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HILDA Project Discussion Paper Series The Measurement of Illicit Drug Use in Wave 17 of the HILDA Survey

Mark Wooden, Nathan La, Ninette Macalalad, Michelle Summerfield and Nicole Watson

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Introduction

An important individual risk factor that has the potential to both impact enormously on lifetime wellbeing, and to be influenced by shocks and other factors that influence wellbeing, is drug use. The HILDA Survey has long collected data on the use of legal drugs (i.e., tobacco and alcohol), but not on illicit drug use (a short set of questions were proposed for inclusion in wave 13 but were not proceeded with). The topic was revisited in 2015 with the decision made to design a short sequence of questions for inclusion and testing in the wave 16 Dress Rehearsal (DR) with a view to eventual inclusion in wave 17.

Choice of survey mode

Questions about illicit drug use are concerned with an activity that is illegal and so potentially sensitive, and hence it was decided that the questions would be designed for inclusion in the self-complete question (SCQ), rather than directly administered by an interviewer.

This is in line with the approach taken in the National Drug Strategy Household Survey (NDSHS), which Roy Morgan Research conducts on behalf of the Australian Institute of Health and Welfare. That said, the ABS, in its 2007 National Survey of Mental Health and Wellbeing (NSMHWB), which involves personal interviews (with one randomly selected person aged between 16 and 85 from a sample of private households), included a module on substance use that, in turn, included questions on use of both illegal drugs and prescription medications without the recommendation of a health professional. The ABS, however, points to concerns with both non-random response (the response rate was only 60%) and a tendency for consumption of illegal drugs to be under-reported (ABS 2008).

The SCQ was also a logical choice for a different reason – this is the instrument where questions on consumption of tobacco and alcohol have always been included.

Question design

Question design began with the very significant constraint that only one page within the SCQ could be made available for new questions on drug use. This stands in stark contrast to the NDSHS, which runs to 50 pages, almost all of which concerns the consumption of drugs, both legal (e.g., alcohol, tobacco, painkillers) and illegal.

It was thus decided that the focus in the HILDA Survey would be on measuring the frequency of current drug use but supplemented by retrospective questions on whether respondents had ever used drugs and, if yes, the age of first use.

In line with other questions in the HILDA Survey SCQ, frequency was measured using mutually exclusive categories. These categories were: "Every day", "Once a week or more", "2 or 3 times a month", "About once a month", "Every few months", "Once or twice a year" and "Never". Except for the addition of the category "2 or 3 times a month", these were precisely the same as used in the 2013 NDSHS.

An important consideration was identifying what substances were covered by the term "drug" and the classes or groups of drugs that would be identified. Ultimately, we were heavily guided by the main categories used in the 2013 and 2016 rounds of the NDSHS. We also followed the approach used in the NSDHS by appending examples of different street names for the different drug types. The questions finally included in the wave 16 DR are reproduced in Appendix A.

Outcomes from the wave 16 DR suggested, with one notable exception, no obvious difficulties with the questions proposed. In particular, rates of item non-response to questions about the frequency of both recent use (past year) and lifetime use were extremely low – generally less than 2% for the former and less than 2.5% for the latter. This was very reassuring given concerns about the possible sensitivities involved in asking questions about illegal behaviours.

The notable exception was the misuse of pharmaceuticals category. In particular, the number of persons in the wave 16 DR sample reporting use in the past 12 months greatly exceeded the numbers reporting use over a lifetime, which of course is not possible. We were (and remain) unable to explain this but conjectured that use of the collective term "pharmaceuticals" may not have been well understood. This, for example, is not a term used in the NDSHS.

For the wave 17 DR we thus created an additional separate question about use of pharmaceutical drugs for non-medical purposes, which removed all reference to the term "pharmaceutical" and which distinguished between three specific types of pharmaceutical drugs - tranquilisers / sleeping pills; pain killers / relievers and opioids; and stimulant medications. Nevertheless, comparisons with responses from the wave 17 DR with data from the 2013 NDSHS suggested that these changes did not eliminate the problem of HILDA respondents over-reporting misuse of pharmaceutical drugs. Indeed, the problem became much worse, with around 31% of our DR sample reporting taking pharmaceutical products for non-medical purposes compared with less than 5% of Australians in the NDHSH (and around 11% in the wave 16 Dress Rehearsal). This marked difference suggests that many of the HILDA Survey DR respondents were not adequately distinguishing between the use of medications for medical purposes and non-medical purposes. We hypothesised that this overreporting might be a function of the absence of a clear definition of "non-medical purposes". We therefore inserted such a definition, drawing on the definition used in the NDSHS, into the instrument used in the wave 17 main survey, a copy of which is reproduced in Appendix B. But as we shall see below, this change does not seem to have resolved the problem.

Data editing

The following rules were used in cleaning and editing the data on drugs use.

- 1. In line with the practice used on other HILDA Survey questions with ordered multiple response categories, where more than one response was checked when answering the questions about frequency of use, and where the two answers were adjacent, one answer was randomly selected, otherwise the answer was recoded as "unable to be determined". (Just 13 answers from 7 respondents were unable to be determined because of this.)
- 2. (a) Where a respondent reported that they had never used a drug, but then proceeded to include an age of first use or last used that was 4 years or less, their answer about age of first use was removed; that is, treated as missing. (This affected 19 answers from 3 respondents).

(b) Where a respondent reported that they had never used a drug, but then proceeded to include an age of first use or last used that was 5 years or older, their answer about lifetime use was recoded to yes. (This affected 74 answers from 31 respondents.)

3. Where a respondent did not provide an answer to the question about whether they had ever used a drug, but then proceeded to include an age of first use or last use that was 5 years or older, their answer about lifetime use was recoded to yes. (This affected 559 answers from 158 respondents.

- 4. With the exception noted at 2(a), where a respondent reported age of first use or last use being 4 years or less, the response was recoded as implausible (though this rule did not actually affect any cases).
- 5. If a respondent reported an age of last use that was less than the age of first use, the response to age of last use was recoded as implausible. (This affected 40 answers from 20 respondents.)

There was also one set of circumstances where editing of responses was considered but ultimately no changes made. This concerned the situation where a respondent indicated that they had never used drugs in their life but previously had indicated drug use during the previous 12 months. (This problem was present in 266 answers from 81 respondents.)

Item non-response

As shown in Table 1, rates of item non-response to questions about the frequency of recent use (past year) were very low – less than 2%. Perhaps surprisingly, questions on lifetime use were associated with higher rates of item non-response – typically around 3 to 3.5%. And non-response rates to the questions about age of first and last use among the sub-samples of persons responding affirmatively to the drug use questions are even higher, reaching as high as 22% in the case of age last used inhalants.

Drug type	Frequency of use in past 12 months	Lifetime use	Age first used ^(a)	Age last used ^(a)
Marijuana / Cannabis	1.2	2.2	1.4	2.8
Meth / amphetamine	1.3	3.0	5.5	7.0
Cocaine	1.3	3.3	4.4	5.8
Ecstasy	1.3	3.3	3.5	4.7
Hallucinogens	1.3	3.3	6.3	8.1
Inhalants	1.3	3.3	20.9	22.0
Any other illicit drug	1.4	3.5	19.7	21.3
Pharmaceuticals used for non-medical purposes				
Tranquilisers / Sleeping pills	1.5			
Painkillers / analgesics and opioids	1.5			
Stimulant medication	1.7			

Table 1: Incidence of item non-response (%), illicit drugs questions, wave 17

Note: (a) Percentage of persons reporting lifetime use.

Despite the relatively low rate of item non-response (at least when measuring use), it is still possible that drug users are over-represented among non-respondents. Obviously we cannot measure this directly. What we can do, however, is examine whether persons with characteristics that might be expected to be associated with illicit drug use (such as smoking and alcohol consumption) are over-represented among non-responders.

In Table 2, therefore, we report results from a rudimentary comparison of the small group of persons who did not respond to any of the questions about recent use (n=172) with the larger

group of persons that answered every question is summarised in Table 2. As can be seen, smokers are indeed relatively more likely to be non-responders than responders; while the incidence of item non-response among both groups is very low, smokers represent almost 38% of the non-responding group compared with just 17% of the responding group. On the other hand, high alcohol consumption is not inversely correlated with non-response. Indeed, frequent drinkers are relatively more likely to have answered all of the questions on drug use.

We also observe significant associations between item non-response on these drugs questions and: (i) age (greatest among both the very young and the very old); (ii) the presence of a severe long-term health condition; (iv) the presence of a mental health condition; and (iv) employment status (employed persons are less likely to be non-responders).

Unit non-response

A potentially much more serious source of bias than item non-response is unit non-response – that is, that drug use is correlated with overall survey participation. It might be expected, for example, that severe substance abuse would be associated with both greater problems contacting sample members (given substance abuse has been found to be associated with homelessness; e.g., McVicar et al. 2015) and lower levels of cooperation (though this may be mitigated by the HILDA Survey practice of paying respondents). We, however, have no obvious way of establishing the extent of such bias. The only alternative population estimates of illicit drug use in Australia are also survey-based and so subject to the same sorts of biases. That said, and as we show below (see Table 3), the weights we apply to the data to correct for non-random response and panel attrition actually work to reduce the estimated incidence of drug use. In other words, the observable sample characteristics that are associated with nonresponse (and that are used in the construction of population weights) tend to be negatively associated with reported use of illicit drugs, which at face value would imply, if anything, that drug users are over-represented in the responding sample. One reason for this lies in the following and interviewing rules used in the HILDA Survey, which bring a disproportionate number of young people into the sample (as they are more likely to partner or share houses with sample members than older people) and young people are more likely to have used drugs in the last 12 months than older people. The weights also correct for these sampling rules.

External validity: Comparisons with the NDSHS

A crude guide to the quality of the HILDA Survey estimates of the use of illicit drugs is provided by comparisons with external sources. Table 3 thus reports summary data on the incidence of both recent and lifetime use of illicit drugs by type of drug from both the HILDA Survey and the most recent round of the NDSHS conducted in 2016 (AIHW 2017).

The NDSHS involves a stratified national sample of households with one person aged 12 years or older selected from each household (though all of the estimates presented here are restricted to persons aged 14 years or older). Traditionally it involved the drop-and-collect administration of paper questionnaires, but in 2016 online administration was also provided for (with 22% of forms completed via this method).

	Non-		
	$responder (\%)^{(a)}$	$\underset{(\%)^{(a)}}{Responder}$	$P diff \neq 0$
Age			.035
15-19	9.9	7.4	
20-24	12.2	8.4	
25-64	54.7	65.1	
65+	23.3	19.1	
Sex			.959
Male	47.1	46.9	
Female	52.9	53.1	
Long-term health condition or disability by			
severity ^(b)			<.001
Severe	9.3	2.5	
Moderate	19.8	17.8	
Minor	12.2	9.7	
None	58.7	69.9	
Presence of a mental health condition ^(c)			.002
Yes	25.6	16.8	
No	74.4	83.2	
Employment status			<.001
Employed full-time	32.0	42.0	
Employed part-time	14.0	21.5	
Unemployed	5.8	3.8	
Not in the labour force	48.3	32.7	
Smoking			<.001
Current smoker	37.6	16.6	
Former smoker	17.2	27.1	
Never smoked	45.2	56.3	
Alcohol consumption			.002
Very frequent drinker (at least 5 days a week)	9.2	13.2	
Frequent drinker (at least weekly)	24.5	30.4	
Occasional drinker	30.6	36.5	
Non-drinker	35.7	19.9	

Table 2: Selected characteristics of non-respondents to questions on current drug use, wave 1	17
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Notes: Sample restricted to persons that returned at least a partially completed SCQ form.

(a) A non-responder is defined here as anyone who did not complete any of the items on recent drug use, while a responder is anyone who completed all items.

(b) Severity is based on the extent to which the condition is work-limiting. Severe indicates cannot work at all, moderate that the ability to work is limited in some way, and minor that the condition is not work limiting.

(c) Presence of depression, anxiety or other mental illness that is long-lasting (at least 6 months) and has been diagnosed by a doctor or nurse.

Unlike the HLDA Survey, the NDSHS is not a longitudinal survey and thus population estimates are not affected by cumulative sample attrition. But like all surveys, the NDSHS is affected by non-response, which in this case is considerable. The AIHW (2017, p.138) report a response rate of 51.1%, but the denominator used in this calculation is restricted to eligible households that were contacted. Once the eligible households that were not contacted are included, the response rate falls to just 34.7%. Thus, the NDSHS comparison should not be considered a "gold standard", and there is no reason to expect population estimates from the NDSHS and the HILDA Survey to be the same. At the same time, however, we would also not expect them to be wildly different.

Apart from pharmaceuticals, the proportion of persons in the HILDA Survey reporting drug use, both in the past 12 months and over a lifetime, especially after the application of population weights, aligns very closely with the population estimates from the NDSHS. This is especially so with estimates of use within the pre-specified drug categories, with HILDA Survey estimates tending, if anything, to be on the higher side. But despite this, population estimates of the estimates of the use of any type of illicit drug, both in the past 12 months and over a lifetime, are lower in the HILDA Survey. According to the HILDA Survey 12.1% of the adult population had used some form of illicit drug in the past 12 months compared with an estimate of 12.6% from the 2016 NSDHS. For lifetime use the gap is greater – 35.5% from the HILDA Survey compared with 37.1% from the NDSHS. Overall, however, these differences are not so large to suggest that there are any reasons to be concerned about the quality of the data on illicit drug use that has been collected in the HILDA Survey (at least relative to the major cross-section survey in this space).

There is, however, one obvious problem category – pharmaceuticals used for non-medical purposes. The population estimates suggested by the HILDA Survey are unbelievably high, with 7%, 21% and 10% of the population, estimated to take sleeping pills, pain relief medications stimulants, respectively, for non-medical purposes. In our view the only credible explanation for these high proportions is that many respondents are reporting any use of such medications rather than just misuse. We can only conclude that we failed in our objective of devising a short set of questions that will be unambiguously interpreted by respondents as being about the use of pharmaceutical products for non-medical purposes as distinct from medical purposes.

Because of these concerns, responses on all three of the items on use of pharmaceutical products have <u>not</u> been included in the public unit-record data file release (Release 17).

		HILDA		NDSHS	, 2016 ^{b,c}	
	Unwe	ighted	Weig	ghted		
	Past 12 months	Lifetime	Past 12 months	Lifetime	Past 12 months	Lifetime
Illicit drugs (excl. pharmaceuticals)						
Marijuana / Cannabis	12.1	39.4	10.8	34.5	10.4	34.8
Meth / amphetamine	1.6	7.1	1.4	5.7	1.4	6.3
Cocaine	3.4	10.6	3.1	9.1	2.5	9.0
Ecstasy	3.6	13.3	3.4	11.2	2.2	11.2
Hallucinogens	2.0	8.4	1.8	7.3	1.0	9.4
Inhalants	0.8	2.6	0.7	2.2	1.0	4.2
Any other illicit drug	1.1	3.0	1.1	2.5		
Sub-total: Any illicit drug (excluding pharmaceuticals) ^d	13.7	40.4	12.1	35.5	12.6	37.1
Pharmaceuticals used for non- medical purposes						
Tranquilises / sleeping pills	8.0	na	7.6	na	1.6	4.7
Painkillers and opioids	22.1	na	21.6	na	3.6	9.7
Stimulants	9.6	na	10.1	na		
Sub-total	26.9	na	26.8	na	4.8	12.8
Illicit use of any drug		na			15.6	42.6

Table 3: Incidence of drug use by type (%) – HILDA Survey and NDSHS compared

Notes: a As a percentage of persons aged 15 years or older.

b As a percentage of population aged 14 years or older.

c From Australian Institute of Health and Welfare, *National Drug Strategy Household Survey 2016: Detailed Findings*. Supplementary Data Tables, Tables 5.2 and 5.4. [Downloaded from: https://www.aihw.gov.au/reports/illicit-use-of-drugs/2016-ndshs-detailed/data]

d Respondents who reported use of drugs in the past 12 months but then failed to respond to questions on lifetime use have been treated as having used as drugs at some point in their life.

References

Australian Bureau of Statistics (ABS). 2008. *National Survey of Mental Health and Wellbeing: Summary of Results, 2007* (ABS cat. no. 4326.0). ABS: Canberra. (http://www.ausstats.abs.gov.au/Ausstats/subscriber.nsf/0/6AE6DA447F985FC2CA2574EA 00122BD6/\$File/National%20Survey%20of%20Mental%20Health%20and%20Wellbeing%2 0Summary%20of%20Results.pdf)

Australian Institute of Health and Welfare (AIHW). 2017. *National Drug Strategy Household Survey 2016: Detailed Findings*. AIHW: Canberra. (<u>https://www.aihw.gov.au/getmedia/15db8c15-7062-4cde-bfa4-</u>3c2079f30af3/21028a.pdf.aspx?inline=true)

McVicar D, Moschion J and van Ours JC. 2015. From substance use to homelessness or vice versa? *Social Science & Medicine* 136: 89-98.

Appendix A: Questions on Illicit Drug Use included in Wave 16 DR

B23 The next two questions are about the use of drugs.

(These questions cover illicit drugs, inhalants, and pharmaceuticals used for non-medical purposes.)

(Cross X ONE box on EACH line)

In the past 12 months, how often did you use each of the following types of drugs?

					State of the state	A second second second		
		Every day	Once a week or more	2 or 3 timeS a month	About once a month	Every few months	Once or twice a year	Never
a	Marijuana/Cannabis (e.g., Pot, Grass, Weed, Hash, Ganja, Joint)			,			6	
b	Meth / amphetamine (e.g., Speed, Base, Ice, Crystal, Meth, Whizz)			ļ		<u> </u>		ļ
c	Cocaine (e.g., Coke, Crack, Flake, Snow, Freebase)					5	5	,
d	Ecstasy (e.g., XTC, F, Ex, Eccy, MDMA, PMA)					_	6	,
e	Heroin (e.g., Hammer, Smack, Horse, H, Junk)			<u> </u>		5	6	
f	Hallucinogens (e.g., Acid, Magic mushrooms, Angel dust)			ļ				ļ
g	Inhalants (e.g., Chroming, Sniffing, Solvents, Glue, Petrol, Bulbs)			\Box		5		Ļ
h	Pharmaceuticals used for <u>non-medical</u> purposes (e.g., Painkillers, Sleeping pills, Steroids, Methadone)		2			5	6	ļ
i	Any other illicit drug (e.g., GHB, Ketamine, K2, Synthetics)							7

B24 For each of the types of drugs listed below, indicate whether you have ever used it. If yes, then indicate the age you first used that type of drug and the age you last used it.

		Have y	/ou sed?	If "YES" indicate how old you were when you first used and when you last used				
		NO	YES	Age <u>first</u> used	Age last used			
a	Marijuana/Cannabis			years	years			
b	Meth / amphetamine			years	years			
с	Cocaine			years	years			
d	Ecstasy			years	years			
e	Heroin			years	years			
f	Hallucinogens			years	years			
g	Inhalants			years	years			
h	Pharmaceuticals used for <u>non-medical</u> purposes			years	years			
i	Any other illicit drug			years	years			

Appendix B: Questions on Illicit Drug Use included in Wave 17

B24 In the last 12 months, how often did you use each of the

following types of drugs?

		Every day	Once a week or more	2 or 3 times a month	About once a month	Every few months	Once or twice a year	Not at all
а	Marijuana/Cannabis (e.g., Pot, Grass, Weed, Hash, Ganja, Joint)						6	
b	Meth / amphetamine (e.g., Speed, Base, Ice, Crystal, Meth, Whizz) [Do <u>not</u> include the use of prescription amphetamines]		2	3	4	5	6	7
с	Cocaine (e.g., Coke, Crack, Flake, Snow, Freebase)		2		4	5	6	7
d	Ecstasy (e.g., XTC, E, Ex, Ecci, MDMA, PMA, Molly)					5	6	
e	Hallucinogens (e.g., Acid, LSD, Magic mushrooms, Angel dust)					5	6	
f	Inhalants (e.g., Chroming, Sniffing, Solvents, Glue, Petrol, Bulbs, Poppers)		2	3	4	5	6	7
g	Any other illicit drug (e.g., Heroin, GHB, Ketamine, K2, Synthetics)		2	3	4	5	6	7

B25 For each of the types of drugs listed below, indicate whether you have ever used it. If yes, then indicate the age you first used that type of drug and the age you last used it.

		Have ever	you used?	If "YES" indicate he you first used and w	ow old you were when hen you last used	
		NO	YES	Age <u>last</u> used		
а	Marijuana / Cannabis			years	years	
b	Meth / amphetamine		□ →	years	years	
с	Cocaine			years	years	
d	Ecstasy		□ ⇒	years	years	
e	Hallucinogens		□ ⇒	years	years	
f	Inhalants		□ ⇒	years	years	
g	Any other illicit drug		□ ⇒	years	years	

B26 In the last 12 months, how often did you use each of the following types of drugs for NON-MEDICAL purposes?

"NON-MEDICAL purposes" means a drug used: • by itself to induce a drug experience or feeling; • with other drugs to enhance a drug experience; or • for performance enhancement (e.g. athletic).		(Cross X ONE box on EACH line)							
		Every day	Once a week or more	2 or 3 times a month	About once a month	Every few months	Once or twice a year	Not at all	
а	Tranquilisers / Sleeping pills (e.g., Valium, Serepax, Mandrax, Stilnox, Xanax)					5	□		
b	Painkillers / Pain-relievers and Opioids (e.g., Codeine products, Morphine, Oxycodone, Methadone)		2			5	6	7	
С	Any stimulant medication (e.g., amphetamines, Ritalin, Concerta, Adipex-P, pseudoephedrine-based cold and flu tablets)	1	2	3	4	5	6	7	

(Cross X ONE box on EACH line)