European Monitoring Centre
for Drugs and Drug Addiction

TECHNICAL REPORT

Computer-assisted and online data collection in general population surveys

Katerina Skarupova

September, 2014

Acknowledgements

This report is based on work carried out by Katerina Skarupova in 2013 and information provided by the general population survey experts from 19 EU Member States ([1]), Albania and the former Yugoslav Republic of Macedonia (in the framework of the IPA ([2]) programme). The European Monitoring Centre for Drugs and Drug Addiction would like to thank all those who contributed to this work.

([1]) Austria, Cyprus, the Czech Republic, Belgium, Germany, Denmark, Estonia, France, Finland, Greece, Hungary, Italy, Latvia, Lithuania, Luxembourg, Malta, Slovenia, Sweden and the United Kingdom.

([2]) Instrument of Pre-Accession.

Contents

I. Introduction

The advent of computers in the realm of social research has represented a huge step forward. Computer-assisted interviewing for online surveys and research has made data-gathering easier, quicker and cheaper. Online research methods are bringing about complex and thorough changes in the field. The most commonly mentioned advantages include a reduction in costs and errors, advanced design features and new elements including audio and video content, and the possibility of using new platforms, such as smartphones and tablets. However, many challenges and issues are yet to be resolved, including sampling strategies, penetration of the Internet, software solutions and start-up costs.

Some of these changes have had unexpected consequences. For example, the simplicity and low cost of online data collection have led to an unprecedented democratisation of survey research. Online questionnaire applications are simple, user friendly, accessible to anyone with an Internet connection, and often free of charge. On the one hand they provide researchers with instant and cheap access to powerful design features, a variety of question formats and useful tools (e.g. simple statistical modules and panel management features); on the other hand they may lead to less robust methodological considerations and to the institutionalisation of bad practice (e.g. misrepresentation of convenient samples) (Lee et al., 2008). While online data collections are easy to do because they are cheap and quick, good online surveys are increasingly difficult to carry out due to over-surveying of the Internet population, low response rates and sample biases (Couper, 2000).

Computers are also increasingly used in drug-related research, especially in general population surveys, either as an improvement to or in addition to more traditional ways of interviewing, and also as a complete substitution for existing practices. Although computer-assisted interviewing (CAPI/CATI) is not new in the drug field and some countries have been using it for more than a decade, web-based data collection methods were introduced fairly recently and with a degree of caution. The relative novelty of computerised methods and the fact that drug use is an extremely sensitive issue created the need and opportunity to explore in detail what researchers can expect in terms of the validity, comparability and cost-effectiveness of their results.

The aim of the present report is, first, to collect information from a literature review on (1) computer-assisted interviewing and (2) online data collection in probabilistic samples in general. It evaluates the pros and cons of both approaches in terms of research processes and outcomes. Second, it provides an overview of representative studies on drug use conducted in the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) countries that used either computer-assisted interviewing or online data collection. Third, it has collected views and methodological details from the EMCDDA network of national experts on general population surveys.

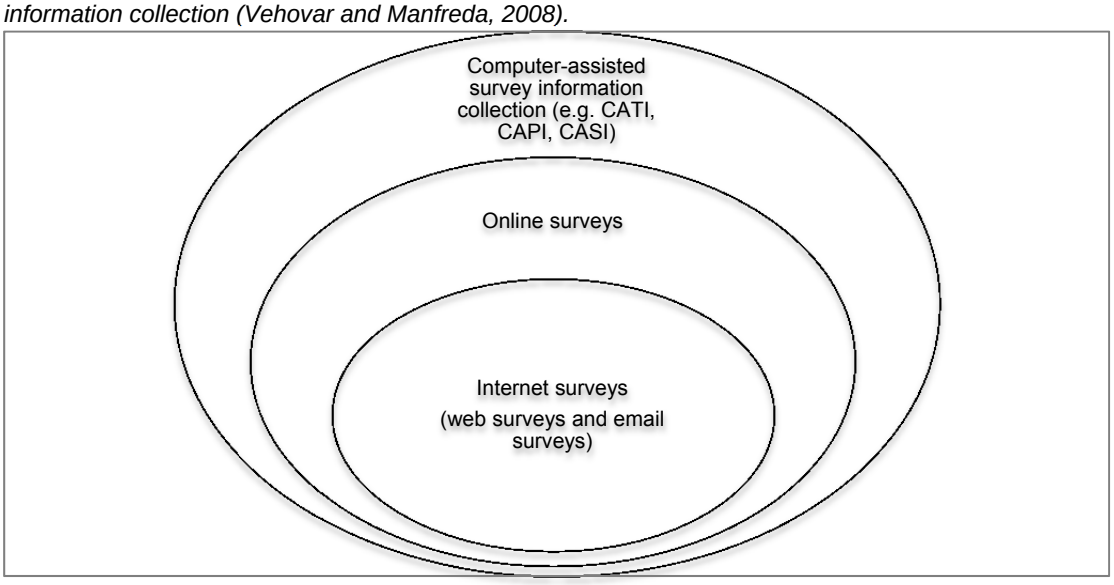
Rapid developments in communication technology and the relatively low cost of online data collection, compared with other methods, mean that it is almost inevitable that online data collection will be implemented more widely in the future. This report is the outcome of the EMCDDA project (CC.12.EPI.007) to explore and map methods of computerised data collection in general population surveys. It is a timely contribution to the knowledge base and it points to the importance of monitoring progress with a view to developing guidelines for online data collection in general population surveys.

II. A glimpse of history: an alternative theoretical framework

Computer-assisted data collection (CADAC) ([3]) includes both computer-assisted interviewing and online data collection, with the latter eliminating the need for an interviewer. Computers were introduced to social and (primarily) to marketing research conducted via telephone in the 1970s. In the course of the following decade, computer-assisted telephone interviewing (CATI) was followed by computer-assisted personal interviewing (CAPI) and computer-assisted self-interviewing (CASI), as a result of the development of more affordable, and more portable, computers. Computers considerably reduced the amount of work associated with data collection, by automating some phases (e.g. data entry, coding) and omitting others entirely (e.g. printing and posting back the questionnaire). A number of derived methods were developed, including disk-by-mail (a questionnaire distributed via postal mail on a floppy disk), computer-assisted video interviewing (CAVI) and virtual interviewing, some of which are now obsolete. Some of these methods were based on the use of now-archaic technologies; others were fairly minor techniques under development or techniques used for specific purposes (e.g. in experimental or marketing research).

The latest development embodies web/online data collection that takes advantage of more widespread Internet access and, more recently, mobile Internet access on hand-held devices (e.g. smartphones, tablets). Although the terms 'Internet survey' and 'online survey' are often used interchangeably, some authors consider Internet surveys to be a sub-type of online surveys, acknowledging the possibility of other ICT networks besides the Internet (Vehovar and Manfreda, 2008). Internet surveys were initially conducted via email (either in the form of an attachment or within the message body), while they currently often involve a programmed questionnaire displayed in the web browser.

Figure 1. The relationship between Internet surveys, online surveys and computer-assisted survey information collection (Vehovar and Manfreda, 2008).



([3]) The term computer-assisted survey information collection (CASIC) is used by some authors as an alternative to CADAC.

Several types of computer-assisted data collection modes are described in the research literature; these differ (1) in the burden placed on respondent and interviewer during the interview, (2) in the number of steps that are computerised along the process of interview and (3) in the actual questionnaire delivery (see Table 1). The distinction, however, refers only to the mode of data collection and does not concern sampling and recruitment strategies. Mixed methods may use traditional ways of contacting respondents (e.g. via postal mail or telephone) and refer them to an online questionnaire using a (personalised) URL. Similarly, web survey applications may be used on laptops during face-to-face (F2F) interviews (CAPI/CASI), combining personal and online interview modes.

Table 1. Overview of survey data collection modes and their theoretical strengths and disadvantages. Compilation from the literature. (Saris, 1991, Fienberg, 2003, Dillman, 2007, Vehovar and Manfreda, 2008).

	Stands for	**Role of Interviewer**	**Main strengths**	**Main weaknesses**
PAPI*	Pen and paper personal interview	Interviewer-administered	– Effective recruitment. – Support for respondent.	– High costs. – Time-consuming.
Postal mail*	Pen and paper mail interview	Self-administered	– Low social desirability bias and interviewer effect. – Cheap. – Respondent free to choose time.	– Low response rates. – Lack of control over the answering process.
CAPI	Computer-assisted personal interview	Interviewer-administered	– Same as PAPI. – Smoother progress through the questionnaire. – Minimum data entry errors.	– Same as PAPI. – High start-up costs.
CASI	Computer-assisted self-interview	Self-administered	– Same as CAPI. – Lower social desirability bias and interviewer effect.	– Same as CAPI.
CATI	Computer-assisted telephone interview	Interviewer-administered	– Cheaper than F2F interviews. – Higher response rates. – Smoother progress through the questionnaire. – Minimum data entry errors.	– Lower response rate compared to F2F. – Incomplete sample frames. – Only suitable for short questionnaire.
TDE	Touchtone data entry	Self-administered	– Same as CATI. – Lower social desirability bias.	– Same as CATI – Lack of active feedback to respondent.
IVR/T-ACASI	Interactive voice response/ telephone computer-assisted self-interviewing	Self-administered	– Same as TDE.	– Same as TDE.
Email surveys	Online email survey	Self-administered	– Same as postal mail survey. – Very cheap.	– Same as postal mail survey. – Requires a certain level of digital access and literacy. – Requires specific sampling strategies and recruitment techniques. – Uncertain response rates.
Web surveys	Online web survey administered within a browser application	Self-administered	– Same as email survey. – Less time-consuming. – Smoother progress through the questionnaire. – Minimum data entry errors. – Offers a variety of question formats, including the use of multimedia.	– Same as email survey. – Uncertain response rates. – Difficult to avoid and recognise double entries.
Mixed-mode	Combination of traditional and online data collection methods	Can be self-administered or interviewer-administered	– Combines strengths of several modes. – Gives respondents freedom to choose their preferred mode of data collection.	– Mode effect in responses.

Note: * Traditional survey modes.

In personal interviews, an interviewer has to perform a number of tasks, starting with contacting respondents and obtaining their consent. The questioning phase is a complex process that requires the interviewer to cope with: presenting questions, answer categories and instructions to the respondent; motivating the respondent; checking, coding and recording the answers; following skipping patterns and branching; and providing explanations and support to respondent (Saris, 1991). In CATI and CAPI the computer performs many of these steps, leaving the interviewer free to give their full attention to the respondent. This approach may also substantially reduce data entry errors (Tortora, 1985). However, it requires careful questionnaire design and programing, paying special attention to question types and answer formats and to branching and rounding patterns.

As Saris (1998) has pointed out, the respondent's interview experience does not change much in CATI/CAPI data collection modes, as it is the interviewer who is delivering the questionnaire, asking questions, and recording answers either in person or via the telephone. Computer-assisted self-interviewing (CASI) and online data collection give the respondent a more active role and require more skills than simple understanding, recalling and answering a question. Self-interviewing is believed to reduce social desirability bias, but when conducted via telephone (TDE/IVR) it may lead to increased numbers of people dropping out during the interview, as respondents need active feedback to stay motivated for longer periods (Tourangeau et al., 2002). On the other hand, online data collection gives respondents substantial freedom in terms of when and where he/she will complete the questionnaire, and how long they will spend on it.

The future of telephone surveys in general is endangered by the increased use of mobile phones, and therefore they suffer from under-representativeness. Computer-assisted self-interviewing over the telephone could help to reduce the rising costs of telephone interviews (Boland et al., 2006).

II.1 Mixed-mode surveys

Mixed-mode surveys represent a specific category of research design that combines various modes of data collection, recruitment techniques and sampling strategies in order to fulfil the demands of particular research questions. They may be used either to capture a broader spectrum of respondents when it is anticipated that specific sub-groups would not be reached via one mode of data collection, or to compensate for the weaknesses of each method. With the increasing popularity of online data collection, mixed-mode surveys often compensate for low Internet penetration in some social groups.

Dillman (2007) distinguishes five potential scenarios of mixed-mode surveys, their objectives and methodological consequences. (1) Collection of the same data from different members of the sample and (2) collection of panel data from the same sample at a later time reduces costs and improves response, but may lead to measurement differences. (3) Collection of different data from the same respondent during a single data collection period is expected to improve measurement and reduce research costs. (4) Collection of comparison data from different populations is usually driven by convenience and cost reduction. (5) Use of one mode only to prompt completion by another mode has no apparent negative consequences and should improve coverage and reduce non-response. Scenarios 1 to 4 refer just to mode of data collection, and scenario 5 describes mixing modes throughout the research process (i.e. from recruitment to data collection); these may be mutually combined.

Mixing modes of data collection takes various forms in terms of time distribution alongside the research process. Sometimes the cheapest option is offered to all respondents first, and a different option is only used to follow up those who did not or could not respond to the first option. Another approach offers a variety of modes at the same time and allows the respondent to choose the most convenient. A classic example of a mixed-mode strategy would be a survey in which a postcard is sent by postal mail to all sampled respondents, containing individualised access details to an online questionnaire. A first reminder, also posted, contains a link to the online questionnaire together with a hard copy of the questionnaire and a return envelope. A second reminder may take the form of a postcard.

Although mixing modes of data collection may increase response rates and reduce costs, this approach carries an additional burden of mode effect on responses. These are generally associated with the differences between self-administered and interviewer-administered questionnaires (see Section II.2), but are also observed when comparing paper and online self-completed questionnaires, or personal and telephone interviews.

II.2 Methodological specifics of online data collection

While in CAPI and CATI computers enter the research process at the point of interview, online surveys may represent a diametrically different approach to the whole process. It is therefore necessary to distinguish between survey modes and data collection modes. Particularly when representative samples are targeted, doing research online creates additional challenges, many of which may be overcome in mixed-mode surveys (see Section II.1 above). Some advantages and considerations related to online techniques at various stages of the research process are presented here as a compilation of findings from methodological literature (Jones, 1998; Hewson, 2003; Dillman, 2007; Fielding et al., 2008; Gaiser and Schreiner, 2009; Bhaskaran and LeClaire, 2010; Gosling and Johnson, 2010; Postoaca, 2010; Poynter, 2010; Sue and Ritter, 2011; Whiteman, 2012).

II.2.A Cost reduction and increased time efficiency

A reduction in costs and increased time efficiency are the most commonly mentioned advantages of online data collection. The benefits of web-based data collection are similar to those of traditional postal surveys — there are no costs linked to salaries for interviewers, travel and staff training. Compared to postal surveys, online data collection is faster and there is no need to print questionnaires and digitalise the data afterwards. It is paper-free and interviewer-less. Respondents can get instant access to the online forms, and researchers receive the data immediately after the questionnaire is completed. Costs related to survey software can also be very low — commercial companies target marketing firms and therefore the market offers a number of open source software solutions that are free of charge and reliable, and allow the design and layout features to be customised ([4]).

On the other hand, some authors warn that the low cost and ease of use of online data collection surveys may lead to a temptation to ‘give matters less careful consideration and to institutionalise bad practice’ (Lee et al., 2008). It has been estimated that conducting a survey online may save 25 % to 50 % of the time spent on data collection, which would subsequently lead to a huge increase in the number

([4]) See appendices for examples.

of research projects conducted (Postoaca, 2010). But the time efficiency on the respondents' side can heavily compromise the quality of the data (Malhotra, 2008).

In online data collection, the reduction in costs may be outweighed by difficulties with obtaining representative samples and the risk of related errors. Substantial cost reduction, then, represents an unequivocal advantage mainly for panel (marketing) studies and studies using convenience samples. Mixed-mode surveys, on the other hand, can reduce the costs associated with data collection while maintaining traditional sampling and recruitment strategies.

II.2.B Error reduction

Researchers must address several sources of potential errors. Error reduction in online data collection is, primarily, and similar to other computer-assisted modes, linked to a reduction in clerical mistakes during data entry (e.g. typographical errors and misplaced completed forms). Carefully designed digital questionnaires, whatever their digital form, ensure that respondents only answer questions that are relevant to them. In this sense, online data collection (and computer-assisted data collection in general) is more accurate than traditional modes of data collection. However, surveys using online data collection may introduce other types of error — especially those related to coverage, sampling and non-response.

II.2.C Representativeness, sampling and recruitment modes

The distinction between data collection and sampling strategy should again be stressed. In general, online data collection surveys are the perfect tool for research targeted at convenient or specific samples and for panel research management. Most online survey applications offer a quota management tool, making it very easy to specify and limit study samples. Online surveys have been proven to be a convenient tool when researching a specific population (e.g. recreational drug users) (Miller et al., 2007; Miller et al., 2010). Conducting representative general population surveys online is more difficult, as the study population (the general population) is not equal to the population using the Internet. Even though the Internet-using population is rapidly increasing and diversifying, and is expected to reach a similar level of saturation as telephone connection, the population of Internet users is very difficult to determine as there are no central registries of Internet users or other usable Internet sample frames. The level of Internet penetration varies between countries, and differences at the national level remain significant (see Section II.3 for details). Therefore, probabilistic sampling is unlikely to be successful over the Internet and needs to be addressed separately from data collection (Poynter, 2010; Tuten, 2010). Weighting and post-stratification do not solve the issue of representativeness in solely web-based surveys (Bethlehem, 2010). In addition, email requests may be treated as spam, and ignored by recipients (Charlesworth, 2008; Eynon et al., 2008).

Recruitment via traditional modes imposes higher costs, but traditional contact methods are unavoidable in representative studies, as sampling frames rarely contain (valid) email addresses. Entirely web-based surveys are limited to convenience samples and to institution-based populations, such as university students, where sample frames with email addresses exist (Fricker, 2008; Vehovar and Manfreda, 2008). Repeated emails are then used to increase response rates (Klofstad et al., 2008). Recruitment (and data collection) broken into several attempts using different modes may help to overcome these issues; however, researchers will still face mode-effect problems related to the wording of questions, layout, filters and skipping patterns (Dillman, 2007; Vehovar and Manfreda, 2008), and email recruitment may be treated as spam (Charlesworth, 2008; Eynon et al., 2008).

Respondents in mixed-mode surveys have been found to favour traditional methods; however, this evidence may already be out of date (Fricker, 2008).

II.2.D Response rates and non-response errors

According to some researchers, online data collection surveys are suitable for large and diverse samples because they are easy to distribute over large geographical areas and even inter-culturally (Hewson and Laurent, 2008; Gosling and Johnson, 2010). However, response rates in web surveys are generally low, which may introduce high non-response errors. Using a different mode as a follow-up may increase response rates, but this brings an extra burden in terms of costs and the mode-effect problems mentioned above (Dillman, 2007; Fricker, 2008).

A novel problem of response rates over 100 % may occur in web surveys when control over repeated attempts is imperfect or non-existent (Hewson and Laurent, 2008). When convenient samples or self-selected samples are targeted online, the concept of response becomes much less straightforward compared to traditional sampling techniques, as the gross sample size (the number of people addressed) is generally unknown or (incorrectly) substituted by the number of times the questionnaire website has been accessed.

Item non-response and 'roll-offs' ([5]) are more common in web surveys than in personal and telephone interviews, and are proportional to the questionnaire length (Porritt and Marx, 2011). In online data collection people tend to scroll down the page leaving blank answer fields, or to answer randomly. Researchers can be creative in designing the questionnaire in order to increase respondent's motivation and understanding. However, fatigue, poor attention and lack of interest in the survey topic are common sources of this type of error (Best and Krueger, 2008). Some of these issues can be addressed with careful questionnaire design supported by pilot meta-data (such as information on completion times per question, page, section and overall). Compared to postal surveys, which allow respondents to divide the time they spend completing the survey into several attempts over an extended period of time, online surveys tend to expire after a period of inactivity. Disabling this feature or allowing password-protected saving of unfinished questionnaires are solutions to this problem.

II.2.E Benefits and disadvantages of self-completion

Prior to the advent of digital technologies there had been an increase in the use of self-administered surveys (by postal mail), in order to reduce costs (Dillman, 2007). Other advantages of self-completion are linked to self-administered questionnaires. The perceived level of anonymity and privacy may be higher, which can help to eliminate errors associated with social desirability and with the effect of the interviewer. Traditional sources of mode effect when comparing self-completed and interviewer-administered questionnaires are social desirability, acquiescence, question order and the opportunity to review previous answers, and the ability to remember or review all answer categories (primacy/recency effects) (Dillman, 2007).

Online data collection has the potential to overcome barriers of race, nationality, language and ideology (Postoaca, 2010); the ability to choose where and when to complete the questionnaire is another important advantage. However, these are outweighed by a lack of control over who is actually answering, and what their

([5]) 'Roll-offs' means that the respondent skipped some questions but submitted the questionnaire.

reaction may be to the questionnaire. There is also no perceived commitment toward the interviewer, which may result in higher numbers of 'roll-offs' (Hewson and Laurent, 2008).

II.2.F Ethical, legal and security issues

While many features of online data collection are similar to traditional methods, a number of new topics have emerged in terms of research ethics. For instance, perceived privacy associated with self-completion does not signify privacy in technical terms. Researchers must pay special attention to data protection and privacy issues, including what information is collected and how it is transferred and stored. In addition, email addresses often contain personal identifiers such as names, locations and institutions (Eynon et al., 2008, Charlesworth, 2008).

II.2.G Some technological aspects

Digital technologies are developing rapidly, and there have been many changes in the software and hardware used in survey research in the past three decades. Initially, computer-assisted personal interview (CAPI) applications guided researchers through a complex environment that required additional training for interviewers. Today, survey software has a simple and user-friendly interface that allows for high levels of interactivity and variability. Similarly, online data collection moved from emailed questionnaires to easy-to-use web applications. It is now possible to add audio-visual elements and allow respondents (and interviewers) to work with touch-screen devices. When the software was first introduced, layout issues posed a problem for online data collection: the end devices used by respondents to display and complete the questionnaire differed enormously in terms of what respondents actually saw, how text appeared on their screen and whether the questionnaire was accessible and readable for all end-users (Best and Krueger, 2008). Today, most survey applications are optimised for standard web browsers and hardware set-ups, although limitations still exist that prioritise universality and accessibility over high-tech graphical content.

The technological potential of survey software has changed enormously, as has the market for such applications. This important fact should be considered when evaluating survey methods and developing guidelines — the properties of tools vary in time and across the market, making simple comparisons very difficult.

II.3 Internet penetration and computer skills ([6])

For a general population survey using online data collection to be successfully performed, respondents must be able to access the questionnaire on the Internet. According to Eurostat, 73 % of the EU-27 population aged 16 to 74 have used the Internet in the past year. More than three-quarters of European households had an Internet connection in 2012, with the majority having access to a broadband connection, enabling high-speed Internet and more comfortable browsing. However, the level of Internet penetration varies between countries, ranging from 50 % to 90 % of households connected to Internet. Countries with the highest proportion of

([6]) Data for this section refer to the year 2012 (if not stated otherwise) and come from the following Eurostat tables:

Individuals – Internet use (isoc_ci_ifp_iu)
Individuals – frequency of Internet use (isoc_ci_ifp_fu)
Households – level of Internet access (isoc_ci_in_h)
Households – type of connection to the Internet (isoc_ci_it_h),
Individuals' level of Internet skills (isoc_sk_iskl_i)

connected households include the Netherlands, Luxembourg, Norway, Denmark and Sweden; countries with the lowest proportion include Bulgaria, Romania, Greece and Turkey (see Table 2) (Eurostat 2012).

Although an increase in Internet access has been observed in all European countries, the fastest growth between 2004 and 2012 was in the post-socialist countries of Hungary, Slovakia and Lithuania.

The frequency of Internet use at the national level correlates with the proportion of households online; the highest share of regular users of the Internet (accessing it at least once a week) in Europe was in Denmark, Luxembourg, the Netherlands, Finland, Sweden and the United Kingdom, while the lowest share was in Romania, Bulgaria and Greece. The latter are also countries with the highest number of people that have never used the Internet; in the EU-27 in 2012 some 23 % of people had never used the Internet, according to Eurostat.

Sampling strategies for online data collection should take into account the structure of the population that can be reached and of the population that cannot. Overall, taking into account aggregated 2012 data from the EU-27, age, education, employment status and income are factors affecting Internet penetration. The likelihood of Internet use among individuals decreases with increased age, low income, unemployment and lower education levels. While only 3 % of 16- to 24-year-olds in Europe had never used the Internet, the proportion rose to 21 % among those aged 45–54; 39 % among those aged 55–64; and 62 % among those aged 65–74. Similarly, 12 % of people in the 4th income quartile, and 44 % in the 1st (lowest) income quartile in the EU-27 in 2012 had never used the Internet. However, the impact of socio-economic status on online status varies across Europe, with countries with high overall Internet penetration showing higher proportions of individuals with Internet access among older age groups and groups with lower incomes and/or levels of education. Gender has a slight impact on Internet access when looking at EU aggregated data, although nationality (whether a national or not) and origin (EU or non-EU) do not seem to disadvantage individuals in terms of their Internet access. This, again, does not apply equally to all European countries. In general, greater inequality in Internet access exists in countries with lower overall Internet penetration.

Table 2. Internet access and broadband Internet connections in households (%) (Source: Eurostat).

	Percentage of households with Internet access					Percentage of households with broadband connection				
	2004	**2006**	**2008**	**2010**	**2012**	**2004**	**2006**	**2008**	**2010**	**2012**
EU-27*	41	49	60	70	76	15	30	49	61	73
Belgium	:	54	64	73	78	:	48	60	70	75
Bulgaria	10	17	25	33	51	4	10	21	26	51
Czech Republic	19	29	46	61	65	4	17	36	54	63
Denmark	69	79	82	86	92	36	63	74	80	85
Germany	60	67	75	82	85	18	34	55	75	82
Estonia	31	46	58	68	75	20	37	54	64	74
Ireland	40	50	63	72	81	3	13	43	58	65
Greece	17	23	31	46	54	0	4	22	41	51
Spain	34	39	51	59	68	15	29	45	57	67
France	34	41	62	74	80	:	30	57	66	77
Italy	34	40	47	59	63	:	16	31	49	55
Cyprus	53	37	43	54	62	2	12	33	51	62
Latvia	15	42	53	60	69	5	23	40	53	67
Lithuania	12	35	51	61	62	4	19	43	54	61
Luxembourg	59	70	80	90	93	16	44	61	70	68
Hungary	14	32	48	60	69	6	22	42	52	68
Malta	:	53	59	70	77	:	41	55	69	77
Netherlands	65	80	86	91	94	31	66	74	80	84
Austria	45	52	69	73	79	16	33	54	64	77
Poland	26	36	48	63	70	8	22	38	57	67
Portugal	26	35	46	54	61	12	24	39	50	60
Romania	6	14	30	42	54	:	5	13	23	50
Slovenia	47	54	59	68	74	10	34	50	62	73
Slovakia	23	27	58	67	75	4	11	35	49	72
Finland	51	65	72	81	87	21	53	66	76	85
Sweden	:	77	84	88	92	:	51	71	83	87
United Kingdom	56	63	71	80	87	16	44	62	:	86
Croatia	:	:	45	56	66	:	:	27	49	60
Turkey	7	:	25	42	:	0	:	22	34	:
Norway	60	69	84	90	93	30	57	73	83	86

* Does not include Croatia, Turkey and Norway.

Another issue relates to the availability of an Internet connection and computers in schools that would allow computer-assisted interviewing to be used in school surveys. Country-level data from the EU-27 are not available. Even if a school has suitable computers and an Internet connection, research suggests that the logistics of surveying a whole class may be complicated (Eaton et al., 2011).

Internet access does not guarantee the successful completion of an online data collection. Both email surveys and online questionnaires require individuals to possess basic computer/Internet skills. Although the number of people with some experience in sending and receiving emails and using Internet browsers is on the increase, in some countries the level of computer literacy remains low (see Table 3).

Table 3. Individuals that have performed specified activities online, 2011 data (%) (Source: Eurostat).

	Have sent an email with attached files	**Have used a search engine to find information**	**Have uploaded text, games, images, films or music to websites (e.g. for social networking)**
EU-27*	63	71	27
Belgium	70	78	28
Bulgaria	37	49	19
Czech Republic	68	72	34
Denmark	80	88	46
Germany	70	80	30
Estonia	66	73	40
Ireland	63	69	23
Greece	41	53	18
Spain	58	69	21
France	69	77	26
Italy	51	57	24
Cyprus	46	57	26
Latvia	62	71	42
Lithuania	54	66	37
Luxembourg	81	88	38
Hungary	66	70	22
Malta	61	67	26
Netherlands	83	89	35
Austria	71	78	31
Poland	47	64	20
Portugal	50	58	27
Romania	36	42	19
Slovenia	58	69	30
Slovakia	71	78	17
Finland	76	88	33
Sweden	84	90	46
United Kingdom	77	80	31
Croatia	:	:	:
Turkey	:	:	:
Norway	86	91	49

* Does not include Croatia, Turkey and Norway.

III. Methods

III.1 Aims and scope of the study

The aim of this review is (1) to assess the pros and cons of computer-assisted data collection in probabilistic samples on the basis of methodological studies published to date, and (2) to collect information on representative surveys of drug use in EMCDDA countries that use computer-assisted data collection methods.

The review of methodological literature focused on computer-assisted personal and telephone interviews and on Internet surveys (both email-based and web-based). Comparisons were made, with special attention to: sampling strategies; recruitment modes and response rates; and mode effects on data quality/bias and study costs. The map of surveys focused on drug-use general population surveys and school population surveys conducted in the EU-27, Croatia, Turkey and Norway, and it aimed to audit all available methodological information.

A combined result of both exercises should serve as a basis for the collection of details from EU Member States about their experiences and views on the use of computer-assisted data collection tools and online questionnaires, and for future improvements to the EMCDDA reporting guidelines on general population surveys.

III.2 Literature review on computer-assisted data collection (CADAC) in representative samples

A systematic literature review was employed as follows: (1) A variety of combinations of search strings (see Table 4 for key words) were applied to selected scientific databases and search engines. The search string matrix was developing continually throughout the review process. (2) Papers pre-selected on the basis of their title and abstract were downloaded to the citation manager, together with their full text (where available). (3) All duplicates, multiple entries and irrelevant papers were removed; remaining papers were scanned for the information of interest. (4) When a relevant document was cited that had not been previously identified by database queries, it was downloaded.

Table 4. Search string matrix.

Mode (OR)	AND	**Methods** (OR)	AND	**Other specifications** (OR)
Computer-assisted		Survey		Validity
ACASI		Representative%		Cost%
CAPI		Probabilistic sample		Response rate
CASI		Random sampling		Non-response%
CATI				Error
Web				Bias
Email				Mode effect
Internet				
Online				
Mixed-mode				

III.2.A Databases and other sources

The first round of searches was performed on scientific databases: PubMed, EBSCO Host (Academic Search Complete, PsycARTICLES, PsycINFO, SocINDEX with Full Text) and ScienceDirect. Subsequently, the Google Scholar search engine was used to identify possible omissions and to reduce search error. Where the advanced search option was allowed, the search was limited to medical and social sciences

(which in some cases excluded marketing and related research). Relevant papers that were previously available to the author of the report were also considered, as were documents cited either in theoretical literature or in the papers under review.

III.2.B Inclusion criteria

In order to be included in the analysis, papers had to contain a comparison of any CADAC methods for representative samples with either traditional methods or another CADAC method. As a number of CADAC applications exist, the study was limited to those with the potential for use in general population surveys on drug use — the CAPI/CASI, CATI and surveys with online data collection. Other modes were considered only in the broader context. Only studies that contained at least some elementary methodological information were included in the review. Papers covering use of mixed modes were considered when they contained a comparison of methods and outcomes.

Other inclusion criteria were: written in English, published in 2000 or later, and being peer reviewed. The condition of peer review was dropped when the respective document was previously cited in a peer-reviewed paper (it was assumed that the quality of such research had been evaluated by the referring author and within the revision process). The original time frame included research published from 2000 onwards, in order to omit practices that are now outdated and to keep the volume of research papers manageable. Nevertheless, some older research might appear in the sample, especially if it covers current methods and there is no recent literature available. Papers published before 2000 were only sampled via references.

The previous section addressed the fact that representative surveys conducted over the Internet are extremely difficult to achieve. Representativeness, based on probability samples, is often (and not very correctly) replaced with pseudo-probability samples drawn from large panels in methodological studies (Stephenson and Crête, 2011). Studies that were based solely on panel data were excluded from the review unless they covered comparable studies based on probabilistic sampling. Similarly, studies based on convenience samples were disregarded but referenced in the text.

A specific subsection is dedicated to literature-based evidence papers (e.g. meta-analysis, literature review). These were not the primary aim of the present review; nevertheless they were collected and are presented here to provide further evidence on some issues.

A total of 297 thematically relevant documents were downloaded to the reference manager, and the findings from 34 that fulfilled the inclusion criteria are presented in in Section IV.

III.2.C Limitations

A number of limitations in this literature review must be mentioned. While the rapid development of digital technologies represents a great opportunity for survey research, it also limits methodological study in terms of time–space related validity. What was difficult to achieve a couple of years ago may now be a very simple task in some countries, but may be still be unachievable in other countries. This point is especially relevant for online data collection, where access to and the technical quality of the end-user devices and Internet connection are important elements in the context of making county comparisons. Information on any related aspects (such as response rates, costs, etc.) has to be interpreted with caution and with attention to geographical and temporal limitations. Limiting the search to papers published after 2000 made the volume of work manageable; however, this resulted in omitting the

body of research on computer-assisted modes of interviewing that entered into practice during the 1970s, although technology, software solutions and the attitude of the general public to computers (such as the perceived level of privacy and ease) have changed enormously since then. Both hardware and software have become much more affordable within the last decade, making a comparison of costs over time invalid in today's conditions.

Another limit of the review is linked to its thematic scope. While modes that are considered in the present study are relevant and currently used in some countries, it is difficult to predict whether and for how long they will remain in use, or what other techniques might take over in the future. For instance, telephone surveys conducted via fixed-line phones and the respective sampling techniques (such as random digit dialling or telephone registries as a sample frame) may become impossible due to an increase in mobile phone use.

III.3 European drug survey map

The overview of CADAC studies conducted in EMCCDA countries is a compilation of information from a variety of sources. EMCDDDA Statistical bulletins (2012) were consulted as a first step, followed by the National abstracts (2011, 2012) from general population survey experts and the Reitox National reports to the EMCDDA (2007–12). The register of drug research ([7]), launched and maintained by the Pompidou Group, was also searched for surveys. While the literature review was performed as specified above, the results of queries were also scanned for studies on substance use conducted in the countries of interest. To identify gaps in these sources, an additional search was performed using Google and Google Scholar.

Inclusion criteria for the European drug survey map were: computer-assisted data collection, geographically representative sample, and any psychoactive substance use (licit and illicit) covered by the questionnaire. Alcohol and tobacco were also included as they may represent similarly sensitive issues in some contexts and represent a similarly challenging task when their use is assed in the population.

III.4 Survey among EMCDDA national experts

The final component of the project consists of a survey within network of the EMCDDA national experts on general population surveys. The survey aimed (1) to collect detailed information about online data collection in drug surveys conducted in the EMCDDA reporting countries, and (2) to obtain experts' views on the methodology. Data were collected during July and August 2013 using an Excel form (see Annex 3) that was emailed to the network of national experts and participants in the 2013 EMCDDA General Population Surveys Meeting on Drug Use in the General Population, with copies sent to heads of national focal points. An individual reminder was sent to each expert who did not reply, up to two weeks prior to the deadline.

The Excel form comprised of two sections. Section I focused on methodological details of online data collection, and for countries that already reported some online data collection to the EMCDDA known information was pre-filled on the basis of what was already reported to the EMCDDA via annual reporting tools in the form of standard tables and National reports. Section II focused on experts' views about methodology and their plans to collect data online in the future.

([7]) www.pgregister.coe.int/Pompidou/WebForms/Accueil.aspx

IV. Literature review

This section provides two types of information. First, it covers studies on computer-assisted data collection in representative surveys and summarises findings on methodological properties. Although (offline) computer-assisted interviewing and online data collection represent the same developmental line in survey research, and papers on both topics are presented jointly in Table 5, they are treated separately because the methodological research focuses on slightly different topics. Second, a collation of literature-based evidence from meta-analyses and other literature reviews is provided.

IV.1 Computer-assisted interviewing

The query in academic databases on computer-assisted interviewing yielded 18 studies. In general, three types of comparisons have been made: (1) computer-assisted interview compared to traditional methods — nine studies, (2) two or more computer-assisted modes compared to each other — six studies and (3) computer-assisted modes compared to online data collection — five studies (see section V for surveys using online data collection). It is worth noting that computer-assisted interviewing in the presence of an interviewer (either face-to-face or via telephone) may be considered a traditional method of interviewing in papers published after 2000. In some cases, especially in telephone interviews, it was difficult or impossible to assess whether the interview was computer-assisted or not. This may be due to the low impact of computer use on respondents' experience of data collection and therefore its low impact on mode effects such as response rates and bias.

Studies presented here were often split-sample survey experiments. This means that both modes used the same sampling strategy and recruitment techniques, and respondents were randomly assigned to one or the other mode of interviewing.

IV.1.A Computer-assisted versus traditional modes

The main issue arising from the comparison of computer-assisted modes with traditional ones is the perception of privacy. Whether it is a comparison of telephone versus T-ACASI, CATI versus self-administered paper questionnaires, or CAPI versus face-to-face PAPI, self-completion always produces lower bias. It is associated with higher willingness to report a sensitive behaviour (including substance use or experience with sexually transmitted diseases). When both computer-assisted and traditional modes require self-completion they provide comparable results, implying that the effect of computerisation on respondent is much less pronounced than the effect of perceived privacy. When it was reasonable to compare responses between the modes, there was no or little effect on response rates, though slightly in favour of the presence of an interviewer.

IV.1.B Audio-guided interviewing

Similar to the comparison with traditional modes, when two computer-assisted modes are compared the main effect relates to social desirability bias. Self-completed or audio-guided interviews generally produce higher rates of positive answers to potentially sensitive issues. There were no differences between audio interviews and self-interviews, suggesting that including audio in computer-assisted self-interviewing adds unnecessary costs. On the other hand, automated interviewing over the telephone may be perceived as boring and uninteresting due to a lack of personalised feedback to the respondent, especially in cases of interactive voice response (IVR) modes. Although this mode may appear cheaper as it does not involve staff costs, when roll-offs and rates of completed questionnaires are taken into account, CATI turns out to be more cost-effective.

IV.2 Online data collection

Conducting surveys over the Internet presents a much more complicated picture. The search strategy yielded 21 papers that compared surveys using online data collection with other modes. Many of the findings in the present review confirm the concerns mentioned in the theoretical section. The main issues are the representativeness of Internet samples, and problems with sampling strategies and recruitment modes.

The review confirms that online data collection in probabilistic samples is only possible when email addresses are available for the whole population (such as university students or respondents in other institutionalised setting) or as part of a mixed-mode survey where respondents are sampled and contacted using traditional techniques and are then offered an online survey option. Response then varies with the contact mode — when the invitation is emailed to respondents, the response rate is usually higher, while postal invitations lead either to a low response rate or to a preference for a traditional survey mode. The number of follow-up reminders may also play a role; however, this could not be reliably assessed within this review. School-based surveys represent an exception — response rates between online data collection and traditional pen-and-pencil self-completed questionnaires in the classroom do not differ significantly, but this may be due to the school setting.

A number of studies attempted to evaluate the use of random samples from representative panels. Findings suggest that panellists tend not to respond to online data collection when compared to other modes, or they prefer traditional modes when they are offered the choice. Panel samples provide only a weak substitute for truly probabilistic samples as they attract more educated and knowledgeable people, suffer from coverage bias and consequently tend to differ from samples obtained by other means. The disadvantage of low representativeness is considered to outweigh the advantages of the ease and timeliness of panel surveys, although there may be situations where they are useful.

Studies carried out solely on the Internet (typically panel studies or samples from large panels) are technically the cheapest way to conduct a survey. Employing traditional sampling strategies and contact techniques increases costs, and online data collection may then become more expensive than postal or telephone surveys.

In terms of data quality, the evidence is rather ambiguous. While in some studies online data collection suffers from higher roll-off rates and higher item non-response, there is equally strong evidence that respondents who use online questionnaires tend to be more compliant. A number of factors may exert some influence — how appealing the survey topic is for the respondent, whether the questionnaire is of an acceptable length, how familiar the respondent is with the respective technology and how user-friendly the interview software interface is. There are also technical aspects, such as whether some answers are mandatory to progress further in the questionnaire, which may cut item non-response rates but increase dropout ([8]) rates. On the other hand, online data collection does not suffer from social desirability bias, and it produces higher rates of positive answers to questions on sensitive issues.

([8]) 'Dropout' means that the respondent abandoned the questionnaire, or closed the window, without submitting the questionnaire.

Table 5. Literature review — list of studies.

N.	Reference	Type of study (topic)	Population	Mode/s (sample size)	Sampling	Recruitment modes (response rates)	Main findings	Notes
1.	Wright et al. (1998)	Split-sample experiment (Substance use)	Youth aged 12–34 (USA)	CASI (2 055) SAQ/PAPI (1 114)	Stratified random sampling	Personal visit (72 %) Personal visit (74 %)	– The effect of computerisation was less pronounced than the effect of self-completion; both modes gave comparable results. – The impact of mode was age-related — adolescents scored higher on sensitive items via CASI.	
2.	Lessler et al. (2000)	Split-sample experiment (Substance use)	General population (USA)	A-CASI (1 982) F2F/PAPI (3 105)	Stratified random sampling	Personal visit (64 %) Personal visit (76 %)	– PAPI produced somewhat higher response rates. – A-CASI yielded higher prevalence rates.	
3.	Beck et al. (2002)	Secondary analysis of multiple survey data (Substance use)	Adolescents (France)	CATI (4 115) SAQ/PAPI (9 919)	Random sampling School-based random sample	Advance letter, call (n.a.) School-based survey	– Phone survey systematically underestimated substance use. – Varying results related to a number of factors, including sampling, survey context and mode effects.	
4.	Corkrey and Parkinson (2002)	Split-sample survey test (Substance use)	General population (Australia)	IVR (n.s.) CATI (n.s.) Hybrid (n.s.)	RDD	Advance letter and repeated calls (n.a.)	– IVR produced lowest response rates. – CATI and IVR produced higher non-response rate on sensitive topics compared to hybrid forms. – CATI and hybrid modes were more costly compared to IVR per completed interview, when CATI was more effective for RR.	
5.	McCabe et al. (2002)	Split-sample experiment (Substance use)	University students (USA)	Postal (3 500*) Web (3 500*)	Random sample	n.a.	– Higher RR in web-based survey. – No mode differences in data quality or substantive responses to substance-use variables.	Abstract only
6.	Currivan et al. (2004)	Split-sample experiment (Tobacco use)	Adolescents (USA)	CATI (2 797) T-ACASI (1 023)	RDD	Telephone screening (42 % for all sample)	– T-ACASI elicited higher prevalence; however, the mode effect varied with gender, ethnicity and parental attitude.	
7.	Moskowitz (2004)	Split-sample experiment (Cigarette smoking)	Teenagers (USA)	CATI (1 199) T-ACASI (1 245)	Stratified random sampling	Several call attempts (49 % full sample)	– T-ACASI provided higher prevalence of smoking. – Parental presence was negatively associated with smoking.	

N.	Reference	Type of study (topic)	Population	Mode/s (sample size)	Sampling	Recruitment modes (response rates)	Main findings	Notes
8.	Balter et al. (2005)	Split-sample survey experiment (Lifestyle)	General population (Sweden)	Postal survey (188) Web survey (149) Web survey with personalised feedback (146)	Random sampling	Advance letter, hard copy questionnaire (64 %) Advance letter, invitation letter (51 %) Advance letter, invitation letter (50 %)	– Higher roll-off rates in postal survey compared to both web surveys, lowest for the web questionnaire with personalised feedback. – Comparable results in all three modes.	
9.	Duffy et al. (2005)	Two surveys, same questionnaire (Attitudes)	General population (UK)	Web (2 057) CAPI (4 131)	Random sample from a panel Stratified quota sampling	n.s. n.s.	– Online panels likely to attract more active and educated people; results differed significantly in that manner. – F2F respondents were more susceptible to social desirability bias. – Neither weighting nor other adjustments helped overcome the differences.	
10.	Fricker et al. (2005)	Split-sample experiment (Attitudes towards science)	General population (USA)	Web (546) Telephone (1 002)	RDD	Telephone screening interview (51.6 % web; 98.1 % telephone)	– Lower RR via web despite higher incentives. – The web survey produced fewer item non-responses than the telephone survey (the questionnaire prompted respondents when they left an item blank). – Web respondents gave less differentiated answers to batteries of attitude items than their telephone counterparts. – Web respondents took longer to complete the knowledge items, particularly those requiring open-ended answers, than the telephone respondents, and web respondents answered a higher percentage of them correctly. – The mode differences varied by item type and by respondent age.	
11.	McCabe et al. (2005)	Split-sample experiment (Alcohol and tobacco use)	School population (USA)	Web (137) SAQ/PAPI (143)	Random sample of schools	Advance letter, completion in the class (87 % both modes)	– No difference in RR (due to the setting) and data quality between the modes. – Substantive differences were mixed — some items were higher in web survey, while others were higher in PAPI, suggesting random variation between the modes.	

N.	Reference	Type of study (topic)	Population	Mode/s (sample size)	Sampling	Recruitment modes (response rates)	Main findings	Notes
12.	Turner et al. (2005)	Split-sample experiment (Substance use)	General population (USA)	T-ACASI (n.s.) Telephone (n.s.) (697 overall)	Stratified random sample	Telephone (65 % overall)	– T-ACASI had mixed effects on reporting of alcohol use and obtained significantly more frequent reporting of marijuana, cocaine and injection drug use. – Telephone survey respondents were more likely to report illicit drug use and one alcohol problem when interviewed by T-ACASI rather than by human telephone interviewers.	
13.	McCabe et al. (2006)	Split-sample experiment (Alcohol consumption)	College population (USA)	Web (2 619) Postal (628)	Random sample	Email invitation and reminders (15–46 %) Postal mail questionnaire and reminders (11–42 %)	– Comparable results via both modes. – Response differed by gender, with males likely to answer via web and vice versa.	RR range by school
14.	Vereecken and Maes (2006)	Split-sample experiment (Health behaviour)	School population (Belgium)	SAQ/PAPI (4 083) CASI (1 008)	Random sample of schools	School-based survey (n.a.)	– For the majority of items, including sexual behaviour and most items on substance use (topics presumed to be sensitive), mode of administration had no significant effect on adolescents' responses. – Items that showed a significant difference were mainly feelings and not lifestyle behaviours.	Compar-isons made on matching sub-samples
15.	Dannetun et al. (2007)	Split-sample experiment (Attitudes towards vaccination)	Parents (Sweden)	Web Postal	Random sampling	Invitation letter with login details (initial/total: 18 %/15 %) Invitation letter with questionnaire (49 %/55 %) (Plus reminder via postal mail offering both paper and web questionnaire)	– Low response rate in web form despite high Internet penetration at country level.	
16.	Chittleborough et al. (2008)	Secondary analysis of multiple survey data (Health surveys)	General population (Australia)	CATI (2 999) F2F/PAPI (2 985)	Random sample (white pages) Stratified random sample of house-holds	Advance letter, up to 6 calls (69 %) Advance letter, up to 6 calls (68 %)	– Item response to socio-demographic variables higher in F2F interview.	

N.	Reference	Type of study (topic)	Population	Mode/s (sample size)	Sampling	Recruitment modes (response rates)	Main findings	Notes
17.	Heerwegh and Loosveldt (2008)	Split-sample experiment (Attitudes toward immigrants)	University students (Belgium)	Internet (3 000) F2F/PAPI (255)	Random sample from student registry	Repeated emails (52.5 %) Advance letter (92.8 %)	– The web survey elicited more 'don't know' responses, more non-differentiation on rating scales, and a higher item non-response rate.	
18.	Savage and Waldman (2008)	Two surveys, same questionnaire (Topic not stated)	General population (USA)	Postal survey (397) Web survey (575)	Random sample Random sample from a panel	Postal questionnaire (34 %) Online content delivery via set-top box (32–36 %)	– Online respondents suffered from fatigue, causing inconsistencies in repeated items. – Online survey was half as costly in terms of budget and time.	
19.	Villarroel et al. (2008)	Split-sample experiment (STD)	General population (USA)	T-ACASI (1 452) Telephone (697)	Multisite RDD	Phone call (65–67 %)	– T-ACASI substantially increased the likelihood that respondents would report their own STD symptoms. – The impact of T-ACASI was strongest among younger and less-educated respondents.	
20.	Couper et al. (2009)	Split-sample experiment (Fertility)	General population (USA)	A-CASI CASI (12 482 combined)	Random sample of house-holds in 4 areas	Pre-screening and visit (n.a.)	– Respondents made limited use of the audio features of audio-CASI. – No mode effect observed. – The gains produced by this technology are modest relative to text-CASI.	
21.	Greenlaw and Brown-Welty (2009)	Split-sample experiment (Employment)	Members of a profess-sional association (USA)	Web survey (672) Postal survey (538) Mixed-mode (772)	Census	Email invitation (52 %) Postal invitation (42 %) Both (60 %)	– Highest RR observed for the mixed-mode survey, with overall majority completing the web questionnaire. – Cost per response was calculated with mixed-mode approximately 5 times higher compared to web survey, and postal mail mode was approximately 7 times higher compared to web survey.	
22.	Spijkerman et al. (2009)	Two surveys with the same questionnaire (Substance use)	General population (Netherlands)	Web survey (20 282) CAPI (4 516)	Online panel Stratified random sample	Email (36 %) Personal visit (63 %)	– CAPI produced almost consistently lower substance use prevalence rates for the CAPI respondents. – Coverage and non-response bias were higher in the online panel survey. – Possible effect of self-completion (not mentioned by authors).	

N.	Reference	Type of study (topic)	Population	Mode/s (sample size)	Sampling	Recruitment modes (response rates)	Main findings	Notes
23.	Hines et al. (2010)	Two surveys, same questionnaire (Sensitive items)	Adult males (USA)	CATI (255) Web survey (265)	RDD Quota sample from a panel	Repeated calls and advance letter (10 %) Email invitation (n.a.)	– Samples differed significantly in demographic variables, significant variability also in sensitive items. – Not interpretable results due to non-representativeness of both samples.	
24.	Midanik and Greenfield (2010)	Split-sample survey experiment (Alcohol consumption)	General population (USA)	CATI (432) IVR (450)	RDD	Telephone call (n.a.)	– Data on alcohol problems collected by CATI provided largely comparable results to those from an embedded IVR module. – incorporation of IVR technology in a CATI interview did not appear strongly indicated even for several key subgroups.	
25.	Nagelhout et al. (2010)	Two surveys, same questionnaire (Cigarette smoking)	General population (Nether-lands)	Web survey (1 668) Telephone (404)	Random sample from large panel	Email (n.a.) Phone (4 %) Overall RR: 78 %	– Web respondents used the 'don't know' options more often than telephone respondents. – Both modes produced comparable results.	
26.	Vehovar et al. (2010)	Secondary analysis of multiple survey data	General population (Slovenia)	Web/postal (3 215**) Web/ postal + incentive (1 410**) Postal (3 425*) Fixed CATI (2 441**) F2F/PAPI (1 592**)	CPR RDD	Postal invitation in 3 waves (31 %) Postal invitation in 3 waves + incentive (71 %) Posted in 3 waves (30 %) Advance letter (41 %) Advance letter (63 %)	– Web/postal mail surveys produced the highest bias (despite the high RR with incentives), F2F and CATI comparably least biased. – F2F interview 2+ times more expensive compared to other modes. – CATI proved the most cost-effective method when bias and cost are combined in a single measure; web/postal mail surveys were the least cost-effective modes.	**Eligible sample size
27.	Atkeson et al. (2011)	Mixed-mode survey (Electing behaviour)	Voters population (USA)	Web survey (679) Postal survey (135)	Random sampling	Invitation letter with URL and offer of hard copy of the questionnaire, reminders	– Internet sample was sufficiently representative for the population. – Postal survey led to oversampling of seniors. – Mode did not influence the item-responses.	

N.	Reference	Type of study (topic)	Population	Mode/s (sample size)	Sampling	Recruitment modes (response rates)	Main findings	Notes
28.	Breunig and McKibbin (2011)	Secondary analysis of multiple survey data (Household expenditures)	General population (Australia)	SAQ (n.a.) CAPI (n.a.)	n.s.	n.s.	– Large differences between the survey modes in data quality. – Self-completion (SAQ) produced much higher prevalence of financial problems.	
29.	Kallmen et al. (2011)	Split-sample experiment (Problem alcohol drinking)	General population (Sweden)	Web (324) Postal (663)	Random sampling	Postcard + 2 reminders (26 %) Invitation letter + hardcopy Q, 2 reminders (54 %)	– Lower RR in web survey. – Higher AUDIT scores in web survey.	
30.	Messer and Dillman (2011)	Two split-sample experiments in mixed-mode surveys	General population (USA)	Web/postal	Random sample	Web, postal mail, priority mail, incentives	– A sequential web–postal design with a prepaid cash incentive achieved high level of responses. – Respondents to the web and postal survey modes were demographically dissimilar. – The use of postal mail to follow up the initial web request significantly increased overall response rates and improved representativeness. – The postal mail-only design achieved higher response rates and demographically similar sample compared to web-plus-postal mail. – High cost related to representative sampling.	See original paper for details on sample sizes and RRs
31.	Stephenson and Crête (2011)	Secondary analysis of multiple survey data (Political behaviour)	General population (Quebec)	CATI (1 003) Web (1 172)	Random stratified sample of house-holds Random sample from a represent-ative panel	Telephone (51 %) Email (24 %)	– CATI three times more expensive compared to web survey (panel data). – Lower RR and higher item-nonresponse in web survey. – Both modes provided comparable results (after weighting to cover non-response).	

N.	Reference	Type of study (topic)	Population	Mode/s (sample size)	Sampling	Recruitment modes (response rates)	Main findings	Notes
32.	Strabac and Aalberg (2011)	Secondary analysis of multiple survey data (Political knowledge)	General population (Norway, USA)	Telephone Web	RDD Random sample from a represent-ative panel	Telephone (16 % Norway, 21 % USA) Email (n.a.)	– Results fairly comparable, with more inter-mode differences in the USA. – Telephone survey 2 to 3 times more expensive compared to (panel) web survey.	
33.	Yeager et al. (2011)	Meta-analysis of multiple surveys	General population (USA)	Comparing number of Internet and telephone surveys	*Compar-ing probability and non-probability samples	–	– Probability samples more accurate (both web and phone surveys). – Post-stratification did not repair the discrepancies. – Completion rates and response rates of the surveys were negatively correlated with their accuracy, challenging the notion that higher completion rates and response rates are indications of higher accuracy.	
34.	Sinclair et al. (2012)	Split-sample experiment (Grey water)	General population (Australia)	Web (480) Postal (924) Telephone (273)	Random sample from a com-mercial database	Advance letter for web survey (1–3 %) Advanced letter for postal survey (8–9 %) Advance letter for telephone survey (30 %)	– Telephone survey produced the highest RR. – The postal survey mode was the most cost-effective, Internet and telephone modes were twice as costly.	

*Note: A-CASI = audio computer-assisted self-interview; CAPI = computer-assisted personal interview; CASI = computer-assisted self-interview; CATI = computer-assisted telephone interview; CPR = central population register; F2F = face-to-face; IVR = interactive voice response; PAPI = pen and pencil interview; RDD = random digit dialling; RR = response rate; SAQ= self-administered questionnaire; T-ACASI = audio computer-assisted self-interview over telephone.

IV.3 Evidence from literature reviews

This subsection presents a by-product of the literature review on computer-assisted data collection in surveys. While the review was limited to studies on representative samples, another approach has been employed here — several authors attempted to compare methods and their methodological properties either using meta-analysis or via a review of the literature. Although the list of studies presented here is not (and cannot be) exhaustive, it contains important and interesting information that may supplement the review, especially concerning topics that were not fully examined. Unlike the previous section, this section is organised by reference and contains extended abstracts of each piece of research. When an abstract was not available or sufficiently informative, a summary of the findings has been provided.

Fricker and Schonlau (2002), 'Advantages and disadvantages of Internet research surveys: evidence from the literature' (extended abstract)

Email and web surveys have been the subject of much hyperbole about their capabilities, as well as some criticism about their limitations. We examine what is and is not known about the use of the Internet for surveying. Specifically, we consider evidence found in the literature regarding response rates, timeliness, data quality and cost. In light of this evidence, we evaluate popular claims that Internet-based surveys can be conducted faster, better, cheaper and/or easier than surveys conducted via conventional modes. The reality of cost and speed often does not live up to the hype. Internet surveys on probability samples of the general population usually involve traditional recruitment and contact modes, which breaks the assumption of faster online surveying. For the same reason, online surveys are not necessarily cheaper, especially compared to postal survey. Response rates in web surveys are generally low. Nonetheless, it is possible to implement Internet-based surveys in ways that are effective and cost-efficient. The Internet will continue to grow in importance for conducting certain types of research surveys.

Evans and Mathur (2005), 'The value of online surveys' (extended abstract)

The paper is divided into four major sections: an analysis of the strengths and potential weaknesses of online surveys; a comparison of online surveys with other survey formats; a discussion on the best uses for online surveys and how their potential weaknesses may be moderated; and an overview of the online survey services being offered by the world's largest research firms. If conducted properly, online surveys have significant advantages over other formats. The major strengths identified include: global reach, flexibility, speed and timeliness, technological innovations, convenience, ease of data entry and analysis, diversity of question formats, low administration cost, easy filtering, easy follow-up. The major weaknesses were: skewed attributes of Internet population, sampling and representativeness issues, computer literacy in general population, privacy and security issues, low response rates. It is imperative that the potential weaknesses of online surveys are mitigated and that online surveys are only used when appropriate. In general, Internet surveys are not yet suitable for representative samples from probabilistic selection. Outsourcing of online survey functions is growing in popularity.

Shih and Fan (2007), 'Response rates and mode preferences in web-mail mixed-mode surveys: a meta-analysis' (extended abstract)

The meta-analysis examined (1) mode preference (i.e. response rate difference) between postal and web survey modes in 43 mixed-mode surveys, and (2) the overall response rate in 52 web–postal mail mixed-mode survey study results. In general, the postal survey mode was preferred over the web survey mode, with the postal survey mode response rate being 14 % higher than the web survey mode response rate. However, in the mixed-mode surveys where respondents were

offered both response options (such as web or postal survey response modes) at the same time, there was no statistically significant difference between postal and web survey response rates. What modes and at what stage they were offered to respondents was also important (such as whether they could choose from the beginning or the choice came only in the reminder). What lowers the response rate in web surveys is the format of the invitation — respondents are more likely to follow a link embedded in the email than transcribe it to the browser, therefore postal mail is the preferred mode when it is the only format of invitation. Incentives were not shown to increase response rates; however, there might be other substantial differences between the studies reviewed (such as the topic or length of the questionnaire) that might confound the effect of incentives.

Manfreda et al. (2008), 'Web surveys versus other survey modes: a meta-analysis comparing response rates' (shortened abstract)

One question that arises when discussing the usefulness of web-based surveys is whether they achieve the same response rates compared to other modes of collecting survey data. A common perception exists that, in general, web survey response rates are considerably lower. The authors have conducted a meta-analysis of 45 published and unpublished experimental comparisons between web and other survey modes. On average, web surveys yield an 11 % lower response rate compared to other modes (the 95 % confidence interval is confined by 15 % and 6 % to the disadvantage of the web mode). This response rate difference to the disadvantage of the web mode is systematically influenced by the sample recruitment base (a smaller difference for panel members as compared to one-time respondents), the recruitment mode chosen for web surveys (a greater difference for postal mail recruitment compared to email) and the number of contacts (the more contacts, the larger the difference in response rates between modes). No significant influence on response rate differences can be revealed for the type of mode web surveys are compared to, the type of target population, the type of sponsorship, whether or not incentives were offered and the year the studies were conducted.

Shih and Fan (2009), 'Comparing response rates in email and paper surveys: a meta-analysis' (extended abstract)

The meta-analysis examined 35 study results within 10 years prior to the study that directly compared the response rates of email versus postal surveys. Individual studies reported inconsistent findings concerning the response rate difference between email and postal surveys, but email surveys generally have lower response rates (about 20 % lower on the average) than postal surveys. Type of population (e.g. university students versus general population) and use of follow-up reminders could account for some variation in the email and postal survey response rate differences across the studies. For the studies involving college populations, the response rate difference between email and postal surveys was much smaller, or even negligible, suggesting that email survey is reasonably comparable with postal survey for college populations. The finding about a follow-up reminder as a statistically significant study feature turns out to be something of an anomaly. Other study features (i.e. article type, random assignment of survey respondents into email and postal survey modes, and use of incentives) did not prove to be statistically useful in accounting for the variation of response rate differences between postal and email surveys. Some potential biases were noted, i.e. the tendency of journals to accept, preferably, research papers with higher response rates of email surveys; nevertheless, conference papers and unpublished articles were also included in the analysis. As for the recruitment modes, respondents of postal surveys were always contacted via postal mail, while respondents of email survey were always contacted via email. Only five studies out of 35 were conducted on the general population, but never

representative samples. The findings suggest that, in this age of Internet technology, postal surveys are still superior to email surveys in obtaining a higher response rate.

Fan and Yan (2010), 'Factors affecting response rates of the web survey: a systematic review' (summary)

The review identified factors of non-response in web surveys and categorised them into four groups. (1) The response rate is significantly influenced by various design factors, such as topics, length, ordering, formatting of web survey during survey design and development. Piloting of the survey is therefore necessary. (2) Web survey delivery has an impact in terms of sampling methods, contact delivery modes, invitation designs, informed consent methods, pre-notification and reminders, and incentive approaches. More than one recruitment mode should be used and respondents' access to the survey should be ensured. (3) At the stage of survey completion, the authors suggest that the surveys should match the population's knowledge and abilities. (4) Finally, at the stage when the web survey is returned, technical failures in particular may substantially decrease the response rate.

Kalogeraki (2012), 'On the benefits and constraints of the web-based illicit drug survey' (extended abstract)

The paper presents the major benefits and constraints of web-based drug surveys by emphasising that benefits may far outweigh constraints for specific research questions and designs. The benefits of online drug surveys are practical and methodological. Efficiency in costs, time and resources are presented as an asset of the web-based survey mode compared to conventional survey modes. The methodological advantages are associated with online collection of more accurate and less biased drug data, and increased access to hidden drug populations and respondents across diverse geographical and cultural settings. The major constraints involve methodological limitations associated with the non-random sampling, non-coverage and non-response errors that inhibit valid inferences to the general population. In defence of online drug surveys, it is advocated that generalisable outcomes are not always the question at hand; hence online data collection can be employed when indicative rather than generalisable drug data are needed. When statistical inference is the question at hand, the generalisability constraint can be adequately confronted in cross-sectional and cross-national web-based drug surveys targeting student sub-populations with universal web access providing at lower cost and more rapidly similarly generalisable outcomes with the conventional survey modes. It is concluded that the benefits of the online drug survey may far outweigh its limitations when researchers have the a priori knowledge of the survey mode's appropriateness to provide valid answers to their specific research questions. In those cases web-based drug surveys may effectively inform policies and programme responses to tackle drug use.

De Leeuw (2012), 'Counting and measuring online: the quality of Internet surveys' (abstract)

Data collection has changed over time, and many different methods are available. At present, Internet surveys are widely used in market research and are becoming an important data collection tool in universities. The main advantages of Internet surveys are the speed and cost reduction in comparison to more traditional data collection methods, the positive effect of self-administration, such as more privacy, use of more complex questionnaire routing, and in general a greater interactivity. Disadvantages are problems of Internet coverage of the general population, especially under-coverage of certain sub-groups such as the elderly and the lower educated, and non-response.

V. Overview of the studies

This section presents an overview of studies that used any of the computer-assisted or online modes of data collection to assess the prevalence of substance (i.e. licit and illicit drug) use in Europe. The overview also includes studies reported by general population survey (GPS) experts (in a survey addressed in Section VI). In total, 66 studies were identified, of which the majority had been reported to the EMCDDA either in the National reports, National abstracts from GPS experts or via Reitox standard tables. Studies conducted in the United Kingdom account for more than a third of them. Forty-two studies were published after 2000.

Online data collection was used in 27 projects in 10 countries (Belgium, Germany, Denmark, Finland, Sweden, Cyprus, Italy, Latvia, Slovenia and the United Kingdom). With the exceptions of Belgium, the United Kingdom and Cyprus, where the surveys were school-based, online data collection was only one of multiple modes of data collection. Experiments with web-based surveys were limited to countries with high Internet penetration (such as in Germany, Denmark and Sweden) or to surveys conducted in school settings (such as in Latvia and Italy). The only exception is Slovenia, where online data collection produced a major share of the final sample in a mixed-mode survey, despite having only an average proportion of households connected to the Internet.

Computer-assisted interviewing appears to have a relatively long tradition in drug research in Belgium, Germany, France, the Netherlands and the United Kingdom.

Four international studies of computer-assisted modes of data collection were identified by the search: two Eurobarometer flash surveys on drug use (in 2008 and 2011), a European study of the epidemiology of mental disorders (2000), and a global adult tobacco survey, in which Poland was the only European country involved. In addition, Latvia experimented with online data collection in 2007 and 2011 European School Survey Project on Alcohol and Other Drugs (ESPAD) schools survey data collection.

Table 6. Surveys not reported to the EMCDDA.

N.	Country	Year	Mode	Survey title	Reference
1.	Europe	2000	CAPI	European Study of the Epidemiology of Mental Disorders (ESEMeD)	Alonso, J., Matthias C. Angermeyer, S. B., et al. (2004), 'Sampling and methods of the European Study of the Epidemiology of Mental Disorders (ESEMeD) project', *Acta Psychiatrica Scandinavica* 109(s.420), pp. 8–20.
2.	EU (Eurobarometer)	2008	CATI	Young People and Drugs	The Gallup Organization (2008), 'Youth attitudes on drugs', *Flash Eurobarometer* No. 233, The Gallup Organization for the European Commission.
3.	EU (Eurobarometer)	2011	CATI	Youth Attitudes on Drugs	The Gallup Organization (2011), 'Youth attitudes on drugs', *Flash Eurobarometer* No. 330, The Gallup Organization for the European Commission.
4.	Denmark	2007–08	Web/PAPI	Danish Health Examination Survey 2007–08 (DANHES 2007–08)	Eriksen, L., Grønbæk, M., Helge, J. W., Tolstrup, J. S. and Curtis, T. (2011), 'The Danish Health Examination Survey 2007–08 (DANHES 2007–08)', *Scandinavian Journal of Public Health* 39(2), pp. 203–211.
5.	Germany (regional)	2000	CAPI	Study of Health in Pomerania (SHIP)	John, U., Greiner, B. and Hensel, E., et al. (2001), 'Study of Health in Pomerania (SHIP): a health examination survey in an east German region. Objectives and design', *Soz. Praventivmed* 46, pp. 186–194.
6.	Germany	2003–06	CAPI	German Health Interview and Examination Survey of Children and Adolescents (KiGGS)	Ravens-Sieberer, U. and Kurth, B.-M. (2008), 'The mental health module (BELLA study) within the German Health Interview and Examination Survey of Children and Adolescents (KiGGS): study design and methods', *European Child and Adolescent Psychiatry* 17(1), pp. 10–21.
7.	Germany	2008–11	CAPI	German Health Interview and Examination Survey for Adults (DEGS)	Scheidt-Nave, C., Panagiotis Kamtsiuris, A. G., Hölling, H., et al. (2012), 'German Health Interview and Examination Survey for Adults (DEGS): design, objectives and implementation of the first data collection wave', *BMC Public Health* 12(1), p. 730.
8.	Poland	2009	CAPI (handheld)	Global Adult Tobacco Survey	Pujari, S. J., Palipudi, K. M., Morton, J., et al. (2012), 'Electronic data collection and management system for Global Adult Tobacco Survey', *Online Journal of Public Health Informatics* 4(2).

Table 7. Surveys reported to the EMCDDA.

N.	Country	Year	Coverage	Mode	Topic (context)	Population sampling	Reference	Source
1.	Belgium	1994	Vlaanderen (Brussels excluded)	CATI	Medicines/ alcohol/ drug use	GP: 18–65 Random selection from the national registry	Quataert, P. and Van Oyen, H. (1995), 'Gegevensinzameling in verband met middelengebruik door middel van CATI', *IHE/Episeries* 6, CCOV, IHE, Brussel.	2012_SB_GPS_121
2.	Belgium	1996/97	French Community	Phone/CATI	Health behaviours	GP: 18–69 Random digit dialling at household level + random selection of 1 household member	Piette, D. and De Smet, P. (2000), *Rapport SANOMETRE: Comportement de santé des adultes en Communauté française*, PROMES-ULB, Bruxelles.	2012_SB_GPS_121
3.	Belgium	1998/09	French community	Phone/CATI	Health behaviours	GP: 18–49 Random digit dialling at household level + random selection of 1 household member	Piette, D. and De Smet, P. (2000), *Rapport SANOMETRE: Comportement de santé des adultes en Communauté française*, PROMES-ULB, Bruxelles.	2012_SB_GPS_121
4.	Belgium	2009	Flemish community	Web	Drugs	School/college survey (18–25) Random sample of schools, census within the selected institutions.	Rosiers, J., Hublet, A., Van Damme, J., Maes, L. and Van Hal, G. (eds) (2011), 'In hogere sferen?' Volume 2. *Een onderzoek naar het middelengebruik bij Vlaamse studenten*. Universiteit Antwerpen, Antwerpen. Van Damme, J., Maes, L., Clays, E., et al. (2013), 'Social motives for drinking in students should not be neglected in efforts to decrease problematic drinking', *Health Education Research* 28(4), pp. 640–650.	Expert survey
5.	Belgium	2013	Flemish Community	Web	Drugs	School/college survey (18-25) Random sample of schools, census within the selected institutions	Rosiers, J., Van Damme, J., Hublet, A., Van Hal, G., Sisk, M., Mhand, Y. S. and Maes, L. (2014), *In hogere sferen? volume 3. Een onderzoek naar het middelengebruik bij Vlaamse studenten,* Brussels.	Expert survey
6.	Cyprus	2009	National	Web survey	Drugs	Tertiary students, not specified	Kyrizi, M. and Clark, C. (2009), 'Drug use among Cypriot students attending tertiary institutions in Cyprus and in the United Kingdom', MA Thesis, unpublished.	2010 NR 2011 National abstract
7.	Denmark	2008	National	Web/postal	Alcohol and substance use	GP: 16+ Random stratified sampling	Kristiansen, L., Ekholm, O., Grønbæk, M. and Tolstrup, J. S. (2008), *Alkohol i Danmark 2008*, Statens Institut for Folkesundhed, Syddansk Universitet, København.	2012_SB_GPS_121 Expert survey

N.	Country	Year	Coverage	Mode	Topic (context)	Population sampling	Reference	Source
8.	Denmark	2010	National	Web/postal	Health	GP: 16+ Simple random sampling	Christensen, A. I., Ekholm, O., Glümer, C., et al. (2012), 'The Danish National Health Survey 2010: study design and respondent characteristics', *Scandinavian Journal of Public Health*, 40(4), pp. 391–397.	2012_SB_GPS_12 1 National abstract 2012 Expert survey
9.	Germany	2009	National	Mail/phone/web	Substance use and gambling	GP: 18–64 Stratified random sampling	Kraus, L. and Pabst, A. (2010), *Epidemiologischer Suchtsurvey 2009. Repräsentativerhebung zum Gebrauch und Missbrauch von psychoaktiven Substanzen bei Erwachsenen in Deutschland* [2009 Epidemiological Survey of Substance Abuse Among Adults in Germany], Sucht.	2010 NR 2012_SB_GPS_12 1 Expert survey
10.	Germany	2012	National	Postal/phone/web	Substance use and gambling	GP: 18–64 Stratified random sampling	Not published.	2013 GPS meeting
11.	Ireland	2006/07	National	CAPI	Substance use	GP: 15–64 Stratified random sampling	*NACD Drug Prevalence Study 2006-2007, Ipsos MORI – Technical Report* (www.drugsandalcohol.ie/11587/1/NACD_Survey_06-06_Technical-report.pdf)	2012_SB_GPS_12 1
12.	Ireland	2010/11	National	CAPI	Substance use	GP: 15–64 Stratified random sampling	*Drug use in Ireland and Northern Ireland: first results from the 2010/2011 Drug Prevalence Survey Bulletin 1* (www.drugsandalcohol.ie/16353/1/drug_use_ireland.pdf). *General population survey on drug use: technical report* (2012) (www.drugs.ie/resourcesfiles/research/2012/survey_drug_prevalence.pdf) *Drug use in Ireland and Northern Ireland: first results from the 2010/11 Drug Prevalence Survey – Bulletin*.	2012_SB_GPS_12 1
13.	Italy	2010	National	CASI/online	Substance use	GP: 15–19 School survey	*Report to Parliament* (www.politicheantidroga.it/progetti-e-ricerca/relazioni-al-parlamento/relazione-annuale-2010/presentazione.aspx); *Report SPS-ITA 2010* (paper copy).	NR 2010 National abstract 2011 ST2_2010_IT_01 Expert survey

N.	Country	Year	Coverage	Mode	Topic (context)	Population sampling	Reference	Source
14.	Italy	2011	National	Online	Substance use	GP: 15–19 School survey	*Report to Parliament* (www.politicheantidroga.it/progetti-e-ricerca/relazioni-al-parlamento/relazione-annuale-2011/presentazione.aspx); *Report SPS-DPA 2011* (www.politicheantidroga.it/pubblicazioni/in-ordine-cronologico/report-sps-dpa-2011/presentazione.aspx).	ST2_2011_IT_01 Expert survey
15.	Italy	2012	National	Online	Substance use	GP: 15-19 School survey	*Report to Parliament* (www.politicheantidroga.it/progetti-e-ricerca/relazioni-al-parlamento/relazione-annuale-2012/presentazione.aspx); *Report SPS-DPA 2012* (www.politicheantidroga.it/pubblicazioni/in-ordine-cronologico/report-sps-dpa-2012/presentazione.aspx)	ST2_2012_IT_01 Expert survey
16.	Latvia	2011	National	PAPI/CASI/online	Substance use	GP: 16 School survey	ESPAD pilot.	Expert survey
17.	Latvia	2011	National	PAPI/CASI/online	Substance use	GP: 16 School survey	ESPAD report.	National abstract 2011 Expert survey
18.	Latvia	2013	National	PAPI/CASI/online	Substance use	GP: 16 School survey	Trapencieris et al., report and articles not yet published.	Expert survey
19.	France	1995	Metropolitan France	Phone/CATI	Health	GP: 18–75 Random sampling	Baudier, F. and Arenes, J. (1997), *Barométre santé adultes 1995*, CFES.	2012_SB_GPS_121
20.	France	1999	National	Phone/CATI	Substance use	GP: 18–75 Random sampling	Beck, F. and Peretti-Watel, P. (2000), *Survey EROPP 1999*, OFDT.	2012_SB_GPS_121
21.	France	2000	National	Phone/CATI	Health	GP: 12–75 Random sampling	Beck, F., Legleye, S. and Peretti-Watel, P. (2001), 'Illicit drugs: uses and attitudes', in Guilbert, P., Baudier, F. and Gautier, A. (eds), *Baromètre santé 2000*, CFES-OFDT.	2012_SB_GPS_121
22.	France	2002	National	Phone/CATI	Substance use	GP: 15–75 Quota sampling	Beck, F., Legleye, S. and Peretti-Watel, P. (2003), *Penser les drogues: perceptions des produits et des politiques publiques. Enquête sur les représentations opinions et perceptions sur les produits psychotropes*, EROPP 2002, OFDT, 2003.	2012_SB_GPS_121
23.	France	2005	National	Phone/CATI	Health	GP: 12-75 RDD sampling	Baromètre santé 2005, INPES-OFDT. Beck, F., Legleye, S. and Spilka, S. (2006), 'Drogues illicites: pratiques et attitudes', in Guilbert, P. and Gautier, A. (eds), *Baromètre santé 2005*, Saint-Denis, INPES.	2012_SB_GPS_121

N.	Country	Year	Coverage	Mode	Topic (context)	Population sampling	Reference	Source
24.	France	2010	National	Phone/CATI	Health	GP: 18–75 RDD sampling	Beck, F., Tovar, M.-L., Spilka, S., Guignard, R. and Richard, J.-B. (2011), 'Les niveaux d'usage des drogues en France en 2010, exploitation des données du Baromètre santé 2010', *Tendances* 76, p. 6.	2012_SB_GPS_121
25.	Netherlands	1997/8	National	CAPI	Substance use	GP: 12+ Stratified sampling	Abraham, M., Cohen, P., Van Til, R. J. and De Winter, M. (1999), *Licit and illicit drug use in the Netherlands*, UvA/CBS, CEDRO, Amsterdam.	2012_SB_GPS_121
26.	Netherlands	2001	National	CAPI	Substance use	GP: 12+ Stratified sampling	Secondary analysis: Abraham, M., Kaal, H. and Cohen, P. (2002), *Licit and illicit drug use in the Netherlands 2001*, CEDRO/Mets en Schilt, Amsterdam.	2012_SB_GPS_121
27.	Netherlands	2005	National	CAPI	Substance use	GP: 15–64 Stratified sampling	Rodenburg, G., Spijkerman, R., Van den Eijnden, R. and Van de Mheen, D. (2007), *Nationaal Prevalentie Onderzoek Middelengebruik 2005* [National Prevalence Survey on Substance Use 2005], IVO (Addiction Research Institute), Rotterdam.	2012_SB_GPS_121
28.	Netherlands	2009	National	CAPI/CASI	Substance use	GP: 15–64 Stratified sampling	Van Rooij, A. J., Schoenmakers, T. M. and Van de Mheen, D. (2011), *Nationaal Prevalentie Onderzoek Middelengebruik 2009: kerncijfers 2009*, IVO, Rotterdam.	2012_SB_GPS_121
29.	Portugal	2007	National	CAPI	Substance use	GP: 15–64 Stratified sampling	Balsa, C., Vital, C., Urbano, C., Barbio, L. and Pascueiro, L. (2007), *Inquérito nacional ao consumo de substâncias psico-activas na população Portuguesa 2007*, IDT, Lisboa.	2012_SB_GPS_121
30.	Finland	2010	National	Web/postal	Substance use	GP: 15–69 Stratified sampling	Hakkarainen, P., Metso, L. and Salasuo, M. (2011), 'Hamppuikäpolvi, sekakäyttö ja doping. Vuoden 2010 huumekyselyn tuloksia' [The hemp generation, mixed use and doping results from the 2010 drug survey], *Yhteiskuntapolitiikka* 76(4), pp. 394–412.	NR 2011 2012_SB_GPS_121 Expert survey.
31.	Slovenia	2011/12	National	Web/CATI/CAPI	Substance use	GP: 15–64 Stratified sampling	http://www.nijz.si/Mp.aspx?ni=46&pi=5&_5_id=2612&_5_PageIndex=0&_5_groupId=185&_5_newsCategory=&_5_action=ShowNewsFull&pl=46-5.0	Expert survey
32.	Sweden	2007	National	Web/postal	Health	GP: 16–64 Simple random	www.folkhalsomyndigheten.se/valkommen/	ST1_2008_SE_01 Expert survey
33.	Sweden	2008	National	Web/postal	Health	GP: 16–64 Simple random	www.fhi.se/en/Highlights/National-Survey-of-Public-Health/	ST1_2009_SE_01 Expert survey
34.	Sweden	2008	National	Web/postal	Substance use	GP: 15–64 Stratified sampling	Not published.	ST1_2009_SE_02 Expert survey

N.	Country	Year	Coverage	Mode	Topic (context)	Population sampling	Reference	Source
35.	Sweden	2009	National	Web/postal	Alcohol	GP: 17–71 Simple random	Källmén, H., Sinadinovic, K., Berman, A. and Wennberg, P. (2011), 'Risky drinking of alcohol in Sweden: a randomized population survey comparing web- and paper-based self-reports', *Nordic Studies on Alcohol and Drugs* 28(2), p. 123.	Expert survey
36.	Sweden	2009	National	Web/postal	Health	GP: 16–84 (16–64) Simple random	www.fhi.se/en/Highlights/National-Survey-of-Public-Health/	Expert survey ST1_2010_SE_03
37.	Sweden	2010	National	Web/postal	Health	GP: 16–84 (16–64) Simple random	www.fhi.se/en/Highlights/National-Survey-of-Public-Health/	Expert survey ST1_2011_SE_01
38.	Sweden	2011	National	Web/postal	Health	GP: 16–84 (16–64) Simple random	www.fhi.se/en/Highlights/National-Survey-of-Public-Health/	Expert survey ST1_2012_SE_01
39.	Sweden	2012	National	Web/postal	Health	GP: 16–84 (16–64) Simple random	www.fhi.se/en/Highlights/National-Survey-of-Public-Health/	Expert survey ST1_2013_SE_01
40.	United Kingdom	1994	England and Wales	CAPI/CASI	Crime and victimisation	GP: 16+ Stratified sampling	Ramsay, M. and Percy, A. (1996), *Drug misuse declared: results of the 1994 British Crime Survey*, Home Office Research Study No. 151, Home Office, London.	2012_SB_GPS_121
41.	United Kingdom	1996	England and Wales	CAPI/CASI	Crime and victimisation	GP: 16+ Stratified sampling	Ramsay, M. and Spiller, J. (1997), *Drug misuse declared in 1996: latest results from the British Crime Survey*, Home Office Research Study No. 172, Home Office, London.	2012_SB_GPS_121
42.	United Kingdom	1998	England and Wales	CAPI/CASI	Crime and victimisation	GP: 16+ Stratified sampling	Ramsay, M. and Partridge, S. (1999), *Drug misuse declared in 1998: results from the British Crime Survey*, Home Office Research Study No. 197, Home Office, London.	2012_SB_GPS_121
43.	United Kingdom	2000	England and Wales	CAPI/CASI	Crime and victimisation	GP: 16+ Stratified sampling	Ramsay, M., Baker , P., Goulden, C., Sharp, C. and Sondhi, A. (2001), *Drug misuse declared in 2000: results from the British Crime Survey*, Home Office Research Study No. 224, Home Office, London.	2012_SB_GPS_121
44.	United Kingdom	2001/2	England and Wales	CAPI/CASI	Crime and victimisation	GP: 16+ Stratified sampling	Aust, R., Sharp, C. and Goulden, C. (2002), *Prevalence of drug use: key findings from the 2001/02 British Crime Survey*, Home Office Research Findings No. 182, Home Office, London.	2012_SB_GPS_121
45.	United Kingdom	2002/3	England and Wales	CAPI/CASI	Crime and victimisation	GP: 16+ Stratified sampling	Condon, J. and Smith, N. (2003), *Prevalence of drug use: key findings from the 2002/2003 British Crime Survey*, Home Office Research Findings No. 229, Home Office, London.	2012_SB_GPS_121
46.	United Kingdom	2003/4	England and Wales	CAPI/CASI	Crime and victimisation	GP: 16+ Stratified sampling	Chivite-Matthews, N., Richardson, A., O'Shea, J., et al. (2005), *Drug misuse declared: findings from the 2003/04 British Crime Survey*, Home Office Statistical Bulletin 04/05, Home Office, London.	2012_SB_GPS_12

N.	Country	Year	Coverage	Mode	Topic (context)	Population sampling	Reference	Source
47.	United Kingdom	2004/05	England and Wales	CAPI/CASI	Crime and victimisation	GP: 16+ Stratified sampling	Roe, S. (2005), *Drug misuse declared: findings from the 2004/05 British Crime Survey*, Home Office Statistical Bulletin 16/05, Home Office, London.	2012_SB_GPS_12
48.	United Kingdom	2005/06	England and Wales	CAPI/CASI	Crime and victimisation	GP: 16+ Stratified sampling	Roe, S. and Man, L. (2006), *Drug misuse declared: findings from the 2005/06 British Crime Survey*, Home Office Statistical Bulletin 15/06, Home Office, London.	2012_SB_GPS_12 1
49.	United Kingdom	2006/07	England and Wales	CAPI/CASI	Crime and victimisation	GP: 16+ Stratified sampling	Murphy, R. and Roe, S. (2007), *Drug misuse declared: findings from the 2006/07 British Crime Survey*, Home Office Statistical Bulletin 18/07, Home Office, London.	2012_SB_GPS_12 1
50.	United Kingdom	2007/08	England and Wales	CAPI/CASI	Crime and victimisation	GP: 16+ Stratified sampling	Hoare, J. and Flatley, J. (2008), *Drug misuse declared: findings from the 2007/08 British Crime Survey*, Home Office Statistical Bulletin 13/08, Home Office, London.	2012_SB_GPS_12 1
51.	United Kingdom	2008/09	England and Wales	CASI	Crime	GP: 16–59 Stratified sampling	Hoare, J. (2009), *Drug misuse declared: findings from the 2008/09 British Crime Survey*, Home Office Statistical Bulletin 12/09, Home Office, London (http://webarchive.nationalarchives.gov.uk/20110220105210/rds.homeoffice.gov.uk/rds/pdfs09/hosb1209.pdf).	2012_SB_GPS_12 1
52.	United Kingdom	2008	National	Online	Views on life	School: 12–15 Stratified sampling	DCSF (Department for Children, Schools and Families) (2009), *Local authority measures for national indicators supported by the Tellus3 survey*, DCSF, London (https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/221932/DCSF-RR218.pdf).	2009 NR Expert survey
53.	United Kingdom	2009	National	Online	Views on life	School: 12–15 Stratified sampling	https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/221932/DCSF-RR218.pdf	Expert survey
54.	United Kingdom	2010/11	England and Wales	CASI	Crime	GP: 16–59 Stratified sampling	Hoare, J. and Moon D. (eds) (2010), *Drug misuse declared: findings from the 2009/10 British Crime Survey*, Home Office Statistical Bulletin 13/10, Home Office, London.	2012_SB_GPS_12 1
55.	United Kingdom	2011/12	England and Wales	CAPI/CASI	Crime and victimisation	GP: 16–59 Stratified sampling	Smith, K. and Flatley, J. (eds) (2011), *Drug misuse declared: findings from the 2010/11 British Crime Survey*, Home Office Statistical Bulletin 12/11, Home Office, London (www.homeoffice.gov.uk/publications/science-research-statistics/research-statistics/crime-research/hosb1211/).	2012_SB_GPS_12 1
56.	United Kingdom	2008	Scotland	CAPI	Substance use	GP: 16+ Stratified sampling	MacLeod, P., Page, L., Kinver, A., Iliasov, A. and Williams, R. (2010), *2008–09 Scottish Crime and Justice Survey: drug use*, Scottish Government Social Research, The Scottish Government, Edinburgh.	2012_SB_GPS_12 1

N.	Country	Year	Coverage	Mode	Topic (context)	Population sampling	Reference	Source
57.	United Kingdom	2004	National	CAPI/CASI	Crime and victimisation	GP: 16+ Stratified sampling	Chivite-Matthews, N., Richardson, A., O'Shea, J., et al. (2005), *Drug misuse declared: findings from the 2003/04 British Crime Survey*, Home Office Statistical Bulletin, May, Home Office, London (http://webarchive.nationalarchives.gov.uk/20110218135832/http:/rds.homeoffice.gov.uk/rds/pdfs05/hosb0405.pdf)	2012_SB_GPS_121

VI. Survey of the EMCDDA national experts on GPS

The aim of the survey of EMCDDA national experts on GPS was twofold. First, detailed methodological information was requested from experts about countries that had already conducted at least one online survey on drug use. Countries that had previously reported online surveys to the EMCDDA, were sent the first section of the questionnaire, which was pre-completed with information available from the Reitox standard reporting, and were asked to check the information provided for accuracy and to fill gaps. Second, views were collected from all participants about their respective methods, future plans, the problems experienced and potential obstacles to conducting an online survey. A total of 26 forms were returned from 25 countries — 10 countries provided details on 24 surveys (the majority of which have been reported to the EMCDDA), and 19 countries responded to the section on future plans and potential obstacles (see Table 8).

Table 8. Countries participating in the survey, by content provided.

With online data collection (GPS/school)	No online data collection	No response
Cyprus (1/0)	Albania	Bulgaria
Belgium (0/2)	Austria	Croatia
Germany (1/0)	Czech Republic	Ireland
Denmark (2/0)	Estonia	Netherlands
Finland (1/0)	France	Norway
Italy (0/3)	Greece	Poland
Latvia (0/3)	Hungary	Romania
Sweden (8/0)	Lithuania	Turkey
Slovenia (1/0)	Luxembourg	
United Kingdom (0/2)	Macedonia	
	Malta	
	Portugal	
	Serbia (2 replies)	
	Slovakia	
	Spain	

VI.1 Surveys

In total, 24 surveys conducted between 2007 and 2013 in 10 countries were described in the returned questionnaires; 16 surveys were conducted in general populations, and nine were school/college surveys targeting young people ([9]). School/college surveys tended to collect all of the data online (Belgium, Italy and the United Kingdom), or they split samples into two random groups for PAPI and online data collection (Latvia). General population surveys were always designed as mixed-mode surveys of various scenarios (Germany, Denmark, Finland, Sweden and Slovenia). It should be noted that the national experts did not answer all of the questions. This was usually due to subcontracting the data collection or reporting of surveys to an external institution.

VI.1.A Sampling strategies, recruitment modes and reminders

With the exception of Belgium, where some surveys covered only the Flemish part of the country, all studies had national coverage. Since the majority of reported surveys

([9]) Online Data Collection Summary (information from Experts who reported their experience with online data collection in general population or school surveys are provided as a separate annex to this report (Annex 4, available at: www.emcdda.europa.eu/publications/technical-reports/online-data-collection-gps/annex4).

aimed to achieve representative samples, the sampling strategies were chosen in line with standard procedures available for the setting (school or household) and the country. All school surveys therefore used multi-stage stratified sampling with schools as sampling units. The two exceptions to the pattern were the Latvian pilot study for the 2011 ESPAD survey, where the selection of participating schools was convenient, and the Belgian school/college surveys, where all the students of randomly selected schools were asked to participate voluntarily. Similarly, the samples of all of the general population surveys were randomly drawn from population registries.

School surveys were typically administered in the classroom with recruitment following standard procedures. Only Belgian school/college surveys used email invitations (and one emailed a reminder), because email addresses were available for all students of the selected institutions.

Mixed-mode surveys in the general population differed in their recruitment strategies. The most common approach, used in 10 surveys in Denmark, Finland and Sweden, was a posted invitation that contained both a hard copy of the questionnaire and access details to a web version, leaving the choice of mode to the respondent. A similar approach was adopted for reminders.

Germany and Slovenia opted for more a complex design. German respondents were first contacted by phone (where a phone number was available) for CATI; if a respondent's phone number was not available, an invitation was sent in the post (containing both a hard copy of the questionnaire and access details to the web survey). Slovenia, on the other hand, only provided a posted invitation to all respondents to participate in a web survey in a first wave of recruitment. Those who did not respond were then contacted by phone for CAPI in a second wave. A third attempt was made by an interviewer for CAPI and covered all respondents that had not responded in previous attempts or where their phone number was not known.

Reminders to respondents are not usually sent in school-based surveys; Belgian college surveys sent one reminder email. Denmark, Finland and Sweden sent two or three posted reminders, sometimes with a new copy of the questionnaire. In Germany and Slovenia the number of reminders is dictated by the mixed-mode design.

Sample sizes and response rates were not comparable between surveys due to the variety of recruitment scenarios. Readers interested in this data can refer to the Online Data Collection Summary in Annex 4.

VI.1.B Questionnaire design and software

The main characteristics of the questionnaire sent to the national experts were: number of items, number of screens, differences between modes, ways of dealing with missing values and ways of controlling multiple entries. The content of the questionnaires did not differ between the modes, except in their display and layout.

In order to control for multiple entries, Denmark and Slovenia provided individualised and unique access details to the web mode. Belgium limited access to one per IP address and Latvia (for a school-based survey) did not take any measures to prevent repeated access to survey.

The questionnaire length varied considerably, but the information is available for only 11 surveys. For school surveys the number of items ranged from 158 in Belgium (the

only survey where the fieldwork did not take place at school) to 409 in Italy. General population survey questionnaires were much shorter: all surveys contained fewer than 100 items, except in Slovenia where 170 questions were asked.

No unified approach was apparent in the number of items per page in online surveys. Some countries grouped questions (Belgium, Italy and Slovenia), others presented one question per screen (Germany); Latvia used both approaches in different surveys.

There was also variation in the use of 'don't know/don't want to answer' options that allow a question to be made mandatory (by demanding a response) or voluntary (by excluding this option, those who 'don't know/don't want to answer' can skip the question). The voluntary option makes it easier for non-committed respondents to scroll down, possibly without reading the question, but it also conceals the reasons for skipping.

In terms of technical online solutions, five ready-to-use applications were mentioned. Italy transferred their original CASI questionnaire into HTML. The free online service SurveyMonkey was used in a Belgian study (www.surveymonkey.com). Latvia repeatedly used the open source software LimeSurvey (https://www.limesurvey.org/en). Slovenia used a local free provider of online survey tools 1KA (www.1ka.si). The German GPS questionnaire was created in paid-for system IRQuest (www.interrogare.de) and Finland used Digium Enterprise, an application for marketing research (www.questback.com).

VI.1.C Data management and data quality

The main approach to dealing with incomplete questionnaires, among countries that responded to a question on this, was to include as many questionnaires as possible in the survey. Germany, Denmark and Finland did not exclude questionnaires on the basis of missing data. Cyprus and the United Kingdom set up minimum requirements of at least 50 % completion and key socio-demographic variables. Belgium and Italy only included completed questionnaires.

Data preparation consisted of several steps of data cleaning. In addition to traditional approaches, such as identifying inconsistencies, lie scores and response sets, some countries also used meta-data available in the survey applications. However, these were limited to school surveys where all respondents answered online (Latvia and Cyprus) and completion times, IP addresses and dates were mentioned.

Germany, Finland, Latvia, Sweden and Slovenia had conducted analysis of mode effect on data quality. Some differences were observed between the modes. In Germany, when controlled for age, gender, region, education and income, individuals who responded by phone reported less cannabis use. Individuals who responded online reported less alcohol and more cannabis use than those who answered the postal questionnaire. In Finland, the younger respondents and males tended to respond more online and the online respondents reported more cannabis use when controlled for age and gender. Latvia controlled for age, gender and cluster effect and observed that tobacco prevalence rates were slightly lower (depending on data cleaning rules some indicators were statistically significant) in the online mode, and no to almost no differences were apparent in alcohol and illicit drug use prevalence rates. The ESPAD pilot in Latvia found that most prevalence rates were slightly higher (1 to 5 percentage points) when online and PAP modes were compared. Slovenia observed that online respondents were younger and had a higher level of

education than respondents using other modes, but the full analysis was not complete at the time of our query.

VI.1.D Costs

In response to a question about costs, only Germany provided information on the cost per questionnaire and per mode. The estimated costs were: EUR 10 per online questionnaire, EUR 16 per postal questionnaire and EUR 28 per telephone interview. In Italian school surveys the cost of each questionnaire completed online fell from EUR 2.5 in 2010 to EUR 1.9 in 2012. In Cyprus one online questionnaire for a school survey cost EUR 4.

VI.1.E Difficulties and future plans

In terms of difficulties and future plans, all of the countries that answered our question about this (Belgium, Cyprus, Germany, Denmark, Italy and Slovenia) reported that they would continue to use online data collection in the future. Higher response rates, time reduction, ease of use and cost-effectiveness were mentioned as the main advantages of the approach.

Difficulties reported by Belgium and Italy were related mainly to school response rates and organisation at the level of educational institutions. Denmark observed a general decrease in responses among young adults. Slovenia had difficulties with funding. Only Latvia mentioned problems associated with data collection — technical problems in some schools led to refusals, and the limited capacity of computer laboratories complicated the logistics of online data collection in schools.

VI.2 Views on online data collection in countries with no online survey

The second section of the questionnaire aimed to collect information from countries that have not yet implemented online data collection about potential plans and difficulties. Of the 19 countries that replied, seven mentioned that they are considering conducting online data collection in future. Three countries plan to continue their current practice — an annual mixed-mode survey in Sweden, a mixed-mode (postal/online) survey in Finland in 2014 and 2015 ESPAD data collection in Latvia (if approved by the ESPAD steering committee). Cyprus will only consider online data collection for small-scale surveys on non-representative samples.

Austria reported an initiative by the Reitox national focal point to conduct a survey online and, although there are no concrete plans at the moment, the proposal is for a mixed-mode survey of PAPI, telephone and online data collection.

Slovakia has ensured funding for the next general population survey on a quota sample of 6 000 respondents aged 15–64. Data will be collected mainly by face-to-face interviews; about 10 % of the sample will complete the questionnaire online. The online part will target younger respondents and, due to a lack of experience with online surveying at the national scale, it is intended for comparison of methods. In 2011 a small-scale experiment with online data collection from cannabis users was performed in Slovakia. Short questionnaires, one on cannabis use (including the CAST scale) and one on the use of new psychoactive substances, inspired by the development of a European Model Questionnaire module on new psychoactive substances by the EMCDDA, were posted on two ‘drug-use friendly’ websites. The outputs will be compared with data from face-to-face interviews from the major music festival Pohoda in 2012 and 2013, with sample sizes of about 100 respondents.

Albania also plans to conduct a pilot for a national general population survey in the capital Tirana in 2014. The pilot is designed as a mixed-mode survey with data

collection via face-to-face and telephone interviews, and a web-based questionnaire. The research institute plans to invite each respondent in person and allow them to choose from the available data collection modes.

VI.2.A Obstacles to conducting an online survey

In total, 13 countries explained what, in their experience, are or would be obstacles to conducting data collection online. It is important to note that the wording of the questionnaire sent to experts (using the term 'online survey' instead of online data collection) may have led to a rejection of the method in some instances. Some countries may have reject the use of online data collection surveys, but may not have taken into consideration that mixed-mode surveys also use online data collection. Latvia plans to use online data collection as part of a mixed-mode survey, but does not expect to move the survey online entirely. For Greece, mixed-mode surveys imply higher costs.

Low Internet coverage (Cyprus, Greece and Portugal), comparability with previous studies (the Czech Republic, Estonia, Spain and Slovakia), and a recent survey or a survey that has already been planned using traditional methods of data collection in the near future (Malta, Latvia, Slovakia and Serbia) were the most commonly mentioned obstacles. Serbia was planning its first GPS on drug use and assumed that traditional methods of data collection would provide data that would be more comparable with other European countries that follow the EMCDDA guidelines. For Malta, the guidelines are binding and the traditional methods have proved reliable. Estonia and Slovakia also referred to already well-established methods.

Representativeness was a concern in Austria, and three countries (Estonia, Greece and Serbia) viewed online data collection as suitable mainly for younger age groups. However, these countries acknowledged that online data collection could increase response rates and/or improve data quality in the groups more familiar with Internet and related applications. The United Kingdom views online data collection as useful for collecting data from specific populations (practitioners, drug users and hard-to-reach populations). Difficulties with sampling for online data collection surveys were mentioned by two countries: Greece mentioned missing email addresses and the risk of recipients mistaking the survey invitation for spam; the United Kingdom uses a two-stage sample design based on addresses and individuals within households, hence the lack of individual contact details to deliver the login details to.

Experience with national online panel surveys were mentioned by France, Greece and the United Kingdom. The main concerns were associated with low or selective responsiveness to online data collection surveys and the lack of representativeness based on voluntary participation.

Two countries reported difficulties with funding. Three countries (Spain, Slovakia and Serbia) mentioned lack of experience — Spain is waiting for guidelines or training in online data collection methods before the national focal point considers using them in the general population survey. Greece also referred to low computer literacy in the country and to the specifics of online data collection that may increase survey costs (such as optimisation for hand-held devices, e.g. smartphones and tablets). The lack of control over who completes the questionnaire and in what circumstances (such as level of privacy) it is completed were also mentioned.

VII. Conclusion

Computer-assisted interviewing has gained a strong position among data collection methods in social and epidemiological research. Although it represents a relatively small proportion of data collected about drug use in Europe, it appears to have retained its value in some countries and gained attention in others.

The use of computers in traditional interviewing modes such as personal and telephone interviews is well established, and this method of data collection has little impact on the respondent. The effect of computerisation on the resulting data is either negligible or much less pronounced than the effect of self-completion. Experiments are nevertheless conducted to assess the various forms of self-completion using automated systems, often without the presence of an interviewer.

Online data collection in web surveys is a different story. It represents a completely new approach to interviewing, giving the respondents more freedom and more responsibility. Web surveys suffer from major issues such as representativeness of samples, low response rates and unknown respondent behaviour while completing the questionnaire. Due to a lack of suitable sample frames with email addresses, purely web-based surveys are not possible when robust representative surveys are necessary, and traditional sampling strategies and contact modes are required when collecting data online. This elevates survey costs. Experiments have been performed to assess whether samples from large, representative online panels are a sufficient substitute for probabilistic population-based samples, but they often failed to obtain comparable distribution of demographic variables and variables of interest. Therefore, it seems that the most pragmatic application of online data collection is the mixed-mode survey, in which respondents are offered alternative options, typically including posting a hard copy of the questionnaire (either at the first stage or with a reminder). Mixed-mode surveys might help to increase response rates and capture populations that would not be reached by other modes. Online questionnaires are more likely to be completed by younger age groups and people with higher education. When these characteristics are controlled for, mode effect in mixed-mode surveys appears to be associated more with self-completion than with the mode. When two self-completed modes are compared (such as a pen-and-paper questionnaire sent by postal mail and an online questionnaire), either no differences were found or the evidence is mixed for different variables in different countries, which suggests that the mode has a low impact on willingness to admit (both licit and illicit) drug use in the questionnaire.

In terms of questionnaire design and reporting the results of online data collection, a number of new issues emerged — for example, how the questions are presented to a respondent (e.g. one per page or all at once), how the ‘don’t know’ option is dealt with, which questions are mandatory, how the data sets were cleaned and the criteria for dealing with incomplete questionnaires. These issues are often irrelevant in traditional survey modes; however, they may have a significant impact on data quality and the results of surveys using online data collection. To help with transparency in the online research field, a checklist of recommendations has been developed to report methodological details in online surveys (see Annex 2 for details).

Online data collection is now a well-established component of mixed-mode surveys in some European countries. As the costs of online data collection are relatively low, this method has the potential to be implemented in other countries also.

References

Atkeson, l. R., Adams, A. N., Bryant, l. A., Zilberman, l. and Saunders, K. L. (2011), 'Considering mixed mode surveys for questions in political behavior: using the internet and mail to get quality data at reasonable costs', *Political Behavior* 33, pp. 161–178.

Balter, K., Balter, O., Fondell, E. and Lagerros, Y. (2005), 'Web-based and mailed questionnaires: a comparison of response rates and compliance', *Epidemiology* 16, pp. 577–579.

Beck, F., Peretti-Watel, P. and Andreyev, Z. (2002), 'The impact of data collection methodology on the reporting of illicit drug use by adolescents', *Population (English Edition, 2002–)* 57, pp. 571–592.

Best, S. and Krueger, B. (2008), 'Internet survey design', in Fielding, N. G., Lee, R. M. and Blank, G. (eds), *The SAGE handbook of online research methods*, SAGE Publications Ltd, London.

Bethlehem, J. (2010), 'Selection bias in web surveys', *International Statistical Review* 78, pp. 161–188.

Bhaskaran, V. and LeClaire, J. (2010), *Online surveys for dummies*, Wiley, Chichester.

Boland, M., Sweeney, M., Scallan, E., Harrington, M. and Staines, A. (2006), 'Emerging advantages and drawbacks of telephone surveying in public health research in Ireland and the UK', *BMC Public Health* 6, p. 208.

Breunig, R. and McKibbin, R. (2011), 'The effect of survey design on household reporting of financial difficulty', *Journal of the Royal Statistical Society, Series A (Statistics in Society)* 174, pp. 991–1005.

Charlesworth, A. (2008), 'Understanding and managing legal issues in Internet research', in Fielding, N. G., Lee, R. M. and Blank, G. (eds), *The SAGE handbook of online research methods*, SAGE Publications Ltd, London.

Chittleborough, C., Taylor, A., Baum, F. and Hiller, J. (2008), 'Non-response to a life course socioeconomic position indicator in surveillance: comparison of telephone and face-to-face modes', *BMC Medical Research Methodology* 8, p. 54.

Corkrey, R. and Parkinson, L. (2002), 'A comparison of four computer-based telephone interviewing methods: getting answers to sensitive questions', *Behavior Research Methods, Instruments, and Computers* 34, pp. 354–363.

Couper, M. P. (2000), 'Web surveys: a review of issues and approaches', *The Public Opinion Quarterly* 64, pp. 464–494.

Couper, M. P., Tourangeau, R. and Marvin, T. (2009), 'Taking the audio out of audio-CASI', *The Public Opinion Quarterly* 73, pp. 281–303.

Currivan, D. B., Nyman, A. L., Turner, C. F. and Blener, L. (2004), 'Does telephone audio computer-assisted self-interviewing improve the accuracy of prevalence estimates of youth smoking?' *Public Opinion Quarterly* 68, pp. 542–564.

Dannetun, E., Tegnell, A. and Giesecke, J. (2007), 'Parents' attitudes towards hepatitis B vaccination for their children: a survey comparing paper and Web questionnaires, Sweden 2005', *BMC Public Health,* 7.:8 (www.ncbi.nlm.nih.gov/pubmed/17511891)

De Leeuw, E. D. (2012), 'Counting and measuring online: the quality of internet surveys', *BMS: Bulletin de Methodologie Sociologique* 114, pp. 68–78.

Dillman, D. A. (2007), *Mail and Internet surveys: the tailored design method — 2007 update with new internet, visual, and mixed-mode guide*, Wiley, Hoboken, NJ.

Duffy, B., Smith, K., Terhanian, G. and Bremer, J. (2005), 'Comparing data from online and face-to-face surveys', *International Journal of Market Research* 47, pp. 615–639.

Eaton, D. K., Brener, N. D., Kann, L., et al. (2011), 'Computer availability and principals' perceptions of online surveys', *Journal of School Health* 81, pp. 365–373.

Evans, J. R. and Mathur, A. (2005), 'The value of online surveys', *Internet Research* 15, pp. 195–219.

Eynon, R., Fry, J. and Schroeder, R. (2008), 'The ethics of Internet research', in Fielding, N. G., Lee, R. M. and Blank, G. (eds), *The SAGE handbook of online research methods*, SAGE Publications Ltd, London.

Eysenbach, G. and Eysenbach, G. (2004), 'Improving the quality of Web surveys: the checklist for reporting results of Internet e-surveys (CHERRIES)', *Journal of Medical Internet Research* 6(3), e34.

Fan, W. and Yan, Z. (2010), 'Factors affecting response rates of the Web survey: a systematic review', *Computers in Human Behavior* 26, pp. 132–139.
Fielding, N. G., Lee, R. M. and Blank, G. (2008), *The SAGE handbook of online research methods*, SAGE Publications Ltd, London.
Fienberg, S. E. (2003), 'Notes on modes of interviewing: prepared for "sampling, surveys, and society"', *Statistics* 36, p. 203.
Fricker, R. (2008), 'Sampling methods for Web and e-mail surveys', in Fielding, N. G., Lee, R. M. and Blank, G. (eds), *The SAGE handbook of online research methods*, SAGE Publications Ltd, London.
Fricker, R. D. and Schonlau, M. (2002), 'Advantages and disadvantages of Internet research surveys: evidence from the literature', *Field Methods* 14, pp. 347–367.
Fricker, S., Galesic, M., Tourangeau, R. and Yan, T. (2005), 'An experimental comparison of web and telephone surveys', *Public Opinion Quarterly* 69, pp. 370–392.
Gaiser, T. J. and Schreiner, A. E. (2009), *A guide to conducting online research*, SAGE Publications Ltd, London.
Gosling, S. D. and Johnson, J. A. (2010), *Advanced methods for conducting online behavioral research*, American Psychological Association, Washington, DC.
Greenlaw, C. and Brown-Welty, S. (2009), 'A comparison of web-based and paper-based survey methods: testing assumptions of survey mode and response cost', *Evaluation Review* 33, pp. 464–480.
Heerwegh, D. and Loosveldt, G. (2008), 'Face-to-Face versus web surveying in a high-internet-coverage population: differences in response quality', *Public Opinion Quarterly* 72, pp. 836–846.
Hewson, C. (2003), *Internet research methods: a practical guide for the social and behavioural sciences*, SAGE Publications Ltd, London.
Hewson, C. and Laurent, D. (2008), 'Research design and tools for Internet research', in Fielding, N. G., Lee, R. M. and Blank, G. (eds), *The SAGE handbook of online research methods*, SAGE Publications Ltd, London.
Hines, D. A., Douglas, E. M. and Mahmood, S. (2010), 'The effects of survey administration on disclosure rates to sensitive items among men: a comparison of an internet panel sample with a RDD telephone sample', *Computers in Human Behavior* 26, pp. 1327–1335.
Jones, S. (1998), *Doing Internet research: critical issues and methods for examining the Net*, SAGE Publications, Thousand Oaks, CA.
Kallmen, H., Sinadinovic, K., Berman, A. and Wennberg, P. (2011), 'Risky drinking of alcohol in Sweden: a randomized population survey comparing web- and paper-based self-reports', *NAT Nordic Stud Alcohol and Drugs* 28, pp. 123–130.
Kalogeraki, S. (2012), 'On the benefits and constraints of the web-based illicit drug survey', *International Journal of Interdisciplinary Social Sciences* 6, pp. 239–252.
Klofstad, C. A., Boulianne, S. and Basson, D. (2008), 'Matching the message to the medium: results from an experiment on Internet survey email contacts', *Social Science Computer Review* 26, pp. 498–509.
Lee, R. M., Fielding, N. G. and Blank, G. (2008), 'The Internet as a research medium: an editorial introduction', in Fielding, N. G., Lee, R. M. and Blank, G. (eds), *The SAGE handbook of online research methods*, SAGE Publications Ltd, London.
Lessler, J. T., Caspar, R. A., Penne, M. A. and Barker, P. R. (2000), 'Developing Computer Assisted Interviewing (CAI) for the National Household Survey on Drug Abuse', *Journal of Drug Issues* 30, pp. 9–33.
Malhotra, N. (2008), 'Completion time and response order effects in web surveys', *The Public Opinion Quarterly* 72, pp. 914–934.
Manfreda, K., Bosnjak, M., Berzelak, J., Haas, I. and Vehovar, V. (2008), 'Web surveys versus other survey modes: a meta-analysis comparing response rates', *International Journal of Market Research* 50, pp. 79–104.
McCabe, S. E., Boyd, C. J., Couper, M. P., Crawford, S. and D'Arcy, H. (2002), 'Mode effects for collecting alcohol and other drug use data: web and US mail', *Journal of Studies on Alcohol and Drugs* 63, p. 755.
McCabe, S. E., Boyd, C. J., Young, A., Crawford, S. and Pope, D. (2005), 'Mode effects for collecting alcohol and tobacco data among 3rd and 4th grade students: a randomized pilot study of web-form versus paper-form surveys', *Addictive Behaviors* 30, pp. 663–671.

McCabe, S. E., Diez, A., Boyd, C. J., Nelson, T. F. and Weitzman, E. R. (2006), 'Comparing web and mail responses in a mixed mode survey in college alcohol use research', *Addictive Behaviors* 31, pp. 1619–1627.

Messer, B. and Dillman, D. (2011), 'Surveying the general public over the Internet using address-based sampling and mail contact procedures', *Public Opinion Quarterly* 75, pp. 429–457.

Midanik, L. T. and Greenfield, T. K. (2010), 'Reports of alcohol-related problems and alcohol dependence for demographic subgroups using interactive voice response versus telephone surveys: the 2005 US National Alcohol Survey', *Drug and Alcohol Review* 29, pp. 392–398.

Miller, P. G., Johnston, J., Dunn, M., Fry, C. L. and Degenhardt, L. (2010), 'Comparing probability and non-probability sampling methods in ecstasy research: implications for the Internet as a research tool', *Substance Use and Misuse* 45, pp. 437–450.

Miller, P. G., Johnston, J., McElwee, R. and Noble, R. (2007), 'A pilot study using the Internet to study patterns of party drug use: processes, findings and limitations', *Drug and Alcohol Review* 26, pp. 169–174.

Moskowitz, J. M. (2004), 'Assessment of cigarette smoking and smoking susceptibility among youth: telephone computer-assisted self-interviews versus computer-assisted telephone interviews', *The Public Opinion Quarterly* 68, pp. 565–587.

Nagelhout, G., Willemsen, M., Thompson, M., et al. (2010), 'Is web interviewing a good alternative to telephone interviewing? Findings from the International Tobacco Control (ITC) Netherlands Survey', *BMC Public Health* 10, p. 351.

Porritt, D. and Marx, B. R. (2011), 'Handling "Don't know" responses in parallel CATI and online surveys', *Australasian Journal of Market and Social Research* 19, pp. 27–33.

Postoaca, A. (2010), *The anonymous elect: market research through online access panels*, Springer Publishing Company, New York.

Poynter, R. (2010), *The handbook of online and social media research: tools and techniques for market researchers*, Wiley, Chichester.

Saris, W. E. (1991), *Computer-assisted interviewing*, SAGE Publications, Thousand Oaks, CA.

Saris, W. E. and Gallhofer, I. N. (1998), *Design, Evaluation, and Analysis of Questionnaires for Survey Research*, John Wiley & Sons.

Savage, S. J. and Waldman, D. M. (2008), 'Learning and fatigue during choice experiments: a comparison of online and mail survey modes', *Journal of Applied Econometrics* 23, pp. 351–371.

Shih, T.-H. and Fan, X. (2007), 'Response rates and mode preferences in web-mail mixed-mode surveys: a meta-analysis', *International Journal of Internet Science* 2, pp. 59–82.

Shih, T.-H. and Fan, X. (2009), 'Comparing response rates in e-mail and paper surveys: a meta-analysis', *Educational Research Review* 4, pp. 26–40.

Sinclair, M., O'Toole, J., Malawaraarachchi, M. and Leder, K. (2012), 'Comparison of response rates and cost-effectiveness for a community-based survey: postal, Internet and telephone modes with generic or personalised recruitment approaches', *BMC Medical Research Methodology* 12, p. 132.

Spijkerman, R., Knibbe, R., Knoops, K., Van De Mheen, D. and Van Den Eijnden, R. (2009), 'The utility of online panel surveys versus computer-assisted interviews in obtaining substance-use prevalence estimates in the Netherlands', *Addiction* 104, pp. 1641–1645.

Stephenson, L. B. and Crête, J. (2011), 'Studying political behavior: a comparison of Internet and telephone surveys', *International Journal of Public Opinion Research* 23, pp. 24–55.

Strabac, Z. and Aalberg, T. (2011), 'Measuring political knowledge in telephone and web surveys: a cross-national comparison', *Social Science Computer Review* 29, pp. 175–192.

Sue, V. M. and Ritter, L. A. (2011), *Conducting online surveys*, SAGE Publications, Thousand Oaks, CA.

Tortora, R. D. (1985), 'CATI in an agricultural statistical agency', *Journal of Official Statistics* 1, pp. 301–314.

Tourangeau, R., Steiger, D. M. and Wilson, D. (2002), 'Self-administered questions by telephone: evaluating interactive voice response', *Public Opinion Quarterly* 66, pp. 265–278.

Turner, C. F., Villarroel, M. A., Rogers, S. M., et al. (2005), 'Reducing bias in telephone survey estimates of the prevalence of drug use: a randomized trial of telephone audio-CASI', *Addiction* 100, pp. 1432–1444.

Tuten, T. L. (2010), 'Conducting online surveys', in Gosling, S. D. and Johnson, J. A. (eds), *Advanced methods for conducting online behavioral research*, American Psychological Association, Washington, DC.

Vehovar, V. and Manfreda, K. L. (2008), 'Overview: online surveys', in Fielding, N. G., Lee, R. M. and Blank, G. (eds), *The SAGE handbook of online research methods*, SAGE Publications Ltd, London.

Vehovar, V., Berzelak, N. and Lozar Manfreda, K. (2010), 'Mobile phones in an environment of competing survey modes: applying metric for evaluation of costs and errors', *Social Science Computer Review* 28, pp. 303–318.

Vereecken, C. A. and Maes, L. (2006), 'Comparison of a computer-administered and paper-and-pencil-administered questionnaire on health and lifestyle behaviors', *Journal of Adolescent Health* 38, pp. 426–432.

Villarroel, M. A., Turner, C. F., Rogers, S. M., et al. (2008), 'T-ACASI reduces bias in STD measurements: the National STD and Behavior Measurement Experiment', *Sexually Transmitted Diseases* 35, pp. 499–506.

Whiteman, N. (2012), *Undoing ethics: rethinking practice in online research*, Springer, New York.

Wright, D. L., Aquilino, W. S. and Supple, A. J. (1998), 'A comparison of computer-assisted and paper-and-pencil self-administered questionnaires in a survey on smoking, alcohol, and drug use', *The Public Opinion Quarterly* 62, pp. 331–353.

Yeager, D. S., Krosnick, J. A., Chang, L., et al. (2011), 'Comparing the accuracy of RDD telephone surveys and Internet surveys conducted with probability and non-probability samples', *The Public Opinion Quarterly* 75, pp. 709–747.

Annex 1. Examples of online data collection tools

Free to use:

- LimeSurvey: https://www.limesurvey.org
- SurveyMonkey: https://www.surveymonkey.com
- Free Online Surveys: freeonlinesurveys.com
- DADOS Survey: dados-survey.sourceforge.net

Paid for:

- Key Survey: www.keysurvey.com
- Vovici: www.vovici.com/products/overview/shawn.aspx
- CheckBox: www.checkbox.com
- QuestionPro: https://www.questionpro.com

Annex 2. Checklist for reporting the results of Internet e-surveys (CHERRIES) (Eysenbach, 2004)

Item category	*Checklist item*	*Explanation*
Design		
	Describe survey design	Describe target population, sample frame. Is the sample a convenience sample? (In 'open' surveys this is most likely.)
IRB (Institutional Review Board) approval and informed consent process		
	IRB approval	Mention whether the study has been approved by an IRB.
	Informed consent	Describe the informed consent process. Were the participants told the length of time of the survey, which data were stored, where and for how long, who the investigator was, and the purpose of the study?
	Data protection	If any personal information was collected or stored, describe what mechanisms were used to protect against unauthorised access.
Development and pre-testing		
	Development and testing	State how the survey was developed, including whether the usability and technical functionality of the electronic questionnaire had been tested before fielding the questionnaire.
Recruitment process and description of the sample having access to the questionnaire		
	Open survey versus closed survey	An 'open survey' is a survey open for each visitor of a site, while a closed survey is only open to a sample that the investigator knows (password-protected survey).
	Contact mode	Indicate whether or not the initial contact with the potential participants was made on the Internet. (Investigators may also send out questionnaires by postal mail and allow for web-based data entry.)
	Advertising the survey	How/where was the survey announced or advertised? Some examples are offline media (newspapers), or online (mailing lists — if yes, which ones?) or banner ads (where were these banner ads posted and what did they look like?). It is important to know the wording of the announcement, as it will heavily influence who chooses to participate. Ideally the survey announcement should be published as an appendix.

Survey administration		
	Web/email	State the type of e-survey (e.g. posted on a website, or sent out through email). If it is an email survey, were the responses entered manually into a database, or was there an automatic method for capturing responses?
	Context	Describe the website (for mailing list/newsgroup) on which the survey was posted. What is the website about, who is visiting it, what are visitors normally looking for? Discuss to what degree the content of the website could pre-select the sample or influence the results. For example, a survey about vaccination on an anti-immunisation website will have different results from a web survey conducted on a government website.
	Mandatory/voluntary	Was it a mandatory survey to be filled in by every visitor who wanted to enter the website, or was it a voluntary survey?
	Incentives	Were any incentives offered (e.g. monetary, prizes, or non-monetary incentives such as an offer to provide the survey results)?
	Time/date	In what timeframe were the data collected?
	Randomisation of items or questionnaires	To prevent biases, items can be randomised or alternated.
	Adaptive questioning	Use adaptive questioning (certain items, or only conditionally displayed based on responses to other items) to reduce the number and complexity of the questions.
	Number of items	How many questionnaire items were there per page? The number of items is an important factor for the completion rate.
	Number of screens (pages)	Over how many screens (pages) was the questionnaire distributed? The number of screens (pages) is an important factor for the completion rate.
	Completeness check	It is technically possible to do consistency or completeness checks before the questionnaire is submitted. Was this done, and if 'yes', how (usually JAVAScript)? An alternative is to check for completeness after the questionnaire has been submitted (and highlight mandatory items). If this has been done, it should be reported. All items should provide a non-response option such as 'not applicable' or 'rather not say', and selection of one response option should be enforced.
	Review step	State whether respondents were able to review and change their answers (e.g. through a 'back' button or a 'review' step that displays a summary of the responses and asks the respondents if they are correct).

Response rates		
	Unique site visitor	If you provide view rates or participation rates, you need to define how you determined a unique visitor. There are different techniques available, based on IP addresses or cookies, or both.
	View rate (ratio of unique survey visitors/unique site visitors)	Requires counting unique visitors to the first page of the survey, divided by the number of unique site visitors (not page views!). It is not unusual to have view rates of less than 0.1 % if the survey is voluntary.
	Participation rate (ratio of unique visitors who agreed to participate/unique first survey page visitors)	Count the unique number of people who filled in the first survey page (or agreed to participate, for example by checking a checkbox), divided by visitors who visit the first page of the survey (or the informed consents page, if present). This can also be called the 'recruitment' rate.
	Completion rate (ratio of users who finished the survey/users who agreed to participate)	The number of people submitting the last questionnaire page, divided by the number of people who agreed to participate (or submitted the first survey page). This is only relevant if there is a separate 'informed consent' page or if the survey goes over several pages. This is a measure for attrition. Note that 'completion' can involve leaving questionnaire items blank. This is not a measure for how completely questionnaires were filled in. (If you need a measure for this, use the word 'completeness rate'.)
Preventing multiple entries from the same individual		
	Cookies used	Indicate whether cookies were used to assign a unique user identifier to each client computer. If so, mention the page on which the cookie was set and read, and how long the cookie was valid for. Were duplicate entries avoided by preventing users access to the survey twice; or were duplicate database entries having the same user ID eliminated before analysis? In the latter case, which entries were kept for analysis (e.g. the first entry or the most recent)?
	IP check	Indicate whether the IP address of the client computer was used to identify potential duplicate entries from the same user. If so, mention the period of time for which no two entries from the same IP address was allowed (e.g. 24 hours). Were duplicate entries avoided by preventing users with the same IP address access to the survey twice; or were duplicate database entries having the same IP address within a given period of time eliminated before analysis? If the latter, which entries were kept for analysis (e.g. the first entry, or the most recent)?
	Log file analysis	Indicate whether other techniques to analyse the log file for identification of multiple entries were used. If so, please describe.
	Registration	In 'closed' (non-open) surveys, users need to login first and it is easier to prevent duplicate entries from the same user. Describe how this was done. For

		example, was the survey never displayed a second time once the user had filled it in, or was the username stored together with the survey results and later eliminated? If the latter, which entries were kept for analysis (e.g. the first entry, or the most recent)?
Analysis		
	Handling of incomplete questionnaires	Were only completed questionnaires analysed? Were questionnaires that terminated early (where, for example, users did not go through all questionnaire pages) also analysed?
	Questionnaires submitted with an atypical timestamp	Some investigators may measure the time people needed to fill in a questionnaire and exclude questionnaires that were submitted too soon. Specify the timeframe that was used as a cut-off point, and describe how this point was determined.
	Statistical correction	Indicate whether any methods such as weighting of items or propensity scores have been used to adjust for the non-representative sample; if so, please describe the methods.

Source: Eysenbach, G. (2004), 'Improving the quality of web surveys: the checklist for reporting results of internet e-surveys (CHERRIES)', *Journal of Medical Internet Research* 6(3) (www.jmir.org/2004/3/e34) doi: 10.2196, jmir.6.3.e34PMID: 15471760.

Annex 3. Questionnaire for the national experts

Instructions: Please consider only representative surveys that have used online data collection and were conducted between 2008–13. If the survey has already been reported to the EMCDDA, please add a reference for the respective Fonte report (e.g. ST1_2012_DK_01) and only fill in the fields that were not described in the Standard Table. If you are not able to provide the precise answer (e.g. costs per completed questionnaire), please add your comments in the respective field. Examples have been given in the first section, to provide some guidance. If the data are already available to the EMCDDA, they are now pre-filled on the basis of your Fonte reports — please check these and add any missing data. Questions in italic are not collected by the EMCCDA Fonte reports on a regular basis.
If no online survey was conducted please continue to the second section, which is intended for all experts.

Section 1

	Survey title	Imaginary example
	Fonte Standard Table	ST1_2013_CZ_01
	Year of data collection	2012
	Coverage (national/regional — please specify)	Regional (Capital: Prague)
	Context (drugs/health/other — please specify)	Drugs
	Setting (household/school/other — please describe)	Household
	Population (age range)	15–64
	Sampling strategy (please describe all steps)	Stratified random (random sample from citizen registries in four randomly selected city districts)
	Sample frame (please describe)	Citizen registry
Response rate calculation: A formula will calculate simple overall response rates. Please fill all numbers that are known and leave blank those fields that are not known. If you have comments on the procedures or your calculations of RR differ significantly, please use the respective field.	**Number of completed interviews (I)**	1 676
	Number of partial interviews (P)	13
	Refusals and break-offs (R)	578
	Non-contact (NC)	334
	Other unsuccessful (O)	67
	Not eligible + unknown eligibility (UE)	134
	Response rate (overall) — formula	59.8 %
	Comments on RR:	
For school surveys only	**Total of participating schools**	
	Response rate (schools)	
	Individual RR	
	Mixed-mode *(if yes, please describe the steps)*	1st wave — posted invitation with access details to online questionnaire 2nd wave — posted reminder and hardcopy questionnaire 3rd wave — posted reminder
	Split-sample experiment *(if yes, please describe how the sample was assigned to a mode)*	NO

	Mode(s) of data collection *(obtained sample size per mode)*	Online (1 004) Postal (672)
	Mode(s) of invitation	Postal mail only
	Number of reminders	2
	Costs per completed questionnaire by mode of data collection	Online (EUR 12) Postal (EUR 25)
	Weighting and post-stratification (if any, please, describe)	Data weighted by gender and age.
	Mode effect: If a combination of methods is used, were there any differences in the results and sample composition?	Respondents of online surveys were younger and more educated compared to postal respondents. Online questionnaires had higher ratio of items missing.
	Mode effect: When analysing mode effect, have you controlled for age and gender?	Yes.
	Multiple entries prevention *(please describe the strategy in place)*	Each respondent received an individual code and password to enter the questionnaire.
	Questionnaire software *(please describe)*	LimeSurvey (used with re-design of default layout templates in line with national focal point graphic manual).
	Number of items in the questionnaire	135
	Number of screens displayed to respondent	7
	Did you include 'don't know' option? *(yes/no)*	Yes
	Were the questions mandatory? *(if yes, please describe the strategy, i.e. all questions, only selected questions, etc.)*	No
	Only completed questionnaires included in the analysis? *(if no, please describe the strategy of data inclusion)*	No — partial online questionnaires were also analysed if they contained basic socio-demographic information and at least 50 % of items were answered.
	What meta-data were used in data cleaning? *(e.g. completion times)*	– Time spent overall, completion time per question section. – Lie scores.
	Do you plan to repeat the same strategy in the future? Please, provide details on reasons	Yes, it boosted our RRs compared to surveys in previous years.
	What were the main obstacles and problems you faced?	
	Any other observations related to the online surveys methodology?	
	References	Not published

Section 2

If no online survey was conducted in your country, please answer following questions:

1. Is an online survey planned in the future? (yes/no)

2. If there are plans to conduct an online survey, please describe the planned methodology. (Please specify whether there will also be other modes of data collection, what the mode of invitation will be, what sampling strategy will be employed, etc.)

3. If there are no plans to conduct an online survey, please specify what the main arguments are against online data collection?

Annex 4. Online data collection summary (information from experts who reported their experience with online data collection in general population or school surveys)

Available under the following link:
www.emcdda.europa.eu/publications/technical-reports/online-data-collection-gps/annex4