SUPPLEMENTARY MATERIAL

Trends and differences in sexual practices and sexually transmitted infections in men who have sex with men only (MSMO) and men who have sex with men and women (MSMW): a repeated cross-sectional study in Melbourne, Australia.

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Table 31 Demographic characteristics and sexual practices among men who have sex with men only
and men who have sex with men and women attending a sexual health centre in Melbourne, 2011-
20182
Table S2 Temporal trend of the sexual practices among men who have sex with men only attending a sexual health centre in Melbourne, 2011-2018
Table S3 Temporal trend of the sexual practices among men who have sex with men and women attending a sexual health centre in Melbourne, 2011-2018
Table S4 Temporal trend of the positivity for sexually transmitted infections and HIV among men who have sex with men only attending a sexual health centre in Melbourne, 2011-2018
Table S5 Temporal trend of the positivity for sexually transmitted infections and HIV among men who have sex with men and women attending a sexual health centre in Melbourne, 2011-2018
Table S6 Positivity for gonorrhoea, chlamydia, syphilis and HIV among men who have sex with men only and men who have sex with men and women attending a sexual health centre in Melbourne,
2011-2018

Table S1 Demographic characteristics and sexual practices among men who have sex with men only and men who have sex with men and women attending a sexual health centre in Melbourne, 2011-2018.

	MSMO (N=12,795)	MSMW- M (N=804)	MSMW- W (N=839)	Comparison across three groups	Comparison between MSMW-M and MSM-W
	n (%)	n (%)	n (%)	P value	P value
Age (years), median(IQR)	n (%) 27 (23-33)	29 (24-39)	28 (24-36)	< 0.001	0.845
Country of birth				< 0.001	0.167
Australia	6,208 (48.5)	465 (57.8)	452 (53.9)		
Overseas	6,110 (47.8)	297 (36.9)	348 (41.5)		
No information	477 (3.7)	42 (5.2)	39 (4.5)		
Aboriginal and Torres Strait				0.280	0.254
Islander Status				0.200	0.23 1
Indigenous origin	150 (1.2)	10 (1.2)	5 (0.6)		
Non-Indigenous origin	11,595 (90.6)	715 (88.9)	762 (90.8)		
No information	1,050 (8.2)	79 (9.8)	72 (8.6)		
Sex overseas in the past 12				< 0.001	0.002
months				.0.001	0.002
Yes	4,415 (34.5)	278 (34.6)	361 (43.0)		
No	7,571 (59.2)	470 (58.5)	433 (51.6)		
No information	809 (6.3)	56 (7.0)	45 (5.4)		
Sex work during lifetime				0.454	0.722
Yes	71 (0.6)	7 (0.9)	6 (0.7)		
No	12,724 (99.4)	797 (99.1)	833 (99.3)		
Injected drug use in past 12 months				< 0.001	0.777
Yes	211 (1.6)	17 (2.1)	21 (2.5)		
No	12,363 (96.6)	763 (95.7)	797 (97.5)		
No information	221 (1.7)	17 (2.1)	21 (2.5)		
Number of male and female					
sexual partners in the past 12 months, median (IQR)	5 (3-10)	7 (5-12)	6 (4-11)	< 0.001	<0.001
Number of male sexual partners					
in the past 12 months, median (IQR)	5 (3-10)	5 (3-10)	1 (1-2)	< 0.001	< 0.001
Number of female sexual					
partners in the past 12 months,	NA	1 (1-2)	5 (3-8)	NA	< 0.001
median (IQR)		- ()	- ()		
Regular sexual partner				NA	< 0.001
No regular partner	7,513 (58.7)	433 (53.9)	453 (54.1)		
Regular male partner	5,132 (40.1)	138 (17.2)	11 (1.3)		
Regular female partner	NA	195 (24.3)	350 (41.7)		
Regular female and male partner	NA	37 (4.6)	23 (2.7)		
No information	150 (1.2)	1 (0.1)	2 (0.2)		
Anal sexual practice with regular		()	()	40.001	0.001
male partners ^a				< 0.001	0.001
Receptive only	435 (8.5)	10 (5.7)	2 (5.7)		
Insertive only	465 (9.1)	13 (7.4)	0 (0)		
Receptive and insertive	3,921 (76.4)	145 (82.4)	26 (74.3)		
No anal sex	234 (4.6)	6 (3.4)	2 (5.7)		
No information	79 (1.5)	2 (1.1)	5 (14.3)		
Condom use with regular male	· ·-/	/	,		
partners in the past 12 months				0.150	0.275
for receptive anal sex ^{b*}					
Always	1,241 (28.5)	50 (32.3)	12 (42.9)		
		105 (67.7)	16 (57.1)		
Not always	3,115 (71.5)				
Not always	3,113 (71.5)				
Not always Condom use with regular male	3,115 (/1.5)	()		0.142	0.935
Not always	3,113 (71.5)	()		0.142	0.935
Not always Condom use with regular male partners in the past 12 months	3,113 (71.5) 1,254 (28.6)	56 (35.4)	9 (34.6)	0.142	0.935

Vaginal or anal sex with regular female partner ^d				NA	0.903
Yes	NA	223 (96.1)	361 (96.8)		
No	NA NA	4 (1.7)	5 (1.3)		
No information	NA NA	5 (2.2)	7 (1.9)		
Condom use with regular female	1471	3 (2.2)	7 (1.5)		
partners in the past 12				NA	0.551
months ^{e*}				1471	0.551
Always	NA	42 (18.8)	61 (16.9)		
Not always	NA	181 (81.2)	300 (83.1)		
Casual sexual partner		- ()	(,	NA	< 0.001
No casual partner	806 (6.3)	0	0		
Casual male partner(s)	11,969 (93.5)	112 (13.9)	0		
Casual female partner(s)	NA	Ò	19 (2.3)		
Casual female and male	NA	602 (96.1)	920 (07.7)		
partner(s)	INA	692 (86.1)	820 (97.7)		
No information	20(0.2)	0	0		
Anal sexual practice with casual				< 0.001	< 0.001
male partners				\0.001	\0.001
Receptive only	1,262 (9.9)	45 (5.6)	64 (7.6)		
Insertive only	1,344 (10.5)	116 (14.4)	119 (14.2)		
Receptive and insertive	7,835 (61.2)	524 (65.2)	407 (48.5)		
No anal sex	1,692 (13.2)	108 (13.4)	210 (25.0)		
No information	662 (5.2)	11 (1.4)	39 (4.6)		
Condom use with casual male					
partners in the past 12 months				0.004	0.004
for receptive anal sex ^{f*}					
Always	4,207 (46.2)	256 (45.0)	254 (53.9)		
Not always	4,890 (53.8)	313 (55.0)	217 (46.1)		
Condom use with casual male					0.004
partners in the past 12 months				0.003	0.001
for insertive anal sex ^{g*}	1.256 (16.6)	255 (42.0)	250 (52.0)		
Always	4,276 (46.6)	275 (43.0)	278 (52.9)		
Not always	4,903 (53.4)	365 (57.0)	248 (47.1)		
Vaginal or anal sex with casual				-	< 0.001
female partner Yes	NA	658 (81.8)	799 (95.2)		
No	NA NA	19 (2.4)	24 (2.9)		
No information	NA NA	19 (2.4)	16 (1.9)		
Condom use with casual female	IVA	127 (13.6)	10 (1.9)		
partners in the past 12 months ^{h*}				-	< 0.001
Always	NA	257 (39.1)	195 (24.4)		
Not always	NA NA	401 (60.9)	604 (75.6)		
1101 aiways	11/1	701 (00.3)	007 (13.0)		

Note. NA: Not applicable; IQR: Interquartile range; MSM: men who have sex with men; MSMO: men who have sex with men only; MSMW-W: men who have sex with men and women and had more female than male sexual partner in the past 12 months; MSMW-M: men who have sex with men and women and had more male than female sexual partner in the past 12 months; aOnly including MSM with regular male partners or regular male and female partners; Only including MSM that referred receptive only or receptive and insertive anal sex with regular male partners; Only including MSM with regular female partners or regular male and female partners; Only including MSM with regular female partners; Only including MSM that referred receptive only or receptive and insertive anal sex with casual male partners; Only including MSM that referred receptive only or receptive and insertive anal sex with casual male partners; Only including MSM that referred insertive only or receptive and insertive anal sex with casual male partners, Only including MSM that referred vaginal or anal sex with casual female partners; Total ways was defined as men who sometimes, usually or never used a condom with their sexual partners in the past 12 months (with female partners for vaginal and/or anal sex, with male partners for anal sex).

Table S2 Temporal trend of the sexual practices among men who have sex with men only attending a sexual health centre in Melbourne, 2011-2018.

	20	2011 2012		20	2013		2014		2015		2016		2017		2018		
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	$P_{trend} \\$
Number of sexual par	rtners in the	past 12 r	nonths														0.002
<5	515	49.2	598	46.6	645	45.4	626	43.7	686	41.4	802	42.8	859	44.3	934	43.6	-
≥5	532	50.8	684	53.4	777	54.6	807	56.3	972	58.6	1070	57.2	1079	55.7	1209	56.4	-
Condom use with reg	ular male p	artners in	the past	12 montl	ns*												< 0.001
Always	134	30.8	164	31.2	160	30.0	142	26.3	167	27.6	201	28.5	139	19.4	165	21.6	-
Not always	301	69.2	362	68.8	373	70.0	398	73.7	437	72.4	504	71.5	576	80.6	598	78.4	-
Anal sexual practice v	with casual	male part	ners														
Receptive only	74	7.5	109	9.1	109	8.1	140	10.3	151	9.5	196	11.0	218	11.8	265	13.0	< 0.001
Insertive only	98	10.0	133	11.0	153	11.4	150	11.1	178	11.3	205	11.5	194	10.5	233	11.4	0.580
Receptive and insertive	634	64.5	750	62.3	847	63.3	877	64.6	1050	66.4	1177	66.2	1207	65.2	1293	63.4	0.396
No anal sex	177	18.0	212	17.6	229	17.1	190	14.0	203	12.8	201	11.3	233	12.6	247	12.1	< 0.001
Condom use with case	ual male pa	rtners in	the past 1	12 months	s for rece	eptive ana	l sex*										< 0.001
Always	381	53.8	480	55.9	523	54.7	522	51.3	576	48.0	596	43.4	557	39.1	572	36.7	-
Not always	327	46.2	379	44.1	433	45.3	495	48.7	625	52.0	777	56.6	868	60.9	986	63.3	-
Condom use with case	ual male pa	rtners in	the past 1	12 months	s for inse	rtive anal	sex*										< 0.001
Always	397	54.2	489	55.4	531	53.1	526	51.2	607	49.4	620	44.9	559	39.9	547	35.8	-
Not always	335	45.8	394	44.6	469	46.9	501	48.8	621	50.6	762	55.1	842	60.1	979	64.2	-

^{* &#}x27;Not always' was defined as men who sometimes, usually or never used a condom with their sexual partners in the past 12 months (with female partners for vaginal or anal sex, with male partners for anal sex).

Supplemental material

Table S3 Temporal trend of the sexual practices among men who have sex with men and women attending a sexual health centre in Melbourne, 2011-2018.

	2	2011	2	2012	2	2013	2	2014	2	015	2	016	20)17	2	2018	2011- 18
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	P_{trend}
Number of sexual pa months	rtners past	12															0.014
<5	62	36.9	66	36.7	95	39.4	82	34.9	94	36.4	90	31.5	94	32.9	97	29.8	-
≥5	106	63.1	114	63.3	146	60.6	153	65.1	164	63.6	196	68.5	192	67.1	228	70.2	-
Number of male sexu	ıal partners	past 12 n	nonths														0.106
< 5	122	72.6	129	71.7	172	71.4	167	71.1	195	75.6	205	71.7	202	70.6	212	65.2	-
≥5	46	27.4	51	28.3	69	28.6	68	28.9	63	24.4	81	28.3	84	29.4	113	34.8	-
Number of female se	xual partne	rs past 12	months														0.039
<5	129	76.8	133	73.9	185	76.8	179	76.2	185	71.7	204	71.3	206	72.0	229	70.5	-
≥5	39	23.2	47	26.1	56	23.2	56	23.8	73	28.3	82	28.7	80	28.0	96	29.5	-
Condom use with reg	gular male p	oartners i	n the pas	t 12 mont	hs*												0.435
Always	11	45.8	5	21.7	13	39.4	13	39.4	9	37.5	9	29.0	10	26.3	14	35.9	-
Not always	13	54.2	18	78.3	20	60.6	20	60.6	15	62.5	22	71.0	28	73.7	25	64.1	-
Anal sexual practice	with casual	male par	tners														
Receptive only	6	3.8	11	6.3	15	6.6	13	5.7	17	7.0	26	9.4	16	5.8	27	8.7	0.068
Insertive only	19	11.9	25	14.4	32	14.1	27	11.8	41	16.8	43	15.5	43	15.6	52	16.8	0.107
Receptive and insertive	86	54.1	96	55.2	128	56.4	136	59.4	132	54.1	149	53.8	151	54.7	182	58.9	0.670
No anal sex	48	30.2	42	24.1	52	22.9	53	23.1	54	22.1	59	21.3	66	23.9	48	15.5	0.003
Condom use with cas	sual male pa	artners in	the past	12 month	s for rec	eptive ana	al sex*										0.011
Always	54	58.7	54	50.5	74	51.7	77	51.7	81	54.4	90	51.4	79	47.3	88	42.1	-
Not always	38	41.3	53	49.5	69	48.3	72	48.3	68	45.6	85	48.6	88	52.7	121	57.9	-
Condom use with cas	sual male pa	artners in	the past	12 month	s for ins	ertive ana	l sex*										0.087
Always	52	49.5	60	49.6	79	49.4	76	46.6	101	58.4	100	52.1	83	42.8	98	41.9	-
Not always	53	50.5	61	50.4	81	50.6	87	53.4	72	41.6	92	47.9	111	57.2	136	58.1	-
Condom use with reg	gular female	e partners	in the p	ast 12 mo	nths*												0.837
Always	16	22.5	16	22.2	8	10.0	10	13.2	17	18.9	22	18.2	19	18.6	24	20.5	-
Not always	55	77.5	56	77.8	72	90.0	66	86.8	73	81.1	99	81.8	83	81.4	93	79.5	-
Condom use with cas	sual female	partners i	in the pa	st 12 mon	ths*												0.056

Always	46	34.6	54	36.2	74	35.2	65	32.2	74	33.6	82	32.9	73	29.6	80	29.0	-	
Not always	87	65.4	95	63.8	136	64.8	137	67.8	146	66.4	167	67.1	174	70.4	196	71.0	-	

^{* &#}x27;Not always' was defined as men who sometimes, usually or never used a condom with their sexual partners in the past 12 months (with female partners for vaginal or anal sex, with male partners for anal sex).

Table S4 Temporal trend of the positivity for sexually transmitted infections and HIV among men who have sex with men only attending a sexual health centre in Melbourne, 2011-2018.

2012 20	13 2014	2015	2016	2017	2018	2011- 2014	2015- 2018	2011- 2018
n/N (%) n/N	(%) n/N (%)	n/N (%)	n/N (%)	n/N (%)	n/N (%)	P_{trend}	P_{trend}	P_{trend}
28/1,164 43/1 (2.4) (3.	•	122/1,539 (7.9)	130/1,709 (7.6)	154/1,803 (8.5)	145/1,975 (7.3)	0.037	0.755	NA
36/1,155 47/1 (3.1) (3.	,291 40/1,325	56/1,528 (3.7)	55/1,691 (3.3)	63/1,782 (3.5)	55/1,966 (2.8)	0.364	0.215	NA
42/1,082 70/1 (3.9) (5.	,209 71/1,260	, ,	115/1,591 (7.2)	132/1,686 (7.8)	162/1,899 (8.5)	0.001	0.954	NA
81/1,178 122/1 (6.9) (9.	,324 130/1,349		220/1,738 (12.7)	241/1,826 (13.2)	246/1,998 (12.3)	0.002	0.261	NA
	, , ,	,	,	,	,			
43/1,155 48/1 (3.7) (3.	, , , , , , , , , , , , , , , , , , ,	68/1,528 (4.5)	64/1,691 (3.8)	51/1,782 (2.9)	68/1,966 (3.5)	0.652	0.067	NA
80/1,081 108/, (7.4) (8.	1210 97/1,254	126/1,412 (8.9)	164/1,589 (10.3)	162/1,681 (9.6)	189/1,894 (10.0)	0.282	0.489	NA
114/1,178 142/1 (9.7) (10	<i>'</i>	` /	199/1,721 (11.6)	196/1,806 (10.9)	229/1,982 (11.6)	0.436	0.869	NA
79/1129 73/1	,290 80/1,313	103/1,517 (6.8)	130/1,671 (7.8)	137/1,702 (8.0)	152/1,917 (7.9)	-	-	0.012
36/1,092 22/1	,250 35/1,269	29/1,481	35/1,608	38/1,647	45/1,855	-	-	0.488
36/1,0 (3.3)92 22/1.) (1.) 22/1,250 35/1,269) (1.8) (2.8)) (1.8) (2.8) (2.0))92 22/1,250 35/1,269 29/1,481 35/1,608) (1.8) (2.8) (2.0) (2.2)	092 22/1,250 35/1,269 29/1,481 35/1,608 38/1,647) (1.8) (2.8) (2.0) (2.2) (2.3)	092 22/1,250 35/1,269 29/1,481 35/1,608 38/1,647 45/1,855) (1.8) (2.8) (2.0) (2.2) (2.3) (2.4)	092 22/1,250 35/1,269 29/1,481 35/1,608 38/1,647 45/1,855) (1.8) (2.8) (2.0) (2.2) (2.3) (2.4)	92 22/1,250 35/1,269 29/1,481 35/1,608 38/1,647 45/1,855

Note. *n* represents de number of MSM with a positive result and *N* the number of MSM tested. NA: not applicable; MSM: men who have sex with men; *Before 2015, urethral gonorrhoea testing was only performed among symptomatic MSM with urethral symptoms or self-reported as contact of infection. The number of people tested corresponds to the number of people tested for urethral chlamydia; † Any anatomical site for gonorrhoea includes urethral, anorectal and oropharyngeal; while any site for chlamydia includes urethral and anorectal; ‡ Only including HIV cases diagnosed on the day of the first visit.

Table S5 Temporal trend of the positivity for sexually transmitted infections and HIV among men who have sex with men and women attending a sexual health centre in Melbourne, 2011-2018.

	2011	2012	2013	2014	2015	2016	2017	2018	2011- 2014	2015- 2018	2011- 2018
	n/N (%)	n/N (%)	n/N (%)	$\mathbf{P}_{\text{trend}}$	$\mathbf{P}_{\text{trend}}$	$P_{\text{trend}} \\$					
Gonorrhoea											
Oropharyngeal	1/150 (0.7)	2/154 (1.3)	7/209 (3.3)	3/209 (1.4)	14/220 (6.4)	12/238 (5.0)	17/246 (6.9)	12/285 (4.2)	0.387	0.448	NA
$\mathit{Urethral}^*$	3/163 (1.8)	5/172 (2.9)	9/230 (3.8)	6/219 (2.7)	7/247 (2.8)	10/271 (3.7)	7/275 (2.5)	5/308 (1.6)	0.539	0.241	NA
Anorectal	4/128 (3.1)	5/122 (4.1)	4/172 (2.3)	4/172 (2.3)	6/173 (3.5)	14/191 (7.3)	12/207 (5.8)	9/239 (3.8)	0.492	0.784	NA
Any anatomical site [†]	7/153 (4.6)	9/160 (5.7)	15/225 (6.8)	13/218 (6.1)	20/232 (8.7)	27/267 (10.3)	27/293 (9.6)	22/330 (7.1)	0.530	0.304	NA
Chlamydia											
$\mathit{Urethral}^*$	4/163 (2.5)	11/172 (6.4)	12/230 (5.2)	5/219 (2.3)	10/247 (4.0)	12/271 (4.4)	6/275 (2.2)	13/308 (4.2)	0.667	0.778	NA
Anorectal	10/128 (7.8)	9/122 (7.4)	6/173 (3.5)	4/172 (2.3)	10/173 (5.8)	11/191 (5.8)	14/206 (6.8)	19/239 (7.9)	0.010	0.320	NA
Any anatomical site [†]	14/165 (8.5)	15/173 (8.7)	17/233 (7.3)	9/227 (4.0)	19/249 (7.6)	21/273 (7.7)	17/277 (6.1)	29/310 (9.4)	0.057	0.627	NA
Syphilis	1/112 (0.9)	4/166 (2.4)	6/223 (2.7)	13/211 (6.2)	7/238 (2.9)	19/259 (7.3)	12/265 (4.5)	19/299 (6.4)	-	-	0.004
HIV (new diagnosis) ‡	1/140 (0.7)	3/166 (1.8)	1/222 (0.5)	1/205 (0.5)	2/237 (0.8)	0/252 (0.0)	1/258 (0.4)	1/294 (0.3)	-	-	0.127

Note. *n* represents de number of MSM with a positive result and *N* the number of MSM tested; NA: not applicable; MSM: men who have sex with men;*Before 2015, urethral gonorrhoea testing was only performed among symptomatic MSM with urethral symptoms or self-reported as contact of infection. The number of people tested corresponds to the number of people tested for urethral chlamydia; † Any anatomical site for gonorrhoea includes urethral, anorectal and oropharyngeal; while any site for chlamydia includes urethral and anorectal; ‡ Only including HIV cases diagnosed on the day of the first visit.

Supplemental material

	MSMO	MSMW-M	MSMW-W	Comparison across three groups	Comparison between MSMW-M and MSM- W
	n/N (%)	n/N (%)	n/N (%)	P value	P value
Gonorrhoea					
Oropharyngeal	682/11,810 (5.8)	44/756 (5.8)	18/676 (2.7)	0.003	0.003
$Urethral^*$	390/11,699 (3.3)	25/771 (3.2)	23/801 (2.9)	0.775	0.669
Rectum	745/11,080 (6.7)	40/682 (5.9)	14/515 (2.7)	0.001	0.009
Any anatomical site	1321/11,951 (11.1)	83/771 (10.8)	45/756 (6.0)	< 0.001	0.001
Chlamydia					
Urethral	410/11,699 (3.5)	27/771 (3.5)	37/801 (4.6)	0.257	0.262
Anorectal	989/11,043 (9.0)	56/683 (8.2)	16/514 (3.1)	< 0.001	< 0.001
Any anatomical site [†]	1272/11,891 (10.7)	74/779 (9.5)	49/812 (6.0)	< 0.001	0.010
Syphilis	797/11,317 (7.0)	36/737 (4.9)	25/744 (3.4)	< 0.001	0.140
HIV (new diagnosis) [‡]	262/11,102 (2.4)	7/738 (0.9)	3/749 (0.4)	< 0.001	0.196
HIV (previous	316/12,795 (2.5)	,	, ,		0.051
positive)		6/804 (0.7)	1/839 (0.1)	< 0.001	

Note. *n* represents de number of MSM with a positive result and *N* the number of MSM tested. MSM: men who have sex with men; *Before 2015, urethral gonorrhoea testing was only performed among symptomatic MSM with urethral symptoms or self-reported as contact of infection. The number of people tested corresponds to the number of people tested for urethral chlamydia; † Any anatomical site for gonorrhoea includes urethral, anorectal and oropharyngeal; while any site for chlamydia includes urethral and anorectal; ‡ Only including HIV cases diagnosed on the day of the first visit.