

A Study of Tinnitus Intervention Combining the Human Voice (Toning) and Energy Alignment to Illustrate the Benefits of Using a Holistic Alternative Self-Help Approach to Eradicate Tinnitus

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Abstract: A holistic study of tinnitus to explore the etiology of tinnitus and to examine a successful alternative self-help approach, which combines the human voice (toning) with energy alignment. Four case studies of adults who suffered from tinnitus are used to illustrate the benefits of approach. Each adult sustained a three - week self-help programme of toning, colour and energetic alignment. The clinician researcher evaluates the methodology of the approach and cause of symptoms from a physiological and metaphysical perspective.

Keywords: Tinnitus; electromagnetic field; toning; metaphysics; subtle energy system; perception; resistance patterns; alignment; frequency; healing; sound; ear, listening; colour; harmony; pineal gland; behaviour, energy flow; psychoacoustics.

INTRODUCTION

My interest in the voice and all aspects of communication led to a career in Speech and Language Therapy within the National Health Trust and this deepened my understanding of the mechanics of speech and the function of the ear. Over the years, I worked in a variety of therapeutic settings but became increasingly disillusioned with orthodox, symptom focused methods of intervention to improve communication and restore speech. In my search for alternative methods to find a more fulfilling way of working, I shifted my focus to holistic therapies and the study of metaphysics, which equates with the non-physical, basic cause and nature of things and healing by remedies that are not physical.

To understand this process fully, it was necessary to extend my focus by travelling beyond the parameters of the brain, to recognise that the physical body is nourished by an electromagnetic envelope of subtle energy (auric field), which extends beyond the physical self [1]. This multidimensional field of subtle energy known for thousands of years as the life force, chi or prana is now recognized by medical science. A highly complex network of meridian channels, mapped since ancient times, acts as a transport system to distribute this lifegiving energy throughout the physical body. Further pioneering research by Bruce Lipton, a developmental biologist, demonstrates that the vibrational frequency of thought patterns and emotional responses influenced by a negative belief system, skews our perception and affects cell to cell communication [2]. Any disturbance within the auric field impacts negatively on our immune system, through neuropeptide response [3].

Focused toning, a powerful and ancient method of healing with the voice is a radical approach to harmonizing vibrational frequencies within the brain, the physical body and the electromagnetic field and is a

powerful self-help tool to release energy blocks within the energetic pathways. Evidential case studies demonstrate that toning, combined with sustained practice of energy alignment, restores balance and flow to the subtle energy anatomy which impacts positively on health and homeostasis. Ongoing research and today's technological advances are validating the benefits of this ancient system of healing.

TINNITUS

Tinnitus, 'ringing in the ears' is a word that originates from the Latin word 'tinnire' which means 'to ring' although the sound in the head, which only the individual can hear, may also be perceived as whistling, booming, roaring clicking or hissing. 'Tinnitus is one of the most elusive conditions that health care professionals face.' UCSF Medical Centre 2001 and is a common condition, which is recognized as a problem by 32% of the population in the United States of America, 10% of the world population and 300 million people worldwide [4]. Orthodox medicine describes it as a condition that can result from a wide range of underlying causes, including hearing loss, neurological damage, drug toxicity, ear diseases, or depression and

more commonly, exposure to loud sounds.

According to the National Institute of Deafness and other Communication Disorders 2015, young people are exposed to loud sounds, more than any other age group (however, many of us are exposed to loud noise and don't develop tinnitus.) Tinnitus disturbance can last for many years, interfering with sleep and concentration. Doctors tell their patients that "nothing can be done to alleviate it" because there is no known cure. Clients with tinnitus are advised to have a full examination of the ear by a doctor and possible referral to an Ear Nose and Throat consultant to establish that there is no infection or underlying physical cause.

RESEARCH

There is insufficient evidence to show that antidepressant drugs improve tinnitus symptoms. Previous studies have shown that damage to the inner ear from loud noise reduces activity in the auditory nerve that sends signals from the ear to the brain. This damage is thought to result in the brain becoming hyperactive, which can result in tinnitus. Tinnitus may also be generated when the sound processing area of the brain realises it is not getting the full signal it has grown to expect from the inner ear [5]. According to a plethora of articles written by Ear, Nose and Throat surgeons (see bibliography) there are various theories on how tinnitus is produced. If a hearing loss is established, the client may be offered a hearing aid, although there is no evidence to show that this alleviates the tinnitus and may magnify the symptom [6]. Sound therapy is now recognized as an important part of tinnitus management. Scientific research into neurophysiology is currently exploring how tinnitus is generated in the brain and is using scientifically chosen electronic tones to disrupt the tinnitus, the aim being to mask and decrease the intensity of the sound. Electronic sound generators have been patented to mask the tinnitus however, according to the literature, this doesn't eradicate the problem but allows sufferers to adapt to their tinnitus over time. Other forms of therapy include sound enrichment, which fills the head with therapeutic sounds such as the lapping of waves on the sea shore; this distracts the brain to a new focus of sound and again helps to mask the tinnitus. Many of these methods are still under investigation and in terms of their effectiveness, with some objectively evaluated in clinical trials

Recent research articles, illustrate that the brain can be changed by the right stimulus and high frequency sounds are able to provide that stimulus and fire the nerves to build new neurological pathways Totally Sound Health, Perth, Western Australia 2014. The brain receives messages from the ear and then sends messages back to the ear to improve its function. Within the middle ear, there are three tiny auditory bones (ossicles), the malleus, incus and stapes and the malleus and stapes bones each have an attached muscle,

however these two muscles have for a long time been considered passive, as they do not respond in an obvious way to sound [7]. If the middle ear muscles are chronically weak or over-contracted, they will be ineffective in dampening the vibratory pressure which builds up within the middle ear [8] Consistent exposure to loud noise may cause the muscles in the middle ear to lose their tone and therefore there is often a need to retrain and strengthen these muscles. Latest research suggests that these auditory muscles can be toned electronically and may improve their performance although improvement may be subtle and therefore difficult to measure.

Professor Alfred Tomatis [9], a French physician, psychologist, educator and world-renowned pioneer in the field of neurology and psychoacoustics, found evidential proof that the human voice provides the best nourishment for the brain, promoting physiological strength and vitality [8]. Tomatis accomplished seemingly miraculous recoveries with his innovative treatments using voice. A particular account is well documented, where Tomatis restored the declining mental and physical health of Benedictine monks in a French Monastery by re-introducing the seven daily chants after a new Abbot with a desire to update spiritual practice, had eliminated chanting from the daily schedule. Tomatis' work with the Benedictine monks demonstrated, that the use of the voice through tones and chants had the ability to positively affect the body, the brain and the mind. His story inspired an investigation into a deeper understanding of the relationship of the ear, the voice and physiological health.

We are surrounded by a 'sea of sound' and the brain receives 60% *more stimulation* from the *ear than from any other organ* [10]. The ear and the voice are part of the same neurological loop and a change in the response of one shows up immediately in the other. The voice can only reproduce what the ear can hear [8], therefore an improvement in the ability to listen is key to successful communication and voice production. Tinnitus severely affects this ability. In a normal ear, sound waves cause the eardrum and then the middle ear bones to vibrate. This sends a wave of vibrations directly to the inner ear (cochlea) via the bones in the head. These waves are then converted by the cilia in the cochlea into electrical nerve signals, which are sent along the auditory nerve to the brain to be distributed throughout the body to tone up the entire neuromuscular system.

Signals sent to the brain affect neural activity [11] Any sound that we make ourselves, even if it is only humming is of a higher value to us than any other sound [12].

We are told in ancient scriptures that to hear is the most powerful of all the five senses. In the cycle of

birth and death, it is the first one to appear and the last one to disappear. Naad Yoga uses sound, tone, rhythm, singing and listening in order to awaken the consciousness. *'When we chant sacred mantras our tongue touches the roof of the mouth in a very specific manner. This creates a chain reaction resulting in changes in the brain. When the chemistry of the brain is balanced our state of mind and outlook on life improves dramatically.'* Ancient Ayurvedic medicine suggests that problems with hearing can be improved with the use of specific tones: /ah/ to vibrate in the heart and /ee/to vibrate up the nasal septum and stimulate the root of the pineal gland [13].

The Pineal gland is part of the endocrine system and is located between the right and left hemispheres of the brain and acts as an electromagnetic sensor, generating its own magnetic field through magnetite crystals, which have been detected by magnetic imaging [14]. Interestingly, the pineal gland is also responsible for secreting two extremely vital brain fluids related to our mental health. These are melatonin which is the hormone that induces sleep and serotonin, which is the chemical that helps to maintain a happy, healthy balanced mental state of mind. Anti-depressant drugs, such as Prozac and Zoloft, are often prescribed to raise the serotonin levels within the brain chemistry [15]. Therefore any thing that can maintain the vibratory harmony of the pineal will positively impact on the immune system and our ability to deal with stress.

METHODOLOGY

Toning

Toning is a powerful and ancient method of healing with the voice. Using the voice in this focused way, energises the brain and stimulates and regenerates the central nervous system to activate the client's own self healing mechanism [16].

As well as an understanding of vibration, this holistic approach requires an understanding of the subtle energy system and the way it impacts on our ability to listen as well its effect on the health of the physical body. Tinnitus is a symptom not a disease and in metaphysical terms tinnitus is the manifestation of dissonance within the physical body and within the subtle energy anatomy, which relates to our sensory awareness, thought patterns and intuitive faculties. Toning is a powerful method of harmonizing the irregular and dissonant vibrations by attuning the signal to higher frequencies which act as a magnet to align and harmonise the vibratory field.

Toning recharges the brain and the ear with electrical potential, opening up the neural pathways to increase stimulation of the auditory cortex to send acoustic stimulation to every part of the body, triggering a plethora of internal sensations that turn the body into a vibrating instrument [17].

Tinnitus therapy involves a structured and monitored programme of tones and their corresponding colours from the rainbow spectrum, combined with energy alignment. Tones are specific sound syllables combining consonants and vowels, which create healing vibrations. To tone, clients make the shape of the tone with their mouth as they expel air from the lungs, which travels up to the laryngeal/pharyngeal cavity via the bronchial passages. This action causes the vocal folds to vibrate together along their midline to create a vibration of vocal sound. Toning releases emotional distress from the meridian network by creating a resonance of sound, which ripples through the subtle energy to dispel emotions from the body and release anxiety from the mind. Toning draws upon the body's natural inbuilt systems of self-healing to strengthen and balance the electromagnetic field. It recharges and opens the ear enabling it to attune to higher frequencies by releasing inner tensions and opening up the neural pathways [16]. This process reduces tension and balances the pressure within the middle ear to facilitate the transduction process within the inner ear where electrical signals are transmitted to the auditory cortex. A structured and monitored programme of tones, colours and energy alignment, instil positive feelings, enhancing the healing process.

The use of the voice in toning has a positive neurophysiological effect, creating resonant harmonics, used since ancient times by many cultures to open a gate to different planes of conscious awareness

Detailed case studies of clients engaged in the self-help programme provide a data base of information that allows refinement of the methodology. Interactive processes may be crucial to the success or failure of an intervention [18]. A systematic and exploratory study aimed at the improvement of therapy intervention, extends the boundaries of existing knowledge.

METHODOLOGY

Energy Alignment

Energetic Alignment is a key element of this process and the combination of toning and energetic alignment harmonises the frequency of the signal to the higher intuitive faculties by rebalancing the pressure within the middle ear to bring dissonant frequencies into line with the magnetic pull of a higher accelerated frequency.

Energy alignment follows the same principle as Faraday's Law of Induction, a physical law postulated by Michael Faraday in 1831 one of the basic laws of electromagnetism. When you change a magnetic field, you can create an electric current. Iron filings, which have magnetic properties, equate with the cells and molecules of the body and line up (align) with a magnetic pull of a higher vibrational frequency beyond the physical body. This is the principle underpinning energetic alignment.

The Alexander Technique developed in the 1890s by Frederick Matthias Alexander, favours the concept of 'good use' of voice to reduce tension of the vocal mechanism through spinal alignment. 'Spinal alignment brings improvements in voice quality, posture, co-ordination and balance'. It also provides a good listening posture. Alignment to higher frequencies develops focus, which improves listening by filtering out extraneous noise picked up by bone conduction [19].

Accepting personal responsibility for one's own energy is a key element of healing. The programme incorporates a simple routine of brief, disciplined, daily practice of toning and energetic alignment. The client is also asked to make a plait of their three colours and is asked to hang the plait in front of them when they tone. They are also asked to bring their colours into their daily life through choice of clothes, flowers etc. The success of the treatment is dependent on the client's willingness to follow the toning and alignment programme as directed. By acknowledging and accepting patterns of resistance, which may arise, clients begin to make lifestyle changes to support the healing. Throughout the toning process, subconscious patterns may arise and there may be mental and emotional conflict requiring a decision to allow the process or resist [14].

Many clients have been able to resolve a number of longstanding emotional and psychological issues and emerge from the process feeling more confident in all aspects of life.

Appointment for each client

- Case history of tinnitus onset
- Explanation of possible etiology of tinnitus
- Explanation of alignment and toning process
- Demonstration of the 3 tones.
- The client is shown how to make a plait of material in their colours.
- Teaching the 3 tones
- Explanation of six week toning programme and instructions
- CD of the Emerald Alignment to listen to on a daily basis.
- Follow up/support

GOALS

- To empower the client to believe in their own unique ability to heal themselves and harmonise areas of possible conflict.
- To eradicate the disturbance of tinnitus through application of their own voice and daily energy alignment practice.
- To empower the client to address patterns of behaviour and lifestyle choices which may have contributed to the stress related manifestation of tinnitus.

- To replace a negative belief system reinforced by the medical fraternity that nothing can be done, with a positive belief in one's ability to heal oneself through positive thought, action and a willingness to address negative patterns of behaviour.

ETHICAL ISSUES

Therapists, counsellors and clinician researchers need to be aware of their potential for abusing their power Ethical Framework for Counselling Provision 2015 Clients may be open to exploitation by those who are more interested in their own research rather than in the welfare of those they are researching [20]. Empowerment and control of the process needs to be in the hands of the client. It is important to monitor intervention, with the awareness of the therapist's ability to influence the client's behaviour.

OUTCOME

From a total of 10 clients with tinnitus, six clients were able to eradicate their tinnitus completely by following the toning and alignment programme instructions meticulously and by identifying and resolving areas of emotional conflict which was contributing to their levels of stress. Four clients with tinnitus did not resolve their tinnitus symptoms because they were unable to sustain the discipline of practice beyond a ten-day period, even though they had initially reported an improvement in their tinnitus symptoms. This work has demonstrated that some clients are unable to alter their negative belief system that whatever methods they try, their tinnitus will remain the same and there is no known cure. Low expectations and negative thought processes inhibits success because action follows thought 'your mind can and does contribute to both the cause and healing of whatever ails you' [2]. 'Atoms and molecules reflect the belief system and this in turn creates the energetic and physiological response. Healing response is governed by adjustment of atomic spin at the sub molecular level. Resistance impedes flow [14].

SELECTED CASE STUDIES OF CLIENTS WHO SUFFER FROM TINNITUS

- Client A –Female/ Retired Lecturer/ 63 years
- Client B – Female/ Retired Physical Education Teacher/75 years
- Client C – Female/ Occupational Therapist Administrator/ 27 years
- Client D – Male/ Retired Naval Petty Officer/70 years.

Client A

Woman aged 75 years
Occupation – Retired Physical Education teacher

Tinnitus Onset

After 'bad reaction to anti depressants 20 years ago' (aged 55 years)

Tinnitus

Tinnitus – Ringing in Left ear.

Began in right ear and moved to left ear

Now not picking hearing higher frequencies.

Other symptoms

- Sleep disturbance/'insomniac.'
- Recurring Dream – 'Fear of losing control with a group of people when I can't get them to do what I want them to do.'
- Wears ear plugs at night because her husband snores.

Family History

- No children
- Mother mental illness throughout life
- Mother – Bi polar - when client aged 2 years ongoing
- 1993- Mother died (client 53)
- 1994 Aged 54 years became ill with virus.
- Post viral fatigue syndrome.
- Psychotic episode
- Psychotic episode after a panic attack.
- Sectioned and hospitalized for 10 days
- 1995 - Holistic training/massage therapist

Holistic Therapies Received

Reflexology, homeopathy, massage, counselling, cranio sacral therapy- Had no effect on tinnitus.

Toning/Energy Alignment Therapy

1st week of practice

- Night following first day of practice, no tinnitus.
- Tinnitus returned the next day
- Client became sad, aware of 'grieving for father.'

2nd week of Practice

- Voice cracking during toning – felt that something was clearing.

3rd week of practice

- Tinnitus fainter.
- Stressed - packing to go on canal holiday throughout Summer.
- Feeling sad that Tinnitus hasn't gone although much weaker.
- Client determined to keep going.

Requested 2nd Programme of Tones and Energy Alignment

1st week (Practised while on canal boat holiday)

- Reconnecting to nature, most of day outside on the water.
- Low back pain
- Left knee hurting
- Tinnitus tingling rather than ringing
- Sleep improved

- Feeling need to be quiet and alone.

2nd week

- Toning outside in fields and churchyards.
- Felt self - conscious toning on canal boat when husband there.

3rd week

- Tinnitus lessening and fading.
- Fading consistently

Review appointment

- Tinnitus no longer ringing.
- Occasionally a 'fizzle' if stressed
- Sleeping until 6.00am before waking, rather than 4/5.00am
- No longer taking sleeping pills, has weaned self off them.
- No longer obsessed about feeling she has to listen to the news.
- Fear - afraid to stop toning incase it comes back.
- Practising energetic alignment twice a day and will continue with this.
- Tinnitus 'hardly there'. Doesn't notice it during the day and it no longer wakes her up at night.
- Feels very relieved.
- Desire to work locally with refugees and find solace through service.

CLIENT B

Female/63 years/retired lecturer

Tinnitus onset

- A. After leaving country of birth.
- B. Daily ongoing tinnitus for 15 years with continuous ear problems.

Tinnitus

- C. Humming/rattling/whirring/ intermittent echoing of own voice;
- D. Worse when tired or stressed/sometimes affecting both ears;
- E. Recent history of ear infection, inflammation of left ear;
- F. Treated with antibiotics.

Secondary Symptoms

- Client suffered chronic backache and described longstanding issues of loss and bereavement and irreconcilable differences.

Session 1

6 week Toning/Alignment Programme

- Disciplined home practice of toning with energy alignment

Review

- Tinnitus fading intermittently over six week period.

- Client remembered unresolved past hurts and arguments;
- Felt the need to reconcile and was able to do this;
- Backache disappeared with toning.

Client requested a further 3 - 6 week self- help programme.

New Sequence of Tones / Alignment

- Tinnitus reduced within days, fading over 4 week period;
- Gradually disappeared altogether, no longer impinging on life;
- Client felt lighter / more relaxed / laughing.
(Tinnitus Resolved after a 12 week period of home practice)

CLIENT C

Aged 27 years (online)

Female/ Health Care Administrator

Tinnitus

- High pitched ringing in Left ear
- Doesn't notice during the day when busy.
- Apparent at night
- Hearing tested – good

Tinnitus Onset

- Felt it had always been there
- High pitched whistle transferred to both ears when client applied for administrative rather than therapeutic work.
- Feeling 'burnt out' in face to face client contact
- Childhood dream of wanting to work with animals/vet
- Unrealised dream, followed profession of close relative instead.

Personal History

- Middle child of three sisters
- Client left country of birth aged 4 years.
- Aged 5 years- Parents divorced.
- Shared contact on weekly basis
- Aged 15 years- Parents back together
- Aged 18 years Parents divorced again.
- 19 years'- left home to travel Europe and to 'get away'
- Pregnancy termination
- Put it out of mind for 2 years
- Avoidance/anxiety/ depression/ empty feeling
- Socially withdrawn
- Bulimic 'for a while'

Holistic Therapies

Seeing healer

Meditates

Feels that tinnitus is linked to spirituality.

Six Week Toning /Alignment Programme Review:

1st Week

- Initially embarrassed to tone in front of boyfriend or tell him about the programme, fear of being criticized.
- Toning in shower
- Aware of lots of synchronicities in the day, felt that it was confirmation that she was doing right thing.
- Awareness opening up.
- More aware of relationships.
- Expressing fears of toning to boyfriend/now comfortable.

2nd Week

- Asking for support at work, therefore feeling less stressed
- Many dreams about conflict over termination and judgement of others
- Actively sought relationship resolution with sister with sister,
- Looking for more satisfactory occupation linked to holistic therapies.
- Beginning of resistance to disciplined practice,
- Forgetting alignment practice.
- Emailed therapist for reassurance/support
- To continue with discipline of practice

3rd Week

- Tinnitus fainter, hardly noticeable
- Visited home during this period to take a break from relationship.
- Returned to playing guitar and singing, hasn't played guitar for several years.
- Sang at a 'gig'
- Said that she '*found joy*' in this.
- Decision to follow intuition and will book in for healing with local therapist and '*see where it leads*'
- More honest relationship with boyfriend/discussing future plans.
- Tinnitus no longer an issue
- To continue with alignment.

Client D

Male /70 years/ Retired Royal Navy Gunnery Instructor;

Tinnitus Onset

Sleeping birth - under deck of the Aircraft carrier Ark Royal.

Developed Tinnitus in Left ear

Tinnitus

Buzzing and high pitched whistle

G. Disturbed sleep and daytime activities;

H. Sensitive to noise - impatient;

I. Marked acceleration of tinnitus and hyperacusis

after triple bypass operation (65 years.)

Six week Toning Therapy /Energy Alignment Programme

Review:

1st Week

- Client initially resistant to home practice;
- Happier to tone outside, where none could hear

2nd Week

- a. Tinnitus reduced;
- b. Client now enjoying home practice

3rd Week

- Tinnitus intermittent and much fainter;
- Client's general health and stamina improved;
- After 8 weeks - Symptoms disappeared;
- Client now free from Tinnitus.

REFERENCES

1. Lamb, C. (2009). Born Remembering. Epiphany Press UK.
2. Lipton, B. H. (2008). The biology of belief. Hay House. Inc. Carlsbad, California.
3. Pert, C. B. (1997). Molecules of Emotion Simon & Schuster Inc. UK.
4. Moynihan, R. (2003). Who pays for the pizza? Redefining the relationships between doctors and drug companies. 1: Entanglement. *BMJ: British Medical Journal*, 326(7400), 1189.
5. Widén, S. O., & Erlandsson, S. I. (2004). Self-reported tinnitus and noise sensitivity among adolescents in Sweden. *Noise and health*, 7(25), 29.
6. Faulconbridge, R. L., & Bowdler, D. (2011). Hearing aids and how to get one. ENT UK.
7. Counter, S. A., Borg, E., & Engström, B. (1989). Acoustic middle ear reflexes in laboratory animals using clinical equipment: technical considerations. *Audiology*, 28(3), 135-143.
8. Castiglione-Morelli, M. A., Lelj, F., Pastore, A., Salvadori, S., Tancredi, T., Tomatis, R., ... & Temussi, P. A. (1987). A 500-MHz proton nuclear magnetic resonance study of mu. opioid peptides in a simulated receptor environment. *Journal of medicinal chemistry*, 30(11), 2067-2073.
9. Tomatis, A. (2001). The Ear and the Voice. Scarecrow Press Inc UK.
10. Dejean, L. M., Ryu, S. Y., Martinez-Caballero, S., Teijido, O., Peixoto, P. M., & Kinnally, K. W. (2010). MAC and Bcl-2 family proteins conspire in a deadly plot. *Biochimica et Biophysica Acta (BBA)-Bioenergetics*, 1797(6-7), 1231-1238.
11. Shannahoff-Khalsa, D. S., & Beckett, L. R. (1996). Clinical Case Report: Efficacy of Yogic Techniques in the Treatment of Obsessive Compulsive Disorders. *International Journal of Neuroscience*, 85(1-2), 1-17.
12. Williams, J., Wake, M., Hesketh, K., Maher, E., & Waters, E. (2005). Health-related quality of life of overweight and obese children. *Jama*, 293(1), 70-76.
13. Chisti, G. M. (1991). The Traditional Healer's Handbook. Healing Arts Press Rochester.
14. Lamb, C. (2014). Truth and Light Chronicles Epiphany Press UK.
15. Wilcock, D. (2012). The source field investigations: the hidden science and lost civilizations behind the 2012 prophecies. New York: Plume.
16. Warters, J. (2011). Rainbow Chakra Tones Epiphany Press UK.
17. Warters, R. D., & Dickie, R. G. (2014). *U.S. Patent Application No. 14/351,355*.
18. Bell, W. J., & Tortorici, C. (1987). Genetic and non-genetic control of search duration in adults of two morphs of *Drosophila melanogaster*. *Journal of insect physiology*, 33(1), 51-54.
19. Sahin, U., Weskamp, G., Kelly, K., Zhou, H. M., Higashiyama, S., Peschon, J., ... & Blobel, C. P. (2004). Distinct roles for ADAM10 and ADAM17 in ectodomain shedding of six EGFR ligands. *The Journal of cell biology*, 164(5), 769-779.
20. British Psychological Society. (2010). Code of human research ethics. Leicester: British Psychological Society.