# An introduction to surveys and longitudinal data: an analysis of well-being

## Transcript

This presentation is about analysis of wellbeing during the first stages of the COVID-19 pandemic, using Understanding Society. And my colleague, Jennifer Murphy, and I were responsible for this video.

The overall purpose of our study was to investigate the trajectory of wellbeing in the population over the course of the first wave of the pandemic. And we were also interested in subsegments of that, whether change in wellbeing was distributed equally across the population.

There are obvious things that might impact from previous work and sort of theory, medical conditions, social isolation, financial stress, deprivation. These were all predictors for changes in wellbeing.

And we're also further than that interested whether there were community level characteristics which might protect against decline. So, social capital of some form or other being the obvious predictor.

There's plenty of work done prior to us publishing our own work, Psychological Effects of the Pandemic, Lockdown and Contracting COVID. All are kind of relevant to thinking about what might actually be causing changes in wellbeing.

There was Daheri et al. 2021 paper, Psychological Impact Observed Across 18 Different Countries. So, there's an effect that's pan-cultural. And Google Trends indicated an increase in terms like loneliness, worry, sadness during the initial stages. That was a paper by Brodeur et al.

There was already a precursor in work that was published very quickly into the pandemic. It's really just outlining that.

What did we do? We used the first four waves of the Understanding Society COVID-19 survey and used Wave 9 of the main Understanding Society as the baseline. So, that was where people were before the pandemic hit.

And then we're observing changes relative to that baseline.

Our outcome variable was the GHQ caseness score, very commonly used outcome variable for wellbeing.

And then we are looking at the impact of the onset of the pandemic by comparing Wave 9 of the main survey with Wave 1 of the COVID study. And then looking at the trajectory of change in wellbeing over the first, up to the first relaxation of restrictions, which was effectively in Wave 4.

So, we ran two different sets of simple OLS regression models, one for the initial response and a separate one for the decline. So, we used longitudinal weights inevitably for these particular models.

These are the explanatory variables we thought on the basis of previous work and theoretical concerns that might be relevant to predicting whether an individual had a change in wellbeing. So, deprivation, and we have only got IMD-decile by LSOA, so it's a bit coarse grained and I'll talk about that later.

And then community cohesion variable, which is linked to one of the survey questions. So, that's really looking at that social capital question.

And then loneliness as a predictor. So, we have loneliness before the start of the pandemic and how that itself changes during the course of the pandemic. So, loneliness obviously very tied in with ideas of wellbeing.

And then the baseline wellbeing.

And then two particular variables because obviously one of the impacts of the pandemic was the change in people’s income statuses and because of furlough or even being laid off. So, a financial crisis indicated by these food banks in the last four weeks. And an actual reduction in recorded income.

Covariates that were thought to be relevant were age, ethnic minority and a deprivation indicator, and an existing health conditions indicator.

So, mean GHQ caseness score by sex is what we're showing on this diagram. And you can see here, probably reasonably predictable, that there's this initial decline in wellbeing. So, the caseness score, high caseness score equals poorer wellbeing. And that is having a different effect on men and women. So, women were more acutely affected by the initial effects of the pandemic, but the decline was also strong, sorry, the recovery was also stronger as the pandemic progressed.

And there is of course a well-established difference in overall baseline level of wellbeing between men and women, and obviously this is self-report based, so we don't know whether this is to do with underreporting by men or actual real differences between men and women in their wellbeing. However, the relative effects here are obviously noticeable.

So, our first model here predicting the decline in wellbeing. So, this is the basic covariance. And what we can see here is that the covariates are having not a great deal of effect. So, you see these R2 at the bottom here, really tiny R2, slightly more for the female model than the male model. But essentially there is no particular, nothing really going on here.

The covariates actually are not having that much of an impact, which is slightly surprising. And noticeable that health conditions and IMD-deciles, not significant at all.

Now once you add in the baseline wellbeing, then there is a sudden increase in the R2. It's a really quite noticeable change. So, this is one of the big predictors of a decline in wellbeing. However, what's happening here is slightly surprising because it's having a negative effect. Now, just to get this clear, that means that it's actually associated with a smaller decline in wellbeing than if you have a higher baseline score. So, the effect on wellbeing is perhaps the opposite of what one might have predicted. Those who already had poor wellbeing did not decline as much as those who were, their wellbeing was good.

If you add in loneliness as a predictor, that effectively adds another significant amount to the R2. So, loneliness and baseline wellbeing are heavy predictors of the decline.

So, here we are looking at something very specific going on in terms of possible mechanisms. Because what we're actually after is a change in loneliness over the course of the pandemic. So, during those waves. And this probably is the mechanism which is causing this change in wellbeing. And that begins to make some sort of sense because if you have, you're in a situation where you've got a lot of social capital and that is then challenged by the pandemic, the lockdown essentially separated out. It was a leveller in that sense.

Then your change in loneliness will be a natural consequence of that, and that might then lead to a change in wellbeing. So, we can see a possible causal mechanism here, although obviously this is regression data and we can't read too much into that.

So, this is the recovery. And again, the covariates are not really making much headway in terms of the R2 value that we've got here and the predictiveness of the recovery.

But once we add in the baseline wellbeing and the initial decline in wellbeing as a predictor, then the R2 jump up again.

So, the recovery, it feels a bit like a boomerang effect. And the wellbeing is declining and then the amount of the decline and the original baseline is then predicting the rates of recovery. And that is happening in a stronger way. And we reverse, because we're talking about recovery here, we've reversed the coefficient. So, a positive value means a greater recovery. And that again.

And then we've added in a set of other covariates here to do with somebody who's always lonely, as a predictor of how well they'll recover. And that's a good predictor. And then this financial crisis caused by the pandemic is also a significant predictor. And this again increases the power of the model.

So, our conclusions. A decline in wellbeing was first observed at the beginning of the first lockdown period at the beginning of March 2020. No great surprises there. But this was matched by a corresponding recovery between April and July as the restrictions were gradually lifted.

There's no association between the decline and deprivation, nor between deprivation and recovery. So, this again was a slightly surprising result. Obviously the granularity of the deprivation indicator may have been an issue here, but the strongest predictor of decline in wellbeing was the baseline score, with the counterintuitive finding that those with a pre-existing porous wellbeing, the impact of the pandemic restrictions on mental health was minimal.

But those who felt previously well, the restrictions was greater.

And so, for recovery of the baseline, the degree of decline, new economic hardship and reporting of loneliness were all important factors.

So, just to say again, IMD was at LSOA level and that may not be fine grained enough.

The findings do conflate several different factors. So, the background effects of the pandemic, the effects of lockdown itself, and then personal effects of the pandemic. So, individuals may have people who have died or have becoming severely ill. They may themselves have become severely ill. And these will obviously have very particular effects on one's sense of wellbeing.

There is a question about whether it's the background affects the pandemic, the personal affects the pandemic or the specific effects of lockdown. And these are obviously conflated in the data.

And I mean one sense of that is this doesn't actually matter. It would be good if one was trying to get deeper into this to try and tease those out. But there is a kind of almost a collated effect of the of those things.

The sample, significant attrition between the main survey and the COVID survey. We have to be straightforward about that. Obviously, we've applied the weights that are available. But there are quite a lot of people who elected not to take part in the COVID survey who are in the main survey. And obviously that may be a factor in predicting that the change here. People who suffered the biggest change in wellbeing may well have been the ones who have elected not to be in the survey. So, there may be some biases in here that we can't possibly pick up on, that the weights won't help us with. So, that's something just to be careful about interpreting these findings.

Okay, and here's the reference to the published paper. And thank you very much for listening.

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