

Mental health and wellbeing

Sally McManus

May 2012

Abstract Mental health is widely regarded as a spectrum with ‘well-being’ on one end and ‘illness’ on the other: that the absence of one indicates the presence of the other. The extent to which mental and mental ill-health are independent of each other has been disputed.

On the Adult Psychiatric Morbidity Survey (APMS), common mental disorders were assessed using the Revised Clinical Interview Schedule and nine survey questions had face validity as indicators of mental wellbeing. Data were analysed using Principle Components Analysis (PCA) to:

- 1) explore the factor structure of mental well-being,
- 2) identify whether a well-being scale could be derived from the survey items, and
- 3) examine the independence of well-being and mental ill-health.

The well-being items formed two distinct factors. These corresponded with ‘hedonic’ and ‘eudaimonic’ well-being. Hedonic well-being was lower in women and fell with increasing age; eudaimonic well-being was higher in women and increased with increasing age.

We found that while mental well-being is associated with mental illness, they are ultimately independent. Including measures of both are important. We also confirmed that well-being is multidimensional, with different groups experiencing different aspects of well-being. It is important that its measurement is not reduced to a single question – e.g. about ‘happiness’. Such simplifications will be misleading, for example when considering the distribution of well-being by age or sex.

Speaker Sally McManus is a Research Director in the Health and Well-being Team at the National Centre for Social Research (NatCen). Her current projects include secondary analysis of the APMS and a study for Department of Work and Pensions examining mental health trajectories among Job Seekers Allowance (JSA) claimants. She is a member of the Office of National Statistics (ONS) Technical Advisory Group informing the development of national measures of well-being. The analyses discussed here were led by Professor Scott Weich at Warwick Medical School.

ICLS OCCASIONAL PAPERS, SERIES 9 WELLBEING

ICLS hosted a policy seminar on Well-being at UCL on 2 May 2012. The seminar was chaired by Professor Mel Bartley, ICLS Director and the presentations co-ordinated by Professor Amanda Sacker, University of Essex and ICLS. Transcripts from this event, including this paper, have been made available via the ICLS Occasional Paper Series. This series allows all (those who were or were not able to attend) to read an account of the presentation.

Policy Seminar Abstract

The current Office of National Statistics (ONS) programme to measure national wellbeing is unlikely to have escaped many people's attention. Media attention on "happiness" has obscured the broader aims of this initiative, including measuring individual wellbeing in all its complexity. Is subjective wellbeing a useful measure for impact assessment by policy makers and practitioners? Will wellbeing continue to be the domain of health professionals or will all policy makers and service providers be expected to use subjective wellbeing as an outcome in their assessments? This seminar will present the results of some studies carried out by members of National Centre for Social Research (NatCen) and the ESRC International Centre for Life Course Studies in Health and Society (ICLS) using recently available survey data. The studies cover topics on measuring wellbeing and on factors that can have long-reaching implications for wellbeing over the life course. Taken together, they shed light on the role that wellbeing can play in the process of intervention development and implementation.

Presentations and Speakers

OP 9.1 Mental health and wellbeing

Sally McManus, Research Director, NatCen Health and Well-being Team

OP 9.2 Health related behaviours and wellbeing in adolescence

Amanda Sacker, ICLS and Professor of Quantitative Social Science at the Institute for Social and Economic Research, University of Essex.

OP 9.3 Do physical working conditions influence quality of life after retirement?

Loretta Platts, ICLS PhD student, Imperial College

OP 9.4 Well-being within older couples: Does your partner's health affect your happiness?

Jessica Abell, ICLS PhD student, Imperial College

Mental health and wellbeing

Sally McManus

SLIDE 1

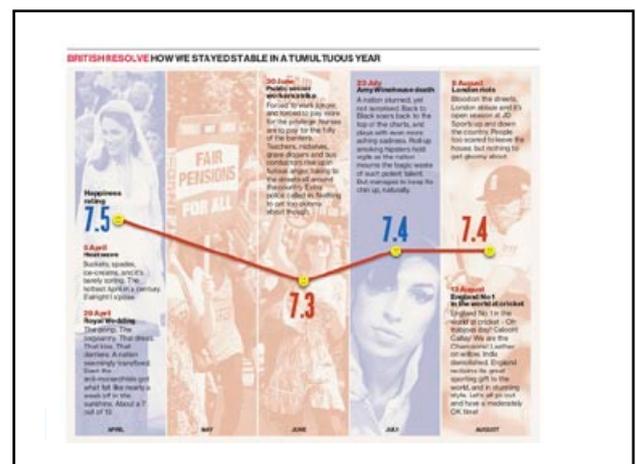
What I'm going to talk about is a bit of scene setting for the other papers that we're going to be having today (see Occasional Paper Series 9). I'm going to be focusing on some of the methodological issues around measuring subjective well-being, in particular, the relationship between subjective well-being and mental ill-health. I work in the NatCen 'Health and Well-being' research team – which is a sign of how things have changed because just a few years ago we were just the 'Health' Team.



SLIDE 2

I start with this graphic, which is taken from the Independent. It appeared after ONS published initial results from their programme to measure national subjective well-being. It's not the most brilliant graphic. The y-axis doesn't start at zero for a start, which we usually like to see. But there are two things I like about it. One – it shows how much lots of different organisations, individuals, people in general have really engaged with this idea of measuring subjective well-being. There's been huge interest. Media interest as well. And a lot of it is driven by people wanting to explain what drives subjective well-being. So here we've got a national newspaper and what they're looking for is what kind of macro events might be explaining changes in society's levels of subjective well-being. So illustrated here are big events like the royal wedding and the London riots.

The second reason I like this graphic is because it shows that levels of well-being have remained stable. Data points for a few months are shown here and its pretty much flat.



SLIDE 3

Of course not everyone has been so positive. This is a headline from the Daily Mail: '£2 million pound bill to find out that most of us are fairly happy' headline. So while many people are fully on board, there's always someone who isn't.

'A £2m bill to find out that most of us are fairly happy'

Daily Mail, Dec 2011

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SLIDE 4

Much of the current interest in well-being took off with in France with the Stiglitz report. In the report, Stiglitz, Sen and Fitoussi said that we shouldn't just rely on objective economic measures when assessing social progress. We ought to also consider measures that relate to subjective well-being.

Report by the Commission on the
Measurement of Economic
Performance and Social Progress

Professor Jereghy E. O'Donoghue, Chair, Columbia University

Professor Amartya Sen, Chair Advisor, Harvard University

Professor Jean-Paul Fitoussi, Co-ordinator of the Commission, BP

www.ockam.be/oc

SLIDE 5

The authors of the report said that subjective well-being needs to be self-report, which for someone who works in survey research is brilliant news because this is exactly what surveys do. And also that measuring well-being needs to capture positive attributes not just negative attributes. In research data collection historically we've got a great tradition of collecting loads of information about bad things but also now we need to start collecting information about good things as well.

Subjective wellbeing...

- Self-report
- Positive attributes

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SLIDE 6 and 7

Where does mental health and well-being fit into this? Well, 'mental health' is something of a misnomer, as generally we have tended to collect data more on mental illness instead.

Subjective wellbeing...

- Self-report
- Positive attributes
 - mental health?
 - mental illness!

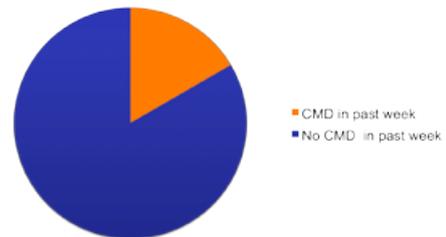
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SLIDE 8

We've got a lot of data about people with, for example, a common mental disorder. We know the prevalence of common mental disorders in Britain. We know a lot about the characteristics of people who have a common mental disorder. About one in the six in the population in the week prior to interview – according to data from the Adult Psychiatric Morbidity Survey (APMS) – met the threshold for an anxiety disorder or depressive disorder. We know a lot about that one in six. And we know a lot less about variation in the five fifths of the population shown on this pie chart in blue.

1 in 6: common mental disorder



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SLIDE 9

So a few questions I wanted to ask today, and not necessarily answer them all, are as follows: What is mental well-being? Is it simply the opposite of a spectrum with mental illness on one side and subjective well-being, mental well-being on the other? Or is it a bit more complicated than that? Can it be measured? Some people say that you can't measure something because it's subjective. Well, maybe we can explore that, and finally who has high levels of mental well-being?

Questions

- What is mental 'wellbeing'?
- Is it the opposite of mental illness?
- Can it be measured?
- Who has mental wellbeing?

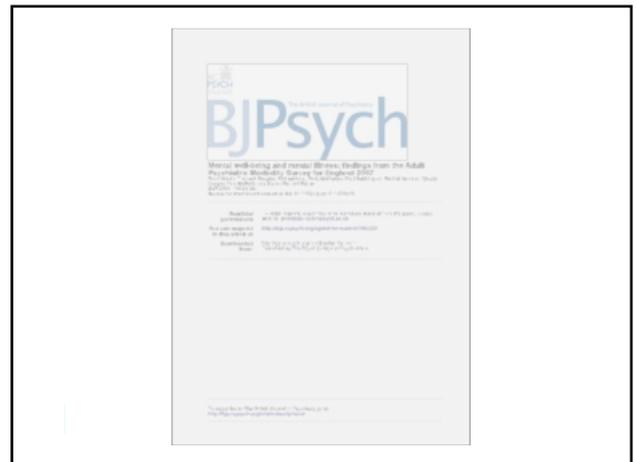
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SLIDE 10-11

The analysis I'm going to talk about today was published in the British Journal of Psychiatry. The paper was written by a number of different people – mainly psychiatrists. This is a discussion, therefore that has been taking place in one field. But the whole well-being measurement debate is going on in many different disciplines – including public health, public policy, and economics, with quite different conclusions being drawn.

I want to flag up that Scott Weich was the one who originated and led on the analysis for this paper, he's a psychiatrist. But also importantly we had the involvement of Sarah Stewart-Brown, who was the main one to develop the Warwick Edinburgh Mental Well-being Scale, which is now a very widely used survey measure of mental well-being.



Collaboration

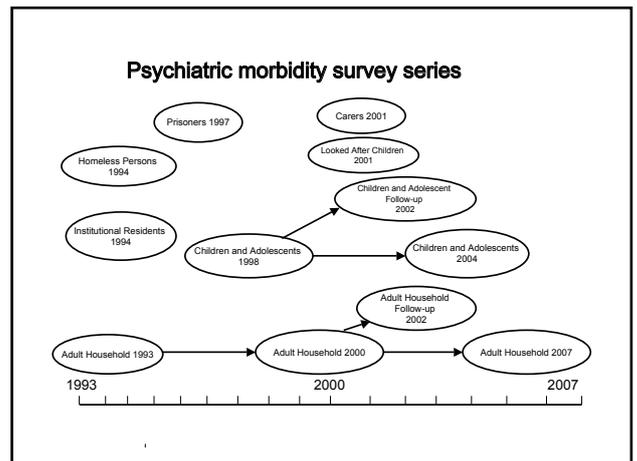
- Scott Weich (Warwick)
- Traolach Brugha (Leicester)
- Michael King (RFH)
- Sally McManus (NatCen)
- Paul Bebbington (UCL)
- Rachel Jenkins (IoP)
- Claudia Cooper (UCL)
- Orla McBride (Belfast)
- Sarah Stewart-Brown (Warwick)

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SLIDE 12

Britain is uniquely well placed in having the most fantastic population level data on community rates of psychiatric morbidity. Many different kinds of mental disorder have been assessed in a range of different populations. This chart, each of these circles shows a different survey that's happened since the early 1990s. We're quite unique because it started early on in the early 1990s and the surveys have used consistent measures over a period of time.



SLIDE 13

I'm going to be talking today about the 2007 APMS survey, the rest were all carried out by ONS. APMS was commissioned by the NHS Information Centre with funding from the Department of Health. Probability sample, private households, 7,500 adults, using CAPI and CASI. The main thing to say about APMS was the hugely long interview. On average about an hour and a half, but up to three hours. Which is long for a cross-sectional survey of this type. And it included the clinical interview schedule revised. This is an intensive assessment of mental health covering fourteen different types of neurotic symptoms.

APMS 2007

- NHS Information Centre
- Probability sample, private households
- 7,400 adults
- CAPI, CASI
- 90 mins
- Clinical Interview Schedule – revised

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SLIDE 14

Horrendous slide (see right) but it is horrendous on purpose. It's to show that we developed a questionnaire identifying everything that we could that might be a major risk factor for poor mental health. The questionnaire covered domestic violence, sexual abuse, cognitive functioning, stressful life events, problem gambling, smoking, work related stress... These are all topics established as having relevance for and association with mental health. The reason that I flag this up is to make clear that if we want to look at what's associated with well-being – this survey covers lots of key topics of great relevance.

Risk and protective factors

- general health, conditions, BMI, disability
- caring
- suicidal behaviour and self-harm
- work related stress
- smoking, drinking, drug use
- social functioning
- problem gambling
- post traumatic stress disorder and military experience
- domestic violence, sexual abuse,
- discrimination and sexual identity
- intellectual and cognitive functioning
- stressful life events as child and adult
- social support networks and parenting
- religion and spirituality, social capital, trust, participation... and more!

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SLIDE 15

However, the survey didn't include any validated measures of positive well-being. So what can we do to enable us to use this data to examine relationships with mental well-being? The data has been reported extensively in relation to mental health, but only really in relation to mental disorder.



SLIDE 16

Okay, we shouldn't beat ourselves up too much about the fact that that survey didn't include a validated measure of mental well-being, because this is a chart that I pulled together by talking to colleagues at NatCen about surveys that were carried out in 2007 and very few surveys, just those few years ago, included any validated measures of well-being.

2007, wellbeing on NatCen surveys...

	Mental illness/function <small>GHQ, GHF, SF</small>	Life Satis- faction	Social Satis- faction	Job Satis- faction	'Happi- ness'		
HSE	★						
SHeS	★						
WHS	★						
SSA		★	★	★	★		
BSA		★	★	★	★		
ELSA	★	★	★	★	★		
USoc/ BHPS	★	★	★	★	★		
BGPS							
APMS	★				★		

SLIDE 17

The first three surveys here – the Health Survey for England, the Scottish Health Survey, and the Welsh Health Survey – had excellent measures of mental illness, functioning, CIS-R, SF and those sorts of measures.

2007, wellbeing on NatCen surveys...

	Mental illness/function <small>GHQ, GHF, SF</small>	Life Satis- faction	Social Satis- faction	Job Satis- faction	'Happi- ness'		
HSE	★						
SHeS	★						
WHS	★						
SSA		★	★	★	★		
BSA		★	★	★	★		
ELSA	★	★	★	★	★		
USoc/ BHPS	★	★	★	★	★		
BGPS							
APMS	★				★		

SLIDE 18

The attitudinal surveys – like British Social Attitudes – have historically had good cover of the evaluative measures, where people are assessing their satisfaction overall or with various domains. Or have included single items about a global sense of satisfaction or happiness or optimism.

2007, wellbeing on NatCen surveys...

	Mental illness/function <small>GHQ, GHF, SF</small>	Life Satis- faction	Social Satis- faction	Job Satis- faction	'Happi- ness'		
HSE	★						
SHeS	★						
WHS	★						
SSA		★	★	★	★		
BSA		★	★	★	★		
ELSA	★	★	★	★	★		
USoc/ BHPS	★	★	★	★	★		
BGPS							
APMS	★				★		

SLIDE 19

The longitudinal surveys have generally had the best coverage, but still tended not to have the validated measures of subjective well-being that people are looking to use now.

2007, wellbeing on NatCen surveys...

	Mental illness/function <small>GHQ, CBHQ, SF</small>	Life Satisfaction	Social Satisfaction	Job Satisfaction	'Happiness'		
HSE	★						
SHeS	★						
WHS	★						
SSA		★	★	★	★		
BSA		★	★	★	★		
ELSA	★	★	★	★	★		
USoc/BHPS	★	★	★	★	★		
BGPS							
APMS	★				★		

SLIDE 20

There are a whole load of specialist surveys, this one is the British Gambling Prevalence Survey (BGPS), but there are all sorts, for example on topics like nutrition. I couldn't find any with measures of well-being.

2007, wellbeing on NatCen surveys...

	Mental illness/function <small>GHQ, CBHQ, SF</small>	Life Satisfaction	Social Satisfaction	Job Satisfaction	'Happiness'		
HSE	★						
SHeS	★						
WHS	★						
SSA		★	★	★	★		
BSA		★	★	★	★		
ELSA	★	★	★	★	★		
USoc/BHPS	★	★	★	★	★		
BGPS							
APMS	★				★		

SLIDE 21

And then there's APMS – which is what we're talking about today. 20

2007, wellbeing on NatCen surveys...

	Mental illness/function <small>GHQ, CBHQ, SF</small>	Life Satisfaction	Social Satisfaction	Job Satisfaction	'Happiness'		
HSE	★						
SHeS	★						
WHS	★						
SSA		★	★	★	★		
BSA		★	★	★	★		
ELSA	★	★	★	★	★		
USoc/BHPS	★	★	★	★	★		
BGPS							
APMS	★				★		

SLIDE 22

Opportunistically, after the survey was complete, we went through the questionnaire and pulled out all the items we thought had face validity for being about positive aspects of subjective well-being. Some of them will be familiar because they're taking from standardised measures like the Short Form.

So we've got calm and peaceful, having lots of energy, being full of life. Single item measure on global happiness, on optimism. Being able to complete tasks. Getting on with family. Enjoying spare time. Having a sense of belonging. Not the questions that we would necessarily have chosen if we started afresh. We wanted to

Possible mental wellbeing items in APMS 2007	
Calm and peaceful	And how much of the time over the past 4 weeks have you felt calm and peaceful
Lots of energy	And how much of the time over the past 4 weeks did you have a lot of energy
Full of life	And how much of the time over the past 4 weeks have you felt full of life
Happy	How happy these days
Optimism	Over the next 3-5 years, expect to have more positive than negative experiences
Completes tasks	I complete my tasks at home and at work satisfactorily
Gets on with family	I get on well with my family and other relatives
Enjoys spare time	I enjoy my spare time
Belonging	I feel like I belong around here

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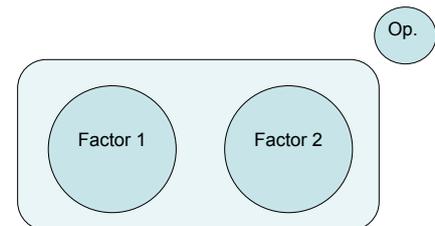


see if, post-hoc, we could derive a meaningful well-being scale that would enable us to use this dataset to examine associations with well-being.

SLIDE 23

We put all the items into a principle components analysis and came up with a two-factor solution. The optimism item failed to load onto either factor. So it was dropped and the analysis was run again.

Principle Components Analysis



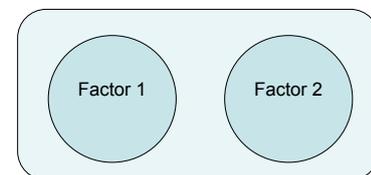
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SLIDE 24

And again a two-factor solution emerged.

PCA: two factor solution

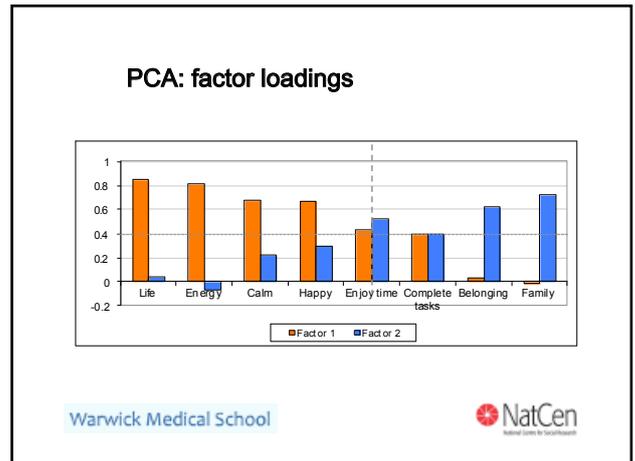


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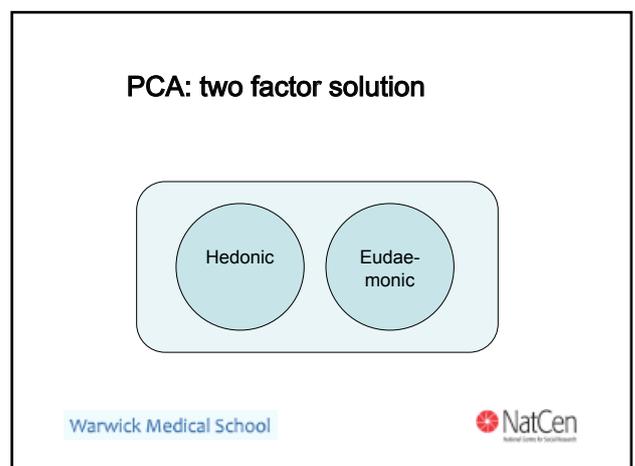
SLIDE 25

This slide shows the factor loadings for all the different items in the model.



SLIDE 26

But broadly, and it's not perfect, they did map onto what is in a lot of the literature already, which is a 'hedonic' factor and a 'eudaemonic' factor in well-being. These are two terms that are widely used in the well-being literature. So it was quite a relief to find that we had two factors and that they corresponded onto these established perspectives. A hedonic factor is very much about feelings and eudaemonia is more about flourishing and a sense of value and purpose, social well-being often fits into this as well, sometimes separately.



SLIDE 27

So two wellbeing scales were then produced, a hedonic one and a eudaemonic one. Our eudaemonic one didn't perform great so we're not suggesting anyone goes out and uses these scales, they were just produced so that we could access the information on the survey in relation to wellbeing.

Two wellbeing scales

Hedonic	Eudaemonic
•Full of life	•Get on with family
•Lots of energy	•Belonging
•Calm and peaceful	•Complete tasks
•Happy	•Enjoy spare time
•Enjoy spare time	

Cronbach's alpha .78 Cronbach's alpha .46

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SLIDE 28

How do the two factors correlate with each other? Well, they have a positive correlation as we would expect, and quite a strong one.

Correlation between WB factors

Hedonic and Eudaemonic scales: +0.49

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SLIDE 29

How do they correlate with mental illness? As we would expect there is a negative association so the higher your hedonic well-being is, the less likely, the lower your CISR score is, that was our measure for mental illness. The association was weaker for eudaemonic than for hedonic, which is pretty much what you'd expect because hedonic well-being is more about how you're feeling.

Correlation with mental illness (CIS-R score)

Hedonic
•-0.61

Eudaemonic
•-0.45

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SLIDE 30

Let's revisit those questions from the beginning. What is mental well-being? Well, we just picked a small number of items that had face validity for well-being and even there, at two clear factors were evident – so well-being seems to have at least two factors. Well-being is multi-dimensional. Can it be measured? We were able to produce some scales: they weren't brilliant scales but they seemed to work to some extent. So yes, we think it can be measured. Is it the opposite of mental illness? Well, it is strongly correlated with mental illness, but it is also, ultimately, independent of mental illness. It is possible to have low levels of well-being but not be mentally ill.

Questions

- What is mental 'wellbeing'?
- Can it be measured?
- Is it the opposite of mental illness?
- Who has mental wellbeing?

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SLIDE 31

And finally, who has mental well-being? Well, looking at the survey data we found no surprises, you could have told me this at the beginning, well-being is highest among people who are employed, living in higher income households, who are in good health ... Just as you'd expect.

Mental wellbeing higher among...

-  Employed people
-  Living in higher income households
-  In good health

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SLIDE 32

But what was more interesting was that we found different patterns of association with age and sex. So with our hedonic well-being factor what we found with this data was that it was slightly higher in men than in women. And with our eudaemonic factor, it was slightly higher in women than in men. And we also found that our hedonic factor decreased with age and our eudaemonic increased with age.

Associations with sex and age

- Hedonic – higher in men
- Hedonic – decreased with age
- Eudaemonic – higher in women
- Eudaemonic – increased with age

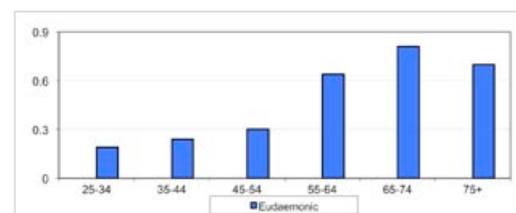
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SLIDE 33

Let's explore the associations with age in a little more depth. This chart is comparing these age groups with those aged 16 to 24. As you get older your likelihood of having a higher eudaemonic score increased. Although dipping in the 75+ group. This pattern is well established in the literature. James Nazroo has done some interesting work that finds if you control for pain and for physical health conditions a lot of the tail off in older age disappears.

Regression co-eff for eudaemonic WB, by age group



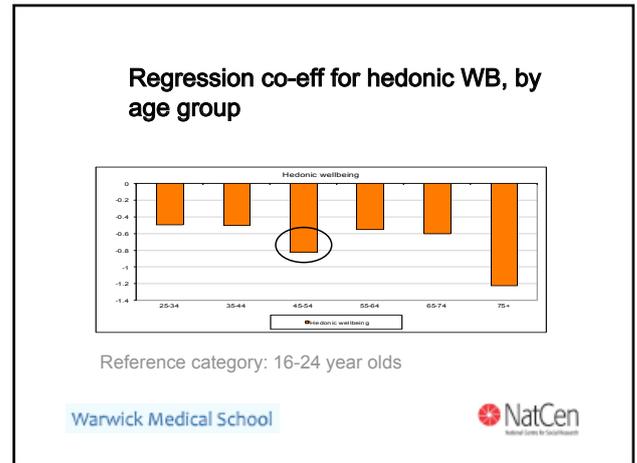
Reference category: 16-24 year olds

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SLIDE 34

There is a different pattern of association with age for hedonic well-being. The lowest levels are found among those aged 75+, but otherwise hedonic well-being by age was quite flat, apart from a dip among 45-54 year olds. This fits in very neatly with a lot of talk around there being a U-shape association between well-being and age. So this supports that pattern, but only for hedonic well-being.



SLIDE 35

So what does this mean? If you're carrying out an evaluation and you want to assess the impact of your intervention on a group's well-being, if you're interested in both mental illness and subjective well-being, then you need to ask about both. The presence of one doesn't indicate the absence of the other.

You need to recognise that subjective well-being is multidimensional. If you use a one item measure, like happiness or life satisfaction, the pattern that you get, your association with age and sex might be different from that which you would get if you used a different measure. So try to use a measure that captures the multidimensionality of subjective well-being. If you think your intervention is going to have an impact try to get in and evaluate that impact quickly, because people do tend to adapt to new circumstances. Even if your intervention has improved things for them greatly they are likely to adapt to their new situation and their level of subjective well-being – especially if measured

What does this mean...?

- Mental illness and wellbeing are different
- SWB is multidimensional
- Evaluate quickly
- Many things inform reported SWB

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using evaluative measures like satisfaction – is likely to return to what it was before. That is not to say that the intervention didn't work, but just that if you're using well-being as an evaluation outcome, measure it quickly.

Also, don't expect your intervention to have a massive impact on someone's subjective well-being because as we've seen many, many different things inform someone's subjective well-being, so a small change in subjective well-being can be an important thing.

SLIDE 36

Okay, so finally, finally, finally this is it now, I promise, returning to this slide that I put up before with a number of different surveys carried out by NatCen. It's not a representative sample but a pretty broad one.

2007, wellbeing on NatCen surveys...

	Mental illness/function <small>OR, OR-R, or</small>	Life satisfaction	Social satisfaction	Job satisfaction	'Happiness'		
HSE	★						
SHeS	★						
WHS	★						
SSA		★	★	★	★		
BSA		★	★	★	★		
ELSA	★	★	★	★	★		
BGPS							
US/BHPS	★	★	★	★	★		
APMS	★				★		

SLIDE 37

What kind of data are available now on well-being? There is a lot more coverage of well-being across pretty much all the surveys that NatCen does than there were a few years ago.

And now, wellbeing on NatCen surveys...

	Mental illness/function <small>OR, OR-R, or</small>	Life satisfaction	Social satisfaction	Job satisfaction	'Happiness'	WEM-WBS	ONS4
HSE	★	★	★	★		★	
SHeS	★	★	★	★		★	
WHS	★						★
SSA		★	★	★	★	★	
BSA	★	★	★	★	★	★	
ELSA	★	★	★	★	★	★	
BGPS					★		
US/BHPS	★	★	★	★	★	★	
Work/WB	★			★		★	★

SLIDE 38

The health surveys now are asking a lot of those evaluative measures, as well as single item questions like happiness, as well as the Warwick Edinburgh measure as well.

British Social Attitudes now includes questions about mental distress. When well-being became such a prominent focus for survey research I was concerned that researchers might stop asking about mental ill-health, but I haven't seen anything to support that. I thought that if researchers have limited space on a questionnaire, will they drop the mental health questions to make room for something on subjective

And now, wellbeing on NatCen surveys...

	Mental illness/function <small>OR, OR-R, or</small>	Life satisfaction	Social satisfaction	Job satisfaction	'Happiness'	WEM-WBS	ONS4
HSE	★	★	★	★	★	★	
SHeS	★	★	★	★		★	
WHS	★						★
SSA		★	★	★	★	★	
BSA	★	★	★	★	★	★	
ELSA	★	★	★	★	★	★	
BGPS					★		
US/BHPS	★	★	★	★	★	★	
Work/WB	★			★		★	★

SLIDE 39

Some of those special interest surveys – like gambling and nutrition – are starting to include measures, but often just single item measures. So we need to bear in mind the difficulties that there can be with using such measures.

And now, wellbeing on NatCen surveys...

	Mental illness/function <small>ONS, CB&I, etc</small>	Life satisfaction	Social satisfaction	Job satisfaction	'Happiness'	WEM-WBS	ONS4
HSE	★	★	★	★	★	★	
SheS	★	★	★	★		★	
WHS	★						★
SSA		★	★	★	★	★	
BSA	★	★	★	★	★	★	
ELSA	★	★	★	★	★	★	
BGPS					★		
US/BHPS	★	★	★	★	★	★	
Work/WB	★			★		★	★

SLIDE 40

But the big change is the arrival on the scene of the Warwick Edinburgh Mental Well-being Scale, this has become a part of many surveys. I should point out that since this, the 'ONS4' – (as I call it) which is the four items that ONS are using to assess the core subjective well-being – may well have come on to more of these surveys now too. It was a couple of months ago I pulled together this slide. And just to flag up that I've got a report coming out soon for DWP which is looking at work search and well-being; the dataset includes both the ONS4 and the Warwick Edinburgh Well-being Scale. So it will be

And now, wellbeing on NatCen surveys...

	Mental illness/function <small>ONS, CB&I, etc</small>	Life satisfaction	Social satisfaction	Job satisfaction	'Happiness'	WEM-WBS	ONS4
HSE	★	★	★	★	★	★	
SheS	★	★	★	★		★	
WHS	★						★
SSA		★	★	★	★	★	
BSA	★	★	★	★	★	★	
ELSA	★	★	★	★	★	★	
BGPS					★		
US/BHPS	★	★	★	★	★	★	
Work/WB	★			★		★	★

interesting to look at the relationship between these two ways of measuring subjective well-being.

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Thank you.

Thank you

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GLOSSARY

A **cohort** is defined as a group of subjects experiencing some event – typically birth – in a selected time period.

A **longitudinal study** is a research study involving a repeated observations of the same cohort over long periods of time – often many decades, unlike cross-sectional studies that are conducted for a set period.

The **Adult Psychiatric Morbidity Survey** (APMS) series provides data on the prevalence of both treated and untreated psychiatric disorder in the English adult population (aged 16 and over). This survey is the third in a series and was conducted by the National Centre for Social Research in collaboration with the University of Leicester for the NHS Information Centre for health and social care. The previous surveys were conducted in 1993 (16-64 year olds) and 2000 (16-74 year olds) by the Office for National Statistics, and covered England, Scotland and Wales.

The **CIS-R** is an instrument designed to measure neurotic symptoms and disorders, such as anxiety and depression. It can be administered by a lay interviewer as part of a survey interview. It comprises of 14 sections each covering a particular type of neurotic symptom. Scores are obtained for each symptom based on frequency, duration and severity in the last week. Individual symptoms scores can be summed to provide an overall score for the level of neurotic symptoms. Diagnoses of six neurotic disorders can also be derived

Principal Components Analysis (PCA) is a procedure that converts a set of observations of related variables into a smaller set of values on new variables called principal components. The aim of PCA is to reduce complex data to a lower dimension in order to reveal a simplified structure that often underlies the data.

The **Strengths and Difficulties Questionnaire** (SDQ) is a brief behavioural screening questionnaire about 3-16 year olds. It exists in several versions to meet the needs of researchers, clinicians and educationalists. The SDQ has 4 negative subscales (conduct problems, hyperactivity/inattention, emotional symptoms and peer relationship problems) which can be summed to give a total difficulties score and 1 positive subscale (pro-social behaviour).