

Wellbeing in policy analysis

Even though you have specific objectives in your area or department, your final aim is to improve people's lives – to maximise 'public value', 'social welfare' or 'wellbeing'.

As per the [Green Book](#), the UK Central Government Guidance on Appraisal and Evaluation, good advice for decision-making should consider all the important impacts on people's lives. There is a large research literature that has identified the statistical predictors of human wellbeing and evaluations of the effectiveness of past interventions, which we can use to develop and deliver better policies.

How does wellbeing change our approach?

1. Strategic level

Defining the objective: a focus on improving people's lives, improving wellbeing

2. Policy / project level

Designing-in wellbeing when developing options

- Designing options which improve wellbeing, based on the evidence
- Using the wellbeing evidence to better achieve outcomes, since wellbeing in turn improves productivity, health and pro-social behaviours

3. Appraising options

Understanding and comparing the **wellbeing impacts** in appraisal. Supporting the estimates in social cost benefit analysis by:

- Considering the full potential impacts
- Quantifying wellbeing impacts and monetising where possible
- Reflecting the impacts on different groups

In some cases, wellbeing will fully capture all the outcomes affected by a proposal (for example, improving social relations / improving wellbeing in a classroom). In this case, we can consistently compare options using wellbeing as the unit of benefit, rather than translating via monetary benefits. This means that subjective wellbeing can be used as the outcome variable for Social Cost Effectiveness Analysis.

Policy / Project level

Generating options which improve people's lives

- There is a large research literature from the past 50+ years that has identified the statistical predictors of human well-being. Your policy may influence people directly, where it is the aim of the policy, for example through improving their security, or indirectly, where there are unintentional additional impacts (e.g.) through the way in which people can interact with their neighbours.
- Wellbeing in turn improves health, productivity and 'pro-social' behaviours and so there may be ways to design an option more effectively through considering wellbeing.

[Green Book](#) Central Government
Guidance on Appraisal and Evaluation

4.15 Individual and society's wellbeing is influenced by a number of interrelated factors including health, relationships, security and purpose. At the long-list appraisal stage, evidence on the determinants of wellbeing can help describe Business As Usual and the purpose or scope of an intervention through SMART objectives. It may help to identify interventions which have an impact on wellbeing or another outcome which is affected by wellbeing. This supports the development of a long-list of options or the most efficient way of implementing a proposed solution.

4.16 Where appropriate evaluations of previous or similar interventions, international and wellbeing evidence, should be used to design options that build on what works, to avoid repeating past mistakes. This is particularly important when considering the scope of a proposal and the service solution (the technical means of delivering the intervention). When assessing the relevance of previous evaluation, allowance should be made for differences in context, circumstances and culture.

6.21 Subjective wellbeing evidence aims to capture the direct impact of a policy on wellbeing. The evidence can challenge decision makers to think carefully about the full range of an intervention's impacts and to consider a wider range of interventions.

Exercise when generating options:

- *What does the evidence suggest is most important for wellbeing and most effective for implementation?* [see over page and Table 1]
- **Wider range of options:** *Based on this evidence, what further options could achieve your policy objective which would actively improve wellbeing?*
- *Could you achieve your policy more effectively through using the wellbeing evidence?* [Annex, Table 2]
- **Designing-in Wellbeing:** *Of the options which you have, how could these be designed or delivered differently to positively influence wellbeing? Include all the indirect ways in which you may influence wellbeing, i.e. any unintentional impacts.*
- *How would your options change if you were thinking about the distribution of this change in wellbeing / the **different impacts on different groups**?*
- *How could your policy area **join-up or integrate** with other departments or policy areas, to lead to a greater overall impact?*

Overview summary: Drivers of wellbeing

- **Health** (mental and physical health, internal resources such as optimism, resilience)
- **Relationships** (close relationships as well as broader trust)
- **Security** (including e.g. feelings of safety as well as financial security)
- **Purpose** (e.g. through contribution to family and society, employment, volunteering, learning and improvement, participation in groups or organisations)
- **Autonomy and rights** (ability to influence our own situation and e.g. sense of fairness)
- **Environment** (**physical conditions** such as pollution, green space, housing or commuting; **social conditions** including the way spaces are designed to encourage positive interactions, or the time we have available; **cultural surroundings**, including the availability of activities to participate in and e.g. heritage or sense of belonging)

Basic needs
evidence suggests that most of these factors influence our wellbeing in a diminishing way

See Annex, Table 1

Appraising options

Understanding the full impacts on people's lives, to compare options

Good decision making should weigh up the costs and benefits of the key options. To provide the best advice when comparing options, we need to take into consideration all the **important** impacts on people's lives – all the cost and benefits.

Looking through **the domains of wellbeing and the evidence** helps us to understand:

- **where there may be important impacts we had not previously considered** (e.g. on social relations or mental health)
- **the scale of these impacts**
 - quantified
 - monetised where reliable estimates exist
- how different groups may be impacted differently

Green Book Central Government Guidance on Appraisal and Evaluation

6.21 Subjective wellbeing evidence aims to capture the direct impact of a policy on wellbeing. The evidence can challenge decision makers to think carefully about the full range of an intervention's impacts and to consider a wider range of interventions. The evidence can also help challenge implicit values placed on impacts by providing a better idea of the relative value of non-market goods.

6.22 The use of subjective wellbeing approaches in assessing the long-list of options is explained in Chapter 4. For use in short-list appraisal it may be appropriate to use subjective wellbeing as the outcome variable for Social CEA in certain circumstances. It is recognised that the methodology continues to evolve and it may be particularly useful in certain policy areas, for example community cohesion, children and families [footnote 16]. Where valuations are considered robust enough for inclusion in Social CBA, benefits or costs must not be double counted, which could occur if a benefit or cost arising from a policy were counted by different valuation methods.

Footnote 16: The What Works Centre for Wellbeing have published a guide on the use of wellbeing evidence in cost-effectiveness analysis, available on the analyst web page: <https://www.whatworkswellbeing.org/appraisal>.

There are two ways in which wellbeing evidence can help in effectively comparing options:

1. Supplementing Social Cost Benefit Analysis

Cost benefit analysis has its foundations in welfare economics, the study of how the allocation of resources affects public value, or 'utility' or wellbeing. Using wellbeing evidence can help us to better represent this final impact on utility.

For social cost benefit analysis (SCBA), we use monetary estimates to compare diverse costs and benefits. Market prices provide a useful proxy for the value of these costs and benefits in well-functioning markets. Other monetised estimates can help us to robustly estimate full costs and benefits on people's lives where no market exists.

A wellbeing approach can supplement monetised figures:

- As above, looking through the domains of wellbeing and the evidence helps us to **understand where there may be impacts we had not previously considered¹** and how different groups may be impacted differently.
- Using the life satisfaction approach allows us to work out what affects people's life satisfaction and psychological wellbeing **even if they themselves cannot detect the reason or are unaware of the impact²**.
- The evidence can help us to **estimate the scale of the impacts**. In some cases, we can **quantify** this impact by calculating number of people affected x scale of impact x length of time. The scale of impact can be estimated from trials which have evaluated wellbeing impacts, longitudinal studies, and cross-sectional wellbeing equations, which link wellbeing with certain aspects of life [see Annex for coefficients]. Improvements in methodologies mean that we can have more confidence in the scale of effect from these cross-sectional studies.
- These quantified estimates can be used e.g. as a comparison for a **switching point analysis** (how much would these additional benefits need to value in order to change the NPV or BCR), or making assumptions of what the value *could* be, to compare changes in NPV and BCRs.
- Wellbeing equations have also been used to arrive at **monetised figures**, through estimating the life satisfaction provided by certain no-market goods and combining this with an estimate of the effect of income on life satisfaction. These figures can supplement social cost benefit analysis where reliable causal evidence is available.
- Caution needs to be taken to avoid double counting where outcomes are captured by wellbeing valuation techniques and other non-market valuation techniques. An analyst needs to have a clear theoretical framework of how the different benefits 'fit together' and avoid double-counting.
- When presenting the wellbeing impacts, it is important to set out which groups are affected - and e.g. whether a group with already low levels of wellbeing will suffer a further drop.

¹ As with common practice in SCBA, this should be proportionate and focus on the most important factors. Some additional impacts may be too small or so highly correlated with outcomes already accounted for that it would not alter the scale of costs or benefits.

² For example, when asked, people tend to consistently underestimate the impact of unexpected noise on their wellbeing. However when using a wellbeing equation to understand the important contributors for housing quality, unexpected noise is more important than e.g. size of living area. This has also been found to be the case for air pollution – with negative impacts on wellbeing beyond health impacts, which individuals are not able to identify the cause of.

2. Taking a wellbeing perspective

In some cases, wellbeing will fully capture all the outcomes affected by a proposal (for example, improving social cohesion / social relations). In this case, we can compare options using wellbeing as the unit of benefit, rather than translating via monetary benefits.

In some cases, where there are a number of different wellbeing outcomes and different stakeholders are affected, it may be appropriate to use **Wellbeing Multi Criteria Analysis** (see table below).

In other cases, a single measure of wellbeing may capture all the outcomes (for example, wellbeing in a classroom). This means that we can compare options consistently and subjective wellbeing can be used as the outcome variable for **Wellbeing Cost Effectiveness Analysis**. See What Works Centre for Wellbeing discussion guide on this topic, with approach and cautions³).

³ <https://www.whatworkswellbeing.org/product/a-guide-to-wellbeing-economic-evaluation/>

Table 1: approaches for appraising wellbeing

	What does this mean in practice?	Level of development	Where is this most useful? Example
<p>Supplementing SCBA:</p> <p>Wellbeing monetisation</p>	<p>Establishing the link with a certain variable and wellbeing, as well as the link with wellbeing and income. Combining these for a monetised impact of the change in variable.</p> <p>HMT Discussion paper⁴ has been published on the challenges and proposed method.</p>	Medium development	Where the majority of impacts are monetised and wellbeing impacts can then be additionally measured, e.g. transport.
<p>Supplementing SCBA:</p> <p>Switching point analysis /</p> <p>Cautionary assumptions of value</p>	<p>Estimating wellbeing benefits not included in SCBA and quantifying where possible (number of people and scale of impact).</p> <p>Using these estimates for switching point analysis, i.e. how much would these additional benefits need to value in order to change the NPV or BCR.</p> <p>Taking assumptions of what the additional wellbeing benefit may be (based on evidence) and testing NPVS and BCRS with these assumptions</p>	Medium development	<p>Where the majority of impacts are monetised and wellbeing impacts can then be additionally measured, e.g. transport.</p> <p>This has been used e.g. to set out the additional, non-monetised benefits of the MCZs</p>
<p>Wellbeing perspective / supplementing SCBA:</p> <p>Extending the QUALY</p>	<p>Having a measure which adequately captures impacts on health and wellbeing and applying monetisation approaches to each state of the world.</p>	Not yet developed	Comparing health and social care

⁴https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/209107/greenbook_valuationtechniques.pdf

<p>Wellbeing perspective:</p> <p>Wellbeing Multi Criteria Analysis</p>	<p>Working with stakeholders to assess the impact of each policy option on the domains of wellbeing.</p> <p>Guidance exists for MCA in general⁵ and for wellbeing domains⁶</p>	<p>Early stages for use with wellbeing domains</p>	<p>Policy development which requires strong support from stakeholders e.g. Nuclear decommissioning agency</p>
<p>Wellbeing perspective:</p> <p>Wellbeing cost effectiveness analysis</p>	<p>Assessing the change in wellbeing of every policy option and comparing these.</p>	<p>Early but developing⁷</p>	<p>Policy areas which are mainly non-market based</p> <p>A preferred approach which would enable clear comparison of what matters for people's lives without having to convert via £.</p>

⁵ Link to multi criteria analysis paper

⁶ Defra paper: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69481/pb13695-paper5-socialimpacts-wellbeing.pdf

Cabinet Office approach: <https://coanalysis.blog.gov.uk/wp-content/uploads/sites/115/2016/01/Policy-Development-for-Well-being.pdf>

⁷ www.whatworkswellbeing.org/appraisal

ANNEX Wellbeing evidence

Table 1a: Selected factors and link with wellbeing

Drivers of wellbeing		What do we know? <u>Examples</u>
Health - mental health - physical health - 'healthy' choices	++ ++ +	Mental and physical health are strong predictors of wellbeing. Enough sleep, physical exercise, even eating more fruit and vegetables are shown to improve wellbeing.
Personal Finance - income - debt - financial uncertainty	+* - --	Income has a big effect on wellbeing for people living in poverty. But as income increases, and covers basic needs, it becomes less important for improving our wellbeing. It is complicated, since money in itself is not important, but a higher income can enable us to 'buy' better health, time with friends or family or other things which are important for our wellbeing. Our wellbeing depends on our income relative to others, i.e. it is more important that what we have is higher or the same than others rather than the amount itself. This means that as one person's income goes up, their wellbeing will go up but the wellbeing of others will go down. Being in debt can be stressful and debilitating, and can have very negative effects on wellbeing, as can financial uncertainty
Education and Skills -education level -life skills, capabilities	+/- +/-	Higher levels of education tends to impact wellbeing through the impacts on job quality and comforts in life. Some things that life skills bring are good (more income, more citizen participation), some are bad (higher expectations, more awareness of problems). Continued learning is associated with improved wellbeing.
Relationships - close relationships - loneliness - trust - friendships, neighbourliness	++ -- ++ +	Close relationships – with family members or friends – and having someone to rely on are very important for wellbeing. Having wider relationships in society can also make a difference – for example with neighbours you can talk to and trust.
What we do – and purpose - employment - good quality jobs	++ + + +~	On the whole, having a job is good for wellbeing. Being in a 'high quality' job is even better. These tend to be jobs which provide people with things like job security, good relationships with colleagues and some control over how they work. Wellbeing is lower where work demands are high without support or the ability to influence how this work should be carried out. Wellbeing is also lower where the rewards are low in comparison to the effort which is put in. These rewards may be in the form of salary or 'intrinsic' motivations such as a feeling of helping others.
- participating in arts, sports, music - a minimal degree of volunteering, altruism - commuting time		Different activities can affect our wellbeing – from physical exercise to taking part in music or art. And how we feel when we do an activity also matters. For example, giving to others or learning something new can give us a sense of purpose, which has a positive effect on wellbeing. Some of these activities have a big impact at the time we do them – others have a longer-term effect. The impact an activity has can depend on how we do it and who with. For example, getting to know others better, can have added benefits. Or for some people, doing an activity alone might be better. Where we do our activities matters too. For example, being in nature can reduce stress. There is evidence showing that those with lower wellbeing benefit more from these types of activities than those with already high wellbeing.
Broader environment -fear of crime / safety -trust in people -access and satisfaction with services, housing -natural environment	- ++ + +	Security is important for wellbeing, as are feelings of belonging. Access to services which address needs are important for wellbeing – as is satisfaction with these services. There is evidence of a causal link with (poorer) air quality and (lower) wellbeing. Casual evidence links accessing the natural environment and wellbeing, as well as even having a view of the natural environment. The wellbeing benefits of e.g. sport activities can be increased through by taking place in the natural environment and / or a secure and supportive environment.
Autonomy and Rights - participation - self-esteem, dignity - fairness	+/- +/- + +	The opportunity to participate and influence decisions which affect us has, unsurprisingly, a positive link with wellbeing, <u>when it leads to decisions which better reflect needs</u> . Participation by itself is more complex. Self esteem and dignity are important aspects of wellbeing. A sense of fairness in decisions which are taken (e.g. by Government or in the workplace) is an important predictor of wellbeing

See www.whatworkswellbeing.org for references and further studies

Table 1b: Quantified Life Satisfaction effect sizes: A selection of key findings from the literature

	Change	Effect on 0-10 Life Satisfaction	Dynamics	Key literature References	Confidence in effect and causality?
Work	From employment to Unemployment	-0.46 (UK) -0.71 (Ger)	Immediate effect higher, then reducing, but no long-run adaptation.	UK: [1] Tbl 4.2 Ger: [1] Tbl 4.2.	High. Large effects found in longitudinal studies, cross-sections, recession-related, and employment shock-related (plant closures).
	From unemployment to out-of-labour force	+0.32 (UK) +0.57 (Ger)	Unknown.	UK: [1] Tbl 4.2	Effect very robust in cross-section and panels, but causality unclear.
	From full-time employed to part-time employed wanting more hours	-0.174 (W. Europe)	Largely permanent. Particularly strong effect for men.	[16]	Effect very robust in cross-section and panels, but causality unclear.
	From full-time employed to part-time employed <i>not</i> wanting more hours	+0.066 (W. Europe)	Largely permanent. Particularly strong effect for women.	[16]	Effect very robust in cross-section and panels, but causality unclear.
	Being in a white collar job (e.g. managers, officials, clerical or office workers) versus a blue collar job (e.g. construction, transport, farming)	Approx. +0.80 (worldwide)	Unknown.	[16]	Effect very robust in cross-section and panels, but causality unclear.
	From no commute to 1 hour car commute	-0.012 (UK) -0.151 (Ger)	Unknown.	UK: [2] Ger: [3]	Low. Findings disputed and causality unclear. No RCTs.
	From car commute to walking commute (time)	Insig. (UK) Insig. (Ger)	Unknown.	UK: [2] Ger: [3]	Low: results from fixed-effects, no RCTs.
Finances	Doubling of household income	+0.16 (UK) +0.5 (E-Ger)	Persistent effect with elation peak.	UK: [1] Tbl 2.1 E-Ger: [4]	High. Effect found in panels, cross-sections, and shock-related (lotteries). Height disputed and income measurement problematic.
Education	Extra year of compulsory education	-0.03 (UK)	Persistent effects.	UK: [5]	High for UK, since effect found from 1972 UK compulsory school changes. Marginal result also found in other Western countries.
Relationships	From single to	+0.28 (UK)	Permanent	UK: [1] Tbl 5.2	High. Ubiquitous finding around the

	partnered/married	+0.1 (Ger)	effect, with initial peak.	Ger: [6]	world.
	From never married to married at 50	+0.2 (UK)	Permanent effect, high initial peak.	UK: [1] Tbl 9.1	Medium: cohort study findings, so causality unclear.
	From partnered to separated	-0.40 (UK)	High initial effect, then some adaptation.	UK: [1] Tbl 5.2	High as found everywhere, but most find new partners so don't stay separated. Lone men suffer more.
Health	From healthy to poor physical health (self-rated)	-1.08 (UK) -0.96 (Ger)	Permanent effect, but initial peak as well.	UK: [7] , Tbl 4, column 2 Ger: [6] ^a	High as found everywhere, including due to health shocks.
	From depression to full mental health (4 pnts on a 0-12 scale)	+0.71	Permanent, little evidence of a peak.	UK: [1] Tbl 16.2	High as found everywhere, including large clinical trials.
Healthy behaviours	From 0 to 8 portions of fruit and vegetables per day	+0.20 (Aus)	Effect lasts whilst treatment lasts.	[17]	Medium. Fixed-effect estimates consistent with small RCTs and public health campaign results, but magnitude very unclear
Crime	A doubling of fear of crime	~-0.30 (Europe)^b	Unknown	[8]	Medium: panel-data based, often replicated, but drivers of fear not exogenous.
	Victim of violent crime	-0.396 (Australia)	Effect largely in first year.	[9]	High, but specific: effects are for unanticipated events that were recorded.
Environment	Increase of 10 in SO ₂ (μ g/m ³)	-0.08 (Ger)	Unknown	[10]	High: effects driven by unanticipated changes in power plant emissions due to policy.
	Increase of 10 in PM ₁₀ (μ g/m ³)	~ -0.051 (US)	Unknown	[11]	Medium to high: effects of air pollution sufficiently exogenous for single individual
	Increase of 1 hectare of green space within 1 kilometre around household	+0.0066 (Ger) ~ +0.0031 (UK)^c	Seems permanent	Ger [12], UK [13, 14]	Medium to high: panel-data based but no clear-cut exogenous variation, similar results by studies in UK
	Increase of 1 hectare of vacant land (abandoned areas) within 1 kilometre around household	-0.0395 (Ger)	Unknown	[12]	Medium: panel-data based but no clear-cut exogenous variation
	Construction of wind turbine within 4 kilometres around household.	-0.1405 (Ger)	Seems temporary: effect disappears after five years	[15]	High: wind turbine construction exogenous for household in surroundings, difference-in-differences with treatment at multiple points in time.

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	Benefits	Evidence
Health & Longevity	<ul style="list-style-type: none"> • Reduced inflammation • Improved cardiovascular health, immune & endocrine systems • Lowered risk of heart disease, stroke & susceptibility to infection • Practicing good health behaviors • Speed of recovery • Survival & longevity 	<ul style="list-style-type: none"> • Adversity and stress in childhood is associated with higher inflammation later in life.ⁱ • Positive emotions help cardiovascular, immune and endocrine systems,ⁱⁱ including heart rate variability.ⁱⁱⁱ Evidence suggests a causal link between positive feelings and reduced inflammatory, cardiovascular and neuroendocrine problems.^{iv} • Positive affect is associated with lower rates of stroke and heart disease and susceptibility to viral infection.^v • High subjective well-being is linked to healthier eating, likelihood of smoking, exercise, and weight.^{vi} • Positive emotions can undo harmful physiological effects by speeding up recovery.^{vii} • Happier individuals tend to live longer and have a lower risk of mortality, even after controlling for relevant factors.^{viii}
Income, Productivity & Organizational Behaviour	<ul style="list-style-type: none"> • Increased productivity • Peer-rated & financial performance • Reduced absenteeism • Creativity & cognitive flexibility • Cooperation & collaboration • Higher income • Organizational performance 	<ul style="list-style-type: none"> • Individuals with induced positive emotions were more productive in an experimental setting.^{ix} • Happy workers were more likely to be rated highly by supervisors and in terms of financial performance.^x • Happiness can increase curiosity, creativity, and motivation among employees.^{xi} • Happy individuals are more likely to engage collaboratively and cooperatively during negotiations.^{xii} • Well-being is positively associated with individual earnings.^{xiii} Longitudinal evidence suggests that happiness at one point in time predicts future earnings, even after controlling for confounding factors.^{xiv} • Greater satisfaction among employees tends to predict organization-level productivity and performance, e.g. revenue, sales and profits.^{xv}
Individual & Social Behaviour	<ul style="list-style-type: none"> • Longer-term time preferences and delayed gratification • Reduced consumption & increased savings • Employment • Reduced risk-taking • Pro-social behavior (e.g., donating money and volunteering) • Sociability, social relationships & networks 	<ul style="list-style-type: none"> • In experiments, individuals with higher well-being and positive affect are more willing to forego a smaller benefit in the moment in order to obtain a larger benefit in the future.^{xvi} Happier individuals may be better able to pursue long-term goals despite short-term costs due to a greater ability to delay gratification.^{xvii} • Longitudinal studies find evidence that happier individuals tend to spend less and save more, take more time when making decisions and have higher perceived life expectancies.^{xviii} • Survey evidence shows the probability of re-employment within one year is higher among individuals who are happier.^{xix} • The prevalence of seat-belt usage and the likelihood of being involved in an automobile accident were both linked to life satisfaction in a survey of over 300,000 US households.^{xx} • Individuals who report higher subjective well-being donate more time, money, and blood to others.^{xxi} • Well-being increases interest in social activities leading to more and higher quality interactions.^{xxii} Positive moods also lead to more engagement in social activities.^{xxiii} The happiness-social interaction link is found across different cultures and can lead to the transmission of happiness across social networks.^{xxiv}

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- ⁱ Appleton et al. (2011); Slopen et al. (2012).
- ⁱⁱ Edwards & Cooper (1988); Kiecolt-Glaser, McGuire, Robles, & Glaser (2002); Cohen, Doyle, Turner, Alper, & Skoner (2003).
- ⁱⁱⁱ Bhattacharyya, Whitehead, Rakhit, & Steptoe (2008).
- ^{iv} Ong (2010); Steptoe, Wardle, & Marmot (2005); Steptoe, Dockray, & Wardle (2009).
- ^v Ostir, Markides, Peek, & Goodwin (2001); Davidson, Mostofsky, & Whang (2010); Cohen et al. (2003).
- ^{vi} Blanchflower, Oswald, & Stewart-Brown (2012); Stepney (1982); Pettay (2008); Schneider, Graham, Grant, King, & Cooper (2009); Garg, Wansink, & Inman (2007); Strine et al. (2008a, 2008b); Grant, Wardle, & Steptoe (2009); Kubzansky, Gilthorpe, & Goodman (2012).
- ^{vii} Fredrickson (2001); Fredrickson & Levenson (1998); Fredrickson, Mancuso, Branigan, & Tugade (2000).
- ^{viii} Danner, Snowdon, & Friesen (2001); Pressman & Cohen (2012); Wiest, Schuz, Webster, & Wurm (2011); Russ et al. (2012); Bush et al. (2001); Chida & Steptoe (2008); Epel et al. (2004); Steptoe & Wardle (2011).
- ^{ix} Oswald, Proto, & Sgroi (2015).
- ^x Peterson, Luthans, Avolio, Walumbwa, & Zhang (2011).
- ^{xi} Ashby, Valentin, & Turken (2002); Jovanovic & Brdaric (2012); Leitzel (2001); Isen, Daubman, & Nowicki (1987); Amabile, Barsade, Mueller, & Staw (2005); George & Zhou (2007); Baas, De Dreu, & Nijstad (2008); Davis (2009).
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- ^{xiii} Judge, Piccolo, Podsakoff, Shaw, & Rich (2010); Diener, Nickerson, Lucas, & Sandvik (2002); Graham, Eggers, & Sandip (2004); Marks & Fleming (1999).
- ^{xiv} De Neve & Oswald (2012).
- ^{xv} Bockerman & Ilmakunnas (2012); Harter, Schmidt, Asplund, Killham, & Agrawal (2010); Edmans (2011, 2012).
- ^{xvi} Ifcher & Zarghamee (2011a).
- ^{xvii} Aspinwall (1998); Fry (1975).
- ^{xviii} Guven (2009).
- ^{xix} Krause (2012).
- ^{xx} Goudie, Mukherjee, De Neve, Oswald, & Wu (forthcoming).
- ^{xxi} Morrison, Tay, & Diener (2012); Oishi, Diener, & Lucas (2007); Aknin et al. (2013).
- ^{xxii} Lyubomirsky, King, & Diener (2005); Myers (2000); Diener & Seligman (2002); Cunningham (1988b); Baron (1987, 1990); Berry & Hansen (1996).
- ^{xxiii} Cunningham (1988b); Mehl, Vazire, Holleran, & Clark (2010).
- ^{xxiv} Lucas, Diener, Grob, Suh, & Shao (2000); Tay & Diener (2011); Fowler & Christakis (2008).