

Mind Health Index 2022

A synopsis of the development
of the AXA Mind Health Index.

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The AXA Mind Health Index and Study white paper

Foreword

The AXA Mind Health Index (MHI) came from a bold ambition from within AXA. We hope to reshape how people think about and achieve good mind health. In the past, discussing mind health has too often been impeded by stigma – and we have focused on the negative, when everyone’s aspiration should be to flourish. Good mind health, we believe, is the keystone to good physical, social and financial health.

Today we all know the ingredients of good physical health: we need to be active, eat a good diet, manage our weight and not smoke. Go back 50 years and the importance of blood pressure, cholesterol, visceral fat, exercise and nutrition to heart health was not well understood by people in general. We are at that same point for mind health. We need to better understand what constitutes good mind health – and what we can do to improve our sense of happiness and wellbeing.

The AXA Mind Health Index, as part of the AXA Mind Health Study, is our first step in this process.

Dr Chris Tomkins, Head of Wellbeing Propositions, AXA Health UK



Introduction

Mental health includes our emotional, psychological, and social well-being. It affects how we think, feel, and act. It also helps determine how we handle stress, relate to others, and make choices¹.

In 2020 we conducted a survey that leveraged expert-inspired pan-European insights. The 2020 survey was shaped by the context of COVID-19 and, as a result, provided concrete levers and coping strategies to help people, employers and society.

To reflect AXA's expertise in the mental health space and reinforce AXA's position as a partner to our audiences, AXA has undertaken its second annual research study. Taking learnings from the 2020 activation, the study has evolved to include additional concepts within an updated framework and expanded to include new regions. The survey has also been designed to maintain relevance in the post COVID-19 era.

Mainland China, Japan and Hong Kong joined the 8 European countries taking part in the 2022 Mind Health Study. Mental health is an important conversation in Asia. Recent government statistics in Japan show suicide claimed more lives in October 2020 alone than COVID-19 between January 2020 and October 2020. Suicide is a complex and multifaceted phenomenon² and the rise in suicides is a shocking but important statistic. It is estimated that 173 million adults in mainland China have a mental health disorder³ and 27% of employees in Hong Kong have experienced mental health problems in 2020⁴. Thus, the 2022 Mind Health Study provides a huge opportunity to gain insights and a better understanding of the factors that contribute to the unique mental health profiles and needs of these countries and territories.

The 2022 Mind Health Study also provides an opportunity to gain greater European insights. In 2020, 34% of those surveyed in Europe self-reported struggling with their mental health. This figure was found to increase during the pandemic. The COVID-19

pandemic has changed the way we live and work. Not surprisingly, restrictions put in place to control the spread of the virus have also had an impact on people's wellbeing⁵. Mental health professionals anticipate the pandemic will have a negative impact on mental health with increasing cases of depression, self-harm and suicide globally⁶.

Consequently, it is more important than ever to understand the status of mind health and the factors that contribute to it. We will refer to the term 'mind health' throughout this document. The decision to use the term 'mind health' over mental health was made partly to avoid the common misconception that mental health only relates to mental ill health. Although the terms are often used interchangeably, mental health and mental illness are not the same thing; but they are also not mutually exclusive. A fundamental difference between mental health and mental illness is that everyone always has some level of mental health, just like physical health. Whereas it is possible to be without mental illness. Ultimately, this means that someone can be mentally healthy with a mental illness and that someone can have poor mental health without a mental illness. Despite poor or 'languishing' mind health not being defined as an illness, having poor mind health is associated with emotional distress and psychosocial impairment. At the other end of the spectrum 'flourishing' mind health can be defined by the presence of positive feelings and positive functioning in life⁷.

The term mind health also allows for the inclusion of a range of societal, social and individual factors in its definition. A systems approach has been applied to help understand the aetiology and maintenance of mind health⁸. Using this framework, we sought to understand the factors that impact mind health at the individual, social and societal levels. A benefit of taking a multidimensional approach is that it provides a more holistic understanding of mental health and wellbeing, and as a result provides greater insight into how mind health can be supported and improved.

¹ <https://www.mentalhealth.gov/basics/what-is-mental-health>

² <https://edition.cnn.com/2020/11/28/asia/japan-suicide-women-covid-dst-intl-hnk/index.html>

³ Lancet, T. (2015). Mental health in China: What will be achieved by 2020?. *The Lancet*, 385 (9987), 2548-2548.

⁴ CMHA HK (2020), The 2020 City Mental Health Alliance Hong Kong (CMHA HK) Mental Health and Wellbeing in the Workplace Survey.

⁵ Kumar, A., & Nayar, K. R. (2021). COVID 19 and its mental health consequences

⁶ <https://www.euro.who.int/en/health-topics/health-emergencies/coronavirus-covid-19/publications-and-technical-guidance/noncommunicable-diseases/mental-health-and-covid-19>

⁷ Keyes, C. L. (2002). The mental health continuum: From languishing to flourishing in life. *Journal of health and social behavior*, 207-222.

⁸ Bronfenbrenner, U., & Ceci, S. J. (1994). Nature-nurture reconceptualised: A bio-ecological model. *Psychological Review*, 10(4), 568-586.

Research suggests the following areas are important for mind health

At the individual level

Self-acceptance

Self-acceptance is defined as ‘an individual’s acceptance of all of his/her attributes, positive or negative’⁹. Different theologies (e.g., Christianity, Buddhism), psychological theories (e.g., Humanism), and therapies (e.g., RET, CBT) view self-acceptance as a mechanism for reducing emotional misery. Research suggests developing an engaged and present mindset is key in reducing self-evaluation and increasing self-acceptance¹⁰. In doing so, self-acceptance supports the progression towards happiness and fulfilment.

Authentic pride

Authentic pride is related to feelings of confidence and achievement and is associated with a psychologically healthy and socially desirable personality profile marked by high levels of agreeableness and conscientiousness, intrinsic motivation, perseverance, and a tendency to engage in a range of prosocial behaviours, including empathy and respect¹¹. Whereas ‘hubristic’ pride is viewed as arrogant and self-serving, ‘authentic’ pride exudes accomplishment, conviction and success.

Meaning/Purpose

Meaning and purpose in life are predictive of emotional well-being and result in better recovery from negative life events¹². A literature review of thirty-two papers on ‘meaning in life’ and mental health found overwhelmingly that relationships, particularly relationships with family, are cited as the most important source of meaning in people’s lives in all cultures and age groups¹³. This review also found that failure to address ‘meaninglessness’ can lead to psychopathologies such as depression, anxiety, addiction, aggression, hopelessness, apathy, lower levels of well-being, physical illness, and suicide.

Resilience

Psychologists define resilience as the process of ‘adapting well in the face of adversity, trauma, tragedy, threats, or significant sources of stress – such as family and relationship problems, serious health problems, or workplace and financial stressors’. As much as resilience involves bouncing back from these difficult experiences, it can also involve profound personal growth¹⁴. Lack of resilience means the adverse psycho-emotional consequences of the threat linger well after the threat has passed, exacerbating its impact. A meta-analysis of 60 studies showed that resilience was negatively correlated to negative indicators of mental health and positively correlated to positive indicators of mental health¹⁵.



⁹ Pillay, S. (2016). Greater self-acceptance improves emotional well-being. *Journal of Medical School*, 1(1), 1-13.

¹⁰ Carson, S. H., & Langer, E. J. (2006). Mindfulness and self-acceptance. *Journal of rational-emotive and cognitive-behavior therapy*, 24(1), 29-43.

¹¹ Tracy, J. L., & Robins, R. W. (2014). Conceptual and empirical strengths of the authentic/hubristic model of pride. *Emotion*, 14(1), 33-37.

¹² Schaefer, Stacey M et al, (2013), “Purpose in life predicts better emotional recovery from negative stimuli.” *PloS one* Vol. 8(11).

¹³ Glaw X, Kable A, Hazelton M, Inder K. Meaning in Life and Meaning of Life in Mental Health Care: An Integrative Literature Review. *Issues Ment Health Nurs*. 2017 Mar;38(3):243-252

¹⁴ American Psychological Society (2012) – <https://www.apa.org/topics/resilience>

¹⁵ Tianqiang Hu, et al (2015), A meta-analysis of the trait resilience and mental health. *Personality and Individual Differences*, Vol. 76, pp. 18-27

Optimism

Optimism is a tendency to see the positives; a glass half full vs half empty mentality. This is important because how we see the world and events around us has a big impact on our mental wellbeing and quality of life¹⁶. Through employment of specific coping strategies, optimism also exerts an indirect influence on quality of life. Optimistic people consistently outperform neutral or pessimistic people in quality of life measure. Optimism influences mental and physical wellbeing by the promotion of a healthy lifestyle as well as by adaptive behaviours and cognitive responses, associated with greater flexibility, problem-solving capacity and a more effective processing of negative information.¹⁷

Self-efficacy (self-confidence)

Belief in one's abilities underpins successful self-management of behaviour; without self-confidence, the incentive to engage in protective/preventive actions in relation to mental health is undermined. Poor self-confidence therefore not only lowers the likelihood of success, it lowers the likelihood of an attempt to succeed. Research has found that self-efficacy ameliorates the effects of daily stressors on mental health, with the strongest relationship being found between self-efficacy and positive mental health¹⁸.

Locus of control

Locus of control represents the degree to which we perceive to have control over our lives. Perceived control over outcomes in life (i.e. internal locus of control) is associated with good health and wellbeing, while relying on chance and/or powerful others (i.e. external locus of control) is related to stress and poor health¹⁹. Individuals with an internal locus of control, attribute the events in their life primarily to their own doing. An internal locus of control has been found to positively correlate with the ability to cope with stress and negatively with depression, anxiety and interpersonal problems²⁰.



¹⁶ Taylor, S. E., & Brown, J. D. (1988). Illusion and well-being: a social psychological perspective on mental health. *Psychological bulletin*, 103(2), 193.

¹⁷ Conversano, C., et al (2010). Optimism and its impact on mental and physical well-being. *Clin Pract Epidemiol Ment Health*. 6:25–29.

¹⁸ Schönfeld, P., Brailovskaia, J., Bieda, A., Zhang, X. C., & Margraf, J. (2016). The effects of daily stress on positive and negative mental health: Mediation through self-efficacy. *International Journal of Clinical and Health Psychology*, 16(1), 1-10.

¹⁹ Reknes, I., et al (2019), Locus of Control Moderates the Relationship Between Exposure to Bullying Behaviors and Psychological Strain, *Frontiers in Psychology*, 6th June 2019

²⁰ Madhu, J. and Suyesha, S. (2015), Locus of control and its relationship with mental health and adjustment. *Journal of Mental Health and Human Behaviour*, Vol 20:1, pp 16-21.

Challenge responses

“Even though stress is universal, few people are trained in managing it.”²¹

We will all experience challenges – therefore, having the strategies and resources necessary to overcome these challenges is key to maintaining good mind health. Response style is one of the psychological processes found to mediate the impact of familial risk, social circumstances and life events on mental health and wellbeing²².

The three main challenge response styles are:

Destructive responses: Responding to a threat or challenge through reckless means such as aggression, smoking more or drinking excessively does not resolve the issue and is counterproductive to mental health.

Constructive responses: Include strategies such as focusing on solutions rather than problems and taking rational and actionable steps to resolve issues.

Unhelpful responses: Dwelling on mistakes (rumination) and being overly self-critical. Such techniques have been found to negatively impact mental health and wellbeing²⁴.

Sleep

Sleep disturbances have been shown to be an important factor in many different mental health difficulties, both contributing to their development and then being a key source of distress for the individual involved²⁵.

Nutrition

Multiple studies have demonstrated the relationship between nutrition and mood disorders such as depression. Studies comparing ‘traditional’ diets, like the Mediterranean diet and the traditional Japanese diet, to a typical ‘Western’ diet have shown that the risk of depression is 25% to 35% lower in those who eat a traditional diet²⁶. Changes in eating habits are also a common symptom of mood disorders.

Exercise

The benefits of physical activity have been demonstrated definitively across a broad range of both physical and psychological health. Physical activity has been found to reduce symptoms of anxiety and depression²⁷. Furthermore, exercise participation has also been linked to the prevention of mental health problems²⁸.

Me time

‘Time out for self’ is fundamental to life balance which is linked to positive mental health outcomes. Pushing through life without taking time out can lead to burnout, exhaustion and more frequent illness. Once considered an indulgence, ‘Me Time’ is now considered a vital inclusion in any mental health self-care strategy²⁹.

²¹ Walsh, R. (2011). Lifestyle and mental health. *American Psychologist*, 66(7), 579.

²² Kinderman, P., Schwannauer, M., Pontin, E., & Tai, S. (2013). Psychological processes mediate the impact of familial risk, social circumstances and life events on mental health. *PLoS one*, 8(10), e76564.

²³ Amir M, et al (1999): Suicide Risk and Coping Styles in Posttraumatic Stress Disorder Patients. *Psychotherapy and Psychosomatics*, Vol. 68:76-81.

²⁴ Psychological Processes Mediate the Impact of Familial Risk, Social Circumstances and Life Events on Mental Health; Kinderman, P. et al, Published: October 16, 2013 <https://doi.org/10.1371/journal.pone.0076564>

²⁵ Scott, A. J., Webb, T. L., Martyn-St James, M., Rowse, G., & Weich, S. (2021). Improving sleep quality leads to better mental health: A meta-analysis of randomised controlled trials. *Sleep Medicine Reviews*, 101556.

²⁶ Selhub, E., (2020), *Nutritional psychiatry: Your brain on food*, Harvard Health Publishing, March 26, 2020.

²⁷ Callaghan, P. (2004). Exercise: a neglected intervention in mental health care?. *Journal of psychiatric and mental health nursing*, 11(4), 476-483.

²⁸ Sui, X., Laditka, J. N., Church, T. S., Hardin, J. W., Chase, N., Davis, K., & Blair, S. N. (2009). Prospective study of cardiorespiratory fitness and depressive symptoms in women and men. *Journal of psychiatric research*, 43(5), 546-552.

²⁹ Fredrickson, B. (2002). Positive emotions. In C. Snyder & S. Lopez (Eds.), *Handbook of positive psychology* (pp. 120 –134). New York, NY: Oxford University Press.

At the social level

Social connectedness

From the very young, to the very old, social relationships promote health and wellbeing. There is evidence to support the role of our social networks in both protecting from negative mental health and facilitating positive psychological health¹⁵. Conversely, loneliness has been described as a hidden epidemic³⁰ found to be as damaging to our health as smoking 15 cigarettes a day³¹.

Emotional intelligence

Emotional competency is the degree to which people successfully utilise EQ related skills.³² Self-awareness, emotional self-regulation, social awareness and social skills represent the foundations of good EQ. A higher EQ can improve lifelong physical and mental health even more than academic ability. According to a 2018 report, people with a high EQ are 8 times more likely to have a high quality of life compared to those with lower scores³³.

Attachment style

Attachment theory describes the dynamics of human relationships, in particular when people are feeling distressed, in need, scared or under threat. The human need for attachment is said to have arisen out of evolutionary pressures for infants to elicit the care and protection of their caregivers in order to ensure survival. Research in the 1960's and 70's showed that infants develop different patterns of attachment behaviour depending primarily on their experiences in these early relationships³⁴. Four categories have been identified: secure, insecure avoidant, insecure anxious and fearful avoidant. An adult's attachment style has been shown to be an important predictor in their ability to cope with stressful life events and predicts their utilisation of mental health services³⁵.



³⁰ <https://www.gse.harvard.edu/news/21/02/combating-epidemic-loneliness>

³¹ Holt-Lunstad, J., & Uchino, B. (2015). Social support and health. *Health behavior: Theory, research and practice*, 183-204.

³² Moradi, A., et al, (2011), The Relationship between Coping strategies and Emotional Intelligence, *Procedia - Social and Behavioral Sciences*, 30:748-751

³³ State of the Heart 2018: <https://www.6seconds.org/2018/09/05/state-of-the-heart-2018>

³⁴ Ainsworth, M. D. S., Blehar, M. C., Waters, E., & Wall, S. N. (1978). *Patterns of Attachment: A Psychological Study of the Strange Situation*. Hillsdale: Erlbaum.

³⁵ Adams GC, Wrath AJ, Meng X. The Relationship between Adult Attachment and Mental Health Care Utilization: A Systematic Review. *The Canadian Journal of Psychiatry*. 2018;63(10):651-660.

At the societal level

The health care system

Mental health difficulties are responsible for 32% of years of disability and 13% of disability adjusted life years globally³⁶. In addition, those with mental health difficulties face increased rates of morbidity from general medical conditions and a higher risk of premature mortality³⁷. Among those with mental health difficulties, disparities in quality and outcomes of care are more pronounced for racial/ethnic minorities, and those from lower socio-economic status groups. Those with severe mental health conditions (e.g., schizophrenia and bipolar disorder) constitute an increasingly marginalised population whose needs outstrip the available health care resources in almost every country in the world³⁸. It is estimated that life expectancy is reduced by up to 25 years in these groups. Despite the contribution of mental health difficulties to the global burden of disease, the quality of care for these disorders remains suboptimal, and there are persistent gaps in access to and receipt of mental health services worldwide³⁹.

The six characteristics that determine quality of care in mental health are safety, effectiveness, patient-centred, timely, efficient, and equitable care⁴⁰.

Stigma

Research has consistently demonstrated the adverse effects of stigma on the mental health of minority groups. A recent meta-analysis on the associations between stigma and mental health from 49 empirical studies found the correlation between stigma and average mental health scores was -0.28 ⁴¹. Stigma can therefore account for 10-15% of the deterioration in mental health observed in minority groups.

We also know the pandemic and the changing environment has had a negative impact on children and the workplace, making these important societal factors to understand in relation to mind health.

Parenting

Early caregiving experiences have been shown to be crucial in shaping a child's life⁴², and there is unequivocal evidence that both positive and negative aspects of parenting influence the development of childhood behavioural and emotional problems⁴³. Similarly, how a parent feels about their parenting and the stress that is commonly involved with parenting should not be ignored as a significant factor in parental mental health. Parenting satisfaction is one parenting variable that has proved to be an important predictor to both child and parent wellbeing. Parenting satisfaction refers to the quality of positive affect associated with parenting such as enjoyment or pleasure⁴⁴. Low parenting satisfaction has been associated with child behavioural problems⁴⁵ and parent wellbeing issues including depression, anxiety and stress⁴⁶.

Workplace

Workplace stress routinely rates in the top three sources of stress for the employed population. Data from the Harvard School of Public Health shows that workplace issues contribute significantly to stress in 53% of workers, third behind 'too many responsibilities overall' (54%) and 'problems with finances' (53%)⁴⁷.

According to the UK Health and Safety Executive (HSE), the six main areas that lead to work related stress are demands, lack of control over workflow, inadequate support, relationship issues, poor role fit and change⁴⁸.

³⁶ Vigo, D., et al (2016), Estimating the true global burden of mental illness, *The Lancet Psychiatry* 3(2):171-178

³⁷ <https://www.who.int/news-room/fact-sheets/detail/depression>

³⁸ Saraceno, B., (2002), Mental health resources in the world: results from Project Atlas of the WHO. *World Psychiatry*, 1(1): 40-44

³⁹ Amy M. Kilbourne et al (2018), Measuring and improving the quality of mental health care: a global perspective, *World Psychiatry*, Vol 17(1): 30-38

⁴⁰ US Institute of Medicine. *Crossing the quality chasm: a new health system for the 21st century*. Washington: National Academies Press, 2001.

⁴¹ Mak, W.S. et al (2007), Meta-analysis of stigma and mental health, *Social Science & Medicine*, Volume 65, Issue 2, July 2007, Pages 245-261

⁴² Sroufe, L. A., Coffino, B., & Carlson, E. A. (2010). Conceptualizing the role of early experience: Lessons from the Minnesota longitudinal study. *Developmental Review*, 30(1), 36-51.

⁴³ Hoeve, M., Dubas, J. S., Eichelsheim, V. I., Laan, P. H., Smeenk, W., & Gerris, J. R. M. (2009). The Relationship Between Parenting and Delinquency: A Meta-analysis. *Journal of Abnormal Child Psychology*, 37(6), 749-775.

⁴⁴ Rogers, H., & Matthews, J. (2004). The parenting sense of competence scale: Investigation of the factor structure, reliability, and validity for an Australian sample. *Australian Psychologist*, 39(1), 88-96.

⁴⁵ Ohan, J.L., Leung, D.W., & Johnston, C. (2000). The Parenting Sense of Competence Scale: Evidence of a stable factor structure and validity. *Canadian Journal of Behavioural Science*,

⁴⁶ Rogers, H., & Matthews, J. (2004). The parenting sense of competence scale: Investigation of the factor structure, reliability, and validity for an Australian sample. *Australian Psychologist*, 39(1), 88-96.

⁴⁷ NPR/Robert Wood Johnson Foundation/Harvard School of Public Health (2014), *The Burden of Stress in America*, <https://cdn1.sph.harvard.edu/wp-content/uploads/sites/21/2014/07/Burden-of-Stress-Report-July-7-2014.pdf>

⁴⁸ <https://www.hse.gov.uk/stress/causes.htm>

Strong foundations

AXA Health Age

Development of the AXA Health Age assessment required extensive literature review, with modelling of all relevant lifestyle/behavioural factors supporting the Health Age calculation engine.

The 'three tiered' assessment tool incorporates extensive questions across numerous 'health topics' – including cancer risk, sleep, mind health and others .

The Mental Wellbeing Assessment

The Mental Wellbeing Assessment is a comprehensive audit tool, which focusses on the skills required for successful self-management of psycho-emotional wellbeing. This tool incorporated factors such as optimism, locus of control, self-belief, self-efficacy, health behaviours, sleep, resilience, EQ, purpose/meaning and life satisfaction. Many of these factors served as building blocks in the development of the AXA Mind Health Index.

Mental Health and Wellbeing in Europe - 2020

In 2020, AXA developed a mental health survey to investigate the impact of COVID-19 on the mental health of Western Europeans. Five thousand eight hundred citizens from seven European countries were surveyed. Countries included were UK, Switzerland, Italy, Spain, France, Belgium and Germany.



2020 survey findings

- Mental health conditions are widespread but remain largely stigmatised and are not often discussed publicly in Europe.
- The problem was amplified by COVID-19. During the pandemic, those with pre-existing conditions suffered the most – 42% said they felt they were losing control of their lives because of the crisis.
- Many people reported an increase in work stress – and a worsening in their financial situations. Nearly one in three said their close personal relationships had been damaged – an important factor in determining who coped well during the pandemic, and who didn't.
- Mental health issues impacted certain groups within society more than others. Among the hardest hit were younger people – those between 18 and 24 years of age; also, those describing themselves as 'extroverts'. Overall, women fared worse than men, this was hypothesised to be due to women taking on more responsibility during the pandemic for caring for children and elderly or vulnerable family members.
- One silver lining is that the pandemic has highlighted to people the importance of mental health: 60% of those surveyed said they'd changed their view of mental wellbeing as a result of COVID-19 and 70% said they'd learned to accept those seeking professional help – a sign that the stigma surrounding mental illness is beginning to recede.
- Many people are unaware of digital support for mental health, and usage is correspondingly low. 41% have never heard of professional online help to treat mental health issues.

The current AXA Mind Health Index builds upon this previous work, but as it is intended to run annually, COVID-19 was de-emphasised somewhat to ensure relevance and continuity.

Methods

Fieldwork

Ipsos, a global leader in market research, carried out the survey fieldwork. They used the quota method in order to create samples that are as representative as possible, i.e. as close as possible to the reality of each market. At the end of the fieldwork, the data was weighted so that each country's sample composition best reflected the demographic profile of the adult population 18-65 year olds according to the most recent census data. The main criteria of representativeness are gender, age, region, occupation and market size. The method used by Ipsos is the RAS method: Raking Adjust Statistics. And the precision of Ipsos online polls is calculated using a credibility interval with a poll of N=1,000 accurate to +/-3.5 percentage points.

Literature review

The literature review revealed dozens of skills and strategies related to effective psycho-emotional self-management that were considered candidates for inclusion due to their established validity and reliability as constructs supporting good mental health.

These included:

Resilience	Self-confidence/self-confidence
Optimism	Challenge response style
Sleep	Self-worth
Self-acceptance	'Me time'
Social connectedness	Emotional intelligence (EQ)
Locus of control	Attachment style
Self-care	Meaning/Purpose
Intimate relationships	(Authentic) pride/achievement
Mindfulness	Physical health behaviours (nutrition/activity/smoking/alcohol)
Rational/logical thinking (RET)	Journaling/bibliotherapy
Displacement activities	Humour
Nature/Green breaks	Spirituality

These skills/strategies often sit with various frameworks/models such as PERMA⁴⁹, Psychological Capital⁵⁰, Biopsychosocial⁵¹, Complete State⁵², and various others⁵³.

Many of these constructs overlap, with some considered a subset of others (i.e. EQ encompasses elements of self-efficacy, self-awareness, connectedness, mindfulness and optimism). Some factors are more amenable to intervention than others and were afforded priority in the selection criteria.

Factor selection criteria

- Demonstrated reliability and validity as a predictor of improved mental health in the peer reviewed literature (i.e. interventions result in decreased negative affect – reduced stress/anxiety/depression, or improved positive affect – increased in happiness, joy, enthusiasm etc.).
- Causality rather than correlation. Factors chosen should have demonstrated efficacy using study designs that better demonstrate causation, preferably RCT's, but also cohort studies and case control studies. Cross sectional/epidemiological studies, case studies and expert opinions were considered a lesser quality of evidence.
- General acceptance by psychological community
- Amenable to intervention
- Non or minimally clinical
- Transdiagnostic (skills/strategies that impact positively on multiple psychological factors)

Applying these selection criteria and applying results from previous AXA research using similar models, we developed the short list of components to include in the model.

This included:

- | | |
|---|-----------------------------|
| a. Social connectedness | k. Challenge response |
| b. Intimate relationships | l. Attachment style |
| c. Self-acceptance | m. Access to health care |
| d. Meaning/purpose | n. Mental health conditions |
| e. Resilience | o. Positive emotions |
| f. Self-confidence | i. Life satisfaction |
| g. Achievement (authentic pride) | ii. Happiness |
| h. Self-awareness (a key element of EQ) | p. Negative emotions |
| i. Locus of control | i. Stress symptoms |
| j. Healthy lifestyle | ii. Anxiety symptoms |
| i. Exercise | iii. Depression symptoms |
| ii. Nutrition | |
| iii. Sleep | |
| iv. Alcohol consumption | |
| v. Me Time | |

⁴⁹ Fallon R. et al (2017), Measuring well-being: A comparison of subjective well-being and PERMA, *Journal of Positive Psychology*, 13(4), 321-332

⁵⁰ Luthans, Avolio, Avey, & Norman (2007), Positive Psychological Capital: measurement and relationship to performance and satisfaction, *Personal Psychology*, Vol.60(3), 541-572

⁵¹ Engel, George L. (1980). «The clinical application of the biopsychosocial model». *American Journal of Psychiatry*. 137 (5): 535–544.

⁵² Keyes, C. (2005), Mental illness and/or mental health? Investigating axioms of the complete state model of health. *Journal of Consulting and Clinical Psychology*, 73(3), 539-548

⁵³ Davidson, G. et al (2015), *Models of Mental Health – Foundations of Mental Health Practice*, Bloomsbury Publishing

Question level selection

The creation of the broad-based AXA Mind Health Index created challenges in terms of survey length. We therefore applied routine statistical procedures to choose a single question in each group that would retain the maximal predictive value. Whilst this is not ideal, we know from previous work, and the published literature on K6/K10, DASS 21/12/9 and SISQ that shortened questionnaires, and indeed single questions, can provide a reasonable estimate of competency in the factor being considered.

For many factors, we were able to condense to a single question through the elimination of questions with low Cronbach Alpha scores.



Causality

‘Correlation is not causality’ is the catch cry of statisticians who bemoan the inappropriate interpretation of correlational analysis.

As the current AXA Mind Health Index is a multi-year project, run as a series of independent cross-sectional studies with no matching, no controls and no intervention, the index itself can never demonstrate causality. This underpins the importance of populating the Mind Health Index with questions relating to factors where causality has already been demonstrated.

The logic is therefore that if b is causally related to a, and a changes, we can infer that some of the change we see in b is attributable to changes in a.

A real-world example is that improvements in self-esteem and self-acceptance have been repeatedly shown to improve mental health outcomes across a variety of clinical and non-clinical settings^{54, 55}.

Psychologists accept this, and target self-esteem/acceptance as an intervention strategy to improve mental health outcomes for their patients.

In the AXA Mind Health Index pilot study, those with high levels of self-acceptance were 2.9 times less likely to experience negative emotions such as stress, anxiety or depression, 7.2 times more likely to experience positive emotions such as joy and elation, and 16.7 times more likely to have a high Mind Health Index than those with low levels of self-acceptance. Whilst we accept these relationships are, by definition, correlational, the pre-selection of self-acceptance as a causal factor in mental health outcomes suggests a strong underlying causality.

For our shortlisted Mind Health Index candidate questions on positive actions, all have strong causal credentials, with the exception of achievement – it is hard to design a study where achievement is manipulated as an independent variable. Research into ‘authentic pride’ (a positive emotional reaction to personal success) however, has demonstrated a strong causal relationship with psychological health⁵⁶.

⁵⁴ Henriksen, I., et al (2017), The role of self-esteem in the development of psychiatric problems: a 3-year prospective study in a clinical sample of adolescents, *Clinical and Adolescent Psychiatry and Mental Health*, 11(68).

⁵⁵ Mann, M., et al (2004), Self-esteem in a broad-spectrum approach for mental health promotion, *Health Education Research: Theory and Practice*, Vol. 19(4), 367-372.

⁵⁶ Dickens, L.R., (2020), Pride: A meta-analytic project, American Psychological Association (APA PsychNet), Emotion.

Development of the AXA Mind Health Index

The chosen constructs were required to fit a model which aggregates results at various levels, from factors, to sub-indices, to the overall AXA Mind Health Index (MHI).

Outcome measures

Positive actions were chosen for their impact on mental health outcomes. These outcomes span the positive/negative emotional spectrum from stress, anxiety and depression, to happiness and life satisfaction.

For 'negative emotions', we measured symptoms of anxiety, stress and depression over the previous week. In addition, for stress, we also included an item that referenced a 12-month time frame. The difference in time frames accounted for significant differences in responses to one-week stress and 12-month stress, as would be expected in the post pandemic situation.

'Positive emotions' were assessed using happiness and life satisfaction questions derived from the high scoring 'Cronbach alpha' questions from our literature review and the Mental Wellbeing Assessment pilot study.

Positive actions

The 'positive actions' outlined above constitute those factors which are both predictive of mental health, and 'internal' to the individual. These factors can be self-managed for improved mental health.

Modifiers

'Modifiers' are also predictive, but they can be external or personal factors. We have chosen to use the mental health continuum as a universal outcome measure in the Mind Health Index (from poor to optimum mental health). Mental health conditions can therefore be viewed as modifiers that can impact on the outcome measures. The protective actions individuals use (knowingly or not) deliver the mental health outcomes via modifiers, which gives us the Mind Health Index model.

Positive actions → Modifiers → Outcomes

Many modifiers are simple demographics such as age/gender, education and socio-economic status, but factors such as past/current mental health conditions, attachment style and access to health care also play an important role in moderating the impact of actions on outcomes. A simple manifestation of the model is that, given a certain skill set shared by two people, say resilience and optimism, it's easy to accept that the mental health outcomes for these two people may differ depending on their age, socio-economic status and knowledge of the health care system.

Filters

To add context to the model, and to facilitate a deeper understanding of its power, we have added additional items to the survey to act as filters. Although these items were scored for analytical/statistical purposes, they did not contribute to the calculation of the Index.

These filters fall into three categories – opinions, parenting and the workplace.

This helps to provide an understanding of how certain factors such as working hours, work/life balance, parental satisfaction, empathy and compassion are related to mental health outcomes.



Index creation

The Mind Health Index therefore consists of three groups of questions that relate to either positive actions, modifiers or psychological wellbeing outcomes.

The scoring system used allowed these questions to be scored, scaled and aggregated into a single Mind Health Index score. Depicted as a wheel, each segment is surrounded by its contributing sub-indices. The overall index and every sub-index are scored between 0 to 100, with 100 being optimal. The wheel is colour coded from red to green to represent how most of the population scored.

The graphic below depicts the factors that make up the Mind Health Index. The outer ring represents the 13 factors that make up the three sub-indices on the inner ring. The colour coding represents the four categories – struggling, languishing, getting by and flourishing.

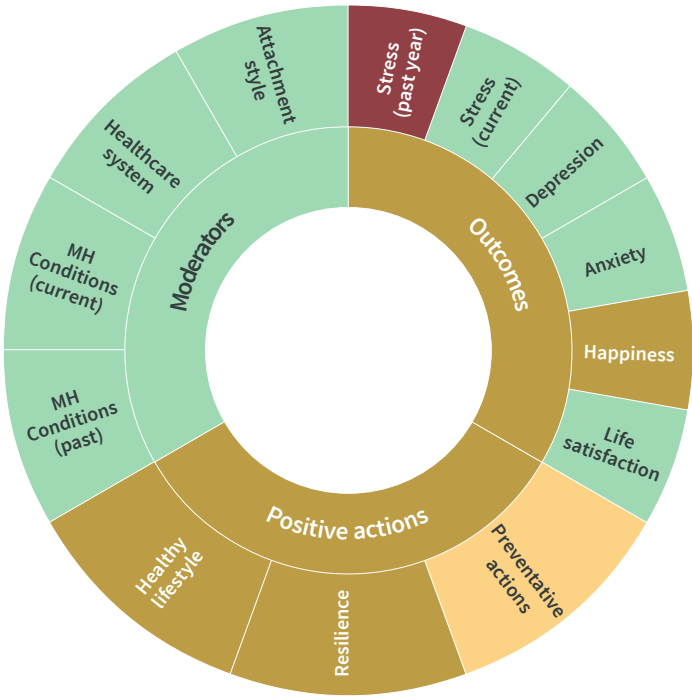
To help elucidate the significance of a Mind health index score we have defined and colour coded four categories of results for the AXA Mind Health Index:

Flourishing
 A score of 74% and above represents the pinnacle of mental health. Encompassing the presence of good social, psychological and emotional wellbeing. Flourishing individuals do well across a range of mental wellbeing determinates and outcomes.

Getting by
 A score between 61-74 describes those who may have some areas of good wellbeing but not enough to be reach the state of flourishing. Those getting by may experience a dampened sense of wellbeing compared to those who are flourishing.

Languishing
 A score between 46-61 represents the absence of positive wellbeing. If you are languishing you are not functioning at full capacity, you may feel unmotivated and struggle to focus. Those who are languishing are at an increased risk of developing mental illness.

Struggling
 A score less than 46. The absence of wellbeing in most areas is likely to result in struggle and difficulty. Struggling is associated with emotional distress and psychosocial impairment.



■ Struggling ■ Languishing ■ Getting By ■ Flourishing

Index and report design

The index is represented through a modified sun-burst visual which has 2 layers; the inner layer represents the three sub-indices that make up the Mind Health Index, and the outer layer has the factors that contribute to each of the sub-indices.

For our benchmark year, the colour coding for each of the segments is based on where most people scored for that individual factor or sub-index. It is determined by computing the % of people that have scores in the flourishing, getting by, languishing and struggling categories, and then colour coded based on which of the 4 groups has the highest percentage of people. The goal with the representation was to provide an aggregate view of where people, across all 11 countries, need the most help.

In future years, the same visual will be used, but instead of relying on absolute measures, it will be based on how that factor has changed in comparison to the benchmark year. Factors that have improved will be shaded green, those that have largely remained the same will be amber and those that have worsened will be in red. A global or country level representation will help tell the story of how overall mind health and the underlying factors have fared over the past year.

The characteristics of a good index relate to its ability to readily differentiate good from bad. This means choice of questions is pivotal, but so is the spread of response options. In general, a wider spread of results, which amplifies the difference between best and worst results, is preferred.

Validation

A pilot was completed between the 13th and 20th of July 2021. 160 employees from two different UK organisations and 18 employees from AXA Germany took part. The data from the pilot was used to help validate the scale’s internal reliability and optimise the question set.

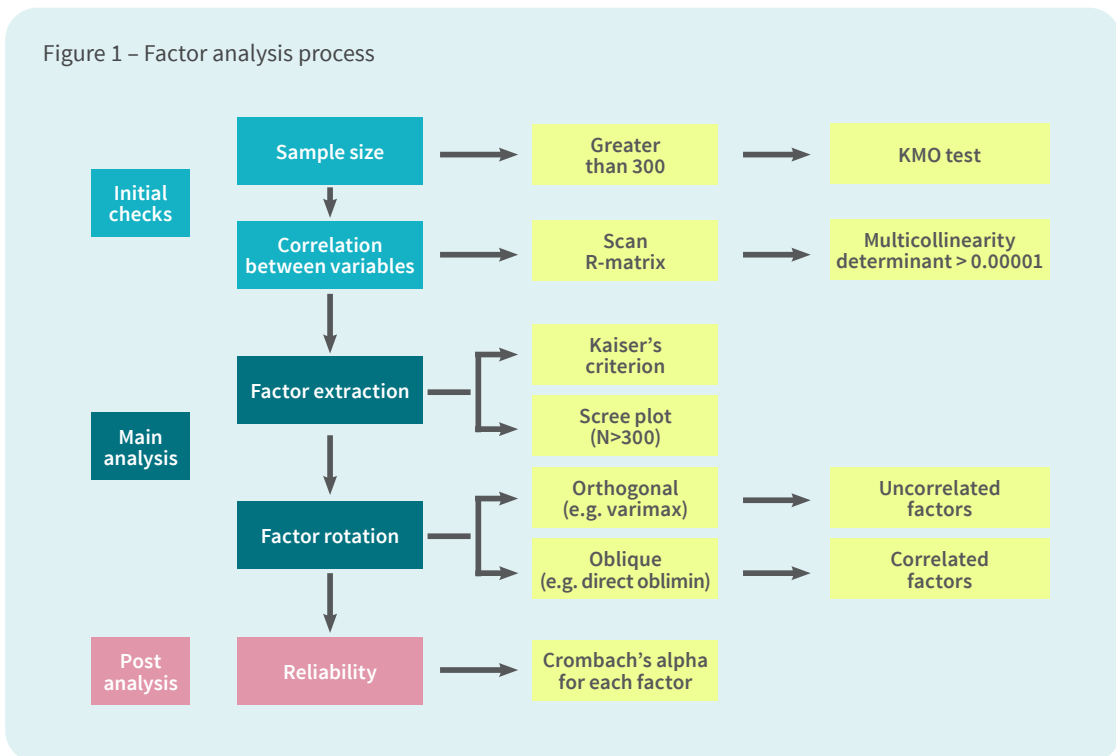
Demographics of the UK pilot population

- 49/51% – male/female
- Average age – 42 years
- 71% married or domestic partnership
- 9% had current mental health condition
- 15% had a previous mental health condition

Data analysis completed on the pilot data:

- Data cleansing – removal of 1 incomplete survey
- Response translations - from text to numbers: 100 is always ‘best’ result and 0 is ‘worst’
- Descriptive statistics – view the spread of the data, index averages, and correlation coefficients
- Cronbach alpha analysis – a test of internal consistency
- Factor analysis – do the questions group together to identify the anticipated underlying theoretical constructs?
- Cross correlations – which factors are most related?
- Pivot table comparisons – compare scores across different demographic groups

Figure 1 outlines the steps taken to complete a factor analysis. The tests for sampling adequacy and multicollinearity were not conducted on the pilot data but are included in the analysis plan for the full data set.



Testing the model

Factor analysis is a statistical method used to describe variability among observed variables in terms of a potentially lower number of unobserved latent variables called factors.

Rotated factor analysis found factor groupings that were largely consistent with the hypothesised index groupings; positive actions, moderators, positive emotions and negative emotions. A repeated factor analysis is planned to be completed on the full data set.

Testing the questions

The second statistical procedure completed was the Cronbach analysis. Cronbach's alpha (also termed "Tau-equivalent reliability") is a measure of the internal consistency of survey items. We calculated Cronbach's alpha for each group of questions by eliminating one question at a time from the group and determining the resultant alpha score. If the elimination of a question resulted in a significant increase in the alpha score for the group, this signified that the eliminated question is reducing the reliability for that group – removing the question would increase the reliability of the survey. The overall index and sub-indices were found to have good internal consistency. A few items were found to have lower Cronbach values than anticipated, such as the locus of control question. As a result, we reworded this question to make it relative to a daily time period as we anticipated that people's views on the role of chance in their life may have been skewed by the pandemic. Through this process we also identified items that could be eliminated whilst maintaining the data quality. This created space for new questions and insights suggested by entity leads.

Testing acceptability

Finally, we tested the acceptability of the survey. We achieved this by recording the survey completion time and asking participants supplementary survey experience questions.

- The average survey completion time was found to fall within acceptable tolerance
- 97% of users agreed or strongly agreed with the statement: I found the questions in the survey in the easy to understand
- 81% of users agreed or strongly agreed with the statement: The survey covered all/most of the topics of relevance to my mental health
- 87% of users agreed or strongly agreed with the statement: The questions were not repetitive
- 84% of users agreed or strongly agreed with the statement: I felt the range topics covered were comprehensive

Summary

To summarise, the AXA Mind Health Index was developed through an iterative method of reviewing the literature and testing the pilot data to determine validity and reliability of the proposed components. The process was facilitated through collaborative refinement of the participating entities and continual review against the core aims of the survey and Index and the key business drivers. Applying a scientific method to the survey design process allowed the research and business aims of the survey to be met, whilst persevering a strong scientific grounding with respect to the latest peer reviewed literature and relevant psychological theories.



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