

SUPPLEMENTARY FILE

Supplementary Methods

Covariate Variables

We included the following demographic covariates: age group (18-24, 25-39, 40+ years), country of birth (born in Ireland, born outside Ireland), area of residence (Dublin, outside Dublin), education level (degree level or higher, lower than degree level), employment status (employed, unemployed, student, other). Other variables included: sexual identity (gay, bisexual, straight/other); outness (out to all/almost all, more than half, less than half, few, none); HIV testing history (tested positive, last test negative less than 12 months ago, last test negative more than 12 months ago, never tested); history of an STI in the last 12 months (no/don't know, yes) and knowledge of HIV status (sure of status, unsure of status).

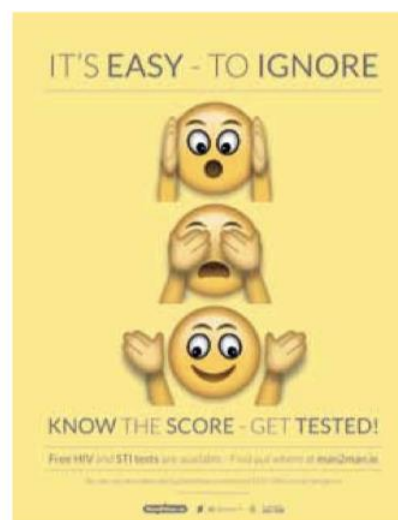
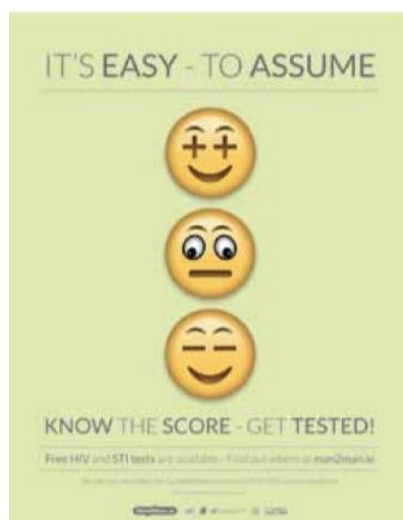
Infographics

Infographic 1: Hepatitis B



Infographic 2: Gonorrhoea



Infographic 3: Condom use**Infographic 4: HIV/STI testing**

Supplementary Results

Secondary Outcome Measure

The secondary analysis included 3,017 participants who answered all six questions about HIV/STI transmission (Table 4). From the multivariable analysis, significantly lower levels of knowledge were identified among those aged 18-24 years (aOR 1.41 95%CI 1.09-1.82), those educated below degree level (aOR 1.37 95%CI 1.16-1.62), those born in Ireland (aOR 1.60 95%CI 1.26-2.02) and students (aOR 1.35 95%CI 1.07-1.71). Furthermore, lower knowledge was identified among those who were unsure of their HIV status (aOR 1.31 95%CI 1.11-1.55), those out to few of their contacts (aOR 1.29 95%CI 1.01-1.64), those who never tested for HIV (aOR 2.01 95%CI 1.64-2.345) and those who had never visited the Man2Man health promotion website (aOR 1.86 95%CI 1.53-2.27).

Supplementary Tables

Supplemental Table 1: Breakdown of responses for each knowledge statement

| Statement Number | I Knew this already | I was not sure about this | I did not know this already | I did not know this already | I do not understand this |
|------------------|---------------------|---------------------------|-----------------------------|-----------------------------|--------------------------|
| 1 | 2823 | 57 | 12 | 7 | 6 |
| 2 | 2794 | 57 | 20 | 12 | 22 |
| 3 | 2839 | 44 | 11 | 2 | 9 |
| 4 | 2354 | 325 | 199 | 5 | 22 |
| 5 | 2706 | 142 | 22 | 3 | 32 |
| 6 | 2723 | 134 | 38 | 4 | 6 |
| 7 | 1970 | 523 | 284 | 19 | 109 |
| 8 | 2232 | 457 | 151 | 3 | 62 |
| 9 | 2391 | 385 | 115 | 1 | 13 |
| 10 | 2745 | 110 | 37 | 5 | 8 |
| 11 | 2387 | 367 | 140 | 4 | 7 |
| 12 | 1587 | 549 | 723 | 19 | 27 |
| 13 | 1865 | 598 | 397 | 13 | 32 |

Supplemental Table 2: Number of men knowing each number of knowledge statements

| Number of Statements known | Number of Men (%) | Cumulative % |
|----------------------------|-------------------|--------------|
| 0 | 3 (<1) | <1 |
| 1 | 6 (<1) | <1 |
| 2 | 8 (<1) | <1 |
| 3 | 17 (<1) | 1 |
| 4 | 21 (<1) | 2 |
| 5 | 38 (1) | 3 |
| 6 | 64 (2) | 5 |
| 7 | 108 (4) | 9 |
| 8 | 156 (5) | 14 |
| 9 | 281 (10) | 24 |
| 10 | 353 (12) | 36 |
| 11 | 461 (16) | 52 |
| 12 | 506 (17) | 70 |
| 13 | 883 (30) | 100 |

Supplemental Table 3: Univariable and multivariable analysis of lower knowledge of HIV and STI transmission among MSM in Ireland, MISI 2015

| | Number with Lower Knowledge (%) | Univariable Analysis 95% Confidence | | | Multivariable Analysis 95% Confidence | | |
|--|---------------------------------|-------------------------------------|-------------|---------|---------------------------------------|--------------------|------------------|
| | | OR | Interval | P Value | aOR | Interval | P Value |
| Age group (years) | | | | | | | |
| >40 | 305 (37) | 1 | Ref | - | 1 | Ref | - |
| 25-39 | 472 (38) | 1.03 | (0.86-1.24) | 0.731 | 1.17 | (0.95-1.43) | 0.137 |
| 18-24 | 515 (55) | 2.05 | (1.69-2.48) | <0.001 | 1.41 | (1.09-1.82) | 0.009 |
| Education | | | | | | | |
| Degree or higher | 575 (36) | 1 | Ref | - | 1 | Ref | - |
| Less than degree | 685 (50) | 1.80 | (1.55-2.08) | <0.001 | 1.37 | (1.16-1.62) | <0.001 |
| Area of Residence * | | | | | | | |
| Dublin | 537 (39) | 1 | Ref | - | 1 | Ref | - |
| Outside Dublin | 679 (47) | 1.39 | (1.20-1.62) | <0.001 | 1.04 | (0.88-1.23) | 0.633 |
| Missing | 76 (37) | 0.92 | (0.68-1.24) | 0.582 | 0.81 | (0.59-1.13) | 0.214 |
| Employment | | | | | | | |
| Employed | 731 (38) | 1 | Ref | - | 1 | Ref | - |
| Unemployed | 100 (50) | 1.63 | (1.22-2.18) | 0.001 | 1.29 | (0.94-1.76) | 0.117 |
| Student | 374 (55) | 2.07 | (1.73-2.47) | <0.001 | 1.35 | (1.07-1.71) | 0.01 |
| Other ^ψ | 56 (44) | 1.29 | (0.90-1.86) | 0.161 | 1.35 | (0.91-2.00) | 0.136 |
| Country Born | | | | | | | |
| Outside Ireland | 136 (32) | 1 | Ref | - | 1 | Ref | - |
| Ireland | 1150 (45) | 1.70 | (1.37-2.12) | <0.001 | 1.60 | (1.26-2.02) | <0.001 |
| Sexual Identity | | | | | | | |
| Gay | 963 (41) | 1 | Ref | - | 1 | Ref | - |
| Bisexual | 196 (49) | 1.39 | (1.06-1.83) | 0.018 | 0.91 | (0.70-1.18) | 0.487 |
| Straight/Other | 111 (49) | 1.59 | (0.86-2.92) | 0.139 | 0.87 | (0.64-1.18) | 0.368 |
| Outness Level | | | | | | | |
| Out to all/almost all | 569 (38) | 1 | Ref | - | 1 | Ref | - |
| More than Half | 196 (45) | 1.34 | (1.08-1.66) | 0.008 | 1.19 | (0.94-1.49) | 0.149 |
| Less than Half | 111 (42) | 1.20 | (0.92-1.57) | 0.177 | 0.99 | (0.74-1.33) | 0.968 |
| Few | 236 (50) | 1.64 | (1.34-2.03) | <0.001 | 1.29 | (1.01-1.64) | 0.04 |
| None | 140 (54) | 1.94 | (1.48-2.52) | <0.001 | 1.34 | (0.97-1.85) | 0.073 |
| HIV Testing History | | | | | | | |
| Negative <12 months | 374 (33) | 1 | Ref | - | 1 | Ref | - |
| Negative >12 months | 226 (37) | | | | 1.08 | (0.86-1.34) | 0.505 |
| Positive | 26 (17) | 0.41 | (0.26-0.63) | <0.001 | 0.49 | (0.31-0.77) | 0.002 |
| Never Tested | 655 (60) | 2.88 | (2.46-3.36) | <0.001 | 2.01 | (1.64-2.35) | <0.001 |
| STI in last 12m | | | | | | | |
| No/Don't Know | 1200 (44) | 1 | Ref | - | 1 | Ref | - |
| Yes | 84 (30) | 0.53 | (0.41-0.69) | <0.001 | 0.85 | (0.63-1.13) | 0.261 |
| Certainty re HIV Status | | | | | | | |
| Sure of HIV Status | 803 (40) | 1 | Ref | - | 1 | Ref | - |
| Unsure of HIV Status | 480 (49) | 1.46 | (1.25-1.70) | <0.001 | 1.31 | (1.11-1.55) | 0.001 |
| Visited Man2Man Website | | | | | | | |
| Visited | 230 (29) | 1 | Ref | - | 1 | Ref | - |
| Not visited | 1034 (47) | 2.16 | (1.81-2.57) | <0.001 | 1.86 | (1.53-2.27) | <0.001 |
| Viewed one or more HP Infographics+ | | | | | | | |
| Viewed | 584 (38) | 1 | Ref | - | 1 | Ref | - |
| Not Viewed | 668 (47) | 1.44 | (1.25-1.67) | <0.001 | 1.17 | (0.99-1.39) | 0.063 |

*Variable with >5% missing data

^ψ Other includes: retired; sick leave; medically retired & other

+HP, health promotion

Supplemental Table 4: Univariable and multivariable sensitivity analysis of lower knowledge of HIV and STI transmission, testing and treatment among HIV negative MSM in Ireland, MISI 2015

| | Number with Lower Knowledge (%) | Univariable Analysis | | | Multivariable Analysis | | |
|--|---------------------------------|----------------------|-------------------------|---------|------------------------|-------------------------|--------------|
| | | OR | 95% Confidence Interval | P Value | aOR | 95% Confidence Interval | P Value |
| Age group (years) | | | | | | | <0.001 |
| >40 | 226 (31) | 1 | Ref | - | 1 | Ref | - |
| 25-39 | 350 (31) | 0.97 | (0.79 – 1.19) | 0.77 | 1.27 | (1.01 – 1.60) | 0.04 |
| 18-24 | 466 (51) | 2.32 | (1.89 – 2.85) | <0.001 | 2.02 | (1.52 – 2.67) | <0.001 |
| Education | | | | | | | <0.001 |
| Degree or higher | 422 (29) | 1 | Ref | - | 1 | Ref | - |
| Less than a degree | 597 (48) | 2.23 | (1.90 – 2.61) | <0.001 | 1.62 | (1.35 – 1.93) | <0.001 |
| Area of Residence * | | | | | | | 0.072 |
| Dublin | 397 (32) | 1 | Ref | - | 1 | Ref | - |
| Outside Dublin | 584 (44) | 1.68 | (1.43 – 1.97) | <0.001 | 1.20 | (1.00 – 1.44) | 0.042 |
| Missing | 61 (36) | 1.20 | (0.86 – 1.67) | 0.29 | 1.02 | (0.71 – 1.47) | 0.90 |
| Employment | | | | | | | 0.14 |
| Employed | 570 (32) | 1 | Ref | - | 1 | Ref | - |
| Unemployed | 81 (46) | 1.77 | (1.29 – 2.41) | <0.001 | 1.20 | (0.85 – 1.69) | 0.30 |
| Student | 321 (50) | 2.10 | (1.75 – 2.52) | <0.001 | 1.10 | (0.86 – 1.42) | 0.43 |
| Other ^ψ | 49 (43) | 1.62 | (1.10 – 2.38) | 0.01 | 1.67 | (1.09 – 2.55) | 0.019 |
| Country of Birth | | | | | | | <0.001 |
| Outside Ireland | 104 (27) | 1 | Ref | - | 1 | Ref | - |
| Ireland | 933 (40) | 1.78 | (1.40 – 2.26) | <0.001 | 1.62 | (1.25 – 2.11) | <0.001 |
| Sexual Identity | | | | | | | 0.72 |
| Gay | 748 (35) | 1 | Ref | - | 1 | Ref | - |
| Bisexual | 184 (48) | 1.70 | (1.37 – 2.12) | <0.001 | 1.01 | (0.77 – 1.32) | 0.96 |
| Straight/Other | 95 (45) | 1.53 | (1.15 – 2.04) | 0.004 | 0.83 | (0.59 – 1.16) | 0.27 |
| Outness Level | | | | | | | 0.004 |
| Out to all/almost all | 425 (32) | 1 | Ref | - | 1 | Ref | - |
| More than Half | 153 (38) | 1.31 | (1.04 – 1.66) | 0.02 | 1.15 | (0.89 – 1.48) | 0.29 |
| Less than Half | 92 (37) | 1.29 | (0.97 – 1.71) | 0.08 | 1.03 | (0.76 – 1.42) | 0.84 |
| Few | 206 (46) | 1.88 | (1.51 – 2.34) | <0.001 | 1.43 | (1.10 – 1.85) | 0.007 |
| None | 136 (54) | 2.53 | (1.92 – 3.32) | <0.001 | 1.76 | (1.26 – 2.47) | <0.001 |
| HIV Testing History | | | | | | | <0.001 |
| Negative in < 12 months | 267 (25) | 1 | Ref | - | 1 | Ref | - |
| Negative in > 12 months | 166 (28) | 1.22 | (0.98 – 1.54) | 0.08 | 1.14 | (0.89 – 1.46) | 0.30 |
| Never Tested | 598 (56) | 3.96 | (3.30 – 4.76) | <0.001 | 2.30 | (1.86 – 2.85) | <0.001 |
| STI in last 12m | | | | | | | 0.63 |
| No/Don't Know | 978 (39) | 1 | Ref | - | 1 | Ref | - |
| Yes | 57 (24) | 0.49 | (0.36 – 0.67) | <0.001 | 0.85 | (0.60 – 1.19) | 0.33 |
| Certainty of HIV Status | | | | | | | 0.001 |
| Sure of HIV Status | 636 (35) | 1 | Ref | - | 1 | Ref | - |
| Unsure of HIV Status | 399 (43) | 1.38 | (1.17 – 1.62) | <0.001 | 1.34 | (1.12 – 1.60) | 0.001 |
| Visited Man2Man Website | | | | | | | <0.001 |
| Visited | 173 (24) | 1 | Ref | - | 1 | Ref | - |
| Not visited | 847 (42) | 2.28 | (1.88 – 2.76) | <0.001 | 1.87 | (1.50 – 2.33) | <0.001 |
| Viewed one or more HP Infographics+ | | | | | | | 0.07 |
| Viewed | 460 (33) | 1 | Ref | - | 1 | Ref | - |
| Not Viewed | 545 (42) | 1.46 | (1.25 – 1.71) | <0.001 | 1.16 | (0.96 – 1.39) | 0.12 |

*Variable with >5% missing data

^ψ Other includes: retired; sick leave; medically retired & other

+HP, health promotion

Supplemental Table 5: Baseline characteristics of study sample and excluded men

| | | |
|--------------------------------|-----------|----------|
| Age | | |
| 18-24 | 914 (31) | 51 (28) |
| 25-39 | 1205 (42) | 71 (38) |
| >40 | 786 (27) | 63 (34) |
| Education | | |
| Degree | 1541 (53) | 85 (46) |
| Less than a Degree | 1306 (45) | 91 (49) |
| Missing | 58 (2) | 9 (5) |
| Employment | | |
| Employed | 1882 (65) | 110 (59) |
| Unemployed | 190 (7) | 15 (8) |
| Student | 653 (22) | 40 (22) |
| Other ψ | 122 (4) | 12 (7) |
| Missing | 52 (2) | 8 (4) |
| Area of Residence * | | |
| Dublin | 1329 (46) | 67 (36) |
| Outside Dublin | 1392 (48) | 87 (47) |
| Missing | 184 (6) | 31 (17) |
| Country of Birth | | |
| Ireland | 2478 (85) | 161 (87) |
| Outside Ireland | 413 (14) | 17 (9) |
| Missing | 14 (<1) | 7 (4) |
| Sexual Identity | | |
| Gay | 2261 (78) | 150 (81) |
| Bisexual | 389 (13) | 17 (9) |
| Straight/Other | 217 (8) | 13 (7) |
| Missing | 38 (1) | 5 (3) |
| Outness Level | | |
| Out to all/Almost all | 1439 (50) | 92 (50) |
| More than half | 421 (14) | 28 (15) |
| Less than half | 259 (9) | 15 (8) |
| Few | 463 (16) | 19 (10) |
| None | 253 (9) | 14 (8) |
| Missing | 70 (2) | 17 (9) |
| HIV Status | | |
| HIV positive | 142 (5) | 10 (5) |
| HIV negative <12m | 1088 (38) | 75 (41) |
| HIV negative >12m | 592 (20) | 34 (18) |
| Never Tested | 1062 (36) | 61 (33) |
| Missing | 21 (1) | 5 (3) |
| STI in last 12m | | |
| No/Don't Know | 2611 (90) | 162 (87) |
| Yes | 273 (9) | 16 (9) |
| Missing | 21 (1) | 7 (4) |
| Certainty of HIV Status | | |
| Sure of Status | 938 (32) | 72 (39) |
| Unsure of Status | 1953 (68) | 111 (60) |
| Missing | 14 (<1) | 2 (1) |
| Visited Man2Man | | |
| Visited | 757 (26) | 41 (22) |
| Not visited | 2099 (72) | 132 (71) |
| Missing | 49 (2) | 12 (7) |
| Viewed HP Infographics | | |
| Viewed | 1466 (50) | 96 (52) |
| Not Viewed | 1361 (47) | 74 (40) |
| Missing | 78 (3) | 15 (8) |

We excluded 185 men who did not answer all 13 questions relating to HIV/STI treatment, transmission and testing

*Variable with >5% missing data

ψ Other includes: retired; sick leave; medically retired & other