Laughter, mental health and cancer: a case study of Ros Ben-Moshe

Ros Ben-Moshe and Freda Gonot-Schoupinsky

Abstract

Purpose - The purpose of this paper is to meet Ros Ben-Moshe, a cancer survivor - or rather thriver and lecturer in positive psychology at La Trobe University, describes how she uses laughter to boost levity and mental health.

Design/methodology/approach - This case study is divided into two parts: an autoethnographic life story of Ros Ben-Moshe, followed by 10 questions and answers.

Findings - Regular laughter is an enjoyable way to stimulate the feel-good chemicals dopamine, oxytocin, serotonin and endorphins. A laughter mindset is an important tool for overall wellbeing. It can help build connections and re-frame negative situations.

Research limitations/implications - This is a personal narrative and gives the perspective of one person who harnessed the benefits of laughter following a cancer diagnosis.

Practical implications - Laughter can be used strategically to reset our internal mindset and prime ourselves towards optimal mental health and wellbeing, even while struggling with serious health issues. Research into how and when to prescribe laughter for mental health and overall wellbeing is therefore of interest.

Social implications – Social laughter is important and rewarding. For those anxious about social laughter, finding people to laugh with who do not judge you is recommended, as are affirmations to lessen anxiety.

Originality/value - To the best of the authors' knowledge, this is the first case study and interview with a cancer survivor on the topic of laughter, cancer and mental health.

Keywords Laughter, Cancer, Mental health, Laughter Yoga, Laughie, Prescribing laughter Paper type Case study

1. Introduction

Mental health impacts some one billion people worldwide (World Health Organisation, 2022), with an estimated 14% of deaths worldwide caused by mental disorders (Walker et al., 2015). Good mental health is an important factor in fighting disease, and it has been used as an indicator to explain mortality among cancer survivors (Liu et al., 2022; Chen et al., 2022). Cancer, discussed in this case study, is rising: 19 million cases of cancer were reported in 2020, and cases are expected to rise to over 28 million by 2040 (Sung et al., 2021). Hidden in each of these statistics are millions of personal stories of heartache and mental anguish, none of which are laughter-inducing. However, laughter can benefit biological, psychological, social, environmental and behavioural (BPSE-B) factors (Gonot-Schoupinsky et al., 2020a, 2020b). Two meta-analyses investigating laughter-inducing therapies found they can improve mental health. Firstly, van der Wal and Kok (2019) and recently Stiwi and Rosendahl (2022) reported on randomised controlled trials (n = 45). Of the 45 randomised control trials, 31 showed significant mental health benefits and 14 significant physiological benefits in 1,543 patients and 761 patients, respectively.

The use of laughter to support patients with cancer is long-standing (Pattillo and Itano, 2001). There is also some evidence to suggest laughter can support those with cancer. A randomised controlled trial (n = 56) found those in the intervention group (n = 26) had Ros Ben-Moshe is an Adjunct Lecturer at the School of Public Health and Psychology, La Trobe University - Bundoora Campus. Melbourne. Australia. Freda Gonot-Schoupinsky is a PhD Student at the Department of Psychology, University of Bolton, Bolton, UK.

significantly less pain and better cognitive function, following four Laughter Yoga sessions (Morishima *et al.*, 2019). Here we look at how Ros Ben-Moshe embraced laughter to boost her mental health following a cancer diagnosis. Ros, now a lecturer in positive psychology at La Trobe University, was diagnosed with bowel cancer in 2011. Positive psychology has been shown to be of benefit in a broad range of mental health interventions (Macfarlane and Carson, 2019; Ujhelyi Gomez *et al.*, 2020). In this case study, Ros shares her experience of laughter adding evidence to its use as a positive therapy (Mora-Ripoll and Casado, 2010).

This is the third case study gathering expert insight on the use of laughter and humour to benefit mental health and other illnesses that impact it. Previously, Merv Neal (Neal and Gonot-Schoupinsky, 2022) and Arthur Asa Berger (Berger and Gonot-Schoupinsky, 2022) recounted their life stories using an autoethnographic approach. Here we use the same design, originally inspired by the Zoe Riley case study (Riley and Carson, 2021). Questions are posed by the second author who is investigating laughter prescription in a PhD and has previously collaborated with Ros on how to laugh out loud (LOL; Gonot-Schoupinsky and Ben-Moshe, 2022).

2. Ros shares her story

2.1 My childhood

Like so many in this world, I was a mistake, or as I'd like to re-frame, a wondrous gift. The youngest of four children by, respectively, 9, 11 and 12 years, I was blessed by many pairs of doting eyes. Perhaps, those early foundational years of "coo coo coo-ing", peek-a-boo smiling and laughter games primed joyful interactions in my adult life. It's not to say there wouldn't have been moments when my elder siblings would have liked to return to the days when they alone won my parents' attention; however, I would like to think smiling and laughing at their antics secured my place in family hierarchy.

However, laughter for laughter's sake wasn't encouraged. Being silly or mucking around was a big *no no* in my home partially owing to my mum's Germanic background with four children to tend to and not many other helping hands around. My general practitioner dad worked long and often unpredictable hours. What was applauded was intellectual wit. As the youngest, I impatiently waited for my humour muscle to develop and sense of humour to catch up with the rest of the family unit.

When I was old enough, if my dad was home in time, we'd watch episodes of *Get Smart* together. Memories of chuckling together a highlight of my childhood. This brand of humour was sprinkled into daily conversations, with catchphrases, such as: "Would you believe [...]" or "Missed it by that much [...]" making me feel ever so grown up and smart. Get it [...] *smart*, LOL.

From an early age, I was filled with a desire to win laughs. To be the generator of smiles or giggles and in turn the recipient. I realised that *pressure cooker* family moments could be diffused slightly if you could make someone laugh. My confidence at home was ill-matched to my school days. I was far too shy to be the class clown; however, one could argue that the term *giggly Gertie* was made for me! Caught up in these moments, I laughed with abandon. Nothing could stop that feeling until one momentous day changed the trajectory of my wide mouthed smile and free flowing laughter. A huge hollow cement pylon had been deposited in the school playground and naturally, come playtime, there was a race to see who could scamper to the top first. Gleefully, I projected towards this cement giant until not only the palms of my hands and knobs of my knees made contact, but also my mouth. My first adult tooth, only recently popped to the surface, snapped off! Sent home with an airbag lip, I was swiftly escorted to the dentist who presented Mum with two options: a white crown or a significantly cheaper (fake) silver one. Eight-year-olds didn't have an opinion in our household, and Mum had an economical mindset. My tooth was swathed in silver, with

promises of a white crown closer to adulthood. Any school photograph – or for that matter *any* photo – of me before that promise came to fruition is tight-lipped.

A dent in confidence, thereafter I spent many a tween year smiling expressly with my lips firmly sealed until in adolescence my smile was restored, and it wasn't long before unwittingly it became my signature. A positive emotional magnet that when flashed garnered affirming feedback. Any opportunity to share a laugh or smile I seized. It made me feel good. It made others feel good. Whether that was accompanying my grandmothers to the aged care facilities where they both volunteered, I soon discovered how a smile or shared laugh helped me win friends, no matter the age. There was no better feeling than tilting the mouth of someone from down to up. I didn't realise it at the time, but these interactions provided a surge of dopamine which encouraged me to use these smiling and laughter skills more. Gratefully, I had many opportunities outside of school, where my laughter could not be curtailed – as an active member of a Jewish youth group, both with my peers and the students whom I led.

It was in this environment, at a youth leadership programme in Israel, where the laughter rolled into the wee hours of night, and when half years still counted, at 17.5 years, I met the man who would later become my husband. I'm certain that a shared sense of humour and love of laughter was one of the main ingredients for our chemistry.

2.2 My young adulthood, marriage, chronic fatigue and childrearing years

Unsure what I wanted to do when I "grew up", a generalised Bachelor of Arts degree provided me with a wide berth to explore multiple professions. Serendipitously, I landed my first plum job, becoming a Jack(ie) of all trades as newly appointed Executive Director of the Australia Israel Chamber of Commerce. In the early 1990s, my sex stood out in a sea of suits, felt most acutely in one of my many roles, as hostess with the *mostest* at functions I organised with hundreds of businesspeople. During these years in part, I believe my laughter was tempered. In a serious job, I couldn't be seen to laugh too much (i.e. mucked around). Then a move to Israel at 24, already married and excited to begin a new life with the bonus of financial security in my inverse role, as Executive Director of the Israel Australia Chamber of Commerce.

I planned. God laughed. A trip to the Sinai desert a couple of months after our arrival resulted in dysentery which *shlepped* on and until I became lumbered by *yuppy flu* – chronic fatigue syndrome (CFS). Thereafter, a couple of years either bedridden or consumed by inexplicable debilitating symptoms. Nominal social life. Very little laughter.

Four years after emigrating, for many reasons we boomeranged back to Australia where gratefully my health had stabilised enough for me to fall pregnant, at 27 with my first son and then aged 30 with my second son, who came into the world with sound lungs, cavernous enough to play the trumpet (which he later did). My first night alone with him in the hospital, I was gazing adoringly at this little miracle, wondering what he should be named when he smiled, and it was decided. Like his biblical ancestor, and greatgrandfathers on both sides, this boy would assume the name Zak, short for Yitzchak — meaning "to laugh". It was a visionary choice: without seeing that smile of his, I would have cracked under the pressure of eight tortuous croupy months. Anytime he shared a gummy smile, or tiny chuckle — ZAP! — the sleepless nights, endless stream of nappies and indiscriminate crying were forgotten, and I was back under love's spell, at his beck and call.

CFS left behind a trail of food allergies and intolerances, and frustrated by my limited food choices, I began writing food as medicine articles and recipes to assist not only my wellbeing, but others. I thought I'd figured out the key to wellbeing – nutrition. However, in the early 2000s, when my proposal for a series of gluten-free, dairy-free and largely vegetarian recipes themed cookbooks were rejected by several publishers, owing to the

"market (being) too small to justify the high production cost of such highly specialised cookbooks", I felt dejected. Fortune tellers they were not!

I decided to return to university to broaden my understanding about wellbeing. However, to meet postgraduate requirements, I needed some experience in the field. As luck would have it, a WHO Global Conference on Health Promotion was being hosted in Melbourne at the time, and I was accepted as a rapporteur contributing to the daily session wrap up. Amid the many "serious" sessions, one stood out – Laughter Yoga. This I had to report on. A seasoned facilitator outlined the fundamentals before inviting the audience to partake in this surprisingly novel practice. As I laughed along with the other participants, I immediately felt the uplifting energy and physical and emotional transformation. It was one of the most enlivening experiences of my life and the most I'd laughed in a very long time. In the 20 long years I had suffered from the legacy of CFS, and multitude of medical specialists and complementary health practitioners I'd consulted, the health bounce I received from Laughter Yoga was more immediate and impactful than anything else I'd tried. I knew I had stumbled upon my destiny.

It dawned on me how over the years, through illness and early childrearing my laughter had retreated within. Whilst there were moments of levity, largely it relied on chance. Being introduced to the intentional practice of Laughter Yoga completely changed the way I viewed this wellspring. The choice was mine. I could invite more joy into my days by drawing on this intentional practice. It was also a gift I could share with my family.

2.3 My cancer diagnosis

I began studying Health Promotion and during that time trained as a Laughter Yoga facilitator. My love of learning translated into a Master of Public Health. However, I was struck by how many lectures about mental health were talking about depression, stress or anxiety, i.e. negative mental health. One modality stood out as the personification of positive mental health – laughter! It wasn't long before I became an expert extolling laughter's virtue to anyone who'd listen. That was until a distinctly unfunny time in my life – a bowel cancer diagnosis at aged 42. Despite there being nothing humorous about cancer, I knew deep within that laughter was inextricably bound to my experience. The moment had arrived to practise what I preached. I just needed time (and a couple of major operations) to connect the dots.

I decided I'd imbibe my own laughter medicine. But little did I know! For weeks after my operation, along with 30 cm of my bowel, the ability to laugh was taken away from me. Delicate breaths were challenging enough. This thing I'd taken for granted my whole life had been stolen from me. Post-op, my body felt like it had collided with a semi-trailer. Feeling glum, I needed a large dose of positivity – along with another shot of morphine. As if magnetised, my hand was drawn to the pull of a nearby pencil and large white paper place mat lining my untouched breakfast tray. I began listing everything I was grateful for in my current situation, from the importance of slowing down – even if it had been enforced – to my body's miraculous capacity to heal.

It wasn't long before a beaming smile lightened my face and mood. It felt like every cell, every tissue, every muscle was smiling. I had totally forgotten about my pain. When the nurse came in to administer my morphine and saw me seated upright, serenely smiling, she thought she had wandered into the wrong room. My body's natural morphine supply had kicked in. That was my "aha" moment. I was embodying what I now coin the *laughter effect*.

That's when my exploration into the laughter's effect expanded beyond physical laughter into inter-related areas. I didn't simply want to wait to feel good, instead I wanted to actively increase opportunities to intentionally intensify these feelings. I wanted to embody positivity, and through journaling I explored many ways to do so. Whether through wholehearted smiling, full-bodied gratitude or priming my mind to scan for possibilities, not problems,

assisted by positive journaling, where I could re-frame grievances with gratitude or levity, or amplify micro-moments of joy in my day.

Recognising that no two days are the same in terms in what I needed to support healing and wellbeing. On days when I was experiencing pain, I'd send the healing energy of a smile to parts of my body that needed it the most. Stimulating endorphin production, our body's internal source of morphine and pain modulator. Or on days where I was frustrated about the language of cancer I'd journal about the little "c" versus the Big "C" or re-frame other peoples' language into my own. Referring to my bowel reversal operation, four months after my bowel resection, to a bowel reconnection. Rejecting the "survivor" label and adopting a "thriver" one, not tied to the past, but infused with newness. Some may say semantics, but to me it was far more empowering and endowed with positivity.

When I needed a "laughter shot" I'd switch on laughter, whether in the shower or car, away from prying eyes or judgement. No matter what was going on in my external environment, I could always change my internal mindset. Priming my "feeling" body and "thinking" mind towards optimal mental health and overall wellbeing. Adopting a laughter mindset where the good, even micro-moments of goodness were amplified and appreciated.

2.4 Research, "work" and books

Certain I wasn't the only one grappling with many of these issues, very early into my journaling experience I realised as much as I was writing for myself, I was also writing for a future envisioned audience. Thus, five years after my bowel resection, my first book (see Figure 1), part memoir, part healing guide *Laughing at Cancer – How to Heal with Love, Laughter and Mindfulness* was born (Ben-Moshe, 2017).

Inspired and informed by my personal experience, I have since conducted research about laughter's therapeutic value and facilitated countless individual and group laughter sessions for wellness programmes – from aged care to corporate and government. An intentional laughter practice means you don't have to wait until you're in the mood for laughing, or for something to funny happen to reap its therapeutic benefits. Which is why it has become one of my "go-to" programmes in vulnerable populations.

My first Laughter Yoga research programme was with a former colleague from La Trobe University, Dr Julie Ellis. Over a period of six weeks we introduced LOL pilot project in residential aged care, in multiple aged care facilities across Victoria (Ellis *et al.*, 2017). We conducted 30-min



Laughter Yoga sessions with groups of 8–12 residents, once a week. Each week the exact same routine, to minimise confounding factors, beginning and concluding with blood pressure (BP) measurement. We also investigated positive and negative affect and happiness levels using self-report questionnaires (Watson *et al.*, 1988). Residents unable to answer questionnaires by themselves were assisted by staff. After sessions we noted that in most residents' post-session BPs were markedly down. Results also indicated an increase in participants' positive mood and pleasurable engagement with their environment. There was increased enthusiasm and alertness, decreased lethargy and sadness and an overall increase in the average happiness score (Lyubomirsky and Lepper, 1999). I didn't need to wait for the results to confirm what my heart felt, and my eyes saw. Tears of sadness were exchanged for tears of joy. Laughter wasn't only good medicine for the body, it raised spirits and touched their souls.

I was also privileged to be part of a team that delivered a world-first Laughter Yoga programme for people receiving dialysis treatment in a major hospital in Melbourne. Stepping into the dialysis ward for the very first time, I was struck by how subdued it was. Eye contact, one of the critical aspects of the success of Laughter Yoga, was near impossible, as individual blood-filtering machines the size of old-fashioned computers obstructed patients' views of one another. Laughter Yoga combines simulated, intentional laughter practices, together with deep breathing and clapping whilst chanting "ho, ho, ha, ha, ha". I was wondering how this would work, with one arm hooked up to the dialysis machine, and many patients with amputated limbs or other forms of disability associated with kidney disease. It's no wonder depression is common with a necessity of dialysis three times a week for up to five hours at a time. Not usually prone to doubting the therapeutic benefits of laughter, to say I was hesitant about the programme's success would be an understatement.

Over a four-week period, three times a week, 30-min structured Laughter Yoga sessions were conducted at Monash Health public hospital. Quality of life, subjective (self-reported) wellbeing, BP, muscle cramping and lung function were measured (Bennett *et al.*, 2015). Supported by other laughter therapists and the exceptional nursing staff, peals of laughter ricocheted around the hospital ward. The feel-good vibes were contagious, the only desirable contagion in any hospital ward. Patients were literally laughing themselves towards happiness, as the research revealed.

I've found that no matter the cohort or demographic, the *laughter effect* enables our bodies to be placed into a feel-good state first – even if we're not feeling too flash at the time – and our mind then follows, boosting joy and creating an impermeable shield of resilience to life's challenges. It's a skillset or *laughskill* that can be applied to a range of everyday scenarios: traffic jams, a spat with your partner and even a pandemic. It has not only changed my life, but it has also changed me.

Over the years, I've collated 1000s of responses to the question, "Why do you like to laugh and how does it make you feel?" A wide range of reasons have been given, ranging from it being fun to distracting them from personal worries. In one session, one participant even described a good laugh as a "mind orgasm"! Yet one response stood out by a scientific mile: "Because it makes me happy".

It was this response, together with my personal and professional experience, that led me to research and write my second book (see Figure 1), *The Laughter Effect – How to Build Joy, Positivity and Resilience in Your Life* (Ben-Moshe, 2023). It acknowledges that positive wellbeing is not a one-size-fits-all. There are many intentional practices we can draw on to strengthen our humour muscle, grow joy and ways to switch on smiling and laughter to generate positive life transformation and boost joy.

3. Ten questions and 10 answers on laughter and mental health

In this section, Freda asks Ros 10 questions.

1. What do you see as the key benefits of laughter for mental health?

Ironically much discussion about mental health relates to the negative aspects of mental health, such as depression, anxiety and overall stress. Laughter is an authentic and innate expression of positive mental health. Whilst laughing you're not thinking about past stresses or future worries as it's impossible to co-habit two opposing mindsets simultaneously. The more we direct our attention and practice choosing to laugh out loud or finding the funny in stressful situations, the more neural pathways to levity are developed. It's not to say laughter is a cure all or that that medication doesn't play an important role in certain circumstances; however, when activated on a regular basis, laughter can enhance our internal joy quotient, making us more resilient to stress. In part owing to the host of physiological responses including enhanced oxygenation, and the release of neurotransmitters associated with wellbeing, including the "feel good" endorphins giving us a "healthy high", serotonin our body's natural anti-depressant, dopamine when shared with others and oxytocin the "molecule of love". A big component of mental health is our level of social connectedness, with loneliness negatively impacting on wellbeing. Whether with your best friend or a stranger, in-person, virtually or even on the phone, laughter builds a connection. Without language it conveys a message that you're valued, heard and fun and even possibly funny.

2. Does positive psychology influence how you view laughter, and how?

Positive psychology presents a broader theoretical framework for laughter to be integrated as an experiential form of positive psychology. With its ability to expand and highlight positive emotions, laughter is a true expression of positive mental health. In addition to the more specific field of gelotology - the science of humour and laughter, couching it within the positive psychology domain offers a more expansive lens to explore its impact on wellbeing. From physical laughter ha, ha, ha and its physiological effect, to a more intellectual manifestation as part of a broader laughter mindset. Positive psychology provides a framework for the essence of laughter to be embodied into varied interventions. To enhance gratitude and micro-moments of joy by sinking into and pausing into a wholehearted or full-bodied smile for the things or people you're grateful for. To enhance self-compassion by embodying a smile, as a symbol of being self-loving or kind. By inviting a lens of possibility and positivity into journaling, as a positive journaling experience. Whereby you can either intentionally focus on a positive emotion and journal about it or introduce this quality to a challenging situation you're going through. Laughter and developing a sense of humour is a natural way to empower resilience and enhance optimism, and overall psychological wellbeing, all known attributes of positive psychology.

3. How do you see the difference between laughing with and laughing without humour?

There's nothing better than a spontaneous eruption of laughter; however, that's not something that can be timetabled or switched on. In empowering news, it doesn't matter how you came to laugh! When you're laughing, you're laughing. Your body can't think it can only feel, so a humour or non-humour stimulus has the same effect, triggering a host of wellbeing hormones associated. The one main difference is a mental one – internal resistance. Over a lifetime we've been conditioned to laugh when something or someone is funny, not for laughter's sake. However, this assumption is flawed as the late Robert Provine, professor of neurobiology and psychology, found that laughter occurs 30 times more frequently in social rather than solitary situations. Provine's team discovered that only 10%–20% of the laughter episodes were caused by jokes. Common statements such as "It was nice meeting you, too" – hardly comedy gold – were far more likely to produce laughter (Provine, 2016). This demonstrates that a keen sense of humour is less

important than we've been led to believe. How good is that for the countless number of people who are hesitant to channel their inner comedian!

4. How can people who rarely laugh be shown how to laugh for health and happiness?

We are all born with the ability to laugh: however, over a lifetime, an accumulation of conditioning can dampen our laughter response. Sometimes, it's about experiencing to believing. That's what occurs in Laughter Yoga. We don't wait to feel happy to laugh, we laugh to feel happy. For someone grieving, facing adversity of any kind or with low selfesteem may feel it may feel inappropriate to laugh and being seen to enjoy a moment of levity. Giving ourselves permission to laugh is often the first step, to spark this wellspring. Laughter is an innate gift and fundamental human quality (even though research has discovered that primates and even rats laugh) (Darwin, 1872; Panksepp and Burgdorf, 2003). It has been bestowed for very sound reasons, and one of these is to lessen stress's blow. Over time and with conditioning, the laughter fount dries out, often becoming a purely intellectual construct, from the head and not the heart. Thinking laughter, i.e. saying "That's funny" when something funny happens, as opposed to laughing laughter. Where possible someone who rarely laughs can be encouraged to choose to spend time with people that buoy their spirit, that they can share a laugh with. That can be with someone face-to-face or even via social messaging. The more they choose to turn towards the things and people that make them laugh, smile or feel-good inside, the more things they'll find to smile and laugh about.

5. What are your thoughts on prescribing laughter for health and wellbeing?

It's a no brainer – or should I say a brainer! Laughing stimulates an array of hormones such as dopamine, oxytocin, serotonin and endorphins, providing a dose of wellbeing cultivating a laughter mindset is an important tool to build connection and gain some mastery over things we can't control. Not all play or humour results in laughter, but it primes the mind's internal landscape towards positivity. As founder of Laughter Yoga, Dr Madan Kataria says, "laughter doesn't necessarily solve a problem, but it helps dissolve it". There is already a social prescription, when health professionals refer patients to nonclinical services in the community for health-promoting activities, including gardening, (healthy) cooking classes, volunteering, art activities, adult learning or sports. A laughter prescription which has been endorsed by some within the medical community, where people are directed to online or face-to-face laughter groups – most commonly Laughter Yoga – to commune with others and dose up on laughter, is the next step. The Laughie (Gonot-Schoupinsky and Garip, 2019; Gonot-Schoupinsky et al., 2020b) was created as an exemplar of how a laughter prescription can be "filled".

6. How would you compare Laughter Yoga and the Laughie?

Both Laughter Yoga and the Laughie are examples of intentional practices, where laughter is not left to chance. However, where Laughter Yoga is typically done in groups, the Laughie is an accessible and easy way to laugh solo. It takes only one minute to record and can be done anytime, anywhere. A simple process where you record a Laughie either in audio or audiovisual format on a smartphone and listen back and laugh with it. Its success relies on both laughter's contagious and self-contagious qualities. While Dr Kataria's mantra is "Laugh for no reason", the Laughie highlights the importance of laughing for a reason, be it health or happiness. In our busy world where time is precious, the Laughie cuts through the "I don't have enough time" excuse. It's particularly important in people who for whatever reason are socially isolated or anxious about laughing in public. A means to get out of their head and into their heart, laughing out loud stimulating positive wellbeing. Just as Laughter Yoga's popularity has spread, so too has the Laughie. In 2021, Laughter Yoga Australia launched the Laughie challenge, where people posted their Laughies online. Challenging peoples' overall resistance in sharing their laughter more widely. Other clubs have since joined the Laughie bandwagon, and

whilst to date it hasn't taken off in the way the ALS "Ice bucket challenge" did, it has sparked pockets of laughter around the globe.

7. How can social laughter be encouraged in people who feel anxious about social situations?

A written or mental review of your "laughter timeline" can help, i.e. where you map out when in your life you laughed most, and when you laughed least. This may illustrate any laughter blocks such as an event or time in your life where a laughter response was negatively judged or shut down. Perhaps to younger years where they were laughed at and were made to feel self-conscious about their laughter. It can be helpful to remedy this negative association through the lens of self-compassion, by reassuring them this was one moment in time and something most people have experienced. It can also help to remind someone that this moment has passed, and they are a different person now. Expressing one's laughter side in non-judgemental company is a good strategy to regaining confidence. Go easy and choose your audience wisely. Kids can be less judgmental and more connected to their laughter selves, so perhaps a good place to begin is in their company. Affirmations can also help lessen resistance and anxiety, such as "I enjoy laughing with people I can be myself with". The more successful social interactions where the laughter flows in conversations and not necessarily humour, the easier it will be for people to come out of their "laughter shell".

8. Is laughing alone, or solitary laughter, important, and why?

Laughter is important *per se*. There are many aspects to a solo laughter practice. Firstly, in an intellectual sense, adopting a laughter mindset, where challenges can be re-framed with levity, or being able to find the funny in a particular situation. Or being able to laugh at ourselves for any perceived deficiencies and faults. These are resources we can access 24/7 should we need. It acknowledges that it's OK that we muck up from time to time, that we're not perfect. As such it's an important skill in our resilience toolbox.

Then there's the physical qualities of ha ha ha laughter with its range of physiological benefits for heart health, BP, immune function and even pain tolerance (Bennett et al., 2014). It's more challenging laughing by ourselves as we don't have the contagious social aspect; however, this can be mimicked either using the Laughie or listening or watching films or comedy (particularly when there's the added laugh track). The benefit of a solo laughter practice is you eliminate the need for company whilst reducing negative emotions and maintaining equilibrium. The trick is to encourage laughing out loud as an intentional practice, rather than laughing on the inside or intellectualising it.

9. Do you see laughter and humour as a way to personal development, and self-help, and how?

Learning to laugh at yourself, re-framing stressful situations with more levity or finding the funny in a stressful situation develops personal resilience. It demonstrates there's another way to respond to adversity or challenges. Self-enhancing humour — maintaining a humorous outlook in stressful or adverse situations is linked to positive psychological wellbeing, signs such as happiness, satisfaction with life and an optimistic outlook (Torres-Marín *et al.*, 2018). When we're laughing and smiling, the mind is anchored in a moment of positivity. Negativity in the shape of fear, depression or anxiety has no footing. Rather than waiting for something funny to happen or for life to be a bed of roses, we can transform our emotional state by tapping into our laughter and humour resources. To compile a humour journal that you can tune into or add to when your mood ebbs, or giving yourself a mental break by incorporating some intentional laughter practices into your day. These techniques create distance between us and our pain and improve mood and resilience to stress. Much freedom and benefit to our overall wellbeing lies in how we respond.

10. How can people struggling deeply with illness and depression be motivated to laugh?

When life gets stressful, illness creeps in, relationships are put to the test or we're struggling financially, there's rarely much to laugh about. It can be helpful for someone in a low state of mood or struggling with illness to be reminded that laughter is ancient, primitive and instinctual. This knowledge demonstrates that laughter is not as farremoved concept as one might think. It's primal to being human, always in the background even when the feeling is remote or distant. Whilst the ability to laugh is innate, the decision to activate and use it to its full ability is a choice. Intentionally turning towards humour and/or laughter provides relief and release from some of the stress that has embedded in our body and mind, freeing ourselves to power forward, even a little. The more we train our sense of humour, the stronger the sense becomes, so in the future we'll have expanded resources to respond with more levity. In addition to prescribed medication even if for a moment attention is directed towards the light or something remotely beneficial, a moment of levity can be created. Like a gratitude practice, this process signals hormones of wellbeing, such as endorphins or serotonin to be released.

4. Conclusions

In this case study, Ros Ben-Moshe describes how intentional laughter supported her mental health following a diagnosis of bowel cancer. With mental health issues, and cancer, affecting more and more people worldwide, it is comforting to know that intentional laughter can be an easily accessible solutions to boost wellbeing. Ros describes how levity through laughter can be the quickest route to lifting mood, and how laughter and humour can enhance social connections and can also be fruitfully used in solo practice. Laughter prescriptions endorsed by the medical community are as Ros says, "the next step".

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