Emma Fellowship Int Final

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Hi. So my name is Dr. MBs. I work in the department of epidemiology and public health at UCL. And my role is a lecturer in statistics. But I also work with the research department of behavioural science of health. And a lot of my research focuses on the analysis of big datasets specifically looking at the prevalence of smoking and the impact of policies, but also high risk alcohol consumption. So I originally applied for this impact fellowship, because I was interested in making the move from simply just publishing articles to my articles actually having an impact on public health policy. And I also wanted to increase my kind of knowledge and skills of engaging with different stakeholders, and also in particular with the public. So I've had very little experience in those two scenarios working mostly with kind of academic statisticians and doctors. And so I really wanted to increase my skills. But at the same time, I think, having support to identify the stakeholders, and then ideas and new skills and how to actually interact with them. And to relay kind of the research that I've done. effectively. The goal of this fellowship project was, as kind of the main point was to identify whether household surveys, specifically assessing smoking prevalence are kind of reflective of the population at large. So household surveys, which measures smoking, obviously recruit those who live in households. And there's this group of individuals known generally as a hidden population, which household surveys do not cover. And this includes those who are sleeping rough, those in temporary accommodation. Also those in communal establishments, travellers, and sofa surfers, there's a big kind of array of definition of those excluded from these household surveys. And the problem is, is that smoking prevalence tends to be higher among some of these hidden populations. And so excluding them from population level surveys might actually lead to an underestimation of smoking prevalence. Now, why is that important? Well, it's important because government decisions on smoking policies tend to rely on the prevalence of smoking at any one time, and also the prevalence among certain groups. And the government's goal is to eventually hopefully, by 2030, to actually reduce smoking prevalence to below 5%. But if we are actually at a higher prevalence than the government statistics estimate, because we only sample household surveys, this would mean that we would actually reach that prevalence of less than 5% at a much later date than currently predicted. And so this would suggest that we possibly need more policies to be implemented, perhaps changing the age of sale, increasing it as other countries have, including New Zealand. So this is why it's really important. And as part of this project, I aim to estimate the hidden population within the UK using a work book based method, which is basically using government statistics across Scotland, Wales, Northern Ireland and England. And then from that, look at the various studies which have been conducted to assess smoking prevalence within those hidden populations, and estimate what the true smoking

prevalence would be, if it wasn't just household surveys that were sampled. So households that were sampled, but we also included hidden populations in the sampling frame. And as part of this project, I've estimated that the prevalence may actually be one to 2%, even 3% higher than it is currently estimated to be at around 13%. So it might instead be around 15%. So this has huge implications. Now, as part of this report, I also recognise that there's limitations in the data that is currently available. It's very hard to sample certain hidden groups. And there needs to be more research into kind of the actual true prevalence of the hidden population. But nonetheless, I hope that this draws attention to the issue. And I hope after the fellowship that this actually stimulates greater discussion. And at a bare minimum, I think it's really important to make the public aware of the accuracy and confidence that we can have in prevalence statistics. So we saw during the COVID errors of the two years that statistics was given more commonly to the public, and they will, the public became more used to hearing about confidence intervals and effect sizes, but put in kind of lay language such as a margin of error. And I think it's important that with any prevalence statistics that we take that on board, and we convey to the public that although smoking prevalence, for example, might be around 13%. It could be as high as 15 or 16%. And the limitations of the data that we've collected, so actually make the public aware that this is household surveys, and it excludes a certain group of individuals who may be actually at home Risk of morbidity and mortality as a consequence of this smoking. As my project goes on, the goal is in the next few weeks to actually get feedback from members of the public in these hidden populations on their views on the report and the findings, but also from those working all the key stakeholders working within kind of the Office for National Statistics. And I know they have some work underway at the moment, which is trying to identify issues with excluding these hidden populations. And ultimately, I would just like to, in some way or another, and I don't know if this will be through a website, but just increase the kind of public's awareness around statistics and statistical reporting, and so that they can take more kind of judgments themselves as to whether the statistics that are given to them perhaps in smoking prevalence are reliable or not acknowledging at the same time that there is an issue of statistical literacy. And we will need to think about the communication of the stats effectively. Yeah, so I've always been interested in kind of statistical literacy. And I think a lot of the problem stems from the fact that as kind of academics or scientists, we like to use complicated jargon. And we like to show that we're clever and we've we've learned things and we know what we're talking about. At the same time, I think there's a way to communicate, not just kind of effect sizes, a means that the public generally hear about, but also the quality of the data variability or confidence in it in a manner in which the public can understand. But at the same time, it's, I think it's quite okay for us to explain what those things mean. So we can say that, we are confident that no smoking prevalence maybe lies between 10 and 15%. And we can relay how confident that we are regarding that. And we can maybe give a margin of error, and explain a little bit more. And I think, since COVID, my interest has grown within this arrow area, because it was kind of the first time in which the public were really given quite complicated statistical terminologies, because they had forecasting and modelling and all these things were given on the knees. And over time, I think a lot of the public were becoming more kind of attuned and aware of what these terms meant. And I think there's a kind of a general feeling now that perhaps there's ways in which we can increase statistical literacy. And one of those might be actually through kind of applied research such as what we've done in this project here, by just communicating our findings, explaining the terms, but not ignoring those things. So we shouldn't just not tell the public about confidence intervals, because they don't understand what they are, we can tell them, give them examples, maybe use graphical figures. So, for example, I think you can use like fan graphs, which basically would show the average smoking prevalence over time. But also, it would have values above and below which would show how confident we are with estimates each month. And there's a group at Cambridge University, and I'm sure there's a number of other universities, which also have groups

specifically looking at communicating statistics and statistical literacy and what we can do to help people in these scenarios. And I think that's something that perhaps after this project has been completed, maybe there's some sort of collaboration, though it was a group that I should get in contact with. But it's it's something that I think is important. And for research to have impact, we turned ensure that the public are given accurate information on the quality, the confidence we have, as I said, and not just kind of the effect of this site. So they don't want to just know how at risk they are, how confident are we in that estimate. And so for example, with the project that we've done, on the household surveys and smoking, I think it's important for the public to know that we are reasonably confident that's making prevalence, maybe as stated by the Office of National Statistics. But at the same time, there is an error of mod, there is a margin of error. And it could be between this value and this value. And perhaps more research is needed on the best way to communicate that. So my ultimate goal was to have had a workshop with everybody attend. I think that was like overly ambitious given the stakeholders involved, simply because it was it's been very hard to get everyone to sign up to a specific time. So from the particular stakeholders that were interested in, I'm going to email them the report and ask for written feedback. But within UCL, I've already set up kind of face to face workshop with the academics who are interested in this particular project for us to have a discussion and think about the ways forward, how confident we are in the report what what the next stages are. And I've also contacted

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a number of members of the public who have been in volved with other projects we have done, who would be happy to provide feedback and comments on the report, not the kind of technical details, but what they think the implications are even perhaps kind of our terminology and definitions that we use within the report. And I think that can be quite easily done on a kind of one to one basis, perhaps online to make it easier. As a kind of a whole, it's drawing all that information together. So we'll amend the report in response to those comments. But also, I'm hoping that that will kind of drive the discussion of where kind of the next steps are what needs to be done. And eventually, it would be really nice to have kind of give a seminar or public seminar presentation, kind of on the how statistics can be communicated a bit of kind of on the literacy of statistics, as well. And then focusing specifically on this project and its implications. We're still at the early stages of this work. But I think the potential is and I think in the very short term, is, I think it's quite easy on a government website to not just give a permanent statistic, but to talk about how competent you are with a result. And often this information is put it in an appendix or a separate section, which isn't clear to the general public. And I think we need to be more open and honest about our research. In the longer term, I know the Office for National Statistics, statistics are aware of the issue of household surveys and exclusion of this hidden population. And there's a working group currently discussing what the size of the hidden population might be. And I think once that kind of report is published, we can use that in our research. So I think the main limitation is actually just estimating the size of the hidden population. Once we know the size of the hidden population, we can model the impact that has on actual prevalence statistics, which reported a lot of policies and treatment for smokers rely on accurate estimation of those within certain kind of stratified groups. So if we are, there's a big problem if we're under estimating smoking, because it means that certain policies may not be implemented, because the government is happy with the way things are going. But at the same time, it's even more severe if we are under estimating, and specifically in specific high risk groups, so those from lower socioeconomic deprived backgrounds. And I feel and I haven't assessed this, but I think the problem may be greater among those individuals, with this underestimation. And therefore, it may be that we're not, we're not providing enough support

and targeted treatment to those who are most at risk. And I think that that has big implications in itself. So as I said previously, the government aims to reduce smoking prevalence below 5%. If we stay with the current measurement, when the government reaches that target, they may cease or slow down on their tobacco treatment implementation and their policies. And so that will then lead a group of individuals who are hidden or not included in the survey still being at risk not receiving the help that they need. And it may be that those are the most disadvantaged individuals who have the greatest kind of social inequalities. One thing that's taken me by surprise is I thought beforehand that I was very involved in impact. So I thought beforehand, well, I've done some work with PHE, I've worked with charities, I published a lot of articles, I've done a few press releases, so my research is having an impact. But actually, as I've taken part, in the fellowship, I come to realise that impact actually means kind of a very different thing to what I first thought about. And I'm much more interested now, not just in getting that publication, which I suppose I was driven by during my PhD, but actually, that publication having an impact in the real world and actually doing research not just for research sake, but actually to help the public. And in particular, I see a much greater need for me to engage the public in research. So for a very long time, I thought, while the public might have a little bit of a role if I'm doing a randomised control trial, in thinking about kind of the feasibility or kind of logistics, and might ask kind of qualitative questions with the public after I've done a particular study to get some feedback. But I think the public can be involved at all of the stages, and also at the very end stage and helping communicating to communicate the findings and then therefore have an impact. So I think that's the biggest thing that I've kind of, for me that I've realised during this fellowship. I think another thing is the complexity of actually engaging with stakeholders when I'm initiating the contact. So previously, I've been I've been invited to talk to stakeholders, but it's been through someone else meetings have been set up, and it's all been around Instant, I think there's a big difference when you're trying to arrange things yourself. And you have to be quite organised. And also pushy, and make sure that you kind of badger them to respond to emails, if you can. So I think those are the main things. At the same time, I think I've realised that I knew a little bit more about how to engage with stakeholders than I thought I knew and I'd picked up on. And I think that's the nice thing about the fellowship is I've actually, it's a way of practising and actually using your skills, which I didn't know I had beforehand, and then at the same time, brushing up on them, after receiving the kind of feedback and discussing these bits, with fellows, on the fellowship as well. So the nice thing in our department is, there's two other fellows who work very closely with me. So we've been able to bounce ideas off, and we're collaborating on this particular project as well, I suppose from a kind of an academic viewpoint, because I'm a bit geeky, when it comes to stats, I like the fact that it appears that there is likely a big issue with kind of coverage error error and ignoring hidden populations. And so I'm quite happy that, that we're showing this effect. And that there's, there's something here that needs to be investigated further. And I suppose that made me smile, I think I was on maternity leave. And then we had COVID, over like a three year period. And I think the nice thing of this is seems to have got me back into kind of the communicating and working with individuals in different departments. And so it's just been quite nice. Coming out of my shell a little bit after I've been off work for a while and really getting back into the subject area and doing something that I really enjoy as well. So a lot of my research to date has been dictated by the kind of wider research group what the fundamental research questions are. And this is particularly my own projects is something that I've kind of come up with, and that I can decide on the direction with as well. I think the only thing to add is I think this is a great fellowship, a brilliant idea, and I think it will be I mean anyone who gets involved in this in the coming years, if the academic staff, PhD students or administrative staff, I think they're really they'll reap the benefits out of it and really get a good

grasp of kind of the way in which we can ensure impact with our research. And also in particular, as I said before, just improving our engagement with the public and stakeholders generally