

# *BBC Gardeners' World Magazine* Happiness Report

## **FOREWARD**

“Setting out to find the key to happiness was always going to be ambitious. As keen gardeners, the *Gardeners' World Magazine* team have all experienced the mood-enhancing benefits of gardening and we felt sure it would feature in the results. But would our hunch, that the nation's most popular pastime makes you happy, be supported by robust evidence?

“After months of research, including paired in-depth interviews and a substantial nationwide survey, we're confident that the answer is an emphatic 'Yes!' – and we can say with certainty that gardening DOES make you happy.

“Key to why gardeners are so positive is that they're nurturing something that's living and growing, stimulating the mind while exercising the body. We've also learned from the research that passing on the seed of knowledge, to friends, acquaintances and children or grandchildren, gives even more pleasure and fulfilment.

“With such positive individual and social benefits, gardening is the perfect activity to take up if you wish to improve your outlook on life. And in addition to making you happier, you'll also be creating a space for you and others to enjoy. So the results are clear – it's time we all pledged to garden ourselves happy!”

**Lucy Hall, Editor, BBC Gardeners' World Magazine  
July 2013**

## **EXECUTIVE SUMMARY**

On 3 key measures to overall happiness, satisfaction with life, feeling the things you do are worthwhile, and how happy you were yesterday, gardeners score consistently and significantly higher than non-gardeners. Overall agreement scores for each measure, when asked out of 10 were 80% vs. 67%, 82% vs. 69% and 77% vs. 65% respectively with gardeners being the aforementioned figure. They were also more likely to be extremely happy for each measure (top 2 box of the 1 – 10 scale), again all significant differences of 19% vs. 11%, 26% vs. 15% and 23% vs. 14% respectively.

Adding to the binary findings of gardeners vs. Non-gardeners, we also found that the more you gardened, the more significant these differences were, and that gardening with children and/or grandchildren improves happiness scores in correlation with regularity of doing so.

Other hobbies which appear to have an impact on a person's happiness include running and swimming, which helps to show a clear correlation between physical activity and happiness. This is further evidenced by 91% of those who agree to the statement 'I am an active person' giving a

positive score for feeling the things they do in their life are worthwhile, compared to only 57% who disagreed with the statement.

Other significant differences show regional variations in happiness, with Scotland and the North West proving happier than the GB average on a number of the measures.

## **COMMENTARY**

There's been no shortage of research into the topic of happiness over the years. As figures currently stand, 10%<sup>1</sup> of the UK population suffer from depression at any one time, and given the debilitating effects of the illness, it's no wonder the subject of happiness has merited such attention.

On the surface, happiness may seem like an elusive concept, heavily dependent on a person's predisposition, but there are measures we can take to be happier in our everyday lives. Sonja Lybomirsky<sup>2</sup> and fellow academics from the University of California, University of Texas and University of Missouri propose that while there is a genetic set point, which determines the happiness level we are born with and will continue to have throughout our lives, this only accounts for 50% of the happiness a person can feel. Unsurprisingly, life circumstances play a secondary role, with a further 10% of our happiness levels being variable, depending on what is going on in our everyday lives. Though interesting, these factors offer little in the way of advice as, to date, changing our genetics is impossible, and changing life circumstances is difficult; but even when this does happen, people quickly adapt: the new way becomes the norm, as do happiness levels. What's more interesting for those looking for ways to improve their mood is the remaining 40% of the set, what has been termed by Lybomirsky et al as 'Intentional Activities', over which an individual has direct control. The authors propose that the key to sustained happiness lies within this field of intentional activity, as intentional actions can be taken on an everyday basis, and as such varied leaving them less prone to becoming subconsciously considered the norm. It is this ability to never fully adapt, to keep changing and varying behaviour, that extended happiness lies.

The next logical question, "So what should I do to positively impact my happiness levels?", has now – at least in part – been answered by *Gardeners' World Magazine*. In a three-part research project, which included qualitative group interviews, secondary research, and an online, nationally representative survey in partnership with ICM, *Gardeners' World Magazine* has found that gardening does make you happy. When measuring three aspects which all tap into overall happiness (satisfaction with life nowadays, feeling that the things you do are worthwhile, and how happy did you feel yesterday), gardeners gave significantly higher scores than non gardeners on all three measures.

The results are hardly surprising given the weight of academic evidence to support the theory. The benefits of gardening have been shown to be multifaceted, including physical, social and cognitive. The physical benefits are obvious: any amount of exercise is a good thing, and more

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<sup>1</sup> [http://www.mind.org.uk/mental\\_health\\_a-z/8105\\_mental\\_health\\_facts\\_and\\_statistics](http://www.mind.org.uk/mental_health_a-z/8105_mental_health_facts_and_statistics)

<sup>2</sup> <http://escholarship.org/uc/item/4v03h9gv#page-1>

active people tend to be more positive<sup>3</sup>. On the social side of things, having a sense of purpose can balance even the most distressed individual. Peace Ranch, for example, a therapeutic farm and residential community for those with severe mental illness in Ontario, Canada, treats its patients not with medication but with horticultural therapy, immediately engaging patients with a world of plants and animals which need their care, showing exceptional results. Christine Pollard, a therapist at the establishment, explains: "Horticultural therapy really grounds you. When your life is in chaos, your garden offers focus and security because it has routine daily and seasonal needs."<sup>4</sup> Horticultural therapy is also used in hospitals, old age homes and prisons, giving residents and inmates a sense of purpose and initiating hope and forward planning, two factors depressed people commonly struggle to grasp, as well as learning to share responsibility with others, which is vital in most forms of rehabilitation<sup>5</sup>.

Added to this is growing scientific evidence to suggest that interacting with the earth, or with soil, to be precise, helps to improve mood. Whilst it has long been known that serotonin and dopamine are mood-enhancing chemicals, it has only recently been found that we can increase one of these, serotonin, by interacting with soil. This occurs when the soil bacteria *Mycobacterium vacca* triggers the release of serotonin in the brain<sup>6</sup>. Furthermore, it is hypothesised that dopamine levels are affected by gardening activities too; the basis for this stems from evolutionary theory, when we were hunter-gatherers over 200,000 years ago, and suggests that a flush of dopamine was released when food was found, triggering a state of bliss and reward for the gatherer<sup>7</sup>. Dopamine is still thought to be released when we harvest from our gardens today, even though the reward of finding food is less important to survival than it was before every street had a Tesco metro on the corner.

## **RESULTS FROM OUR PRIMARY RESEARCH**

We conducted paired depth interviews with gardeners, interviewing those who were really passionate about gardening separately from those who were less passionate about gardening (though who were still gardeners). We did this so that those who were less keen gardeners weren't swayed by those who were more passionate. During the interviews we asked the respondents a wide range of questions, ranging from their day to day gardening habits and what their garden is like, to why they garden and how it makes them feel, all the way through to how they would feel if they were told they couldn't garden anymore. Though responses from the passionate gardeners differed to those who were less passionate regarding their habits and style of garden, the responses we gained when we asked why they garden and how it makes them feel were remarkable similar between the two groups. At the end of the sessions, we posed some of the findings from our primary research to the respondents (that gardening is mood enhancing, and that there is serotonin in soil which improves your mood etc.) to see what

<sup>3</sup> Pretty J, Hine R and Peacock J. 2006. Green Exercise: The benefits of activities in green places. The Biologist 53(3), 143-148

<sup>4</sup> <http://www.besthealthmag.ca/embrace-life/mental-health/horticultural-therapy-for-mental-health>

<sup>5</sup> <http://www.nursingtimes.net/story.aspx?storycode=1921374>

<sup>6</sup> <http://gardeningwormcomposting.com/soil-bacteria-can-increase-serotonin-levels/>

<sup>7</sup> <http://permaculture.com.au/online/index.php/articles/sustainable-living/why-gardening-makes-you-happy-and-cures-depression.html>

they thought of this, or whether they had heard of it before. Although none of the respondents had heard the scientific basis of gardening as a route to happiness previously, the consensus was that they could easily believe it, and that it actually explains a lot regarding why they feel so good after a day in the garden.

Prior to when we posed our hypothesis that gardening makes you happy, there was an overwhelming consensus amongst all gardeners that the hobby did improve their mood. Without being told the reasons why we wanted to talk to them, all groups mentioned the uplifting effect of gardening. From being at one with nature, to exercise, to having time to completely escape and concentrate on something so intently that it was almost meditative, those questioned felt an uplift in mood after time in the garden.

As well as the act of gardening, one point repeatedly raised was the tangible result of having a nice garden. From somewhere to walk around and enjoy, a place to sit on a summer's evening and enjoy a drink, it was not only gardening which made our participants happy, but also the results that they got at the end of it. This is something which separates gardening from many other hobbies, which leave little in the way of lasting results. For example, while exercise can leave you with a good physique, having a nice garden is something which all the family can enjoy to the same extent.

Another aspect of gardening which people enjoyed sharing with their families came from having grown their own food. Growing, harvesting and cooking food gave our interviewees a real boost in mood, and they said this was something the whole family appreciated.

The sense of satisfaction was a major talking point and, when things go right – sometimes against all odds – how extremely uplifting are the results. Conversely, with so many external factors impacting on the personal work done in the garden, a number of the respondents concluded that gardening teaches people a way to deal with setbacks, putting them into perspective, and not letting them get too upset – which was felt to be an essential skill in living a happy life.

However, gardening isn't all pretty flowers and a great deal of it involves manual work. Even this was taken by the gardeners interviewed as a positive, and exercise they get from it also helped to lift mood. Apart from older participants, who could no longer physically do the hard labour involved, none of the interviewees said they wished to avoid this work.

Gardening is, however, always a work in progress – a fact that allowed our interviewees to continuously plan for the future. This planning, it was remarked, gave them something to think about even in the winter, a time when many people experience a dip, emotionally, as the days get shorter and colder.

One interviewee shared her history of severe depression, which is usually a hugely debilitating illness, but claimed that gardening made her feel better and, having found a way of focusing her thoughts, began to see improvements in her mood more generally. Others claimed to be generally happy people; when asked at the end of the interviews, once we had revealed our hypothesis to them, whether they'd ever considered gardening as a route to happiness, the respondents generally said that they believed so – but because few had felt they'd been really

unhappy in life, most were unable to give personal examples of its restorative benefits. Having always gardened, it is possible that this is why they were generally always at the happier end of the scale – though this could not be concluded from qualitative research.

### **MOVING TO A NATIONWIDE SURVEY**

The online survey was conducted using a sample of 1,500 from ICM which was nationally representative regarding age, gender, region and social grade. 3 questions designed to tap into the overall happiness of an individual were asked at the beginning of the survey (straight after demographics), which asked respondents to state how much they agreed with the statements

- **Overall, how satisfied are you with your life nowadays?**
- **Overall, to what extent do you feel the things you do in your life are worthwhile?**
- **Overall, how happy did you feel yesterday?**

The average of these scores was taken to indicate an individual's total wellbeing index.

Following this, further questions were asked, to gauge happiness, including<sup>8</sup>

- **'I like to try new things'**
- **'I always strive to achieve the best results'**
- **'I find it hard to motivate myself to do things'**

At this point, we asked what hobbies people had, and separated these into indoor and outdoor hobbies. At no point did we mention gardening as an area of interest for the project, neither was the Gardeners' World logo shown, ensuring that no biases were evident in the hobbies people claimed they had.

We chose 3 measurements by which to analyse the data: the overall positive score (those who selected 6-10 on the scale), the positive extreme (those who selected 9 or 10), and the negative extreme (those who selected 1 or 2). Given the non-scaler nature of the data, mean scores were not analysed. Data was analysed and subject to statistical testing at the 95% confidence level, and all differences mentioned below are significant differences, unless stated otherwise.

On all the primary measures (satisfaction, worthwhile, happy yesterday), as well as on the overall wellbeing index, gardeners scored significantly higher than non gardeners both overall and at the positive extreme. What's more, non-gardeners score significantly higher at the negative extreme, indicating that gardening has a positive effect on the happiness of everyone in the spectrum, as opposed to just making a few people at the top end really happy.

When looking at the same results broken down by Horticultural Trades Association's gardening continuum<sup>9</sup> it is clear that the high scores are being primarily driven by the 'very keen' gardeners – those who garden more, and have more of an active interest in it; a finding which implies a strong relationship between the amount of time spent gardening, and respondents' happiness scores.

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<sup>8</sup> For full list, please refer to Appendix 1.1

<sup>9</sup> For details, please see appendix 1.2

When looking at the demographic composition of gardeners within GB, it is clear there is a skew towards older generations (there were roughly equal numbers of gardeners and non gardeners for all aspects of social grade, region and gender, so these variables were not considered likely to distort the results). To ensure that the effects we were seeing were related to having gardening as a hobby, as opposed to just being older, the data was then filtered to look only at those aged 55+ (the age groups in which gardeners over-represent). Even within this population, gardeners showed significantly higher scores overall for all measures, proving that the results found were not skewed due to the demographic profile of the gardening group.

### **THE VALUE OF SHARING**

A further factor to have an effect on the scores gardeners gave to the primary series of happiness metrics was whether or not they gardened with their children or grandchildren. Those who regularly gardened with their children or grandchildren scored significantly higher on 3 of the 4 metrics (worthwhile, happy yesterday, and overall wellbeing index), and higher on the 4<sup>th</sup> but not significantly. Scores for people who claimed they had gardened with their children or grandchildren, but didn't do so regularly, gave the next best scores, with those who had never done so giving the lowest. This finding reflects the social benefits of gardening, found in the secondary research<sup>10</sup>, where sharing a skill or hobby with a community has positive benefits for an individual.

When comparing the results of gardeners, to those people with other hobbies, significant differences were also found. Of all outdoor hobbies, it is only gardening, visiting gardens, swimming, photography, driving and running which consistently score better than having no hobby at all<sup>11</sup> (the least positive group), with those who garden and visit gardens the most positive of the group, and the only ones to show a significant difference at the higher 99% confidence level.

Camping scores significantly better than gardening, but only on 'how happy were you yesterday' at the overall level. Other than this, no hobbies proved statistically more beneficial to happiness than gardening on any of the measures. Given that camping involves interaction with soil (in putting tent pegs in etc.) this finding correlates with the theory that *Mycobacterium vaccae* in soil releases serotonin and makes you happy.<sup>7</sup>

When looking at gardening compared to other indoor activities (here we only looked at those who specifically garden indoors) none of the hobbies shows a significant difference to having no hobby at all (the most negative variable) on all measures, unlike the results found for outdoor hobbies. Gardening and photography proved the most uplifting of all the hobbies, showing a significant difference from having no hobby on 9 out of the 12 measures analysed<sup>12</sup>. Individual

<sup>10</sup> <http://www.nursingtimes.net/story.aspx?storycode=1921374>

<sup>11</sup> For full list of hobbies, please see appendix 1.3

<sup>12</sup> Gardening showed a significant difference from having no hobby on the following factors: strongly agree – satisfaction with life nowadays; Strongly agree, strongly disagree, any agree – feel things do are worthwhile; strongly agree, strongly disagree, any agree – how happy did you feel yesterday; strongly agree, strongly disagree – Overall wellbeing Index.

sports scores better than photography and gardening with regards to 'satisfaction with life nowadays', as it showed a significant difference to having no hobby for strongly agreeing, and overall agreement however the scores for individual sports were lower overall, only showing a significant difference on 6 out of the 12 measures analysed. Though scores for individual sports are higher than for gardening regarding satisfaction with life, there is not a significant difference between the two, meaning that gardening is, statistically, equally as likely to make you happy as doing individual sports.

It is when looking at the negative extreme that the benefits of gardening really show. This is the only hobby to consistently attain more positive results than those with no hobbies, which emphasises the point that gardening improves the mood of people throughout the spectrum. Returning to Lybomirsky's research<sup>2</sup> which proposes 50% of happiness is genetic, having fewer people who are extremely unhappy is proof that despite genetics, some activities can lift the mood for everyone, no matter their natural predisposition to happiness.

In addition to scoring positively on all the primary measures, gardeners also scored higher than non-gardeners on measures which tap into happiness on a more subtle level. The least surprising of these were for the statements '*I am constantly on the go*' and '*I am an active person*'. These were always likely to differentiate gardeners from non-gardeners, as an active hobby. Interestingly, gardeners scored significantly higher than non-gardeners for '*I am more positive than most people I know*', with non-gardeners also gaining large numbers at the negative extreme – more than twice the amount of gardeners – showing that non-gardeners are significantly more inclined to be a negative group. A similar pattern was seen for the statement '*I always strive to achieve the best results*', with gardeners more positive in total and at the positive extreme, with non-gardeners being more inclined to score heavily at the negative extreme. A further statement that indicates a relaxed, positive person, '*I like to try new things*', saw gardeners score significantly higher in total and at the positive extreme, though no differences were evident at the negative extreme.

Once again, these results are driven by the extremely high scores of the most keen gardeners, who score even higher than less keen gardeners (who still perform above average) for all of these measures.

Looking at the negatively phrased statements which indicate signs of unhappiness or depression, gardeners also gave more positive scores; they were more inclined than non-gardeners to disagree with the statements '*I get bored easily*' and '*I find it hard to motivate myself to do things*', and less likely to get upset easily than those with no outdoors hobby at all. Unsurprisingly, given that most gardening is conducted outside, gardeners are also less likely than non-gardeners to agree with the statement '*I tend to spend most of my time indoors*'.

Those who garden most often (6 hours + a week) are more likely to disagree that they get frustrated easily, and are also less likely to be easily upset than those who garden less. This reflects some of the findings from our qualitative phase of the project, where gardeners stated

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Photography showed similar results, but instead of showing a significant difference for strongly disagree for satisfaction with life, it had a significant difference for any agree. All other scores were the same.

that learning to overcome problems with their garden that were beyond their control helped them to resolve issues in their general day-to-day life.

## **CONCLUSIONS**

All three phases of this study (research review, qualitative and quantitative studies) indicate that gardeners are happier than those who do not garden. And the more you garden, the more positive your results become. As with any such study, the direction of causality cannot be determined from the survey alone (e.g. are you happy because you garden, or do you garden because you are happy). However, from looking at this in combination with the findings from the qualitative phase of research, it is clear that gardening is beneficial to mood. It is therefore reasonable to conclude that the determining factor here is gardening, and that happiness changes as a result of this, rather than the other way around.

The results show gardeners to be remarkably positive people, achieving higher scores in most measures, meaning that overall, gardeners are more likely to be happy than non-gardeners and, at the positive extreme, gardeners are also more likely to be extremely happy. Furthermore, lower scores at the negative extremes show gardeners to be less prone to extreme unhappiness, which doesn't necessarily go hand-in-hand with being more positive. The combination of all 3 measures indicating more positive scores for gardeners than non-gardeners shows that gardening does generally make people happy, and lifts the mood of even those who are naturally extremely unhappy.



## Appendix

### 1.1 Full list of secondary metrics for assessing happiness

- a) I tend to spend most of my time indoors
- b) I get bored easily
- c) I am constantly on the go
- d) I am an active person
- e) I find the winter months grey and miserable
- f) I get frustrated easily
- g) I am a very laid back person
- h) I get upset easily
- i) I am more positive than most people I know
- j) I find it hard to motivate myself to do things
- k) I like to try new things
- l) I always strive to achieve the best results

### 1.2 HTA Gardening Continuum

Using data collected through a series of national surveys, the HTA developed the Gardening Continuum. This profiles the UK population by gardening interest and likelihood to buy or do some form of gardening.

The continuum identifies the following five broad types of gardener:

Category of Gardener	Description	Proportion of the GB population
Very Keen Gardeners	Those who positively enjoy gardening, are interested and knowledgeable and spend time pursuing what is really an established hobby.	13%
Quite Keen Gardeners	Those who claim to be quite interested and who make a positive claim about enjoyment. Although they actively work in their own gardens, they do not express a desire to increase the amount of gardening that they currently do.	11%
Marginal Gardeners	Those who do some gardening, are not hostile to gardening and express a willingness to do more.	30%
Not Keen Gardeners	Those who do some gardening, but do not wish to do more, coupled with negative attitudinal responses indicating that the gardening undertaken is not because it interests them. Largely those who see gardening as a chore.	27%
Definitely Hostile	Those with a place to grow outdoor plants who do very little or no gardening and who have totally negative attitudes to, or interest and enjoyment in gardening, with low knowledge and absolutely no wish to do more.	16%
Unavailable	This group do not lack interest in gardening nor do they lack knowledge. However, they do little or no gardening, possibly due to insurmountable obstacles such as health or domestic responsibilities.	3%

Allocation of gardener type is conducted by Gardeners' World by asking the questions the HTA asked in their research and following the algorithm originally used by the HTA.

### 1.3 Full list of hobbies asked

Outdoors – Asked to only select if they specifically do the hobby outdoors

*All hobbies randomised between respondents, with other and none remaining fixed at bottom of list*

Gardening

Walking/Hiking

Team Sports

Individual Sports

Running

Cycling/Mountain biking

Motorcycling

Water Sports

Photography

Driving

Swimming

Camping

Visiting open/public gardens

Fishing

Other outdoors hobbies (please specify)

I do not have any outdoors hobbies

Indoors – Asked to only select if they specifically do the hobby indoors

*All hobbies randomised between respondents, with other and none remaining fixed at bottom of list*

Photography

Gardening

Sewing/Knitting/Weaving

Team Sports

Individual Sports

Cooking

Playing music

Writing

Arts/Crafts

Computing/Gaming

Other indoors hobbies (please specify)

I do not have any indoors hobbies