

Shisha Smoking in South East London

A cross-population survey of shisha use and awareness in South East London

Sponsored by the London Boroughs of

Bexley, Bromley, Greenwich, Lambeth, Lewisham and Southwark

Through the SE London Illegal Tobacco Group

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1. Summary

Awareness of shisha tobacco as a potential threat to public health in the UK is growing as is awareness of it as a specific public health issue in London. While previous work has focussed on behaviours within specific communities known to traditionally use shisha, the aim of this survey was to look across the entire population of South East London. Its aim was gain an understanding of shisha use across the whole population in this SE London. Its key findings were:

- i) **Shisha is no longer a 'niche' issue.** In total 72% of those surveyed had been aware of shisha before the interview, 31% had smoked shisha at least once and 16% had smoked it in the last year. These rates of awareness and use were higher among those of Arabic or Asian ethnic origin. However, the majority of respondents were 'White British' and among this group 67% were aware of shisha, 26% had smoked it and 24% had smoked it in the last year.
- ii) **Shisha use is highest amongst young smokers and appears to be growing.** The group most likely to be smoking shisha were young smokers. Fifty percent of smokers aged 18-24 years old had also smoked shisha in the last year. Even among young non-smokers aged 18-24, around 30% had smoked shisha in the last year. This implies a very strong correlation between young people smoking and shisha.
- iii) **Shisha is endemic in South East London.** The majority of shisha users (76%) started smoking it in the UK and the most popular places to smoke it in the UK were a café (50%) and someone's home (35.5%). This strongly implies shisha is now an endemic London issue rather than niche community behaviour or a behaviour acquired outside the UK. Although restaurants, clubs and events have attracted attention in the past they appear to be much less important than café's and private homes in terms of shisha use.

The survey was also able to provide some limited insights into usage levels within each borough and across SE London and about the impact on health in the community as a whole.

- i) **Shisha use tends to be infrequent.** Only a very small minority of those who reported ever having smoked shisha smoked it more than once every 2-3 weeks (approx. 3%) and more typically users smoked it between once and three times per year (40%).

- ii) **Shisha use is linked to café's.** Of those who reported smoking shisha 50% reported that they most commonly smoked it in a café and control of these premises is likely to be a key element in any effective shisha policy.

- iii) **When usage patterns are projected against the population they become significant.** Although only a small minority of the sample surveyed use shisha very regularly use is not confined to specific ethnic communities. Three percent of the adult population is approximately 40,676 people frequently using shisha in SE London. In addition the high numbers of infrequent users, particularly among young people, may impact on long term smoking behaviour through normalising smoking tobacco.

The prevalence of shisha use (shown by the survey results) suggests that it has become a key public health issue for the general population of SE London, especially young people and warrants further work and action. There is therefore a need to formulate strategies that can simultaneously reduce demand by changing perceptions and behaviours of potential users and the supply of shisha through limiting the number of shisha cafés and shisha retailers in the area.

2. Survey objectives and design

The objective of this survey was primarily to establish the prevalence shisha smoking across the population of South East London. Work done by local Trading Standards teams had already proved that shisha was being sold in the area and there was anecdotal evidence of a rise in the number of premises selling it. Work done by public health teams locally, nationally and internationally had also shown that shisha use represented a comparable risk to the individual to smoking cigarettes.¹The element missing was a quantitative assessment of what proportion of the population in South East London smoked shisha and how frequently they smoked it. This quantitative data was critical in assessing the importance of shisha as a threat to public health in SE London and to inform the nature of potential intervention strategies.

The survey was designed as a random cross-population street survey; in each Borough around 200 individuals in total were interviewed at around 6 different locations within that Borough and in total around 1200 interviews were completed overall. The survey included questions on age, sex, borough of residence and ethnic origin. The subject of the survey given to potential participants was ‘health’ and the fact that it related to shisha was not revealed until after the subject had agreed to participate. Within the budget available it was not possible to commission a survey that matched the demographic profile of the areas involved. However, effort was made to capture samples across the full range of ages, multiple sites in each borough and capture data on ethnic origin. This allowed the sample to be compared to the demographic profile as recorded in the 2011 census and DH figures on smoking rates. It also allowed the projection of the survey responses onto the population of South East London using the actual demographic composition of the area. The effect of sample bias is covered later in this report and in Annex A, which concludes that correcting for bias does not influence any of the key findings of the survey. The composition of the survey samples is summarised in Table 1 below.

Table 1: Headline demographic composition of the survey

Borough	Sample 18+	Male	Female	18-24	25-34	35-44	45-54	55-64	>65	Cigarette Smokers
Bexley	190	110	80	28	30	28	53	31	21	44
Bromley	193	106	87	27	36	34	43	30	28	39
Greenwich	188	114	74	55	48	35	29	12	9	102
Lambeth	211	110	101	31	52	41	49	17	20	69
Lewisham	205	118	87	26	44	40	43	27	25	42
Southwark	196	99	97	55	58	36	28	11	8	70
Total	1183	657	526	222	268	214	245	128	111	366

¹Public Health Implications of Shisha Smoking in London July 2013. Dr Mohammed Jawad Department of Primary Care and Public Health, Imperial College London.

3. Findings

3.1 Awareness of shisha

The first clear finding of the survey was that the population of South East London were very aware of shisha with 72% of those surveyed aware of shisha before the interview e.g. they had heard of shisha and/or had seen it being smoked. This was consistent across the six boroughs and a detailed look at each survey site in two boroughs (Lambeth and Bexley) showed it was also very consistent between survey sites within boroughs. It is also worth making the comparison with illegal cigarettes and HRT where across the same six boroughs around 60% of smokers had been offered illegal cigarettes or HRT in the last year.² When the results were looked at in more detail were consistent. Comparison of smokers, non-smokers, age groups, genders and ethnic groups all showed consistently high awareness levels. The only large variations seen were that those over 65 years of age had a much lower awareness (30%) and those in the ethnic groupings 'Asian' and 'Arabic' had significantly higher awareness levels (92% and 93% respectively). This is shown in the Table 2 and Figures 1 (a) to (c) below and overall these results imply three significant things:

- i) **Shisha is well established** in South East London, it is a product that the majority of people are now aware of and 96% of those aware of it first saw shisha being smoked in the UK.
- ii) **It is not a localised issue.** Awareness is very consistent between boroughs and survey sites implying it is a broader cross-borough or regional rather than a local issue.
- iii) **Shisha can no longer be described as a 'niche' product.** Although awareness is highest in those of Arabic or Asian ethnic origin, over 65% of those describing themselves as 'white' were also aware of it.

Table 2: Before this interview were you aware of shisha?

	Yes
Male	76%
Female	67%

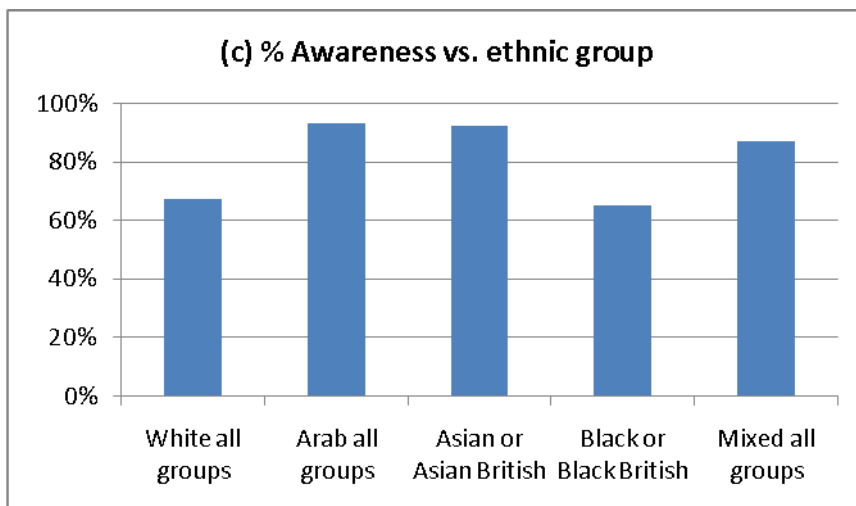
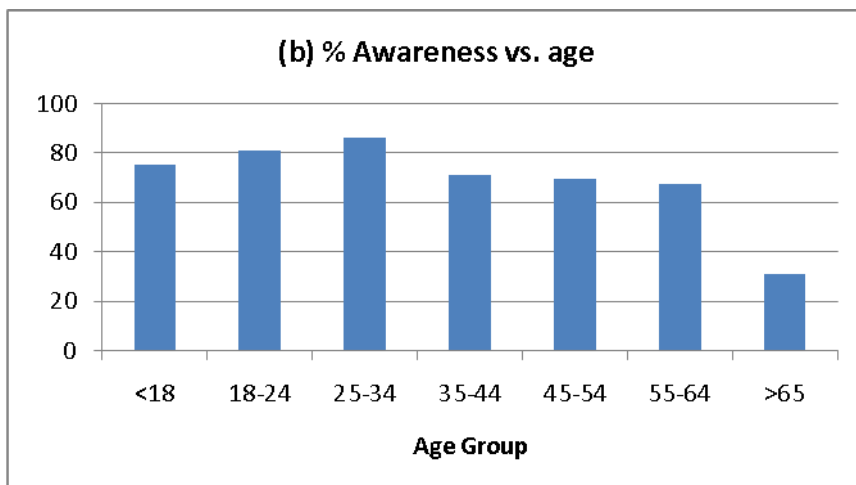
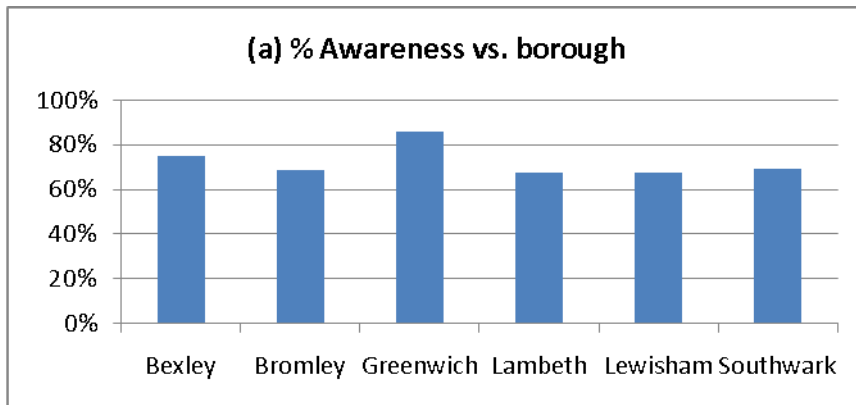
	Yes
Smoker	85%
Non-smoker	66%

²2012 Illegal Tobacco street survey of all six SE London boroughs showed 57.6% of smokers questioned had been offered illegal tobacco in the previous year and 37.4% had bought some.

Table 2: Where did you first see shisha being smoked?

Location	%
In the UK	95.9%
Abroad	4.1%

Figure 1: Awareness of shisha before interview



3.2 First and ongoing use of shisha

The survey revealed that 31% of those surveyed had smoked shisha at least once and that 16% had smoked it in the year prior to the interview. The large number of respondents that had smoked shisha confirmed that it was well established in the community and was consistent with the high awareness levels reported. The data captured on frequency of use shown in Table 3 below provided further insight into smoking behaviours. These results clearly show that the majority of those who use shisha are infrequent users and only a minority smoke it every week.

The survey also looked at where people first smoked shisha and where they were now most likely to use shisha and the results of these questions are shown below in Tables 4 and 5. The results for first use support anecdotal reports that some people first try shisha on holiday, but clearly shows more than two thirds first try it in the UK. The same locations e.g. café's and people homes for first use also match the locations for ongoing shisha use and overall these results imply that:

- i) **Most people first try shisha in the UK.** This implies that it is now well established as an activity in the UK and is being assimilated into the social landscape beyond traditional communities.
- ii) **Usage is split between private and public spaces.** This implies that while some control may be possible through enforcement work influencing beliefs and behaviour is also likely to be a key part of any shisha strategy.
- iii) **Usage tends to be infrequent.** Users most commonly use it several times a year rather than weekly, although a minority do use it 'most weeks'. This implies use in a social setting is the norm, which would be consistent with traditional use and previous research papers.¹

Table 3: Frequency of use among users

Frequency of use among those who <u>have</u> smoked shisha	%
I have smoked it before, but not in the last year	53%
Once in the last year	20%
2-3 times in the last year	19%
Every 2-3 months	5%
Every 2-3 weeks	1%
Most weeks	2%

Table 4: Where people smoke shisha most often

Location	% Reports
Shisha Café	50.0%
At someone's home	35.5%
Restaurant	5.3%
Party or event	5.7%
Pub or club	3.4%

Table 5: Where did you first smoke shisha?

Location	% Reports
Outside the UK	34%
Shisha café UK	32%
Someone's home UK	25%
Party or event in the UK	4%
Restaurant in the UK	4%
Pub or club in the UK	2%

3.3 Variation in use with age, smoking status, gender and ethnic origin

Given the small numbers of very frequent users in the survey sample there are limits to what insight can be gained for this group and a more in depth study focussing on heavy users would be required to gain detailed insight into this group. However, there were some very clear trends and correlations among the less frequent users in terms of whether individuals had tried shisha and were ongoing users.

Smoking

Overall 70% of the survey respondents were non-smokers³ and the survey showed a very clear correlation between smoking and shisha use, see Table 6 below. This shows that although smokers were around 30% more likely to be aware of shisha, they were around 100% more likely to have tried it and to have used it in the last year than non-smokers. Conversely the responses also imply that around 30% of all the people who reported smoking shisha in the last year were non-smokers implying a potential 'gateway effect'.

Table 6: Smoking and shisha use

	Before this interview were you aware of shisha? (Yes)	Have you ever smoked shisha, even if it was one or two puffs? (Yes)	Have you smoked shisha in the last year (Yes)
Smoker	85%	51%	26%
Non-Smoker	66%	24%	12%

The results for smokers and non-smokers are shown in Figures 2(a) and 2(b) below, which breaks down behaviour by age band. This clearly shows that non-smokers are using shisha and that the younger respondents were far more likely to be using shisha than older ones. It also shows that while there is a clear drop in usage with age among smokers the drop is less acute among non-smokers.

³ The question used in the questionnaire was 'have you smoked a cigarette in the last 30 days'.

Figure 2(a): Shisha use in non-smokers by age

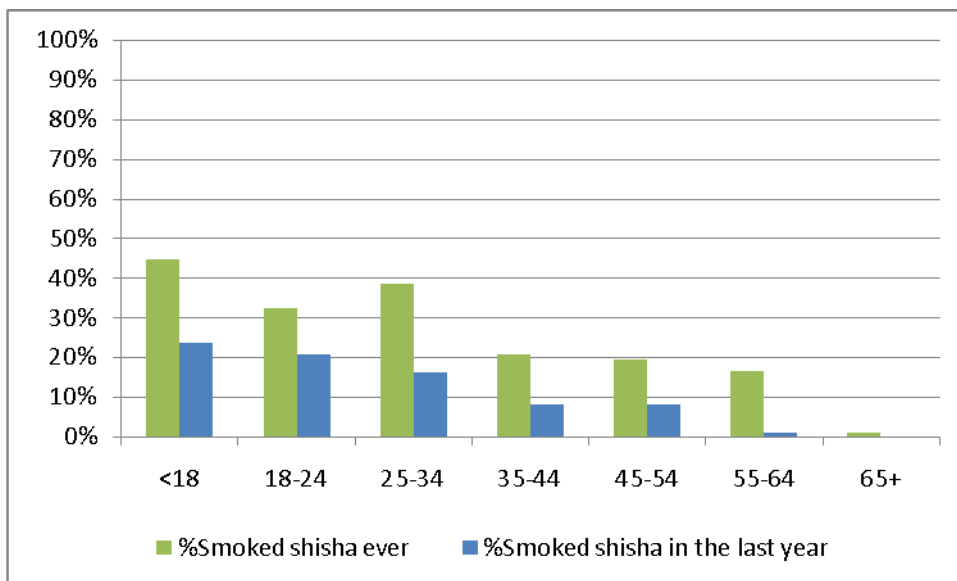
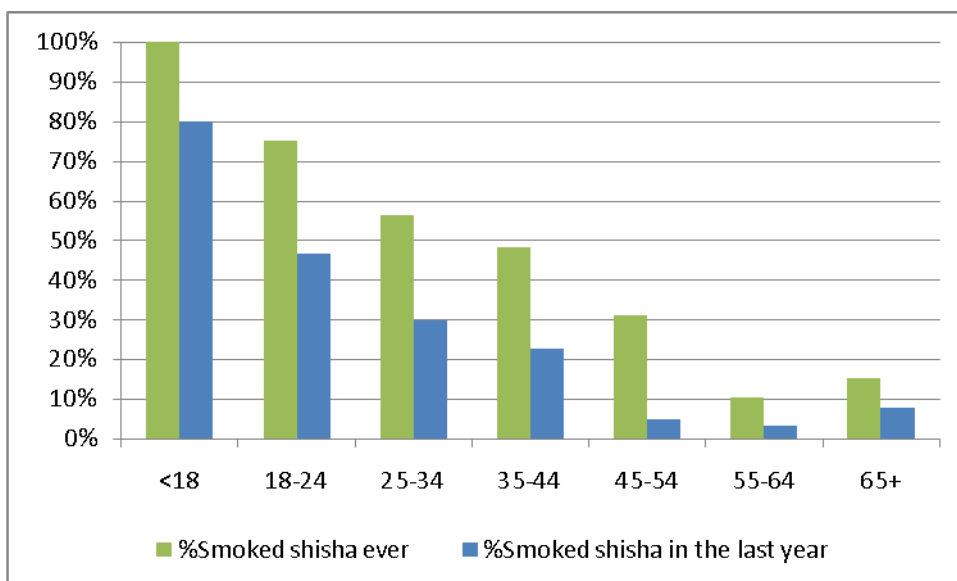


Figure 2(b): Shisha use in smokers by age



Past studies have shown that future smoking behaviours are highly influenced by the behaviour of peers and environment at the point when young people first experiment with tobacco. The very high levels of shisha use seen among young cigarette smokers are of concern. It raises the possibility that shisha may be acting as a gateway into regular cigarette smoking. If this is correct then the relatively high rate of usage among younger smokers would be likely to affect long term rates for smoking in SE London.

Gender

The results showed a modest correlation between gender and awareness of shisha, with men being more likely than women to be aware of shisha to have tried shisha ever and to have used it in the last year at least once. These results are shown in Table 7 below.

Table 7: Respondent's gender and shisha use

Gender	Before this interview were you aware of shisha?	Have you ever smoked shisha, even if it was one or two puffs?	Have you smoked shisha in the last year
Male	76%	33%	15%
Female	67%	28%	12%

Age

The survey showed a very clear correlation between age and shisha use with use being highest among those aged under-18 years old and dropping with increasing age, this is shown in Figures 3 below. The first trend that is apparent from Figure 3 is that the percentage of people who reported **ever** having smoked shisha and the number who report smoking it in the last year drop with increasing age. This is consistent with shisha use in the community increasing significantly over the last twenty years among young people [See Figures 2a and 2b]. The possibility of a sharp upward trend in both use and frequency of use is obviously very relevant to the potential health impact on individuals and the population. However, this is supported by survey work done among schools and youth groups in Greenwich and in Brent⁴ which implies that between over 40% of 18 year olds in Brent and 30% 18 year olds in Greenwich⁴ had tried shisha at least once. In addition data on the age of first use of shisha from Greenwich implied that this was falling year-on-year, this is shown in Figure 4.

⁴ 2012 Young Persons Cigarette and Shisha Audit, NHS Brent.

Figure 3: Shisha use by age

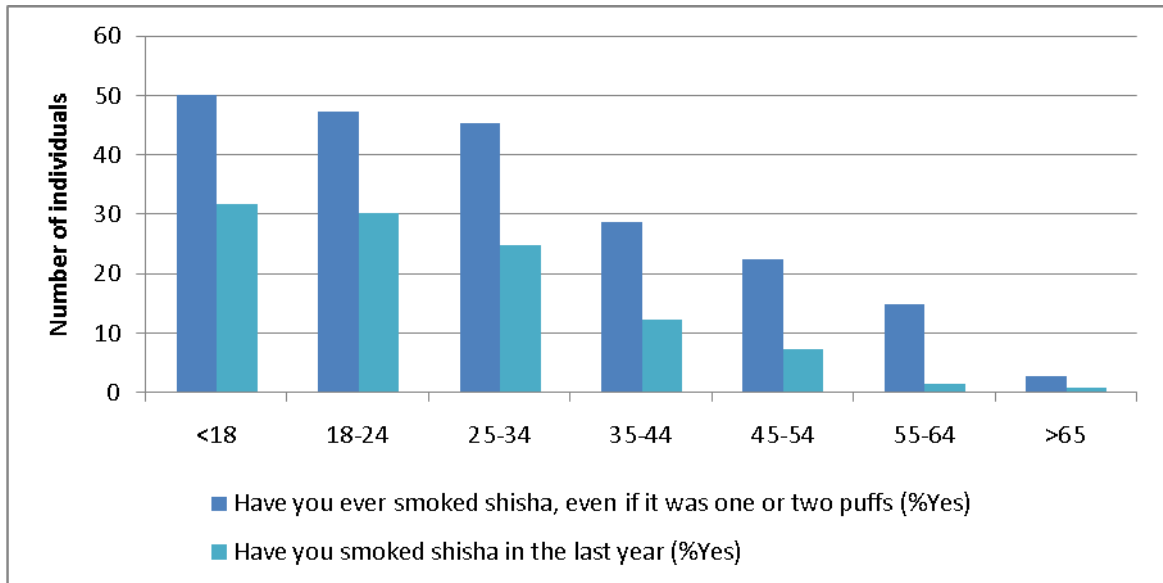
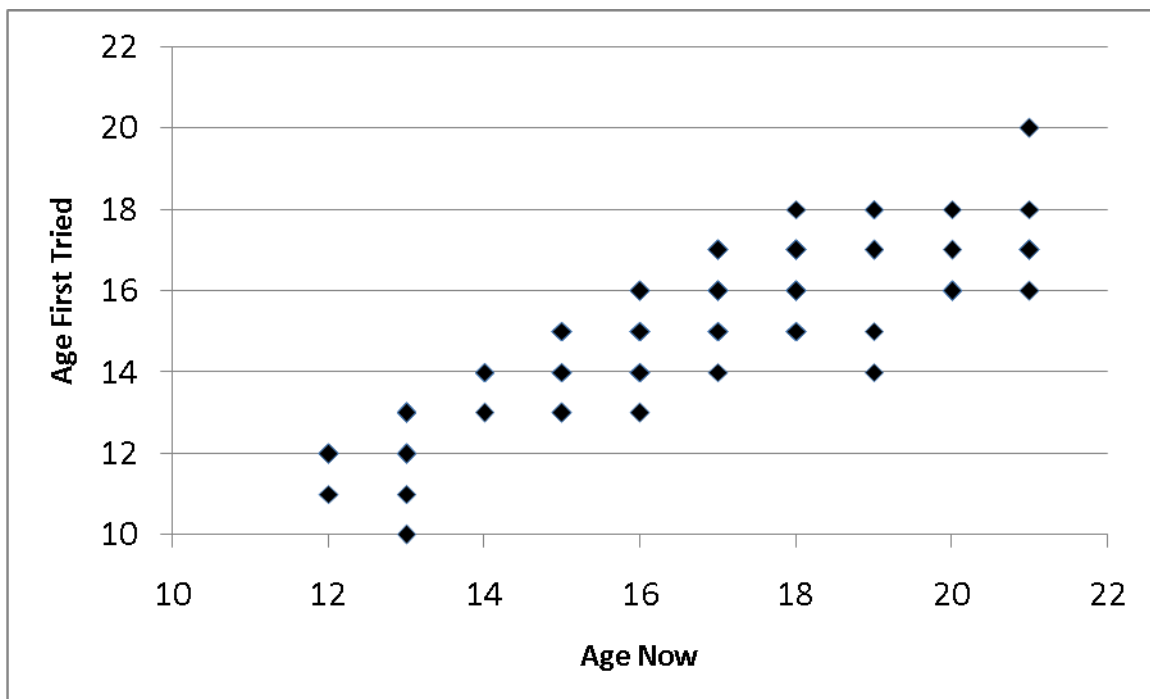


Figure 4: Age of first use of shisha from Greenwich survey of young people⁵



⁵ 2012 survey of 534 young people in Greenwich, unpublished data.

Ethnic Origin

The survey offered participants the choice of 17 ethnicity options as well as an ‘other’ option. These have been aggregated into five groups for the purpose of analysis as many of the sub groups were too small to be statistically useful. The results for the three core questions; were you aware of shisha before this interview, have you ever smoked it and have you smoked it in the last year are shown in Table 8 and Figures 5 and 6 below.

Table 8: Shisha awareness and use by ethnic group

Group	Sample size	Before this interview were you aware of shisha (Yes)	Have you ever smoked shisha, even if it was one or two puffs (Yes)	Have you smoked shisha in the last year number (Yes)
White all groups	684	67%	26%	24%
Arab all groups	28	93%	68%	57%
Asian or Asian British	101	92%	45%	30%
Black or Black British	248	65%	28%	15%
Mixed all groups	143	87%	48%	25%

Figure 5: Shisha use and ethnic group % within each group using shisha

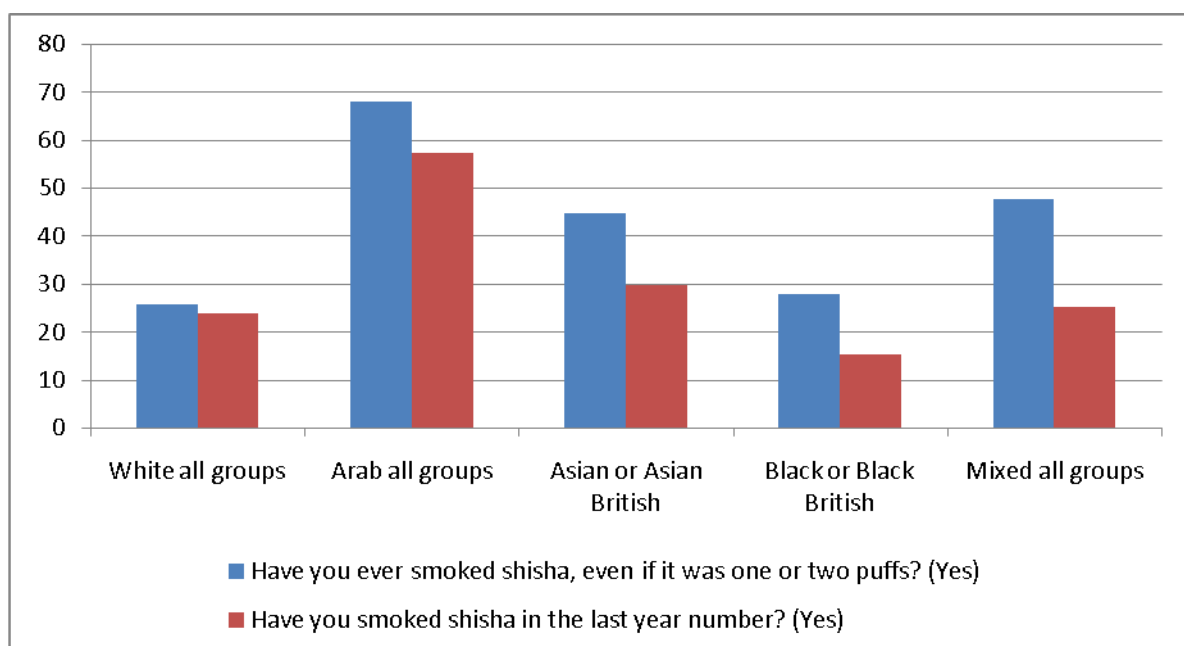
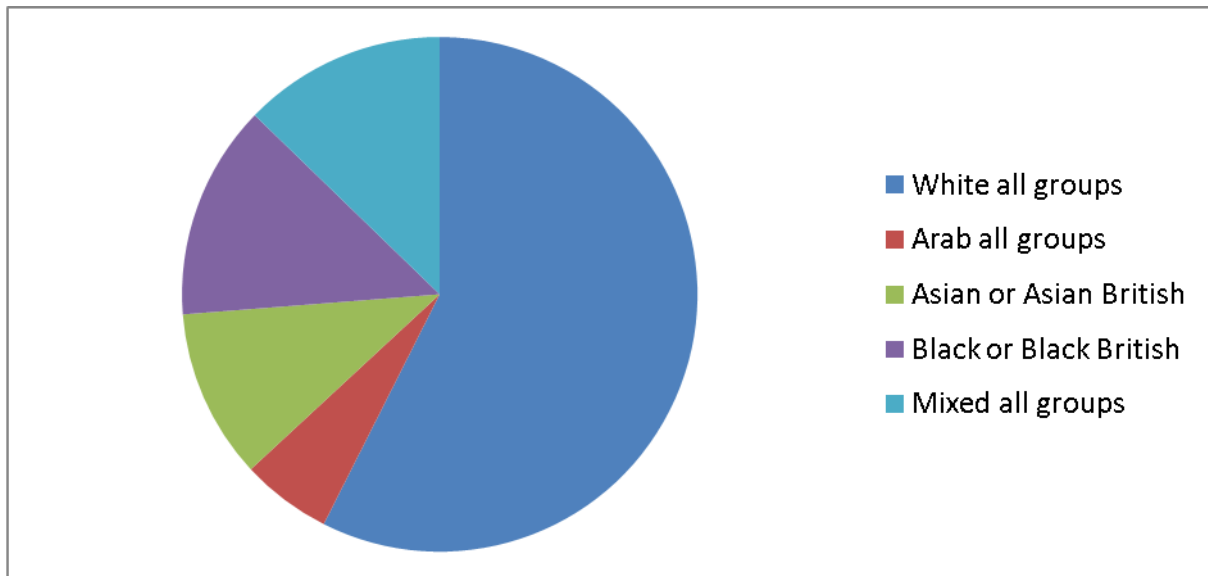


Figure 6: Total number of individuals who smoked shisha in the last year by ethnic group



From the Figures 5 and 6 above it can clearly be seen that although the 'Arab' and 'Asian' groups were proportionately more likely to have smoked shisha in the last year, most shisha smokers in South East London were in fact 'White'. This is despite the 'high usage' groups being under represented in the sample vs. ONS data on the ethnic composition of SE London. It implies that in terms of the population as a whole the majority of users are white and any intervention strategies will need to recognise this. Overall the key findings on correlations between age, gender, ethnic origin etc. and patterns of use were:

i) Use of shisha appears to be rising and younger people appear to be leading this trend.

This is shown by the change in responses to the question 'have you ever used shisha' with age. The data would show a rising trend of use with age if the usage pattern were stable and older people would be more likely to have tried shisha as they have simply had more time to come into contact with it. However, the profile seen is a clear drop in the number of people who have tried it with age, which implies a recent increase in use is occurring among younger people.

ii) There is a clear correlation between smoking cigarettes and shisha use. While variations in awareness of shisha were relatively small between smokers and non-smokers, smoking cigarettes correlated with a 100% increase in the likelihood of also smoking shisha. In

addition the relatively large number of non-smokers who have smoked shisha in the last year – particularly among younger people- implies it may act as a gateway into smoking.

iii) **Shisha is no longer a 'niche' activity.** Although traditional user communities are significantly more likely to smoke shisha, overall the number of white users in South East London is larger than all other ethnic groups combined. This implies that the harm is also not confined to the communities that traditionally use shisha and any intervention needs to recognise this.

3.4 Awareness of shisha content, law and health impact

The survey also posed a series of questions to respondents relating to what shisha contained, the law relating to shisha sale and smoking and its potential impact on health including some of the more common myths regarding shisha. The questions and responses are shown in Table 9 below and imply that there is a very high degree of ignorance and confusion regarding shisha. Overall this implies that the majority of people who stated that they were aware of shisha had a poor knowledge of its potential health impacts and legality.

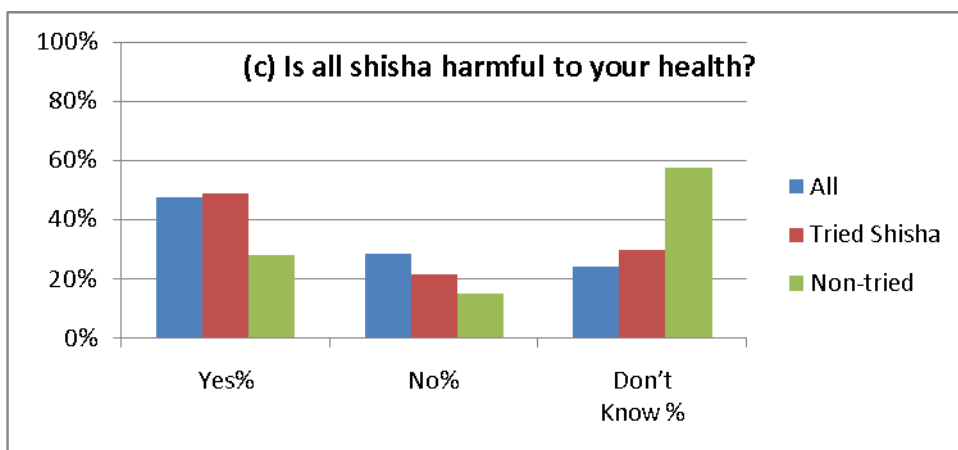
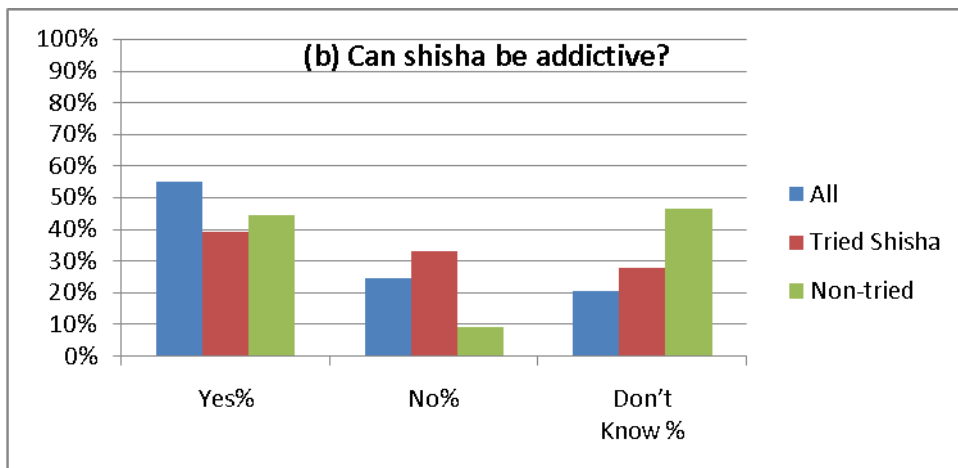
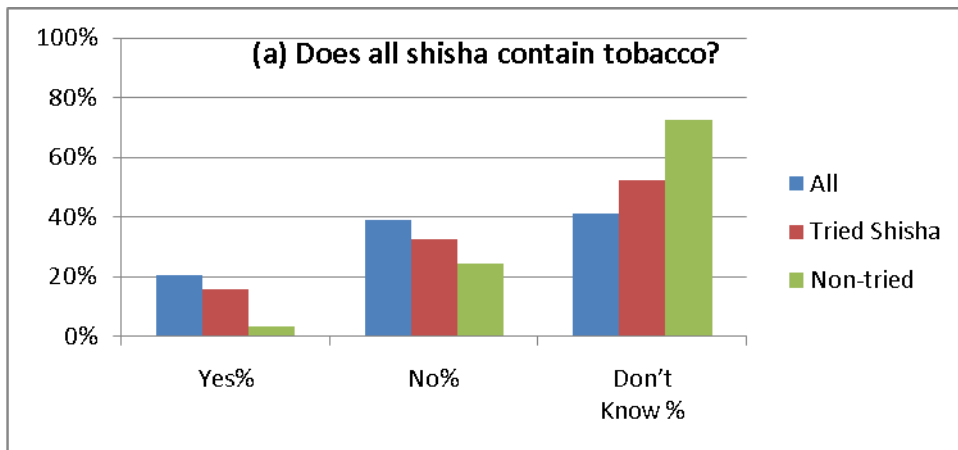
Table 9: Knowledge of shisha

Question	Yes%	No%	Don't Know %
Does shisha traditionally contain tobacco?	37%	27%	37%
Does all shisha contain tobacco?	20%	39%	41%
Can shisha be addictive?	55%	25%	20%
Is all shisha harmful to your health?	47%	29%	24%
Is it legal to smoke indoors at a café or public place?	37%	34%	29%
Is it legal to sell shisha containing tobacco to people under 18 years old?	21%	60%	20%
Some people say shisha is safer than cigarettes because the water filters smoke. Do you agree?	33%	39%	28%
Some people say shisha is safer than cigarettes because it uses fruit? Do you agree?	30%	47%	23%
Some people believe shisha is better than cigarettes because it doesn't cause heart disease like cigarettes do. Do you agree?	35%	34%	32%
Some people believe shisha is better than cigarettes because it doesn't cause cancer like cigarettes do. Do you agree?	35%	33%	32%

However, deeper analysis of responses implies that better understanding of shisha does not necessarily mean people will refrain from smoking it. Figure 7 below compares the responses of those who had and had not tried shisha and implies that those who had smoked shisha may in fact be slightly better informed than those who had not. More work

would be required to understand linkages between knowledge, attitudes and behaviour, but the responses imply that influencing behaviour will require more than providing information on possible harm. It will require insights into motivations and the factors that affect the decision to try shisha and strategies for influencing behaviour.

Figure 7. Knowledge and behaviour



3.5 Parents, Education and Shisha

One of the objectives of the survey was to compare the perceptions of parents regarding their children’s shisha awareness and use with earlier work done with young people in Greenwich ⁴ and Brent. ³In order to keep the survey simple and short it was not possible to probe participants in detail on this issue, but the responses shown in Table 10 below do provide some insights into the perceptions of parents.

Table 10: Parents perceptions of children’s education and shisha use

Children’s Age	Sample size	Received education relating to cigarettes (Yes)	Received education relating to shisha (Yes)	Tried Shisha (Yes)	Talked to you about shisha (Yes)
11 to 14	107	61%	2.8%	3.7%	7.5%
14 to 16	55	73%	7.3%	9.1%	16.4%
17 to 19	35	77%	8.6%	22.9%	22.9%
Over 20	28	71%	7.1%	14.3%	28.6%

From the responses of the parents who participated it is clear that they were aware of their children receiving education relating to smoking cigarettes, but much less aware of any education relating to shisha. The parents appeared to be fairly aware of shisha use by their children and their reports of shisha use levels are lower than but broadly consistent with the studies conducted in Greenwich and Brent.^{3,4} In addition these parents were reporting increased incidences of having conversations with their children about shisha as they became older. Conversely, these parents were generally not aware of their children receiving education relating to shisha use. These results would be consistent with the majority of young people in South East London either not receiving education in relation to shisha or receiving insufficient education to significantly affect perceptions and behaviour.

4. Sample bias and validity

Having analysed the data to establish correlations between factors such as sex, age, smoking status and ethnic origin it was possible to assess the extent to which any bias in the survey was affecting the data and consider ways of correcting it. From the above results it is clear that age, sex, smoking status and ethnic origin will all affect the outcome a survey looking at shisha use. In considering the validity of the survey each of these factors was considered in terms of the likely effect of sample bias vs. the actual demographic composition of Borough populations.

Age

Using the survey data to map age with usage responses it is very clear that shisha usage was highest amongst younger people, this was shown in Figures 1, 2, 3 and 4 above. Analysis of the survey participants against ONS population data clearly shows a positive bias towards younger people. There is significant over representation in the 18-24 and 25 to 34 age bands and corresponding under representation in the 45 to 54, 55 to 64 and 65+ age bands, this is shown in Table 11 below. The potential for skewing results was obvious and additional work was carried out to assess the impact and apply a correction to the sample to improve the accuracy of the survey results. The method used to derive correcting factors is described at Annex A and both the raw and weighed results for each Borough are shown in Table 12 below. From the data in Table 12 it can be seen that while there are significant differences for the Greenwich and Southwark data, the overall findings are largely unchanged by the application of age weighting. However, one caveat needs to be noted which is that it has not been possible to apply a weighting for those under 18 years old as we do not have sufficient data to do this. Based on the Greenwich and Brent work quoted earlier including these younger groups would raise the reported levels of awareness and use.

Table 11: Sample demographic profile vs. ONS population figures

Borough		Age group					
		18-24	25-34	35-44	45-54	55-64	>65
Bexley	Survey sample	0.15	0.16	0.15	0.28	0.16	0.11
	ONS data	0.09	0.17	0.17	0.17	0.19	0.21
	Bias %	169	93	88	161	85	53
Bromley	Survey sample	0.14	0.19	0.18	0.22	0.16	0.15
	ONS data	0.07	0.15	0.17	0.19	0.21	0.22
	Bias %	199	125	103	118	75	67
Greenwich	Survey sample	0.29	0.26	0.19	0.15	0.06	0.05
	ONS data	0.09	0.18	0.20	0.20	0.17	0.16
	Bias %	340	141	92	77	37	31
Lambeth	Survey sample	0.15	0.25	0.19	0.23	0.08	0.09
	ONS data	0.11	0.34	0.21	0.15	0.09	0.09
	Bias %	130	73	91	150	93	101
Lewisham	Survey sample	0.13	0.21	0.20	0.21	0.13	0.12
	ONS data	0.08	0.18	0.21	0.20	0.17	0.16
	Bias %	161	120	94	105	76	76
Southwark	Survey sample	0.28	0.30	0.18	0.14	0.06	0.04
	ONS data	0.09	0.20	0.22	0.19	0.16	0.14
	Bias %	319	145	83	76	36	29
Overall 6 Boroughs	Survey sample	0.19	0.23	0.18	0.21	0.11	0.09
	ONS data	0.09	0.21	0.20	0.19	0.16	0.16
	Bias %	215	110	90	112	66	59

Table 12: Age corrected values for awareness and shisha use

Borough of survey	Aware		Ever smoked shisha? (Yes)		Smoked shisha last year? (Yes)	
	Raw	Corrected	Raw	Corrected	Raw	Corrected
	% Yes	% Yes	% Yes	% Yes	% Yes	% Yes
Bexley	75	70	30	25	13	11
Bromley	67	63	24	20	8	7
Greenwich	86	81	41	32	23	16
Lambeth	68	69	30	32	12	12
Lewisham	67	64	29	26	10	8
Southwark	68	60	32	22	14	7
Total 6 Boroughs	72	67	31	26	13	10

Gender

Overall the gender bias in the sample was towards men 56% compared with women 44%. Analysis of the sample data showed that overall men had a higher propensity to be aware of and smoke shisha. The bias being strongest in terms of likelihood of having smoked shisha in the last year with men being around 25% more likely to have done this than women. This is shown in Table 7 above and was considered significant enough for work to be done to assess the impact of the bias on the survey findings. Applying weightings to the samples from each borough individually results in the data shown in Table 13 below. This implies that if the sample had been truly representative then overall the reported awareness and use data would have fallen slightly, but this would not have been significant enough to affect the key findings.

Table 13: Applying weighing based on gender and ONS population data

	Before this interview were you aware of shisha? %Yes		Have you ever smoked shisha, even if it was one or two puffs? %Yes		Have you smoked shisha in the last year? %Yes	
	Raw	Weighted	Raw	Weighted	Raw	Weighted
Bexley	76%	75%	31%	30%	12.6%	12.5%
Bromley	71%	71%	27%	27%	13.5%	13.7%
Greenwich	91%	90%	39%	37%	24.5%	23.6%
Lambeth	70%	71%	35%	35%	15.7%	15.7%
Lewisham	70%	69%	31%	31%	11.7%	11.1%
Southwark	73%	73%	37%	37%	20.9%	20.9%

Smoking

From Table 6 and Figures 2 (a) and (b) above it is clear that the number of smokers in the sample will bias the shisha results as there is a correlation between smoking cigarettes and shisha use. Analysis of the responses showed that there were significant variations between borough smoking level data from Public Health England and the survey results (Table 12). Additional work was therefore done to assess the actual impact of this to apply weighting as described in Annex A and the results are shown in Table 13 below. From this it is evident that although there was a strong correlation between smoking and shisha use, the net

effect of a bias towards smokers in the survey was minimal. Overall the bias is not likely to undermine any of the key findings of the survey.

Table 12: Survey smoking rates vs. PHE 2012 prevalence data

Borough of survey	% Smoked cigarette in the last 30 days	% Smokers from PHE 2012 HIS
Bexley	23%	17.7%
Bromley	20%	17.8%
Greenwich	54%	18.4%
Lambeth	33%	21.3%
Lewisham	20%	21.4%
Southwark	36%	19.7%
Average six Boroughs	31%	

Table 13: Assessing the impact of a bias towards smokers

Borough of survey	Have you smoked shisha once or more in the last year?(yes)	
	Raw	Weighted
Bexley	12.6%	12.2%
Bromley	8.8%	8.7%
Greenwich	22.9%	22.4%
Lambeth	12.3%	10.7%
Lewisham	9.3%	9.3%
Southwark	14.8%	12.4%
Total 6 Boroughs	13.4%	12.2%

Ethnic group

Analysis of the data set as a whole shows differences in propensity to be aware of and to have smoked shisha with ethnic origin. Given the large number of ethnic groups present and relatively small sample size the ethnic groups were aggregated into the five groups shown below. However, even aggregating into these groups presented problems in terms of analysis as with overall sample sizes of around 200 individuals per borough it would be difficult if not impossible to capture a representative survey sample. Therefore the

approach taken was to establish where a bias towards groups known to be more likely to use shisha had biased the overall survey. This is shown in Table 14 below and ONS Ethnic data for London as a whole is shown in Table 15. If any overall bias is apparent it is towards underrepresentation of Asian/Asian British and overrepresentation of Mixed groups. Although it is not possible to assess how representative of the individual boroughs the sample is, the analysis does imply that the survey is broadly representative. It has not inadvertently loaded the sample towards ethnic groups with a high propensity to use shisha and broadly reflects the London demographic profile.

Table 14: Ethnic groups represented in the survey

Group	Bexley	Bromley	Greenwich	Lambeth	Lewisham	Southwark	Total
White all groups	79%	64%	47%	55%	52%	44%	57%
Arab all groups	1%	3%	3%	3%	3%	1%	2%
Asian or Asian British	3%	7%	9%	7%	9%	16%	9%
Black or Black British	7%	9%	24%	28%	23%	32%	21%
Mixed all groups	10%	16%	17%	8%	13%	6%	12%

Table 15: ONS Ethnic data for London

Ethnic Group	%
White	59.8%
Asian/Asian British	18.5%
Black/African/Caribbean/Black British	13.3%
Mixed/multiple ethnic group	5.0%
Other ethnic group	3.4%
Other ethnic group: Any other ethnic group	2.1%
Other ethnic group: Arab	1.3%

Overall validity of the survey

Based on the analysis of bias within the sample and its likely impact on the survey findings it appears that the overall survey is giving an accurate picture of shisha use in SE London.

Given the sample sizes and likely random variations in responses the only weighting factor which is significant appears to be age and **it is suggested that boroughs use the age weighted values in Table 12** if there is a need to quote values for shisha awareness and use within boroughs. None of the biasing factors appear significant enough to challenge any of the conclusions reached regarding awareness and use levels for shisha.

5. Public Health Implications

Use and Harm

The survey clearly shows that shisha use is endemic within South East London, that shisha has become part of life in London and an increasingly popular activity for young people. From the nature of shisha smoking it is also clear to see that it is an inherently harmful activity that will cause greater harm with greater use. However, quantifying the likely harm is remarkably difficult as unlike cigarette smoking we do not have many decades of epidemiological studies and a good understanding of use patterns.

Direct harm

Most of the available evidence on harm from shisha comes from comparing the chemical composition of shisha smoke and its immediate effects on the body with analogous data for cigarette smoking. From this it is clear that smoking conventional shisha molasses exposes the user to all of the toxic components of cigarette smoke and exposes them to these components at higher levels.¹ However, there have not been the same numbers and kinds of longitudinal studies for shisha smoking as there have been for cigarette smoking. All evidence implies that the levels of harm are similar to that of cigarette smoking and that the behaviour is addictive, but quantitative evidence of use and health impact is sparse.

Shisha smoking also tends to follow a different usage pattern from cigarette smoking. It is not possible to prepare and light up a water pipe in the way someone can do almost instantly with a cigarette. The use of water pipes tends to be associated with socialising and situations where time can be dedicated to the process of setting up and sharing a water pipe. The amount of shisha smoke inhaled will also change with the user and the situation. Furthermore, while cigarette smoking tends to be done several times a day, shisha use tends to be much less frequent. Thus, although it is difficult to assess how much harm shisha is causing it is clear that it will be causing harm and that the more an individual smokes the more harm it will cause.

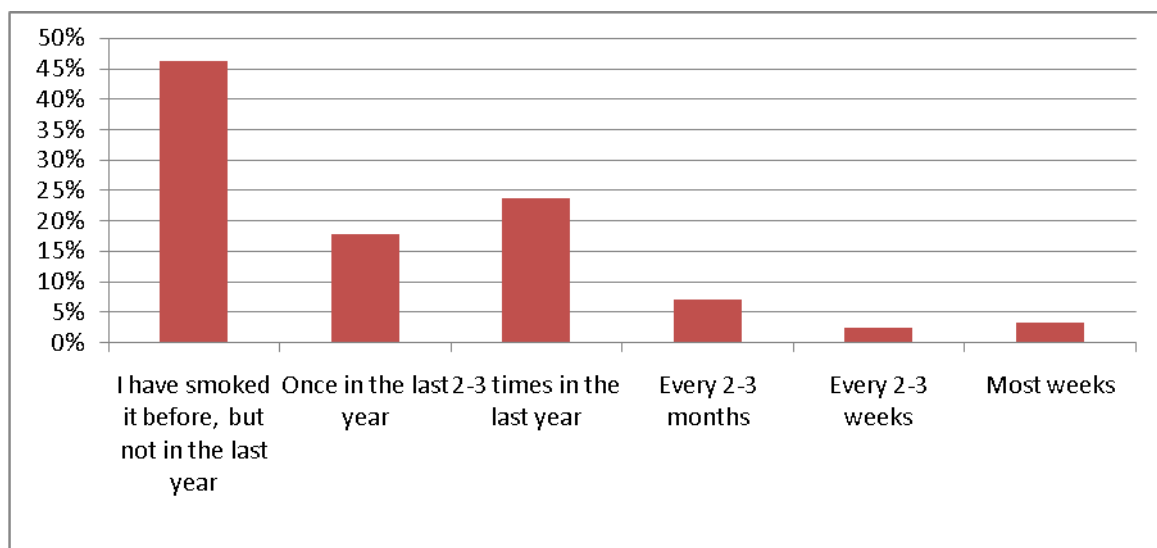
Taking the survey data for the question ‘have you smoked shisha once or more in the last year’ and then using ONS census data to project the responses by age group for the full population of each borough produces Table 16 below. This table takes the age weighted survey responses and projects them across the population of South east London. It implies that over 100,000 residents in South East London are currently smoking shisha once a year or more. Looking at usage patterns in more detail in Figure 8 below implies that most users are very infrequent and only a small minority are smoking shisha more than once per month. As the number of people reporting frequent use is much smaller it is not possible to analyse it in detail. However, the results shown in table associated with Figure 9 below do give an indication of the overall numbers of very frequent users.

Table 16: Estimated total numbers of residents who smoked shisha in 2013 based on age-weighted survey results

Borough	Population (all ages)	Estimated number who used shisha in previous year*
Bexley	234,271	19,062
Bromley	314,036	11,901
Greenwich	260,068	22,319
Lambeth	310,200	27,483
Lewisham	281,556	13,807
Southwark	293,530	12,803
Total	1,693,661	107,376

* Those who smoked shisha once or more in the previous year based on ages 18+. The actual figure may be higher due to younger users <18 although we do not have adequate data to model this at present.

Figure 9: Frequency of shisha use*



Data for Figure9

I have smoked it before, but not in the last year	46%
Once in the last year	18%
2-3 times in the last year	24%
Every 2-3 months	7%
Every 2-3 weeks	2%
Most weeks	3%

Although it must be recognised that the sample size is small for these very frequent users, and therefore potentially unreliable, if these figures are projected across the whole population they start to become significant, at approximately 46,600 (based on GLA projections SE London (1,355,855 adults aged 18 & over) . In addition it needs to be noted that given the much higher levels of damaging smoke inhaled in shisha use these individuals are likely to be at much higher risk of harm than occasional users.

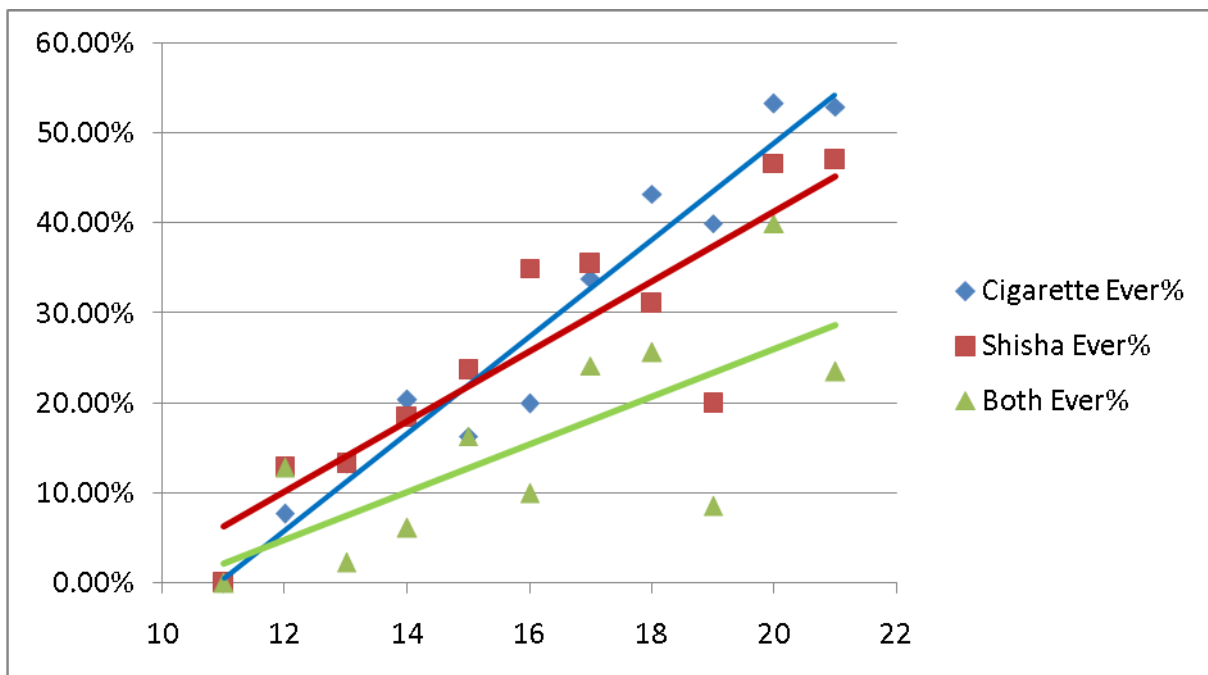
Indirect harm

There is increasing evidence that shisha smoking has significance within the wider context of smoking behaviour and needs to be considered in the broader context of tobacco addiction and smoking cessation rather than as a disconnected activity. This was discussed above in the context of shisha use, cigarette smoking and age and clearly implies that shisha may be

a gateway to smoking. This is supported by other studies which reached similar conclusions¹ and implies that while infrequent use of shisha may not cause great direct harm it may seriously undermine smoking cessation messages.

The analysis above also clearly shows that shisha use is highest among young people and that over 20% of young non-smokers are occasional shisha smokers. Given that shisha use normalises smoking and that shisha is addictive, the potential to negatively influence the behaviour of large numbers of people is very obvious. This potential is even greater among young people who are reaching an age where they are willing and able to experiment with tobacco use. Our study work from Greenwich, as well as the young person survey carried out in Bent, provide strong evidence that young people explore smoking cigarettes at the same time that they explore cigarettes. This can be seen in Figure 10 below which shows increasing use of cigarettes and shisha with age.

Figure 10: Cigarette and shisha use vs. age Greenwich



6. Recommendations on shisha control

The evidence gathered suggests that any effective strategy will have to tackle three core issues: availability, understanding and cultural attitudes. The following recommendations are grouped under these headings:

1. Availability –Limiting the number of premises offering shisha

Our evidence clearly implies most users first use shisha and most regularly use it at cafés in the UK. This implies that limiting the number of these establishments in South East London may limit exposure and reduce the number of new individuals trying it and existing users returning to it. Of particular interest will be premises that are either actively targeting young people near educational institutions or exploiting existing night-time economy hubs. Conversely, attempting to limit use and change attitudes while the numbers of cafes rapidly rises would be significantly more difficult.

2. Education – Improving understanding, awareness and acceptability

While cafes are an obvious target, our study shows that a significant proportion of shisha use occurs in private homes and people are largely introduced to it by their peers. Given the ease with which individuals are likely to be able to buy shisha molasses and paraphernalia online or in specialist shops it is vital to change perceptions of the product. The example of cigarette smoking shows that knowledge does not fully determine behaviour, but it is an important foundation in changing behaviours and perceptions. There will therefore be a need to provide information materials and activities for young people, teachers and parents and to test they are having the desired effect.

3. Culture -Targeting of behaviour change initiatives will be critical

The word ‘culture’ is normally used in the context of shisha to describe traditional use among Arabic or Asian communities. This is something that will remain important, but the survey provides strong evidence that a culture of use has developed within London that spans multiple ethnic groups. This culture and rapid growth in use is predominantly

amongst people under 35 years of age and gaining behavioural insights that will help limit the rise in use of shisha in this group is likely to be critical.

Annex A: Weighting the data

Issues and objectives

The sample has captured data across a range of age groups, ethnic groups, sexes and smokers vs. non-smokers, but the weighting of these samples are not reflective of the actual composition of the populations in the survey areas. Thus, although the raw data can provide valuable insights into shisha usage and correlations between age, sex, ethnic origin and usage it will not provide an accurate measure of prevalence across the population. In order to gain insight into the actual prevalence of shisha use it is necessary to manipulate the data to create a projection of what a shisha use in the actual population is likely to be.

Approach taken

The approach taken has been to first analyse the data to identify correlations between factors such as age, sex and whether the respondent smokes and reported shisha use behaviour. This identified age, smoking status and ethnic origin as the most critical factors. Of these, age, gender and smoking status were selected as the basis for weighting. Weighting by ethnic origin was not attempted as the necessary borough statistics were not available and small sample size was likely to create an unreliable result. In addition an assessment of the data showed that the sample was broadly consistent with the London ethnic mix and groups with highest propensity to use shisha were not present in high enough numbers to skew the data significantly.

Numerical weighting

The approach taken to creating a representatively weighted result was to use the raw data to establish a propensity for each of the relevant sub-groups to demonstrate a specific behaviour. The assumption was then made that the sample of each sub-group in each borough was representative of that group in that borough and could be used to build a projection for the population in that borough. This is shown in two worked examples below, the first is for gender bias and the second is for bias in terms of age. Although the formula for the latter contains more elements it is essentially the same methodology of projecting a

borough level result from the measured responses of each group and the know prevalence of these groups.

Example calculation: Sex bias in Greenwich sample

The Greenwich sample contained 61% Male and 39% Female participants.

Census data from Greenwich shows the true ratio should be 49% Male and 51% Female.

The data showed that the reported levels of being aware of shisha were Male 88% and Female 81%.

The formula used to calculate a sex bias adjusted result for awareness was:

$$(P_m \times N_m) + (P_f \times N_f) / N_m + N_f$$

Where

P_m = Propensity for men to be aware of shisha as taken from the survey

P_f = Propensity for women to be aware of shisha as taken from the survey

N_m = Number of men in the borough from census data

N_f = Number of women in the borough from census data

Using the actual values this gives the following result:

$$((0.88 \times 0.49) + (0.81 \times 0.51)) / 1 = 0.850 \text{ or } 85.0\%$$

This compares to an un-weighted value of 0.856 or 85.6% implying that the sex bias towards men has made very little difference to the result.

Example calculation: Age bias in Southwark sample

The Southwark sample contained a significant bias towards younger participants when compared to census data. Analysis of responses vs. age of participant implied this had the potential to significantly affect the survey outcomes for the borough.

The formula used to calculate an age bias adjusted result for awareness was:

$$(P_a \times N_a) + (P_b \times N_b) + (P_n \times N_n) / N_a + N_b + N_n$$

Where

P_a = Propensity for those in age band a to be aware of shisha as taken from the survey

N_a = Number of individuals in the borough within age band a from census data

This is repeated to the total number of age bands used e.g. six groups in total.

18- 24	25- 34	35- 44	45- 54	55- 64	>65
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In the case of Southwark the unadjusted percentage of respondents that were aware of shisha was 67.9%, but when the weighting was applied it fell to 59.6%. The fall was due to the raw survey results being biased by a higher proportion of younger people being interviewed than was reflective of the boroughs population. Conversely, in Lambeth the sample contained fewer young people than would be reflective of its population and the raw data underestimated awareness.