys versus drug surveys methods

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1. Introduction

General population surveys, or school population surveys, represent some of the basic tools of data collection on drug use in the countries of the European Union and Norway. Their findings are linked to one of the five key indicators defined by the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) — drug use in the general population. Occasionally, the inconsistent findings of surveys in individual states indicate general difficulties with ensuring the representativeness and comparability of the collected data. Hence, apart from collecting and analysing data from 28 European countries, the EMCDDA is also involved in discussions with individual members of the Reitox network about the possible standardisation of data collection and methodological support in the form of research guidelines. In the past these efforts at improving data comparison methods led for example, to the construction of the European Model Questionnaire (EMQ), the meta-analysis of methodological procedures when conducting surveys (Decorte et al., 2009), as well as the local adoption of cannabis scales.

In order to ensure the comparability of data, not only among individual countries but also in time spans within the national borders, surveys on drug use in the general population and the school population should comply with a certain methodological minimum and continuity in the research design. In practical terms it is complicated to fulfil these two requirements as European countries and individual national institutions dealing with drug research can differ in research traditions, primary thematic approaches and available (financial or instrumental) sources. Efforts at harmonising data collection within a key indicator at European level can interfere with national time spans and hence jeopardise the interpretation of trends. On the contrary, a strict insistence on continuity defies meaningful international comparison. Small differences in the research design can actually influence the validity and comparability of findings: methods used for the selection of respondents, the contexts and techniques of data collection, the structure and contents of questionnaires as well as the way questions are worded, all play a role.

A topic that has been discussed most frequently in the last few years in this connection involves the survey context: that is, differences in methods and findings of studies devoted exclusively to drug use (drug surveys) and studies exploring health and healthy lifestyles in which drug use is only one of many topics (health surveys). In 2008, at the annual EMCDDA expert meeting in Lisbon, some members of the Reitox network presented data from both types of studies: in the Polish and Austrian cases, health surveys showed significantly lower prevalence; on the contrary, in Ireland both types of studies provided comparable findings despite significant methodological differences. A year later, the same meeting saw the presentation of data from two general population surveys conducted in 2008 in the Czech Republic while the EHIS study (European Health Interview Survey) indicated significantly lower prevalence of all the surveyed drugs than the general population survey on drug use.

As this is a serious and little researched problem that lacks scientific evidence, the EMCDDA supported a project dealing exactly with the differences in methodologies and findings of studies conducted in both contexts — health and drug use. This report summarises the insights gained from a literature review, a review of available data and information collected in a survey of individual national experts on GPS key indicators within the Reitox network. The survey aimed to explore specialist stances on the issue of varying survey contexts and also to find a possible internationally valid scientific agreement that would temporarily replace a costly scientific exploration.

2. Available data

The majority of European countries have conducted at least one survey among the general population or school population, based on which the prevalence of illicit drug use was assessed in the population. Individual countries (and sometimes also individual studies conducted at different periods of time in the same country), however, differ in the methods used as well as in the amount of information that is collected on (il)licit drug use. Tom Decorte and his colleagues summarise the differences in *An overview of general population surveys in Europe* (2009). That is why this chapter deals exclusively with questions linked to the survey context — it summarises available information on studies conducted on the adult population and some of their methodological characteristics. The chapter also deals with two international projects — ESPAD and HBSC studies conducted on the school population.

2.1 General population surveys

The EMCDDA archive Statistical bulletin (EMCDDA 2009a, 2010a) records a total of 108 general population surveys conducted at the national level ⁽¹⁾, 25 of these were conducted between 1990 and 1999 and 83 in 2000 or later. Almost half of the studies (53) were conducted in the single survey context and focused on (il)licit drugs. Illicit drug use was explored in the health context in 19 studies and 19 studies were conducted in other topics than the health context (including 17 crime surveys conducted in Great Britain). In nine cases, questions on drug use formed part of a so-called omnibus survey and in eight cases, the focus of the study was not specified.

An exploration of methodological characteristics of studies on illicit drug use in the EMCDDA Statistical bulletin ⁽²⁾ suggests that the research design — evidently except for the questionnaire content — does not depend directly on the context of the study. Surveys differ in routes and techniques of data collection, sampling procedures, and age range of covered populations. By far the most frequent route of administration is face-to-face interviews; this applies to the drug survey context as well as to health studies. The second most popular method is mailed or online questionnaires. For more detail, see Table 2.1 as well as Chapter 3.

Table 2.1 — Route of survey administration in different survey contexts

	Face-to-face interview	Telephone interview	Mail/web	Combined methods	n.a.	Total
Drug (single)	38	1	11	1	1	52
Health (multi)	11	2	6	0	0	19
Other (multi)	19	0	0	0	1	20
Omnibus (general)	6	0	3	0	0	9
Total	74	3	20	1	2	100

n.a.: not available.

Source: EMCDDA 2009a, 2010a.

The same applies in respect to techniques of data collection; researchers use the classic methods of pencil and paper (PAPI, PAPSI) or computer-assisted interviewing (CAPI, CASI, CAWI, CATI). Although the use of a computer in the course of the interview can make the use of a questionnaire easier for both the respondent and the interviewer and minimise inconsistencies and mistakes, when asking sensitive and potentially threatening questions, the degree of privacy that the respondent has is important. Nonetheless, most frequently the respondent dictates answers to the interviewer, almost half of the drug surveys and health surveys use this technique regardless of the data being collected face-to-face or in a telephone interview. The second most frequent choice is self-administration, specifically in the section of the questionnaire dealing with illicit drug use. This way of ensuring privacy is — surprisingly — relatively more frequent in the context of drug surveys and involves mainly those

⁽¹⁾ This includes 17 studies conducted in Great Britain: three studies in Scotland, three covering Northern Ireland and 11 England and Wales.

⁽²⁾ Due to the fact that individual countries do not follow a unified methodological terminology, this overview is indicative rather than comprehensive.

studies which also explore alcohol and tobacco consumption. It occurs more frequently in the health context that the respondent completes the whole questionnaire, this mostly involves questionnaires sent by mail or administered online. For more on the techniques used in questionnaire completion, see Table 2.2 and also Chapter 3.

Table 2.2 — Who completes the questionnaire?

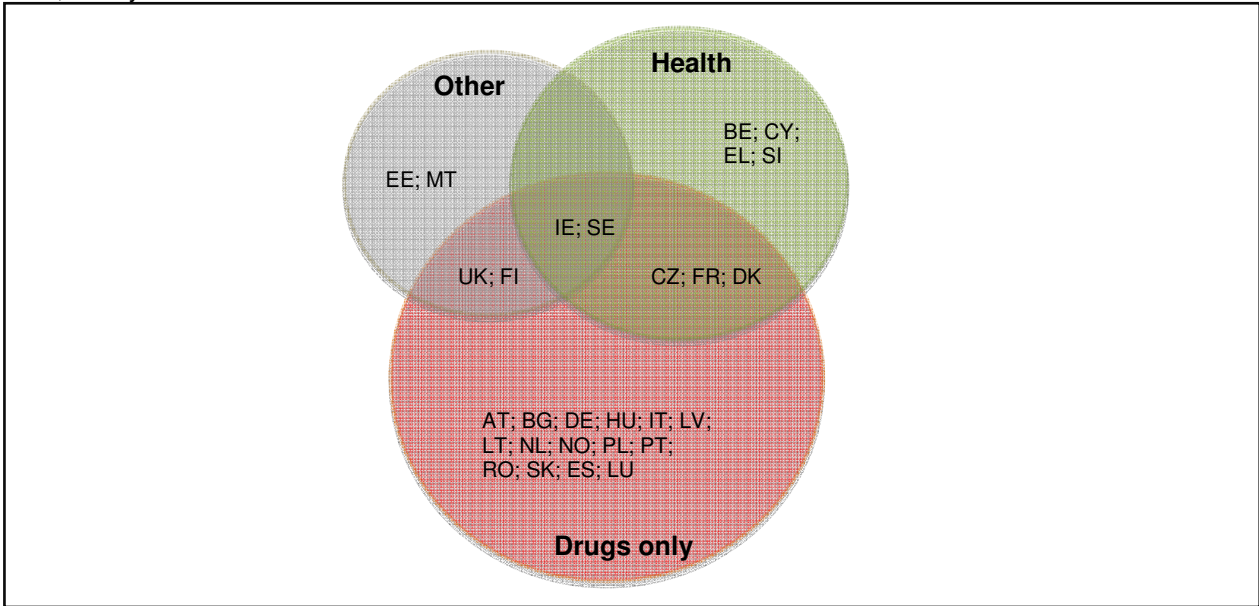
	Self-administered ⁽¹⁾	Partly self-administered ⁽²⁾	Interviewer-administered ⁽³⁾	Other/combined/n.a.	Total
Drug (single)	12	14	25	1	52
Health (multi)	7	4	8	0	19
Other (multi)	2	14	4	0	20
Omnibus (general)	3	0	6	0	9
Total	24	30	43	3	100

Notes: ⁽¹⁾ Self-administered: includes all mail and web surveys and surveys which explicitly state 'self-completion, self-administered, or self-reported'.
⁽²⁾ Partly self-administered: includes all face-to-face interviews with the explicit statement that the section of the questionnaire on drug use is self-administered (including CASI).
⁽³⁾ Includes all other face-to-face interviews (PAPI, CAPI) and all telephone interviews (including CATI; CASTI was not stated explicitly in any case).

Source: EMCDDA 2009a, 2010a.

The majority of countries (21) only reported studies to the EMCDDA that were conducted in a single context: 15 countries reported only drug surveys, four countries only surveys in the health context and two countries reported only studies conducted in other contexts. Seven countries reported studies conducted in more than one context while five countries have experience of both drug and health contexts — for more detail, see Figure 2.1.

Figure 2.1 — Countries ⁽³⁾ according to the survey context used in 100 surveys reported to the EMCDDA since 1990; surveys with unknown context were excluded.



Source: EMCDDA 2009a, 2010a.

In France, a drug survey was conducted in 1999 and a year later a health survey — in both cases where data collection used CATI (computer assisted telephone interviewing), the studies differed in sample selection, size and age range. The findings reported to the EMCDDA are comparable in respect to statistical error (e.g. lifetime prevalence of cannabis use reached 21.9 % in the drug survey and 22.5 % in the health survey; findings on other time spans and other drugs are identical too).

⁽³⁾ Countries abbreviations according to norm ISO 3166-1 alpha-2..

Similarly, two health surveys were conducted in Denmark in 2000 and 2005, followed by a drug survey in 2008. All the surveys concentrated on the 16+ years of age population, findings are available for the 16 to 64 age group. The drug survey had a smaller sample and it was designed as a mail/web survey; data collection in the health surveys took the form of face-to-face interviews including a self-administered drug-related part of the questionnaire, which was afterwards mailed by the respondent. The data does not indicate the influence of context: lifetime prevalence of cannabis was 31.3 %, 36.5 %, and 38.6 % for surveys from 2000, 2005, and 2008 respectively. A similarly low variability applies with last year and last month prevalence of cannabis use, as well as with other drugs surveyed.

A different picture emerges from Swedish data where in 2007 and 2008 an annual health survey was conducted and in 2008 also a drug survey. In all the cases, data collection took the form of a mail questionnaire (in addition, in the drug survey a fifth of the sample also responded online) and data is available for the 16–64-year-old groups. The studies were also identical in the use of sampling strategies, nonetheless the sample for the drug survey was 2.5 times (respectively 5 times) higher than in health surveys. The drug-related single survey context conveyed significantly higher lifetime prevalence of cannabis use: 12.8 %, 11.2 %, and 21.4 % for health surveys from 2007 and 2008, and the drug survey from 2008 respectively. The studies, however, did not differ in last year and last month prevalence, these were between 1.2 % to 2.1 % for last year prevalence and 0.5 % to 0.8 % for last month prevalence. Cannabis was the only drug covered in the health surveys.

The Czech case of two studies with different contexts and different findings in 2008 is described in detail in Chapter 3.2.3. Also, in this case the drug survey revealed higher prevalence than the health survey, yet, the difference was retained in all the three time spans and for the majority of drugs covered.

Although the EMCDDA Statistical bulletin is a rich source of data on health and drug surveys that explore illicit drug use, it does not provide comprehensive information. For example, the European Health Interview and Health Examinations Surveys Database (EUHISD 2010) ⁽⁴⁾ available on the Internet, includes a further 17 health surveys that were conducted in 2000 in some of the countries that contribute to the European monitoring of drug use — via the Reitox network — that were not included in EMCDDA Statistical bulletin, yet their questionnaires did include at least one question that explored the use of a specific substance ⁽⁵⁾ (most frequently cannabis). Table 2.3, below, provides an overview. It follows from the above that apart from the Czech Republic, Sweden, Denmark, France and Ireland, another eight countries (Romania, Bulgaria, Lithuania, Latvia, Slovakia, the Netherlands, Austria and Poland) have experience with measuring illicit drug use in both drug and health contexts. A further three countries (Malta, Estonia and Finland) have experience with health studies and also with studies in fields other than the health or drug context.

⁽⁴⁾ <http://www.euhisd.org/>

⁽⁵⁾ Studies exploring respondents' illicit drug use using only general questions were not included. Most frequently these were of the following type: 'Have you ever tried any illicit drug?'.

Table 2.3 — Countries and studies exploring illicit drug use conducted in 2000 in the EU and not included in the EMCDDA Statistical bulletin or reported in Fonte.

Country	Year of study	Title of study
Romania	2008	European Health Interview Survey (EHIS)
Bulgaria	2008	Health Interview Survey (HIS)
Malta	2008 ⁽¹⁾	European Health Interview Survey (EHIS)
Cyprus	2008	European Health Interview Survey (EHIS)
Latvia	2003	Health Interview Survey (HIS)
	2008	European Health Interview Survey (EHIS)
Slovakia	2007	European Health Interview Survey (EHIS)
Netherlands	2005	Continuous Quality of Life Survey
	2006	Continuous Quality of Life Survey
	2007	Continuous Quality of Life Survey
Finland	2007	Health Interview Survey (HIS)
Austria	2006/2007 ⁽¹⁾⁽²⁾	Health Interview Survey (HIS)
Estonia	2006	Health Behaviour among Estonian Adult Population
Lithuania	2005	Health Interview Survey of Lithuanian population in 2005
Poland	2004 ⁽²⁾	Health Population Status
Ireland	2002	Surveys of Lifestyles, Attitudes and Nutrition (SLAN)
	2007 ⁽²⁾⁽³⁾	Surveys of Lifestyles, Attitudes and Nutrition (SLAN)

Notes: ⁽¹⁾ The study was reported to the EMCDDA via the so-called 'National abstracts' (EMCDDA, 2009b).

⁽²⁾ Findings were presented at the 2008 EMCDDA Expert Meeting on GPS (EMCDDA, 2008).

⁽³⁾ Alcohol and Drug Research Unit, 2009.

Source: EUHSID, 2010.

Data from Poland, Austria and Ireland collected in the health context were compared with those from single context drug surveys at the 2008 EMCDDA Annual Expert Meeting on General Population Surveys in Lisbon. In the first two cases, single context drug surveys indicated higher prevalence of drug use, in Ireland the differences were not statistically significant.

In Austria in 2004, a survey was conducted on illicit drug use, two years later followed by the above-mentioned Health Interview Survey (HIS). In both cases, data were collected in face-to-face interviews; the drug survey targeted the 14+ years of age population, HIS collected data from respondents aged 15 to 64 and its sample was smaller than the drug survey sample. Prevalence of lifetime cannabis use was 20 % in the drug survey from 2004 and only 10 % in HIS two years later. However, experts believe that such a decrease in the use of cannabis in the country is unlikely (Busch, 2008).

In 2002 and 2006, two general population surveys on illicit drug use were conducted in Poland, while in 2004, the above-mentioned Health Population Status survey took place (see Table 2.3). All three studies collected data in face-to-face interviews and the samples were constructed identically as a random selection of households — while in the drug survey, only one member of a household was selected randomly, the health survey was completed by all household members. The health survey involved a sample of the population aged 15+ that was larger than the drug survey. In 2002, the drug survey worked with the population aged 16+ and in 2006, with inhabitants aged 15 to 64, using a network of interviewers who had experience of drug research. In a comparable age group of 16 to 64, the following prevalence of lifetime cannabis use was detected: 7.7 %, 1.5 %, and 9.1 % for studies from 2002, 2004, and 2006 respectively. The use of other drugs was similarly under-represented in the health survey and the data also differed in respect of 12-month prevalence (Sieroslowski, 2008).

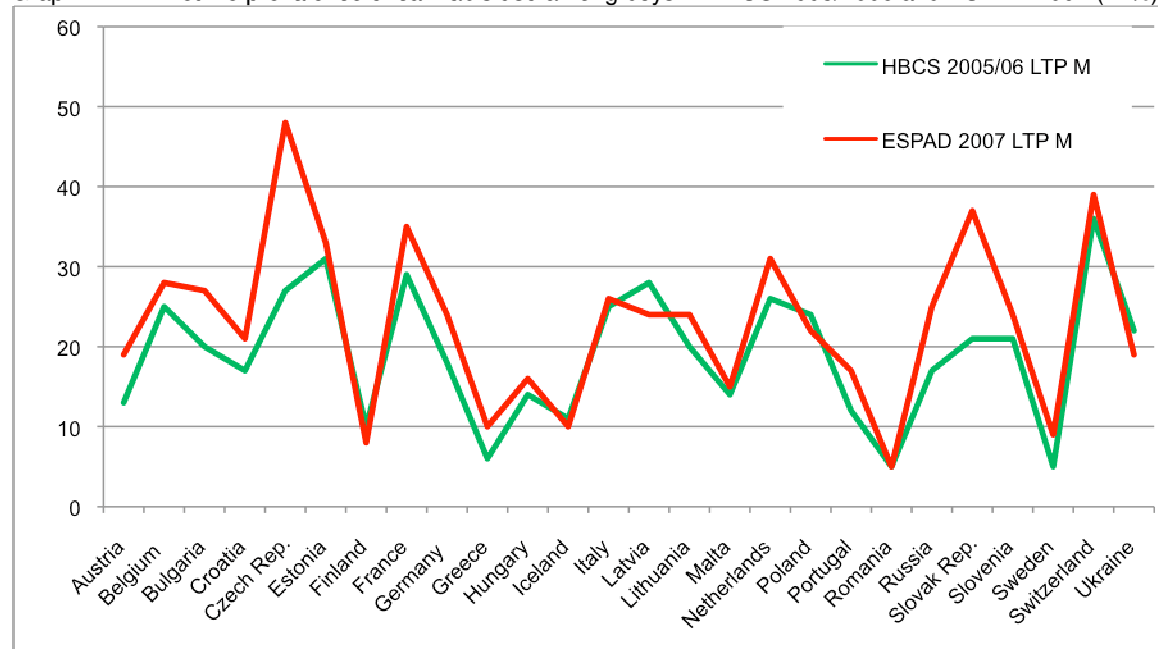
A different situation occurred in Ireland where a survey on illicit drug use was conducted in late 2006/early 2007 and in the 2007 Surveys of Lifestyles, Attitudes and Nutrition (SLAN). Both studies used comparable sampling strategies but different methods to stratify their samples; both collected data in face-to-face interviews. The SLAN sample included people aged 18+ and in comparison with the drug survey — which included those aged 15 to 65 — it was double in size. The detected prevalence of lifetime cannabis use was 6.3 % in the drug survey and 5.0 % in SLAN. Similar small or smaller differences also occurred with the lifetime prevalence of ecstasy and cocaine use (Long, 2008a, 2008b).

2.2 School surveys: ESPAD and HBSC

The majority of European countries participate in The European School Survey Project on Alcohol and Other Drugs (ESPAD) coordinated by the Swedish Council for Information on Alcohol and Other Drugs (CAN) since 1995 (Hibell et al., 2009). Many countries also participate in the cross-national study of Health Behaviour in School-aged Children (HBSC), which was first conducted in 1983/1984 (Currie et al., 2008). Both studies are repeated every four years while the data collection phase of ESPAD always occurs a year after the HBSC study. In both cases, data are collected directly in the schools and they use a self-administered paper questionnaire. While ESPAD targets 16-year old pupils and students, HBSC collects data from schoolchildren aged 11, 13 and 15. ESPAD represents a typical study conducted in the drug-related context and the questionnaire is adjusted to this — following a few background questions, it asks about tobacco and illicit drug consumption, includes a few questions on students' social context and a few optional modules that increase knowledge about drug use and related factors. In contrast, HBSC complies with the characteristics of a multipurpose health survey: the questionnaire includes modules on background factors, individual and social resources, health behaviours (including questions on smoking, alcohol consumption and illicit drug use) and health outcomes. The section of the questionnaire that deals with illicit drug use is aimed only at 15-year-old respondents. Then, in theory, it applies that ESPAD studies the same group of pupils for whom a year earlier the data of HBSC were representative. Although ESPAD and HBSC work with unified questionnaires and methodology, the research designs can differ slightly in individual countries depending on the local situation and conditions (e.g. in relation to sampling or parental consent, etc.). However, in the context of individual countries, the data should be comparable. The difference in the wording of the question on cannabis use in the two studies is negligible.

In respect of context bias, the literature (Decorte et al., 2009) and other sources (Busch, 2008) suggest that HBSC produces constantly lower prevalence findings than ESPAD. The following graphs (2.1, 2.2 and 2.3) outline the basis for these arguments. As the last graph suggests, in the majority of countries ESPAD produces higher prevalence of lifetime use of cannabis. In the majority of cases, the difference does not exceed ± 5 percentage points; however, in the Czech Republic and in Slovakia, it is well above 10 percentage points.

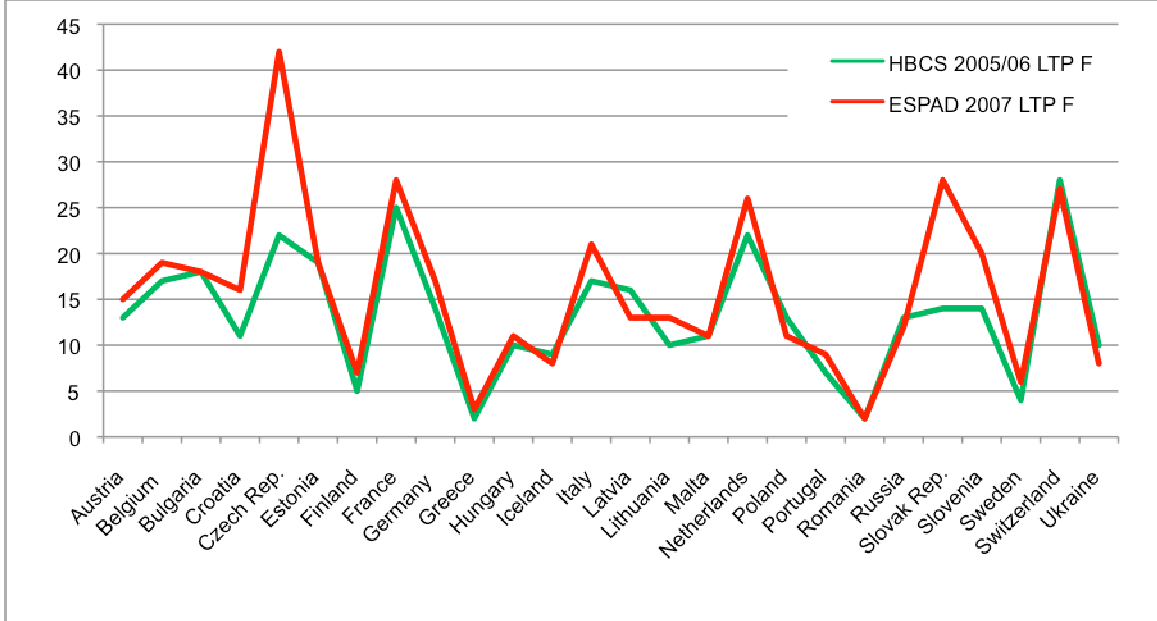
Graph 2.1 — Lifetime prevalence of cannabis use among boys in HBSC 2005/2006 and ESPAD 2007 (in %)



Notes : LTP = lifetime prevalence
M = male

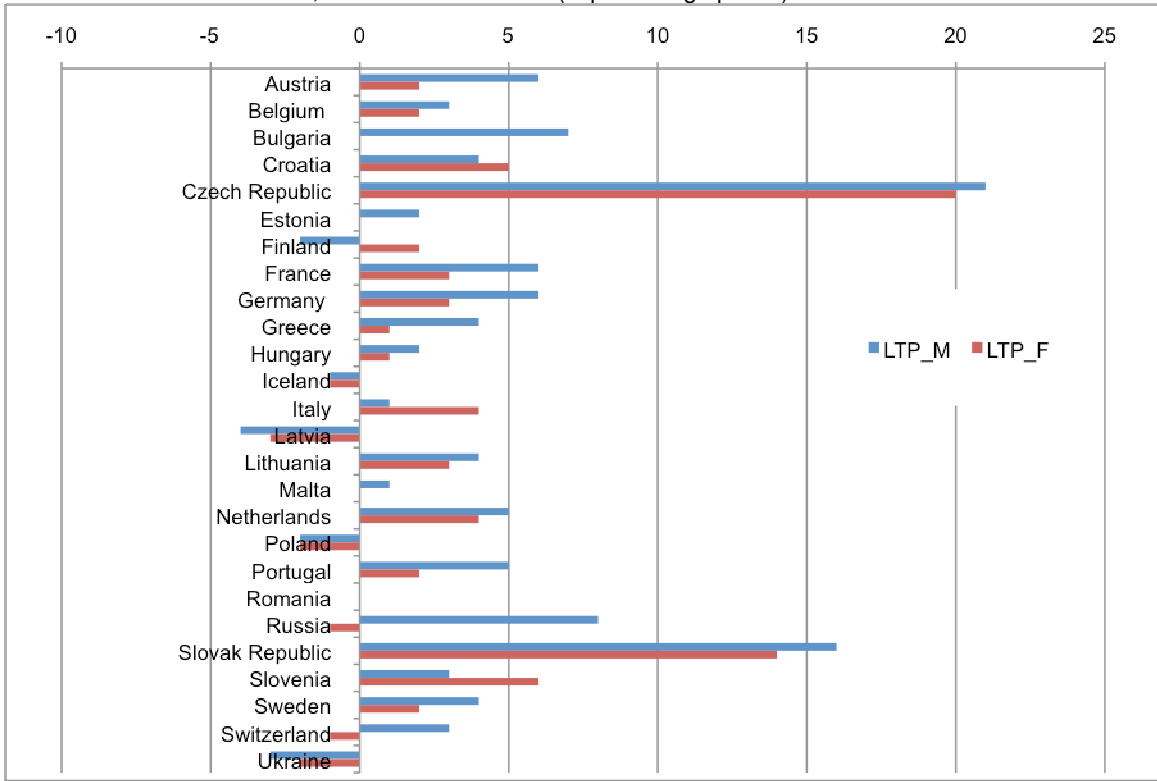
Source: Hibell et al., 2009, Currie et al., 2008.

Graph 2.2 —: Lifetime prevalence of cannabis use among girls in HBSC 2005/2006 and ESPAD 2007 (in %)



Notes: LTP = lifetime prevalence; F = female
 Source: Hibell et al., 2009, Currie et al., 2008.

Graph 2.3 — Difference between data on lifetime prevalence of cannabis use among boys and girls in HBSC 2005/2006 and ESPAD 2007; ESPAD minus HBSC (in percentage points)



Notes : LTP = lifetime prevalence
M = male
F = female
Source: Hibell et al., 2009, Currie et al., 2008.

The discussed differences between the two studies — in particular, where prevalence in ESPAD is higher — can be caused by the age difference between the respondents in the two studies. This would be confirmed by the fact that the first instances of illicit drug use occur in mid-teenage years. Nonetheless, the question remains how much of the difference can be attributed to this influence. The authors of the ESPAD study are aware of this fact and hence compare data only from the countries where the age difference between the two samples does not exceed ± 0.2 year ⁽⁶⁾. In the majority of these countries (boys in Russia and girls in Slovenia are an exception), the difference in lifetime prevalence of cannabis use does not exceed ± 5 percentage points. According to the authors both cannabis variables (lifetime and last 12 months prevalence) show very high correlations between the ESPAD and HBSC surveys (Hibell et al., 2009). The final reports of the studies do not include confidence intervals and, therefore, arguments require certain caution. The prevalence of cannabis use in individual countries (EMCDDA, 2010b) could provide an explanation for the variability in the difference between the two studies. Thus, in theory, in countries with higher prevalence of cannabis use in the school population there should be more space for an increase in experiences between the 15th and 16th year of age. The difference between the two studies can be explained in percents (i.e. a relative increase, not a difference in percentage points as in graph 2.3 above) and should correlate positively with the prevalence of cannabis use in the given country, in case ESPAD researches the older population. And, on the contrary, there should be no — or very small — correlation between the difference in the two studies and lifetime prevalence of cannabis use, in case the two studies cover populations of comparable age. In the context of these expectations, we could then understand the data on cannabis use from HBSC as the ‘initial’ situation in the given country — this is possible also because both studies convey roughly the same structure of the degree of lifetime prevalence of cannabis use in Europe (see graphs 2.1 and 2.2). However, because this is a very simple comparison which does not allow control for all the potential factors, it is necessary to understand the following analysis as an indicative one. The data that were used in the analysis are summarised in Table 2.4.

In order for the analysis to be consistent with the comparison in the 2007 ESPAD Report (Hibell et al., 2009, see also above) a correlation analysis was conducted separately for the countries with comparable average age (a difference not exceeding ± 0.2 year) and in countries where ESPAD explored a population on average at least 0.3 years older than in HBSC ⁽⁷⁾. The correlation is negative and medium for countries with a small difference in age: with the correlation $r_{xy} = -0.55$ for boys and $r_{xy} = -0.50$ for girls, and with a Spearman’s rank correlation (r_{rank}) of -0.42 and -0.40 , respectively. In countries where ESPAD studied an older population, r_{xy} was -0.08 and $r_{rank} -1.15$ for boys, and approximately the same for girls (-0.06 and -0.25 , respectively). Contrary to expectation, no correlation was found between the relative difference between the two studies and the degree of lifetime prevalence of cannabis use in the HBSC study in countries where ESPAD studies a population older than that in the HBSC. Similarly against expectations, there is an indirect equation between the prevalence of cannabis use and the difference in the two studies in countries where they both researched a population of approximately the same age. However, such a development is somewhat unlikely.

⁽⁶⁾ The average age in the relevant sample in the HBSC study ranged from 15.2 to 16.0 years while the corresponding range in ESPAD was 15.6–15.9 years. This is why Hibell et al. (2009) only include the following countries in the comparison: Estonia, Italy, Russia, Slovenia, Latvia, Lithuania, Poland, Croatia, Ukraine, Hungary, Malta, Iceland, Greece, Sweden and Finland.

⁽⁷⁾ 12 countries belong to this category (Czech Republic, Slovakia, Bulgaria, France, Germany, Austria, Netherlands, Portugal, Belgium (Flanders), Switzerland, Romania and Ireland). The average age of the sample in the HBSC study was not higher than in the ESPAD study in any country.

In the context of the aim of this comparative study (and if we explore whether studies conducted in the health context provide distorted data) it is relevant to ask whether HBSC studies really describe drug use in the given populations of school children and hence whether it is appropriate to understand them as such in our indicative analysis. That is why an analysis between the difference in both school population studies and prevalence of lifetime cannabis use in adult population as given in the EMCDDA 2010 Statistical bulletin ⁽⁸⁾ was also conducted. This analysis should, however, be also understood as an indicative one because the last available data on lifetime prevalence of cannabis use in the adult population was researched using different methods and covered different time spans in the various countries. Nonetheless, the findings are somewhat more meaningful than in the previous case. In the countries where the average age in ESPAD and HBSC studies did not differ by more than ± 0.2 year, no correlation was found for boys ($r_{xy}=0.14$ and $r_{rank}=-0.18$) and low to medium for girls ($r_{xy}=0.40$ and $r_{rank}=-0.36$). In countries where ESPAD worked with an older sample, the correlation is somewhat stronger for boys ($r_{xy}=0.28$ and $r_{rank}=0.23$) but remains basically unchanged for girls ($r_{xy}=0.36$ and $r_{rank}=0.42$). Thus, if the theory about the influence of the prevalence of cannabis use in the population on differences between HBSC and ESPAD studies is valid, as suggested above, this result indicates that it applies only in some countries and more in the case of girls than boys.

⁽⁸⁾ This analysis does not include Croatia, Iceland, Russia, Slovenia, Switzerland and Ukraine — data on lifetime prevalence of cannabis use is not available for these countries.

Table 2.4 — Prevalence of lifetime cannabis use, mean age and mutual differences in HBSC 06/07 and ESPAD 07; prevalence of lifetime cannabis use among the adult population

Country	Lifetime prevalence of cannabis use (%)				Difference in percentage points		Relative difference		Mean age			Adult population	
	HBSC boys	ESPAD boys	HBSC girls	ESPAD girls	Boys	Girls	Boys	Girls	ESPAD	HBSC	Difference	LTP of cannabis use (%)	Year
Croatia	17	21	11	16	4	5	0.24	0.45	15.8	15.6	0.2	-	-
Estonia	31	33	19	19	2	0	0.06	0	15.7	15.8	-0.1	5.0	2003
Finland	10	8	5	7	-2	2	-0.20	0.40	15.7	15.8	-0.1	14.3	2006
Greece	6	10	2	3	4	1	0.67	0.50	15.7	15.6	0.1	8.9	2004
Hungary	14	16	10	11	2	1	0.14	0.10	15.7	15.5	0.2	8.5	2007
Iceland	11	10	9	8	-1	-1	-0.09	-0.11	15.7	15.6	0.1	-	-
Italy	25	26	17	21	1	4	0.04	0.24	15.8	15.8	0	32.0	2007
Latvia	28	24	16	13	-4	-3	-0.14	-0.19	15.8	15.8	0	12.1	2007
Lithuania	20	24	10	13	4	3	0.20	0.30	15.8	15.7	0.1	11.9	2008
Malta	14	15	11	11	1	0	0.07	0	15.6	15.8	-0.2	3.5	2001
Poland	24	22	13	11	-2	-2	-0.08	-0.15	15.9	15.7	0.2	9.0	2006
Russia	17	25	13	12	8	-1	0.47	-0.08	15.8	15.6	0.2	-	-
Slovenia	21	24	14	20	3	6	0.14	0.43	15.8	15.6	0.2	-	-
Sweden	5	9	4	6	4	2	0.80	0.50	15.7	15.5	0.2	21.4 ⁽¹⁾	2008
Ukraine	22	19	10	8	-3	-2	-0.14	-0.20	15.9	15.7	0.2	-	-
Austria	13	19	13	15	6	2	0.46	0.15	15.8	15.2	0.6	14.2	2008
Belgium	25	28	17	19	3	2	0.12	0.12	15.8	15.4	0.4	13.0	2004
Bulgaria	20	27	18	18	7	0	0.35	0	15.9	15.6	0.3	7.3	2008
Czech Rep.	27	48	22	42	21	20	0.78	0.91	15.7	15.4	0.3	34.2 ⁽¹⁾	2008
France	29	35	25	28	6	3	0.21	0.12	15.9	15.6	0.3	30.6	2005
Germany	18	24	14	17	6	3	0.33	0.21	15.8	15.4	0.4	23.0	2006
Ireland	26	23	21	17	-3	-4	-0.12	-0.19	15.9	15.5	0.4	21.9	2007
Netherlands	26	31	22	26	5	4	0.19	0.18	15.8	15.4	0.4	22.6	2005
Portugal	12	17	7	9	5	2	0.42	0.29	15.9	15.6	0.3	11.7	2007
Romania	5	5	2	2	0	0	0	0	15.9	15.5	0.4	1.5	2007
Slovakia	21	37	14	28	16	14	0.76	1.00	15.7	15.3	0.4	16.1	2006
Switzerland	36	39	28	27	3	-1	0.08	-0.04	15.8	15.4	0.4	-	-

Notes: (1) In the case of the Czech Republic and Sweden there were two estimates of lifetime prevalence of cannabis use available in 2008, the higher estimate from the single drug survey context was used for both countries.

Source: Hibell et al., 2009, Currie et al., 2008, EMCDDA 2010a.

3. Literature review

There is virtually no specific literature that would deal with differences between the health survey context and the drug specific survey context and their influence on the resulting prevalence. Partial comments can be found in EMCDDA publications — although these are often no more than general statements, nonetheless this should be mentioned at least for two reasons: to provide a complete overview of available literature and as an illustration of the fact that this issue requires further research. Many sources in fact suggest that the context of the study influences the findings (often in terms of under-reporting of drug use in studies aimed at health), however, this often takes the form of a statement rather than scientific evidence.

Methodological and research literature has been used as a source of empirically verified knowledge on the potential influence of the context of research on its findings. The second half of the literature review summarises available methodological information relevant for the problem of context, this, however, has not necessarily been verified directly on data studying drug use. Most frequently, these are articles from peer reviewed journals that the author of the report has access to in electronic form using academic search engines and databases (Cambridge Journals Online, EBSCO, Ingenta Connect, JSTOR, Oxford Journals, Sage Journals, Wiley-Interscience) as well as articles and other publications on methodology from her own archive.

As the survey context and its influence on research findings represent concepts that are difficult to express in key words for fulltext search engines, the searches were conducted in a number of stages, producing a significant amount of irrelevant results. The author first consulted her archive of methodological and research literature and, based on this, key words were defined for the fulltext academic journal databases. The following key words were used in a variety of combinations: survey context; illicit drug (use); sensitive questions; context effect; questionnaire design; health survey; question/response/questionnaire bias/error; etc. In the third and fourth stages, additional searches were made for articles that appeared in the bibliographies of relevant articles found in the previous two stages of the search and search criteria were also refined further. The whole process was terminated when the search resulted in redundant results and did not constitute any new information.

The third section of this chapter describes some of the case studies from research and grey literature that compared data on drug use collected in different contexts.

3.1 EMCDDA publications and guidelines

EMCDDA publications often deal with survey methodology in a complex manner and explore various aspects of it — from sampling strategies through data collection methods all the way to the content and structure of the questionnaire, and the wording of questions and predefined responses. The thematic approach of a study — specifically on drug use or a multipurpose health-oriented one with questions on drug use actually involves methodological decisions at every stage of the research as these depend not only on the aims of a study but also on research traditions in the various countries or institutions that conduct or coordinate the research. The previous chapter also suggested that different countries use different sampling strategies and data collection methods even within the same survey context, which renders the whole issue problematic.

The final report of the project *Improving the comparability of general population surveys on drug use in the European Union* (EMCDDA 1997), for example, understands the survey context ('single', 'multi', and 'general') as a general characteristic of a study that alerts to a potential source of bias:

'Another type of potential bias lurks in context-related aspects of the questions asked. [...] If the questions on drug use are part of a multipurpose survey, the content of other, non-drug-related items forms a potential bias to the answers respondents provide about drug use. This is patently the case, for example, when the main topic of the survey is criminal behaviour'. (p. 76)

Nonetheless, the report does not outline how the survey context can influence findings on prevalence. In the case above, authors can establish that in the context of criminal behaviour, respondents may understand illicit drug use as a criminal and therefore, undesirable activity. Similarly, in the context of health and healthy lifestyle, respondents may understand illicit drug use as unhealthy and undesirable.

Thus, in both cases the influence of what is termed social desirability bias would be manifest. In theory, the opposite context bias can also be expected — a respondent may feel safer in the health context than in the drug use context and the feeling of usefulness or meaningfulness can possibly result in more truthful responses. In a follow-up study (EMCDDA, 1999) and also in the *Handbook for surveys on drug use among the general population* (EMCDDA, 2002), the authors repeat the argument when pointing out the practical complications when conducting surveys in other than a single context:

'We can assume that this "context" [which focuses on other items] not only influences response but also can have an effect on the demands for data on illicit drugs and the questions needed to collect this information. People might respond differently depending on whether the survey deals with illicit drugs only or mainly, with the use of all kinds of licit and illicit substances or with health risks and health problems in general. If the survey pursues other aims as well, there might be a need for other or more detailed data about illicit drugs due to analytical designs that aim to answer different types research questions. The reality that drug prevalence is often embedded in wider research aims proved to be one of the obstacles to reach an easy consensus about the core items and questions.' (EMCDDA 1999, p. 10)

A meta-analysis of 25 European population surveys (Decorte et al., 2009) that is linked to the above mentioned studies summarised general reasons for the selection of single, multi- or general survey context as expressed by national experts in an e-mail expert survey. A concern that surfaced repeatedly in relation to surveys that have other underlying aims (health, crime or general context) was that respondents tend to under-report their alcohol and drug consumption. Reasons for so-called piggybacking have a much more practical character. The pros and cons of both approaches were summarised by Sabine De Moor in a presentation at the 2008 EMCDDA Expert meeting on GPS in Lisbon (De Moor, 2008) and can be found in the table below ⁽⁹⁾.

Table 3.1 — Pros and cons: single versus piggybacking

		Piggybacking		Single
Intrinsic focus	+	information about related items	+	shorter questionnaire
		similar objectives		more specific questions
		not scaring off respondents with single drug survey		only relevant questions
	-	only limited number of drug questions		
		length of questionnaire		
Methodological focus	+	others draw sample, others train interviewers ...	+	higher response rates (shorter questionnaire)
				specific data collection method (confidential privacy)
				opportunity to obtain a higher sample size
				opportunity to select specific target population (youngsters, cities)
	-	under-reporting (context: health, crime)		
		recurrence depends on the main survey		
		research design not specific for drug survey		
-	sample size of main survey not sufficient (low prevalence)			
	different target populations			
Financial/time focus	+	shared/lower costs		
	-	complex funding (e.g. Belgium)	-	high(er) costs
		more coordination between partners needed (all foci)		
Valorisation focus	+	can/must be based on the main survey		own valorisation

⁽⁹⁾ On these issues, see also, for example, Johnston, 1980.

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Source: De Moor, 2008.

3.2 Methodological and research literature

There appears to be agreement among specialists that the survey context plays a significant role in the decision making about research design and can have a major impact on the findings (Johnston, 1980; Marquis et al., 1985). Yet, the exact role of the health context and drug context in research on illicit drug use in the general population has not been resolved in a satisfactory manner and, therefore, we have to deduce the potential impact of the context from methodological insights and knowledge that has been verified in other specific social science contexts. It must, however, be borne in mind that their validity may be (but not necessarily must be) limited to these specific contexts.

Experience and available meta-analyses (see Chapter 2 'Available data' or Decorte et al., 2009 and EMCDDA 2010a) point out the variability of some steps even within the same research context. Single drug surveys that represent the most frequent context in Europe use different sampling strategies and data collection methods and the choices made appear to depend more on the traditions in the given country than on the research topic. Let us nonetheless devote our attention mainly to those methodological decisions and characteristics that can depend directly on the context and at the same time have a significant impact on the findings — Table 2 provides more detail about these.

Table 3.2 — Impact of survey context on the research design

	Independent of survey topic	Topic-related
Sampling procedures	Sampling frame	Target group
	Sampling strategy	Sample size
	Target group	Oversampling and weighting
		Response rate
Data collection	Route of administration (mail, telephone, web, personal interview)	Situation (e.g. presence of other people)
	Mode of administration (P&P, computer assisted)	Training of the interviewer
	Completion (self-completion, by interviewer)	
Questionnaire		Content
		Context
		Structure
		Number of drug-related questions
		Format and wording of drug-related questions

3.2.1 Sampling procedures

One of the first steps when designing any survey is to decide about the population and a sampling strategy. Both are driven mainly by the needs of those commissioning the research as well as its aims and available sources. In the case of a health survey, in which the research is commissioned and administered by another institution (so-called piggybacking), drug researchers do not have control over these decisions. For example, in an EHIS study, an internationally coordinated health survey which often includes questions on drug use, the target population is defined as 'adult population' and the sample includes those aged over 18 years. In contrast, EMCDDA guidelines require a representative sample of the population aged 15 to 64 years. A similar discrepancy occurs in terms of the sample size and the possibility of oversampling a specific category of inhabitants (in the case of drug surveys, most frequently younger age groups).

Above all, however, it is the willingness of those sampled to take part in a survey that significantly influences findings — non-random distribution of non-response⁽¹⁰⁾ could have a major impact on prevalence estimates. High non-response levels represent a general problem with surveys and are attributed to a number of factors, above all the nature of the social environment (e.g. degree of social responsibility, over-surveying of population, etc.). The research design itself influences the willingness of respondents to participate — together with data collection methods (route and mode of administration, interviewer and/or respondent personality, etc.) it is above all the overall research topic (Groves, Couper, 1998) which are significant in this respect. It is generally expected that studies on drug use are particularly prone to a bias caused by non-response — underestimates are then the result of the problematic approach to heavy drug users on the one hand and the higher ratio of non-response that is conditioned by the illegal and stigmatised nature of drug use on the other (Gfroerer et al., 1997). Hence, in theory, the influence of the stigmatising nature of drug-related issues could play a less significant role in research concerned with other (e.g. health) topics. Non-response could be randomly distributed among users and people who have no experience of drug use, simply because drugs are not mentioned when respondents are contacted.

Yet, thus far there is no satisfactory answer to whether in drug research non-respondents differ from respondents in terms of the use of psychoactive substances. As Caetano (2001) demonstrates in the case of alcohol, the available literature is limited and moreover offers contradictory answers to this type of question.

In some cases, non-participants were more likely to abstain from alcohol than participants [...], but non-participants who drank were more likely to be heavier drinkers than participants [...]. In other instances, non-respondents had lower average alcohol consumption, higher abstention rates (due mainly to women) and lower rates of heavy use than respondents [...]. (Caetano 2001, p. 1542)

A similar conclusion was reached by researchers on the US *National Household Survey on Drug Abuse* (NHSDA) when comparing subgroups of people who refused to participate in the research. They conclude that it is not always true that those who refuse an interview use alcohol or illicit drugs more frequently, they argue that a typical example of the inverted relationship are people with higher incomes and seniors. On the other hand, there are groups with low participation levels and high prevalence. The two influences can cancel each other out (Gfroerer et al., 1997). Higher response should be achieved by the thorough training of interviewers and the use of contact techniques (Groves et al., 1992).

3.2.2 Data collection

Sources of bias stemming from the mode and route of administration were described in great detail in literature (Turner et al., 1992; Aquilino, 1994; Tourangeau and Smith, 1996; Wright et al., 1998; Bowling, 2005). These involve methodological decisions that are not directly dependent on the research topic and research context. Reips (2002) uses web surveys to argue that the degree of privacy that can be achieved by the selected routes of administration does not interfere with the influence of the context. In other words, people answer potentially sensitive questions in different contexts differently so that they are consistent with earlier answers in the questionnaire, even if they are on their own when filling in a questionnaire. Similarly, Schwarz and Hippler (1995) show that in a mail survey — i.e. a study that allows the respondent to go back in a questionnaire or to read through it in advance — respondents' answers are influenced not only by preceding but also by subsequent questions. With a single survey, researchers can influence these strategies; in the case of piggybacking, their opportunities to influence the research design are limited.

The influence of researchers using studies conducted in general or multi-contexts is similarly limited also in terms of interviewers' training and the interview environment, factors that seriously impact on the reliability of data. However, these are exactly the ones that can differ: in various contexts they receive different attention, the main focus of the research determines different demands on the interviewer and the interview environment.

⁽¹⁰⁾ Non-response refers to the failure to obtain data from some sampled units.

The degree of privacy that is required during the interview can differ greatly in health and drug survey contexts. Although drug surveys usually prefer absolute privacy during the interview, which includes mainly sensitive questions, in the health context such a condition does not necessarily surface. This can have a critical impact especially on prevalence estimates in young age groups: if the interview is about health and healthy lifestyle, the presence of parents can be of benefit as they have information on their child's medical history. The lack of privacy when questioning about drug use can lead to the under-representation of such use in the young population. Sometimes this can be resolved by using a separate sheet with questions on drug use to be self-completed by the respondent. Nonetheless, when parents are present this option may be difficult to negotiate. Brener et al. (2003) point out that studies on adolescents find higher prevalence if the data is collected in the school environment rather than in households.

Aquilino (1993, 1997) demonstrates that the presence of other people has a significant influence on the self-reporting of illicit drug use. He found that the presence of a spouse during the interview led to increased willingness to acknowledge drug use; on the other hand, the presence of any other adult had exactly the opposite impact. The key factor proved to be the degree to which the present person was familiar with the respondent's drug use and his/her involvement with the researched facts. The hypothesis that the use of self-administered answer sheets reduces privacy effects compared with interviewer-administered interviews was not upheld.

The interviewer effect is also a known and relatively well-documented source of bias, not only in drug surveys. It has been proven that the social or cultural proximity of the interviewer and the respondent lead to increased willingness to participate as well as facilitate responses to sensitive questions (Skelly, 1954; Mensch and Kandel, 1988; Aquilino, 1994; Johnson et al., 2000 in Richter and Johnston, 2001). The research topic or its context can actually play a role in the selection of suitable interviewers as well as in their training. Although no comparative study has been conducted on this topic, it is clear that a sensitive topic — and drug use is such without any doubt — puts greater demands on the interviewer's trustworthiness as well as his/her ability to ensure that the respondent does not feel threatened by the interview. Moreover, any survey mapping a specific field also requires the interviewer to be familiar with the relevant terminology and (this applies in drug abuse above all) with slang in order to minimise misrepresentation due to misunderstandings between the interviewer and the respondent that can be a major source of errors (Johnston and O'Malley, 1997, cited in Brener et al., 2003). It also applies here that in the single survey context, researchers can influence the selection and training of interviewers; it is, however, unclear to what extent and how they exert such influence.

3.2.3 Questionnaire

The content and structure of the questionnaire is completely dependent on the aim of the research and, therefore, represents the most easily identifiable potential sources of bias when we talk about the difference between health and drug survey contexts. In an ideal case in the single survey context, the content of the questionnaire, the order of questions and their wording should be guided by the effort to disclose true answers about respondents' drug use and attitudes to drugs. The design of the questionnaire should use an abundance of strategies that would make the responses to sensitive questions less threatening and prone to misrepresentation. In health surveys, similar strategies are used, especially in relation to questions on health and healthy lifestyles. According to this logic, questions on illicit drug use are — and let us stress justifiably — positioned at the end of the questionnaire. This leads to ample possibilities of misrepresentation, the literature refers to it as the 'context effect' (Todorov, 2000) or the effect of preceding questions. The structure and content of questionnaires can have an impact not only on the respondent's willingness to answer sensitive questions but also on his/her ability to recall certain situations or experiences.

Theorists and researchers who approach survey methodology from a cognitive perspective argue that for the respondent, the interview conducted by the interviewer has a similar character as any other interaction in which s/he is attempting to succeed and answer the questions as well as possible (Forsyth and Hubbard 1992). This, however, does not necessarily mean as truthfully as possible — when answering, the respondent also draws upon a wider knowledge of the research context and often responds in a way that s/he thinks the interviewer expects. The research context is — apart from the content of the questionnaire — also made up of the respondent's idea of the researcher's

epistemic interest formed on the basis of the interviewer's affiliation (e.g. appearing on letterhead paper) and according to the stated aims of the research (Schwarz, 1999). In the context of the difference between a health survey and a drug survey, the respondent's understanding of the aim of the research can influence whether s/he decides to mention or not to mention illicit drug use. For example, if the respondent is under the impression that the interviewer is interested in him/her leading a healthy lifestyle, s/he may decide not to jeopardise the already described lifestyle by mentioning illicit drug use or to knowingly downplay the experience of such use. Adams (1956) describes the process in which questions are generated depending on a situation in the following way:

The explanation is based on [...] three steps in the process: (1) a question acts as a stimulus for a "personal hypothesis" (i.e., the respondent's "true," covert response); (2) the personal hypothesis is checked against the environmental context of the stimulus; and (3) an overt response is made which maximises adjustment to the immediate situation and which may or may not be congruent with the personal hypothesis. (Adams 1956, p. 596–597)

Apart from the interpretation of the research context, the interpretation of the question itself is also crucial. It depends — together with the overall survey context — on the exact wording, the use of introductory text or so-called vignettes and on preceding questions. In a single survey context, researchers have more space available to explain individual questions and they can help the respondent with understanding these and also with recall. It is crucial what the respondent understands by the terms drug/cannabis/ecstasy/etc. use and what s/he decides to include in the answer — accidental use, repeated use, unintended use or use linked to a pleasant or an unpleasant experience?

We should bear in mind the workings of memory, the longer one tries to remember and the more strategies one uses, the more likely one is to succeed. In the context of single drug surveys, respondents are repeatedly asked about the same issues, which can lead to the gradual recollection of half-forgotten experiences of drug use and increase the final prevalence estimates. This concept of contextual priming also relies on the fact that people remember certain events better if they are reminded of their circumstances — this purpose can again be served by other questions in the questionnaire (e.g. a drug availability module). We should note in this respect, in line with Hammersley (1994), that we mostly tend to remember events and experiences that are in some way unique and special or otherwise significant. If recall represented one of the decisive factors on prevalence estimates in health or drug survey contexts, the extent of the difference would vary depending on social and cultural environments. For example, in countries with high prevalence of cannabis use or in countries with a tolerant or liberal approach to its consumption, occasional experiments with cannabis could be considered insignificant and respondents would therefore recall them with greater difficulty.

It has also been proven already that preceding questions have an impact on how the respondents understand subsequent questions and how they answer these. Respondents tend to provide answers that are consistent throughout the interview (Schuman and Presser, 1981). They might withhold or downplay experiences of using substances that damage health if they previously stated that they attempted to lead a healthy lifestyle. In the course of a study, McFarland (1981) was prompted to conclude that we should consider as most truthful such questions that are not preceded by priming and therefore cannot be influenced by context. He suggests that a solution could be to place sensitive questions or sensitive modules randomly in the questionnaire and then analyse differences. Such an approach could clarify the effect of context in studies on health and healthy lifestyles. It, however, remains a question whether researchers would be willing to do the same in the case of drug use, where there is a risk of the interview being interrupted at the very beginning with sensitive — and potentially threatening — questions on drug use.

The preceding questions can also create a context in which the respondent finds it more difficult to answer sensitive questions. In other words, the content of the questionnaire that precedes questions on illicit drug use can lead to so-called desirability bias ⁽¹⁾ or can increase its influence. Social desirability bias describes the fact that respondents tend to answer questions in a socially acceptable manner (Sloan et al., 2004). Richter and Johnston (2001) relate social desirability bias to the concept of 'normality'. The respondent's immediate assessment of what is considered normal can actually be linked to the research context. Thus, in the health context, questions on illicit drugs that follow a set of

⁽¹⁾ Social desirability bias is not a term of the cognitive perspective but a situational one.

questions on health and healthy lifestyle may appear to involve abnormal and undesirable conduct (because it threatens health). On the other hand, in the drug survey context drug use can appear to be normal. The opposite — exaggeration of drug use — can be brought about by what is described as desire for attention that is to be expected in the case of adolescents and school studies (Brener et al., 2003) or in a context in which higher prevalence of drug use will result in some benefits for the respondent (Richter and Johnston, 2001). Both social desirability bias and desire for attention also vary culturally (Bernardi, 2006). Some studies work with scales that measure the respondent's tendency to answer in a socially desirable manner, their findings are then taken into account in the final analysis (Bradburn, 1975). This involves a relatively transparent tool whereas it happens that respondents answer truthfully in this battery and in a socially desirable way in the rest of the questionnaire (Richter and Johnston, 2001). Another explanation for these phenomena is offered by so-called self-categorisation theory (Cinnirella 1998), according to which 'survey questions activate social identities, and [this] would, in turn, lead to the activation of attitudes and social knowledge associated with the identities in question' (p. 348).

The length of the questionnaire also plays a role. If questions on illicit drug use appear at the end of the questionnaire — as happens typically in health surveys — the respondent can be too tired and it is likely that s/he will provide identical answers (Herzog and Bachman, 1981); in this case, he/she will be more likely to deny such use.

A number of studies exploring these influences have, nonetheless, concentrated above all on questions on values and attitudes that are more susceptible to change depending on the context in which they are posed. Questions about illicit drug use tend to be factual and the above described influences can be less important in their case. Nonetheless, Reips (2002) confirmed that preceding answers guide respondents not only in adjusting attitudes and views but also in adjusting their past behaviour. He argues that attitudes vary, depending on the context, and people then adjust statements about their past conduct in line with how they think they would act if they subscribe to the attitude influenced by the context.

3.3 Case studies

In some countries, data comparing two studies on drug use at a comparable period of time and population, however, in different contexts is available. Due to the fact that these are the only empirical sources that deal directly with the comparability of methods and findings in the contexts of health and drug surveys, their arguments are explored in more detail here.

3.3.1 USA: binge drinking among adults

In the US, there are two regular general population surveys that include questions measuring the prevalence of binge drinking in the population. The *Behavioral Risk Factor Surveillance System* (BRFSS) is a state-based adult health survey that collects data about illnesses, prevention and health behaviour from respondents aged 18 and above. It involves a computer-assisted telephone interview; the sample is constructed using a random-digit-dialling technique. The *National Survey on Drug Use and Health* (NSDUH) is a survey organised by the Substance Abuse and Mental Health Services Administration and is aimed at the population aged 12 and above. The survey's main topic is drug use and alcohol and mental health. Interviews are conducted in the respondents' homes using laptops equipped with an audio computer-assisted self-interview (ACASI) program. Both surveys worked with a battery of questions that studied alcohol consumption, including a question on last month's prevalence of binge drinking. The wording differed in the following: BRFSS asked 'How many *times* during the past 30 days did you have 5 or more drinks on an occasion?'; the NSDUH question was 'On how many *days* did you have 5 or more drinks on the same occasion?'. Comparable data from 1999 and 2001 were analysed, these were stratified according to socio-demographic variables — see Figure 3.1 (Miller et al., 2004).

Figure 3.1 — Comparison of data on adult binge drinking

Table 1. National binge drinking ^a among U.S. adults aged ≥18, 1999 and 2001 combined			
Demographics	BRFSS (n = 355,371) % (95% CI)	NSDUH (n = 87,145) % (95% CI)	Absolute difference %
All respondents	14.7 (14.5–15.2)	21.5 (21.2–22.0)	6.8
Age (years)			
18–34	25.6 (25.1–26.1)	33.7 (33.1–34.3)	8.1
≥35	9.8 (9.6–10.0)	16.1 (15.5–16.6)	6.3
Gender			
Male	22.8 (22.4–23.1)	30.3 (29.5–31.0)	7.5
Female	7.3 (7.1–7.5)	13.6 (13.1–14.1)	6.3
Race/ethnicity			
Hispanic	16.0 (15.0–17.0)	23.3 (21.8–24.9)	7.3
White, non-Hispanic	15.0 (14.8–15.2)	22.3 (21.8–22.8)	7.3
Black, non-Hispanic	10.5 (9.9–11.1)	18.3 (17.0–19.6)	7.8
Other, non-Hispanic ^b	13.7 (12.4–15.0)	14.3 (12.7–15.9)	0.6
Education			
≤High school	14.3 (14.0–14.7)	22.1 (21.5–22.7)	7.8
>High school	15.0 (14.8–15.3)	21.0 (20.4–21.7)	6.0

^aBinge drinking defined as having five or more drinks on an occasion within the past 30 days.
^bOther, non-Hispanic includes Native Americans, Alaskan Natives, Asians, Native Hawaiians, other Pacific Islanders, and those reporting more than one race/ethnicity.
 BRFSS, Behavioral Risk Factor Surveillance System; CI, confidence interval; NSDUH, National Survey on Drug Use and Health.

Source: Miller et al., 2004.

In the majority of cases — with the exception of the sub-population ‘Other’ (non-Hispanic) — the NSDUH, i.e. the survey concentrating on drug and alcohol consumption, found higher prevalence of binge drinking in the population. Not even the fact that the NSDUH excluded those without a landline telephone (among whom there were significantly more binge drinkers) from the survey, had an impact on the differences between the studies. The characteristics of binge drinkers did not differ.

The subsequent analysis rejected that the differences in findings were due to the influence of the sampling design, access to a telephone, response rates, wording of binge drinking questions and the influence of different approaches to inconsistencies. The authors argue that the main reasons can be found in the more general differences in the design of both studies. The use of computer-assisted administration techniques in NSDUH probably led to a stronger sense of safety among respondents and, therefore, a greater willingness to acknowledge socially undesirable behaviour. The authors also suggest that the overall content of the questionnaire and the number of questions exploring alcohol consumption could lead to different findings — the authors argue that surveys with more sensitive content may have higher binge drinking estimates. This hypothesis is, however, questioned by the fact that the analysed differences did not occur before 1999, that is prior to the introduction of computer-assisted questioning in NSDUH. Nonetheless, the data from previous time periods were not analysed (Miller et al., 2004).

3.3.2 France: cannabis use among adolescents

Beck et al. (2002) made the presumption that the influence of the context and other methodological procedures on the findings of surveys on drug use have not been explored sufficiently as their starting point and used two surveys based on large samples with similar characteristics, conducted at approximately the same dates and asking at least several identical questions. They had the data from two surveys conducted on youth: *Baromètre Santé jeunes 97/ 98* (Youth Health Barometer survey, YHB), a survey conducted by the Committee for Health Education and a 1997 school-based survey on deviant behaviour among secondary school students commissioned by the French Monitoring Centre for Drugs and Drug Addiction and executed by the Centre for Sociological Analysis and Intervention (CADIS). Both studies collected data on drug use among 15–19-year-olds and made it possible to explore the influence of data collection methods on findings.

The data in *Baromètre Santé jeunes 97/98* was collected using computer-assisted telephone interviewing (CATI) of people aged 12 to 19. The questionnaire included questions on conduct, knowledge and attitudes to health matters; only those aged 15 to 19 were asked questions on illicit drug use. The CADIS survey collected data directly in schools using self-administered questionnaires;

it used multi-stage cluster sampling: a set of schools was selected randomly, another set according to geographic characteristics, in selected schools whole selected classes were surveyed. The CADIS survey covered deviant behaviour among students (risky behaviour, transgressions, victimisation, consumption of psychoactive substances, etc.). Questions on illicit drug use were worded similarly in both studies and the questions were positioned at the end of the questionnaire, after questions on alcohol and tobacco consumption.

The findings on last year prevalence for all studied substances from both studies are summarised in a table (Figure 3.2) — the findings vary with all the substances while CADIS resulted in higher prevalence rates. However, only differences in the use of cannabis in the past 12 months were analysed with comparable age groups: i.e. 21.3 % in Baromètre Santé and 29.7 % in CADIS. Differences were sustained after adjusting for gender and other socio-economic characteristics, thus the influence of selection bias and chance were eliminated. Hence, researchers identified other potential sources of bias. They expected that the research context played a significant role — according to them, in the context of deviant behaviour, questions about drug use were not necessarily as sensitive as in the health context. They also identified the potential influence of so-called forward telescoping (Tourangeau et al., 2000): CADIS did not ask respondents about lifetime prevalence and some who have tried drugs may wish to have the fact ‘acknowledged’ even if the event took place more than a year before. The method of data collection also had significant influence — an anonymous questionnaire versus a phone interview with an adult interviewer: in phone interviews, respondents under-reported behaviour that their parents were unaware of.

Figure 3.2 — Comparison of data on drug use among adolescents

Substance	<i>Baromètre Santé jeunes</i> n = 2,675	CADIS-OFDT survey n = 9,919	INRP-Paris X-OFDT survey n = 875
Cannabis	22.8%	29.8%	34.4%
Cocaine	0.1%	1.9%	0.8%
Heroin	0.0%	1.7%	0.2%
Ecstasy ⁽¹⁾	0.5%	3.4%	1.5%
Hallucinogens	0.7%	item absent	item absent
Inhalants ⁽²⁾	0.3%	5.7%	1.0%
Other drugs	0.1%	4.1%	item absent
All substances ⁽³⁾	22.8%	33.5%	35.3%

(1) Ecstasy + LSD for the CADIS-OFDT survey.
(2) Glue, solvents for the INRP-Paris X-OFDT survey.
(3) The prevalence for all substances is lower or equal to the sum of prevalences in the column, since the different substances are not mutually exclusive.
Sampled population: young people aged 15-19 (whether or not they attend school) for the *Baromètre Santé*, public secondary school students for the CADIS-OFDT survey, Parisian secondary school students (from both public and private schools) for the INRP-Paris X-OFDT survey.
Sources: CFES, *Baromètre Santé jeunes*, 1997; CADIS-OFDT survey on deviant behaviour among secondary school students, 1997; INRP-Paris X-OFDT survey on Parisian secondary school students and psychoactive drugs, 1998.

Source: Beck et al., 2002.

3.2.3 The Czech Republic: illicit drug use among adults

The Czech case of comparing two general population surveys conducted in 2008 and their disparate findings was actually one of the motives for the current study. The Czech National Monitoring Centre for Drugs and Drug Addiction (NFP) conducted a survey on illicit drug use by 15 to 64-year-olds (GPS) in the autumn of 2008. The survey used an interviewer-administered questionnaire that contained only EMQ and other modules designed or recommended by the EMCDDA. In the spring and autumn of the same year, the international Health Interview Survey (EHIS) was conducted in two phases, the questionnaire also included questions on illicit drug use and it involved a population aged 15 and above. In contrast with the GPS, during the interview (otherwise conducted by an interviewer), respondents could use a self-administered sheet for this module. With the majority of drugs under scrutiny in the three time spans (lifetime, last year, and last month) the EHIS found significantly lower prevalence. These differences persisted also in the sub-populations defined by socio-demographic characteristics. The analysis, however, concentrated on cannabis use, as this was the most represented category.

Table 3. — Drug use during lifetime among the adult population in the Czech Republic in 2008

	GPS on drugs 2008 (age 15–64)	EHIS 2008 (age 15+)
Cannabis	34.3 %	15.3 %
Ecstasy	9.6 %	2.1 %
LSD	5.6 %	1.2 %
Amphetamines/pervitin	4.5 %	1.3 %
Heroin	1.1 %	0.6 %
Hallucinogenic mushrooms	8.7 %	2.2 %

Source: Mravčík et al., 2009.

Researchers identified a few potential sources of bias in both studies (Linek, 2009). The under-representation of drug use in the EHIS was attributed mainly to the overall research context and questionnaire content. While in the GPS, respondents were asked about alcohol and drug use at the beginning of the questionnaire, EHIS respondents faced significant priming in the shape of over 100 questions about health and factors that influence health. The wording of the prevalence questions and the graphic design differed in the two studies. Yet, a subsequent independent experiment rejected their influence on the prevalence findings. The second potential source of bias was privacy during the interview — in contrast with the GPS, during the EHIS, family members or others could be present at the interview. The third potential factor constituted the influence of the network of interviewers. For the GPS, experienced interviewers were selected via a subcontracted agency, they were specially trained on interviewing on drugs, while the institution conducting EHIS did not have a wide enough network of interviewers and, hence, to a degree used existing employees; their training was limited to techniques on how to convince a respondent to participate in the survey.

4. Expert survey

One of the components of this project was also a questionnaire for national experts on general population surveys. It aimed to gain additional information to that from the literature review and the review of available data, it concentrated on the actual experience of those who report national data to the EMCDDA and in some cases also participate in their collection and analysis. Hence, they may — or indeed must — encounter findings from various research contexts. The questionnaire was designed with the help of Deborah Olszewski (EMCDDA) and you can find it in the appendix to this report. Its content was also consulted with a group of national experts at a workshop on health and drug surveys at the EMCDDA 2010 Expert Meeting on Population Surveys in Lisbon (EMCDDA 2010b). Apart from questions on the existence, methods and findings of (comparable) national health and drug surveys including those in the school population, the questionnaire included a section on experiences with potential sources of bias in both contexts. A total of 12 national experts submitted the completed questionnaire (see Table 4.1). One country did not manage to send in the questionnaire on time, five countries stated that they lacked time to complete it or they did not have enough relevant experience and data to complete it. Twelve countries did not respond to the request at all.

Table 4.1 — Overview expert survey

Response	N (= 29)	Country (number of questions completed)
Completed	12	Czech Republic (8), Denmark (5), Germany (1), Hungary (9), Ireland (5), Lithuania (7), Malta (9), Norway (1), Poland (12), Romania (8), Slovakia (5), Spain (5)
Promised	1	Austria
No time	2	Netherlands, United Kingdom
No experience	3	Cyprus, Finland, Slovenia
No answer	12	Belgium, Bulgaria, Croatia, Estonia, Greece, France, Italy, Latvia, Luxembourg, Portugal, Sweden, Turkey

Because the response to the questionnaire was relatively small and the majority of the experts answered only a small part of it, the analysis does not result in generalisable conclusions. Despite this, the current chapter summarises the main points that the experts agreed on.

4.1 Existence, reporting, and results of general population surveys in the health context

Five countries (Malta, Poland, Spain, Lithuania and Romania) reported the existence of at least one study conducted in the health/healthy lifestyle context that researched the use of illicit drugs and their findings are not reported to the EMCDDA. Each country has different reasons for not reporting to the EMCDDA. For example, according to the Norwegian national expert, these studies are not conducted by the national focal point and, therefore, it cannot be held responsible for their design and quality of data and is not familiar with their findings. In Spain, a drug survey EDADES is conducted biannually and every three years the periodic health survey ENSE takes place; yet, the EMCDDA only gets information about the former as it is 'more specific'. The findings of the Romanian health study from 2008 are not yet available. Two Polish health survey series are not reported to the EMCDDA: the Health Survey implemented in 2004 by the Central Statistical Office and coordinated by Eurostat on the European level (see also Chapter 2) and the study 'Social diagnosis — Objective and subjective quality of life in Poland' conducted in 2000, 2003, 2005, 2007 measured only drug use in general without specification of the type of drug. Only the Lithuanian national expert stated that the sole drug that was targeted in the health survey in 2005 was marijuana/hashish and that its prevalence was underestimated in the study.

The differences between studies carried out in the health context and the drug context were discussed by representatives of the Czech Republic, Malta, Spain, Poland and Hungary; the Irish expert referred to existing publications ⁽¹²⁾ on both studies. In the cases of Spain and Malta, no significant differences were found in the prevalence measured in the researched contexts. When the findings differed significantly, as in the Czech, Polish and Hungarian cases, the experts agreed that it is precisely the research context that forms a potential source of bias. The Czech expert compared the prevalence of last year use of selected drugs in three studies researching alcohol consumption/drug use in 2002,

⁽¹²⁾ For more detail on the differences in the Irish SLAN study and the Irish drug survey — see Chapter 2.1.

2004 and 2008 and in two health surveys conducted in 2002 and 2008. The drug surveys provided systematically higher estimates in both comparable years 2002 and 2008. In Hungary, data were compared from the Youth 2008 study that incorporated a wide variety of topics including lifestyle and drug use and from the ESPAD and OLAAP studies from 2007 on drug use. The first one found the lowest prevalence of drug use among young people. In Poland, both health surveys provided systematically lower estimates than the drug surveys. All three experts agreed that the health context can lead to distortion. Other reasons were also given: easier recall in the drug context, respondents' fatigue in the health context when drug-related questions are at the end of the questionnaire, the selection and the lack of a specific training of interviewers and the degree of privacy in the course of face-to-face interview.

4.2 School surveys: ESPAD and HBSC

The experts agree that both school population surveys ESPAD and HBSC provide comparatively valid information on the use of licit as well as illicit drugs. In terms of alcohol and tobacco, Hungary and Germany point out that both studies use different indicators and they cannot be easily compared. In terms of cannabis use, differences between the prevalence found in both studies were not considered significant (Malta, Denmark, Hungary and Romania) or they were ascribed to the different age of the respondents (Lithuania, Germany, Hungary and the Czech Republic), and/or to the seasonal variation related to different months of the study, to the context of the substance use questions, and to the measures to ensure anonymity (Poland). According to the Slovak expert, both studies signify similar trends.

4.3 Research design and bias

Although many questions on the research design as a potential source of bias were not answered or respondents stated that they had no experience of them, in basic issues they were in line with the insights outlined in Chapter 3.

The role of contextual priming and the use of so-called vignettes were discussed by representatives of Hungary, Romania, Poland and the Czech Republic. The three of them agreed that such a strategy enables respondents' recall and can be very useful. Nonetheless, the criticism that long introductions are time consuming and demanding for respondents was also raised. Their influence also depends on the administration route (e.g. CAI versus PAPI) and on whether the respondent has the opportunity to navigate back and forth in the questionnaire and change preceding answers. The Polish expert stressed the role of priming in reducing effect of sensitivity of drug-related questions rather than in increasing recalling.

All those who commented upon the influence of questionnaire content and structure and the influence of preceding questions (Czech Republic, Malta, Hungary, Romania, Spain, Lithuania and Poland) agreed that these factors can be a significant source of distortion. According to the Romanian and Lithuanian experts, the main issue is the demand made on the respondents — they think that at the beginning of the questionnaire respondents are more willing to answer and provide truthful answers — while at the end of the questionnaire, as in the case of health surveys, they might be tired and incline towards simpler and untruthful answers. However, it is not only preceding questions that may play a role but also subsequent ones. This is particularly true for self-administered questionnaires but also when the respondent finds out that a positive response to a prevalence question leads to further answers (Malta). In the Czech Republic, the questionnaire context (together with the interviewer effect — see further in the text) actually represents the most potent source of bias because it determines the respondent's decision on what self-image s/he will present to the interviewer. Social desirability bias was identified as a source of distortion by representatives of the Czech Republic, Poland, Lithuania, Romania and Hungary. Most of them also agreed that it can have an impact both ways — in terms of under-reporting as well as over-reporting of drug use. Yet, no country suggests under what conditions a distortion occurs and in which direction.

All the survey participants also agreed that a higher degree of privacy led to more accurate and higher prevalence estimates of drug use in the population. Denmark, Hungary, Romania and the Czech Republic prefer self-administered questionnaires or at least sections of it. According to some (Malta, Romania) it is difficult to ensure that respondents feel safe even if there are no other people present at the interview because it is not easy to ensure that people in other rooms do not hear details of the

interview. On the contrary, in Slovakia they did not detect any influence of data collection on findings when comparing data collected using CATI versus face-to-face interviews. In Lithuania, privacy during the interview was more strictly adhered to in the case of the health survey than the drug survey, a reversed situation to that in the Czech Republic.

Experts believe that the degree of non-response is comparable in both types of research context. In the case of Denmark, the use of self-administered questionnaires discourages particularly young men — that is, the group potentially most at risk in terms of drug use — from participation in research. In Ireland, they attempt to balance higher non-response with weighting of data. According to experts, in Malta non-respondents have more experience of illicit drug use; young people, men and heavy users are often less available for an interview.

There has also been agreement on the role of the interviewer — the experts consider it essential that the interviewer has the same socio-economic profile as the respondent and is experienced in interviewing. S/he should also be familiar with terminology and conduct the interview in a way that makes the respondent feel safe, s/he should act in a neutral manner and never judge the respondent. The Slovak and Czech experts think that the interviewer's personality is the greatest source of potential misrepresentation, however, the influence of individual interviewers can be balanced when using a wide network of interviewers. However, no concrete experiences relating to the health or drug research context were provided. Only the Polish expert stated that larger sample sizes (as in the Polish health surveys) require a larger network of interviewers for whom it can be difficult and expensive to ensure relevant training.

5. Conclusion

The majority of general population surveys conducted in countries participating in the European monitoring system via the Reitox network were aimed mainly (or exclusively) on researching the prevalence of (il)licit drug use. Studies concentrating on health and/or healthy lifestyles represent the second largest group of surveys. In some countries where the comparison of data gained in both contexts is available, health surveys uncover significantly lower estimates of prevalence. In other cases, the findings are comparable, no country has higher prevalence estimates in the health context. Moreover, neither of the contexts is characterised by a unified design — apart from the structure and content of the questionnaire where we can expect similarities — data collection differs and so do its circumstances, selection and characteristics of the sample and other methodological choices. In many respects, this complicates even further the already problematic international comparison of drug use as well as the assessment of the influence of the context on findings.

The insights discussed in this report suggest that the following can significantly influence respondents' willingness to provide truthful answers to sensitive questions on drug use: questionnaire content, the overall understanding of the aims of the research, respondents' perception of the degree of privacy during the interview and the interviewer's characteristics. At the same time, the insights also suggest that the influence of the research context (similarly to the influence of other methodological choices) and, for example, the effect of the so-called social desirability bias changes, depending on the cultural context and apparently also the legal status of illicit drugs in the given country. The importance that respondents attribute to the research context and which subsequently impacts or does not impact on the willingness to admit use can be linked, for example, to the degree of individualism in a given country.

The role of culture is best illustrated by the fact that in some countries, surveys conducted in the health context and in the drug context result in comparable findings regardless of the other methodological differences. However, the data differed elsewhere, although both studies used approximately the same strategies of data collection, sampling etc. Also, the analysis of differences between the ESPAD and HBSC school population studies suggests that the increase in prevalence in some countries is not necessarily linked to higher age, whilst the influence of age and also of the spread of the given drug differ in various countries.

In future, the existence of international studies concentrating on the population's health (e.g. EHIS) is likely to further exacerbate the need to understand potential sources of distortion in one as well as the other research context. Taking all the above into account — and also the fact that it is impossible to fully explore the impact of the context using similar meta-analyses — it appears essential to conduct targeted split-sample experiments. Otherwise, it will be necessary to leave the decision on the validity of the findings of individual studies to national experts who are familiar with the situation and societal atmosphere in the given country, as it has been until now, for example, in Austria and Lithuania.

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7. Annex — National Experts Questionnaire

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Drug vs. Health Survey Design and Results
National Experts Questionnaire
.....

Country:

National expert:

1. General Population Surveys and their methodology

Please, answer this section only if there were any national general population surveys conducted since 2000, otherwise continue to section 2 — School Population.

1.2 Are you aware of any ‘health and/or healthy lifestyles’ surveys covering drug use, that are not reported to the EMCDDA? If so, could you please explain why they are not reported?

1.3 If there were conducted both *health/healthy lifestyle* and *drug* surveys, is there any systematic difference between the prevalence estimates (eg. repeatedly lower/higher)? Can you please provide some details?

1.4 If there were systematic differences, how did you interpret them? What are/might be the reason(s) for those differences?

2. School Population: ESPAD vs. HBSC

2. If there were differences of 4 % or more in estimates of alcohol/tobacco/cannabis use between HBSC and ESPAD in your country, could you please provide details and possible explanations (for example, age of students, timing of fieldwork, measures to ensure anonymity, supervision, etc...)?

3. Cognitive Perspective on Bias, and Research Design

Do you have any experience with and/or opinion to the following sources of bias in drug surveys (comparing both contexts – ‘health’ vs. ‘drugs only’)? Please provide as much information as you can.

