

Working Paper: The Case for Change: Wellbeing II & Addressing Wellbeing at Individual, & Organisational Levels

Status	Draft working Paper Some section incomplete, to be finalised
Authors	Joan Cahill, Paul Cullen, Sohaib Anwer, Keith Gaynor
Affiliations	Dr Joan Cahill Centre for Innovative Human Systems, School of Psychology, Trinity College Dublin (TCD) Dublin, Ireland. Captain Paul Cullen Centre for Innovative Human Systems, School of Psychology, Trinity College Dublin (TCD) Dublin, Ireland. Sohaib Anwer Centre for Innovative Human Systems, School of Psychology, Trinity College Dublin (TCD) Dublin, Ireland. Prof Keith Gaynor School of Psychology, University College Dublin (UCD), Dublin, Ireland.
Journal	IJAP
Keywords	Wellbeing, Mental Health, Safety Culture, Wellbeing Culture, Workplace wellbeing, Safety II, Safety Management System, Aviation, Stakeholder Evaluation, Human Factors, Sustainable operations, Triple Bottom Line
Abstract	To add

Introduction

Work is part of our wellbeing and a key driver of a person's health.

As argued by Elkington (1994), work needs to balance three benefit areas – economic/profit, people/society and planet/ecological (Elkington, 1994)

Across different industries - employers are becoming more aware of the financial benefits in relation to supporting and maintaining a healthy work environment and worker wellness. The COVID 19 Pandemic has heightened the need to address wellbeing. Overall, this is changing organisational priorities in terms of addressing wellbeing. At the recent World Economic Forum (2021) – it was reported that 2 out of every 3 employers now have mental health as their no. 1 priority. Further, it was noted that 1 in 6 employees feel supported by their company during COVID.

Worker wellness hugely important in safety critical systems such as aviation. Aviation workers need to be fit for duty and aware of risk that compromises their health/wellbeing.

Employers (i.e., aviation organisations) have a duty to their employees (i.e., aviation workers). It is expected that they exercise due care by putting in place the necessary protective and preventive measures, to manage risks to health and safety in work.

Arguably, the aviation industry defines the concept of worker wellbeing somewhat negatively. Specifically, wellbeing is defined in relation to concepts of 'fitness for work' (i.e., avoiding/managing illness) as opposed to (1) keeping well/preventing illness and (2) thriving/positive wellbeing.

Further, the concept is mostly defined from an individual perspective (i.e., defined narrowly). Staff primarily bear the responsibility for being fit for duty as opposed to on the organisation. This focus on the individual is particularly acute in relation to aviation workers who are characterized as being at the 'sharp end' and having 'safety critical roles'. This includes pilots, Air Traffic Controllers and Engineers. Largely, this stems from the definition of roles and responsibilities – as defined by the regulator. Overall, aviation organisations primarily have a monitoring role. The role of organisations is to comply with specific monitoring/assessment processes to ensure that staff are well and by implication can perform their duties safely (i.e., fatigue risk, drugs/alcohol testing, aeromedical assessment). In this regard, organisations are required to implement safety management systems – (for example, manage fatigue risk - duty times), but this does not consider the full scope of wellbeing – risks associated with the three pillars of wellbeing (Cahill et al, 2019). Organisations do have a role in providing supports (i.e., health promotion, stress management training, provision of peer support, employee assistance programs) – but this is secondary.

Arguably, wellbeing culture is not established within aviation organisations. Research pertaining to airline engagement and attitudes to wellbeing indicates that airlines are not adequately addressing wellbeing risks. In a recent European study investigating safety culture with >7,000 pilots, only 17% of participants reported that their organization cared about their wellbeing, and 21% felt that fatigue was taken seriously within their organization (Reader, Parand and Kirwan, 2016).

This issue is now more urgent given COVID context – increased suffering, job loss etc.

This paper reports on the findings of two surveys – pertaining to the management of wellbeing for aviation workers at both the individual and organisational level. The analysis of survey findings is used to make case for change at different levels. In so doing, a new concept for wellbeing management in aviation wellbeing II – is proposed and described. Potential interventions to support the implementation of Wellbeing II are likely to be multi-component, spanning different socio-technical dimensions (i.e., training, culture, technology, process design). The paper presents an outline of some possible interventions and associated wellbeing scenarios. The Wellbeing II concept is then discussed. This includes conceptual dimensions of this concept, how it might be managed at an operational and organisational level, and methodologies to further define the Wellbeing II concept. Lastly, some conclusions are drawn.

Conceptual Background

Human Factors/Systems Approach

As defined in ISO 6385 the discipline of human factors (HF) refers to 'the practice of designing products, systems, or processes to take proper account of the interaction between them and the people who use them' (2020). The human factors approach follows a 'socio-technical systems design' perspective. Central to this is the recognition of the interaction between people/behavior,

technology/tools, work processes, workplace environments and work culture (Baxter, Gordon & Sommerville, 2011). This 'systems' approach is fundamental to problem framing, the design of interventions and their assessment. Underpinning this systems approach is two core principles:

Interventions required at different levels.

1. Interventions span the socio-technical space – policy, process, culture, training, people, environment.
2. Intervention must address different stakeholders needs/issues – cannot just focus on one or a subset of groups.

Work Life Balance, Wellbeing, Quality of Life, MH, Fitness for Duty, WRS, Burnout, Exhaustion

Medical, psychological factors, family, and social factors (including working conditions) are some of the determinants affecting a person's health and wellbeing (Engel, 1977). Wellbeing can be defined both positively and negatively. According to WHO, it is necessary to focus on positive wellbeing (i.e., keeping well and not just the absence of illness). Positive wellbeing is measured in terms of WHO-5 Well-being Index (1998). This links to a positive psychology approach, as evidenced in Seligman's definition of wellbeing (2011) in relation to positive emotion, engagement, relationships, meaning and accomplishment.

Mental health as 'a state of well-being in which every individual realizes his or her own potential can cope with the normal stresses of life, can work productively and fruitfully, and is able to contribute to her or his community' (WHO, 2015).

The concept of 'quality of life' (QOL) is related to wellbeing. Multiple factors play a role in the quality of life. This includes financial security, job satisfaction, family life, health, and safety (WHO, 2021). Critically, home-work balance is a key part of QOL. Work-Life Balance is about being able to combine family commitments, leisure, and work – including both paid and unpaid work. This is evidenced in the OECD better life index (2021) which defines QOL in relation to 11 factors (including work life balance).

In occupational settings, concepts of wellbeing and mental wellbeing (NICE, 2009) are considered in relation to 'fitness for duty/work'. Workers need to be mentally and physically fit to complete certain tasks.

Stress generally and work-related stress (WRS) can compromise a person's fitness to work (cite). Prolonged stress ($\geq$ six months) can contribute to exhaustion disorder (ED). ED is characterised by exhaustion, cognitive problems, poor sleep, and reduced tolerance to further stress (Besèr, Sorjonen, Wahlberg, Peterson, Nygren & Asberg, 2014).

Further, exhaustion can contribute to burnout. Burnout is defined and measured as a work-related syndrome that develops over time as an individual response to specific work-related events. (Goldhagen et al, 2015). Burnout covers two main symptoms: high levels of exhaustion and a distant/cynical attitude towards work. (Demerouti E., et al, 2019). Both personal and work factors can contribute to burnout (Simionato & Simpson 2018). Further, exhaustion and burnout are considered predictors for depression and anxiety (Besèr, Sorjonen, Wahlberg, Peterson, Nygren & Asberg, 2014).

Individuals vary in relation to their ability to cope successfully with stress (including WRS). This ability to cope with stress impacts on health outcomes. Critically, stress, burnout, and the ability to cope with work stressors impacts on fitness for duty and by implication safety.

Healthy Workplace, Workplace Wellness & Wellness Programmes

New concepts such as that of ‘workplace wellness’ and ‘workplace wellbeing’ are gaining traction. Workplace wellness is defined as any workplace health promotion activity or organizational policy designed to support healthy behavior in the workplace and to improve health outcomes (Goetzel and Ozminkowski, 2008).

In many organisations, see development of corporate wellness programmes (Goetzel and Ozminkowski, 2008).

Largely introduced – cost savings – costs of absenteeism, employee healthcare costs

Most focus on general health promotion/education, stress management etc

Others are more superficial – access to yoga and healthy food.

Key that also consider organisational level – policies, procedures, culture (systems approach) – but currently, this is not well understood.

As stated by the CDC (2021), the workplace is an important setting for health protection, health promotion and disease prevention programs. Employers have a responsibility to provide a safe and hazard-free workplace. Also, there are opportunities to promote individual health and foster a healthy work environment (CDC, 2021).

Historically, workplace health initiatives placed more emphasis on physical health and safety issues than on mental health/psychological wellbeing. In line with the healthy work concepts advocated by WHO (2021), workplaces are now placing an increasing emphasis on promoting a healthy work environment, fostering positive wellbeing, and addressing psychological wellbeing in work. WHO (2021) define a healthy workplace is one in which workers and managers collaborate to use a continual improvement process to protect and promote the health, safety and well-being of all workers, and the sustainability of the workplace (2021). As part of this WHO (2021) define different avenues of influence – including the physical work environment, the psychosocial work environment, personal health resources and enterprise involvement in the community.

According to the CDC, building a workplace health program should involve a coordinated, systematic, and comprehensive approach.

“A coordinated approach to workplace health promotion results in a planned, organized, and comprehensive set of programs, policies, benefits, and environmental supports designed to meet the health and safety needs of all employees. A comprehensive approach looks to put interventions in place that address multiple risk factors and health conditions concurrently and recognizes that the interventions and strategies chosen influence multiple levels of the organization including the individual employee and the organization as a whole” – CDC (2021)

The National Institute for Occupational Safety and Health (2008) identifies 20 components of a comprehensive work-based health protection and health promotion program. The 20 components are divided into four areas: Organizational Culture and Leadership; Program Design; Program Implementation and Resources; and Program Evaluation.

Goetzel and Ozminkowski (2008) define three levels of preventative workplace wellness programmes - primary, secondary, or tertiary prevention efforts.

1. Primary: prevention (entire workforce) – promoting and educating on WRS and wellbeing, preventing or minimising the occurrence of stress and promoting stress coping

2. Secondary: protection/management (entire workforce – including those who are suffering) - interventions targeted at different stages in the lifecycle of being an employee (i.e., recruitment, training, on the job mentoring, on the job performance feedback etc) and management of WRS & associated impacts on person.
3. Tertiary: rehabilitation (those who are suffering – including those who may need expert help) – managing existing suffering, rehabilitating symptoms of existing stress-related problems or diseases to minimise potential harm. This also involves referring workers to specialist support services.

Organisational Culture & Wellness Culture

‘Organisational culture’ or ‘company culture’ refers to the type of culture in any organisation. Ravasi and Schultz (2006) define organizational culture as a set of shared assumptions that guide the behaviors of an organisation’s members (for example, company employees). Organizational culture represents the values and beliefs of an organisation’s members and influences the way in which people share information and knowledge. This includes the assumptions and beliefs an organisation’s members have about what information is safe to share etc.

In aviation and healthcare, the concept of ‘safety culture’ is well defined. Safety culture is treated as part of organisational culture - reflecting the beliefs and values that employees share about how risks are managed within the organisation. Reason (1998) argues that this is associated with five elements. This includes (1) an informed culture, (2) a reporting culture, (3) a learning culture, (4) a just culture and (5) a flexible culture.

Reporting and disclosure is premised on a ‘just culture’. This is an environment where individuals feel free to report errors and help the organization to learn from mistakes. As noted by Dekker (2018), this requires a delicate balancing act – problems need to be reported, without fear of punitive consequences, and yet these problems may present an operational, safety and financial risk for the company.

The concept of ‘wellbeing culture’ is not well defined. Arguably, it follows from the overall culture at the organisation – in particular, the work culture and the safety culture (including reporting culture and just culture). Wellness culture also pertains to the value the company places on promoting and managing wellbeing for employees, and how this is supported by company policies and procedures.

Organisational Change & Changing Culture

A company’s culture has a strong influence on change (openness to change/resistance). Organisational change takes time and is often piecemeal (Morris, Wooding, Grant, 2011). Critically, interventions must adapt to local contexts (Conkin, 2015).

Cummings & Worley (2004) note that change can be conceptualized in relation to strategic vision, leadership/leadership values, the behaviour of management and changes to procedures.

Changing culture is quite difficult – takes time (Schein, 1992) and leadership (Burman and Evans, 2008). In many ways, changing culture requires social change at an organisational level. However, using participatory learning process, social change leaders can greatly enhance staff positivity and resilience (see <https://wellbeing-project.org/>).

Risk Management & Safety II

Three risk management (RM) approaches are defined. Reactive RM approaches address the risks identified in an accident or incident after it has occurred. Proactive RM involves acting before an

accident happens. This typically requires the utilization of data to identify risks from past accidents or incidents. Predictive RM approaches act based on potential risk as determined from normal operational data (i.e., not accident data) to reduce the risk of an accident that has not yet happened.

Safety (Safety-I) has traditionally focussed on the avoidance of bad events. That is, a reactive approach responding to what is going wrong and/or identified risks.

Safety-II is a novel and complementary approach to Safety -I, highlighting the importance of utilizing both proactive and predictive approaches (Hollnagel, 2014, Hollnagel, Wears and Braithwaite, 2015). In addition, Safety-II emphasizes the importance of learning from normal operations, including when things go well. As stated by Hollnagel 'focusing on what goes right, rather than on what goes wrong, changes the definition of safety from 'avoiding that something goes wrong' to 'ensuring that everything goes right' (2014). Importantly, 'Safety II' is underpinned by open communication (briefings and debriefing), routine reporting and a just culture (Hollnagel, 2014, Hollnagel, Wears and Braithwaite, 2015).

Further, Safety II makes use of data. With increasing use of operational intelligence and reporting systems and machine learning/AI – opportunity to use technology to further enhance safety approach – intelligent SMS.

European Directives: Workplace Stress & Risk Assessment

The European Commission (EU) has introduced measures to ensure the safety and health of workers. The 1989 Council Directive (89/391) makes employers responsible for making sure employees are not harmed by work, including through the effects of WRS (European Agency for Safety and Health in Work, 2019). The Safety, Health and Welfare at Work Act (2005) requires employers to put in place systems of work which protect employees from hazards which could lead to mental or physical ill-health. Risk assessment for stress involves the same basic principles and processes as for other workplace hazards. Risk pertaining to WRS must be addressed and managed using a risk assessment process, involving participation and consultation, and the application of the principles of prevention (European Agency for Safety and Health in Work, 2019). The hazards must be identified, the risks assessed, and control measures identified, implemented, and evaluated. Further, the European Pact for Mental Health and Well-being recognises the changing demands and increasing pressures in the workplace and encourages employers to implement additional, voluntary measures to promote mental well-being (European Pact for Mental Health and Well-being, 2008).

Aviation Context: Wellbeing, MH & COVID

Aviation Worker MH

The issue of aviation worker wellbeing/mental health has received increased attention since the Germanwings accident in 2015.

Pre COVID pandemic

- Ample evidence of wellbeing and mental health (MH) issues amongst pilots – Harvard study and others - prevalence of depression, mood disorders
- TCD seven scenarios – wellbeing, performance, and safety impact (Cahill et al, 2018)
- TCD 2018/2019 survey – measure levels of depression in Pilots (Cahill et al, 2021)
- TCD 2018/2019 survey - evidence of benefits of coping – associated with lower levels of depression severity - Cahill et al, 2021)

- Evidence that wellbeing not being properly managed in context of airline SMS (Cahill et al, 2019)
- TCD COVID survey (2020)
 - Little attention to wellbeing and MH of other aviation workers.
 - Peer support services provided for Pilots but not all aviation workers.

COVID 19 Pandemic

- Increase in MH suffering for whole population.
- There has been a huge impact for aviation workers and the industry.
- Concerns raised by FSF and others – 3 scenarios.
- FSF 3 scenarios – in work, off work, returning to work – different needs for each group.

Aviation Community Addressing this

- Aerospace Mental Health Work Group (AMHWG).
- FSF – wellbeing
- EASA – wellbeing
- RAeS
- European Aviation Mental Well-being Initiative (EAM-WELL) that was developed following collaboration among several organizations (European Association for Aviation Psychology, European Cockpit Association, European Society of Aerospace Medicine, Mayday Foundation, and Centre for Aviation Psychology. <http://eppsi.eu/european-aviation-mental-well-being-initiative-eam-well/>

Regulatory Approach to Managing Wellbeing

Currently, concepts of worker wellbeing/worker wellness for aviation workers are defined somewhat negatively. That is, it is defined in relation to the avoidance of illness or unhealthy states – as opposed to positive wellbeing.

Further, the responsibilities for managing worker wellbeing are defined very narrowly. Much of the responsibility is put on individuals. It is the operator's role to be fit for duty. The role of organisations is to monitor the individuals (i.e., fatigue risk, drugs/alcohol testing, aeromedical assessment). Organisations do have a role in providing supports – but this seems secondary to their 'monitoring role'. This concerns functions apparent in some organisations such as peer support, health promotion and the provision of stress management training. Also, aviation organisations have a role in relation to managing certain risks. Primarily this pertains to fatigue risk – but not all wellbeing risks (i.e., across the biopsychosocial).

Approach of (1) aviation organisations, and (2) aviation workers/employees flow from this. Pilot health and fitness (including mental health) is assessed annually in accordance with mandatory rules regarding aero-medical assessment (Bor et al, 2016). There are very clear guidelines concerning the impact of a psychiatric disorder on pilots (Dickens, 2016). All regulatory bodies distinguish between conditions that mean mandatory exclusion from flying and those that allow a pilot to fly under controlled conditions (Dickens, 2016).

EASA has recently introduced new rules on pilot mental fitness, following the Germanwings tragedy in 2015 (EASA, 2019). These rules pertain to three key areas - psychological testing of aircrew pre-employment in line flight, access to a psychological support/peer support resource, and substance abuse testing on a random basis. European airlines will be required to demonstrate compliance with these rules by 2021.

- Guidelines – not addressing promoting positive wellbeing or prevention.
- The regulator approach falls short of adequately dealing with issues around wellbeing and management of mental health/psychological wellbeing in work -companies not obliged/forced to act.
- Big problem inherent to approach – reporting on wellbeing/MH challenges and how impact job/job security – are you really going to talk to your employer/trust your employer.

Aviation & Organisational approaches to supporting/managing wellbeing and mental health.

Key points

- Existing roles & responsibilities – follow the requirements defined by regulator - IR.
- New IR following Germanwings – 3 approaches – substance/intoxicants testing, peer support and psychological assessment.
- Overall, not positive definition – limited focus on maintaining wellbeing levels, preventative approach, health promotion, psychoeducation etc.
- Primary focus on fatigue management – not all wellbeing risks
- Some airlines provide training in wellbeing (CRM - stress management), safety promotion.
- Many orgs provide EAP (links to counselling) – however, seems to sit aside from reporting process.
- Peer support groups – prevalent – particularly for certain groups of workers – pilots – but evidence that not seeking help via these groups.
- Many pilot unions have Pilot Advisory Groups (PAG). These provide a confidential service that pilots can use to talk about problems and obtain support.

Presently, the primary focus of airline wellbeing interventions is on management of crew fatigue and alertness. The 'Fatigue Management Guide for Airline Operators' specified by the International Air Transport Association (IATA), the International Civil Aviation Organisation (ICAO) and the International Federation of Airline Pilots Associations (IFALPA) (2015), describes a science-based and operationally oriented fatigue management processes. Fatigue Risk Management Systems (FRMS) have been advanced by several airlines including EasyJet and Singapore Airlines (Skybrary, 2019). Typically, airline FRMS provide outputs to crew pairing/rostering and flight scheduling systems to ensure that risks pertaining to fatigue are managed from an operational perspective.

Operational reporting is a key component of any SMS (Cahill, 2010). Currently, specific wellbeing/WRS reporting systems are not used at an airline level. However, nothing prevents pilots from reporting wellbeing/WRS issues using the existing SMS reporting system (i.e., voluntary, and mandatory safety reporting tools). Anecdotally, it is known that pilots do not report wellbeing issues (including MH), using existing safety reporting systems. In terms of organisational structure, pilots can report issues to their head of flight operations and/or chief pilot. However, this is rarely done.

Airline CRM training addresses the socio-cognitive dimensions of task performance (for example, teamwork, briefing, decision making) and crew management of threats, to avoid errors and/or unacceptable aircraft states as outlined in the TEM model (Helmreich al, 1999). Critically, the TEM model does not comprehensively address the crew state as conceived from a biopsychosocial perspective.

Existing airline briefing processes (linking to TEM constructs) do not address WRS/wellbeing issues. Moreover, specific pre-flight checklists (i.e., standard operating procedures – SOP) do not include human factors checks in relation to crew wellbeing and the joint crew state (Cahill, 2010).

Method

Overview

Two survey were undertaken to assess the management of wellbeing at both individual and organisational levels. The first survey was conducted in 2018/2019 and was undertaken with Pilots only. The second survey was undertaken during COVID (July and August 2020), and involved all aviation workers. Both studies conducted in accordance with the Declaration of Helsinki, and the two survey protocols were approved by the Ethics Committee of the School of Psychology, Trinity College Dublin.

Survey 1: Pre COVID, Pilots Only

An anonymous web-based survey was completed by commercial pilots between November 2018 and February 2019. Participants were invited to participate in a web-based online survey which examines the effects of work-related stress (WRS) on pilot wellbeing, and the associated impact on both pilot performance and flight safety. The survey also investigated pilot coping methods, and pilot perception of the airline role in relation to managing WRS and wellbeing issues.

The survey incorporated several standardised instruments to measure levels of common mental health issues which have been widely validated and have good psychometric properties. These are these Patient Health Questionnaire -9 (PHQ-9) (Kroenke, Spitzer & Williams, 2001), the Oldenburg Burnout (OLBI 8) (Demerouti, Bakker, Vardakou & Kantas, 2003), and the Oldenburg Burnout (Modified Instrument) (Demerouti, Veldhuis, Coombes & Hunter, 2018). Further, the survey design draws upon prior research undertaken by the authors pertaining to a biopsychosocial model of wellbeing, the factors that can positively and negatively influence a pilot's physical, mental, and social health, and the ensuing impact on pilot performance and flight safety (Cahill et al, 2018, Cullen et al, 2017).

In relation to the workshops, the pilots were recruited through network and word of mouth. In the case of the survey, pilots were recruited using social media platforms such as LinkedIn and Twitter. In both cases, ethics approval was granted by the School of Psychology, Trinity College Dublin (TCD).

See Appendix 1 for topics, questions, and measures.

Survey 2: During COVID, All Aviation Workers

This was an anonymous online survey addressing the impact of the COVID 19 pandemic on (1) job and employment, (2) wellbeing and morale, (3) performance and safety behaviour, and (4) safety oversight. The survey also investigated reporting culture, coping strategies, fitness to work assessment, and the supports provided by aviation companies to workers during the pandemic.

- Anonymous online questionnaire, using Qualtrics.
- Targeted at all aviation workers.
- Incorporates validated instruments predicting presence of depression (PHQ 9) & anxiety (GAD 7).
- Involvement of stakeholders in survey design
- Ethics (including GDPR) approval, REC, School of Psychology, Trinity College Dublin, Ireland
- Administered over 3 weeks (July/August 2020)

See Appendix 2 for topics, questions, and measures.

Research Findings

Introduction

Overall, the research findings are structured in terms of set of themes and subthemes – see Table 1 below. In some cases, refer to finding across both surveys etc. In others, focus on specific survey (COVID context questions)

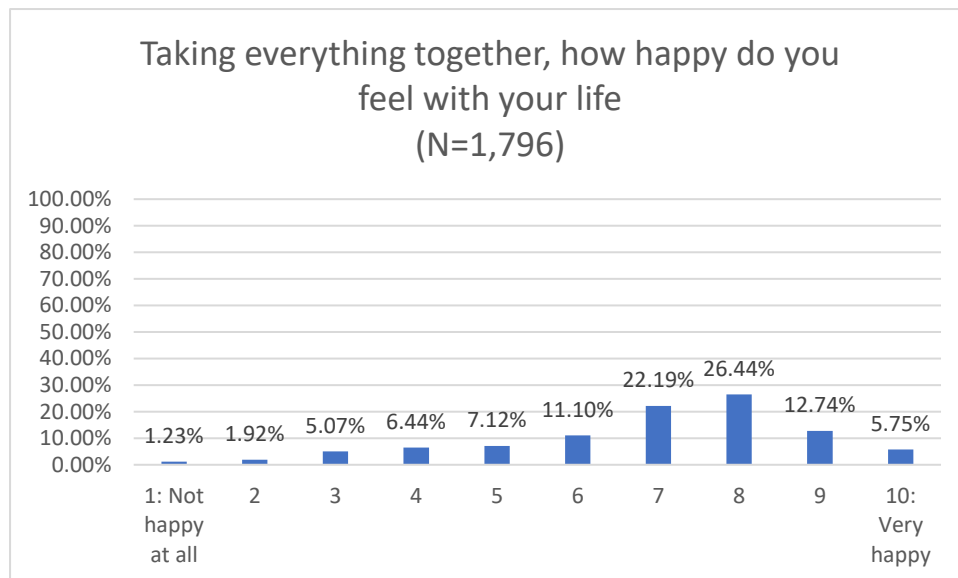
Table 1: Themes & Survey

#	Theme	Survey 1: PreCOVID (2018/2019)	Survey 2: During COVID (July/August 2020)
		Pilots Only (N=1059)	All Aviation Workers (N=2050)
1	Wellbeing & MH: Current state - Subjective satisfaction with life - Subjective Physical wellbeing - Subjective Mental Health - Depression levels (PHQ 9) - Anxiety (GAD 7) - Burnout and exhaustion (OLBI 8 & Oldenburg Modified Instrument)	Yes (but not subjective satisfaction & anxiety)	Yes (but not burnout and exhaustion)
2	Perception of coping Use of coping strategies	Yes	Yes (but not perception of coping)
3	Seeking support & disclosing problems	Yes	Yes
4	Reporting Unfit for Flight	Yes	No
5	Wellbeing: Org Processes & Integration with Safety - Process should be defined. - Process is defined. - Integration with safety management processes	Yes	No
6	Wellbeing: Priorities & Culture - Priorities - Culture	Yes	Yes
7	Wellbeing Programmes - Provision - Effectiveness	Yes	No

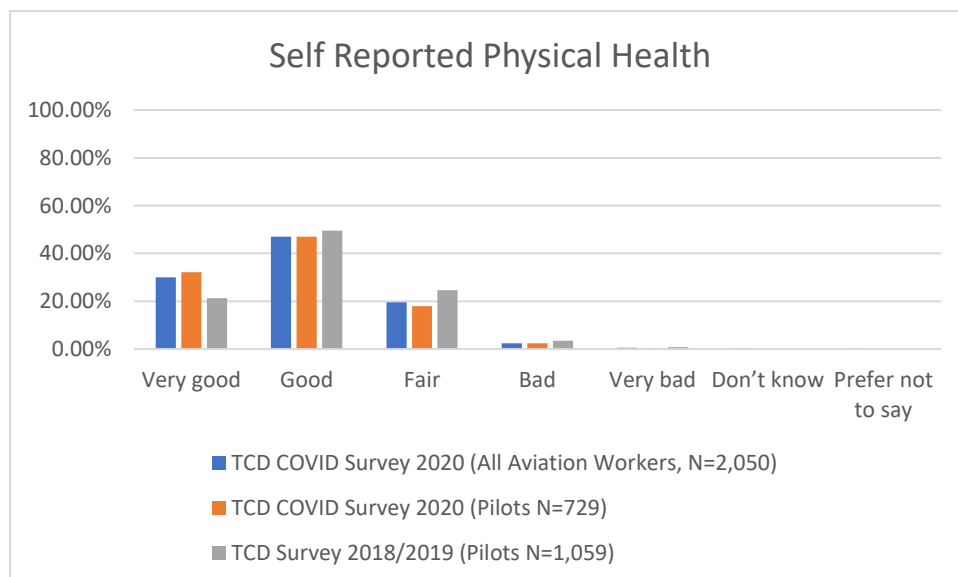
7	Wellbeing & COVID Pandemic • Changes in org worker wellbeing • Wellbeing: COVID Pandemic & org supports provided • Requirements for supports during COVID. • Fitness for work assessment	No	Yes
---	--	----	-----

Theme 1: Wellbeing & Mental Health: Current State

Just under 15% of aviation workers reported that they are not very happy with life (2020 Survey).

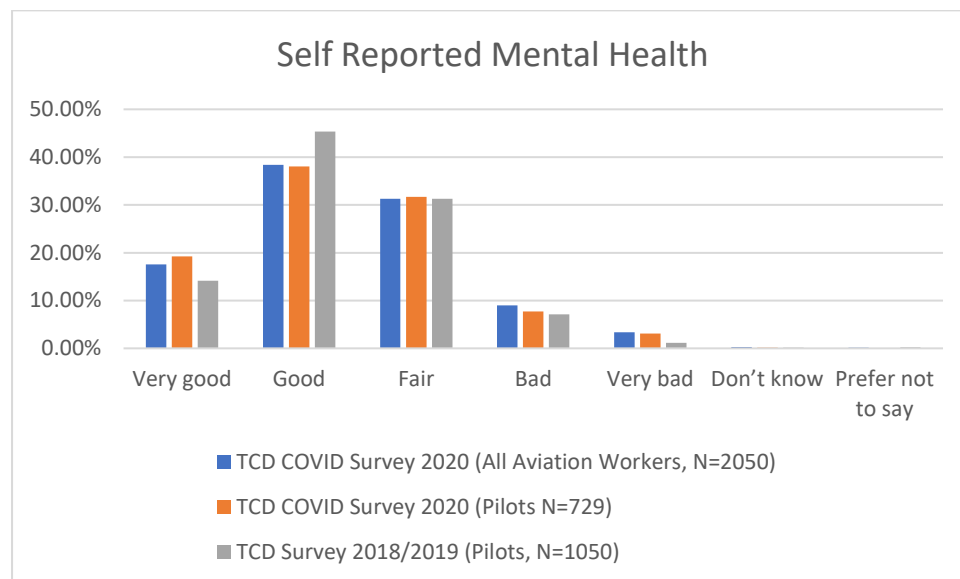


In the 2020 COVID survey, 77% of respondents rated their physical health as good or very good. Pilots reported levels similar to other aviation workers, and it seems that not much has changed since 2018/2019.

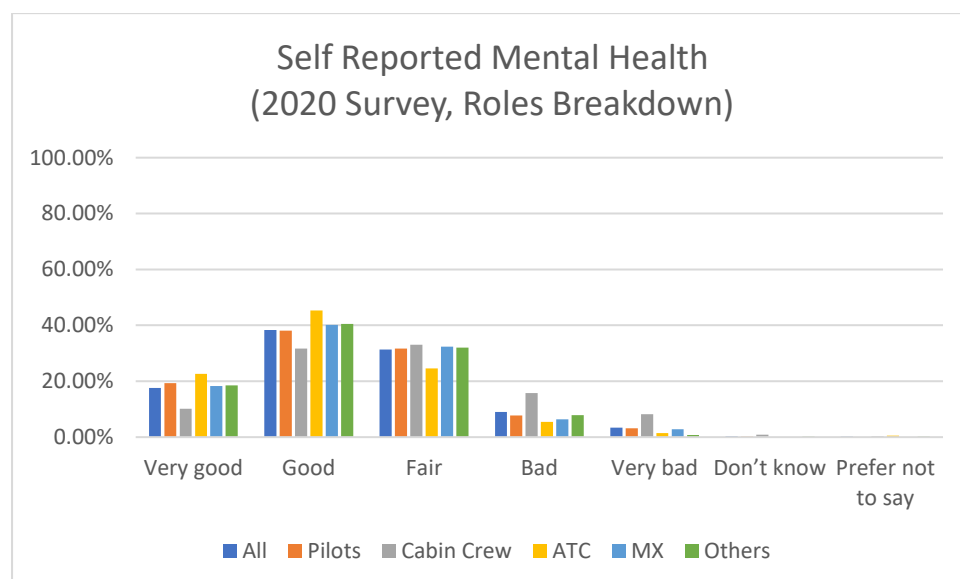


Higher numbers of respondents reported their mental health as 'good' in 2018/2019 as compared with 2020.

In the COVID 2020 Survey, 56% rated their mental health as good/very good. Pilots and other aviation workers similar levels.

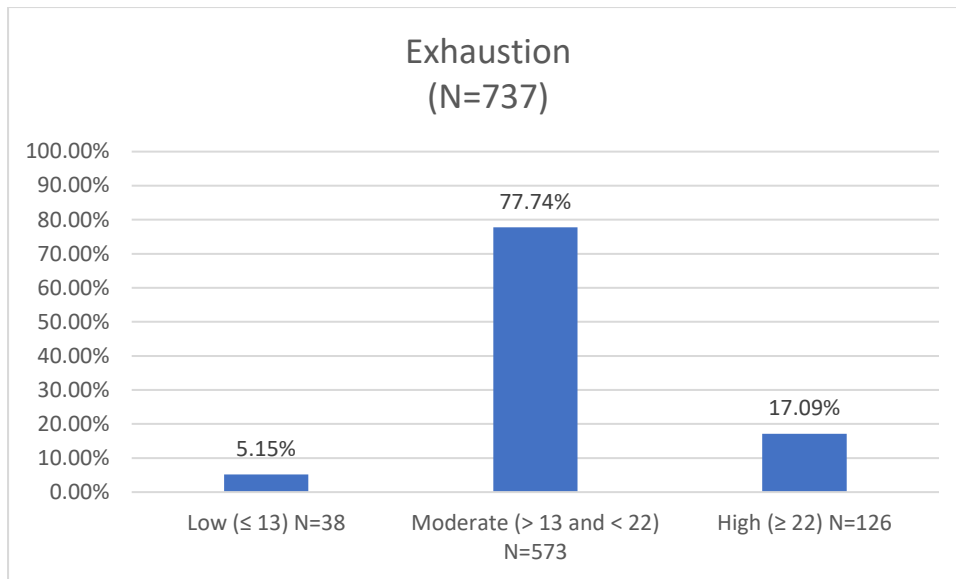


However, Cabin Crew appear to be suffering more with only 41% reporting MH good or very good.

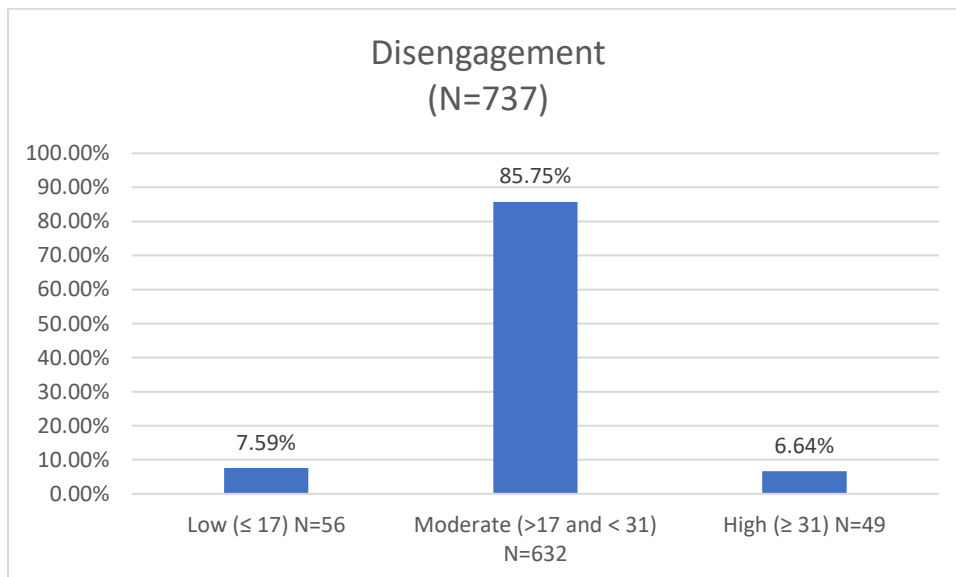


Exhaustion, disengagement, and burnout was examined in the 2018/2019 survey (i.e., with pilots only).

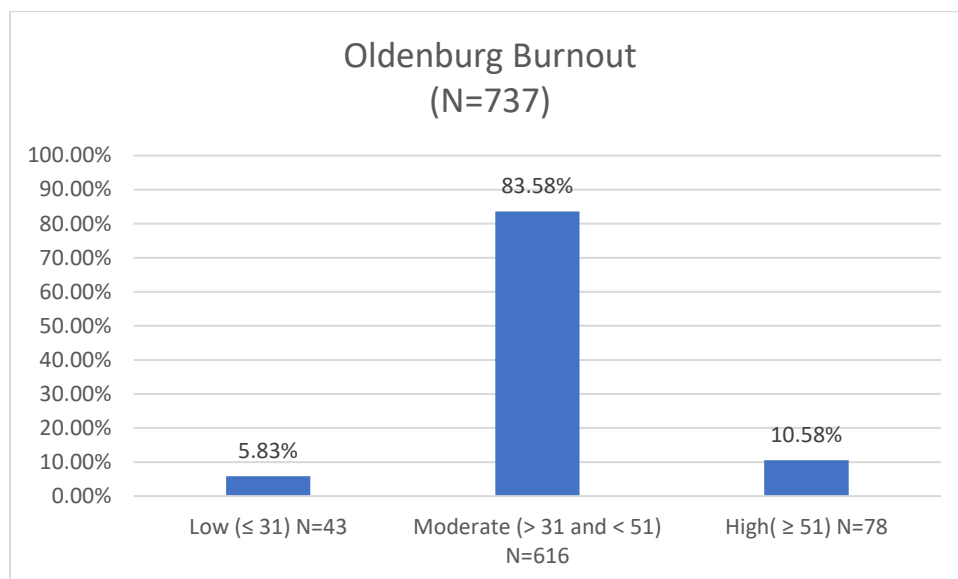
In terms of exhaustion, 5.15% (low), 77.74% (medium) and 17.09% (high).



The disengagement scores were 7.59% (low), 85.75 (medium) and 6.64 (high)

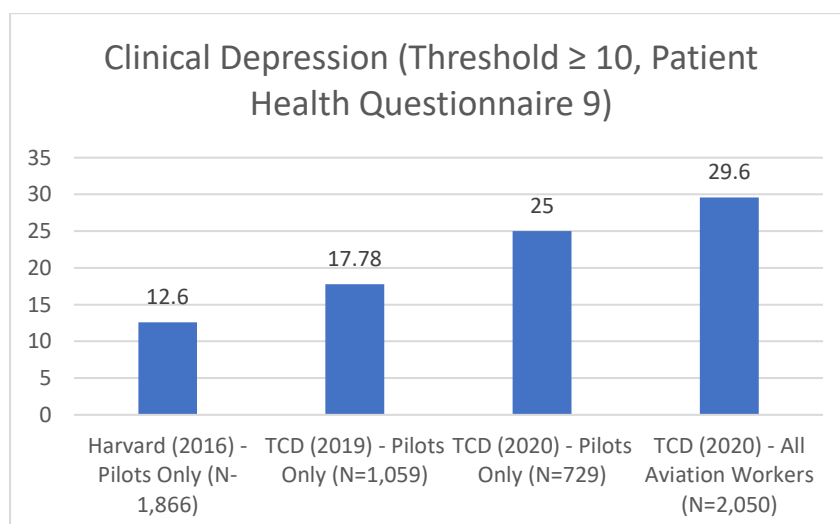


The burnout scores were classified as low burnout (5.83% of the respondents), moderate burnout (83.58% of the respondents) and high burnout (10.58% of the respondents).



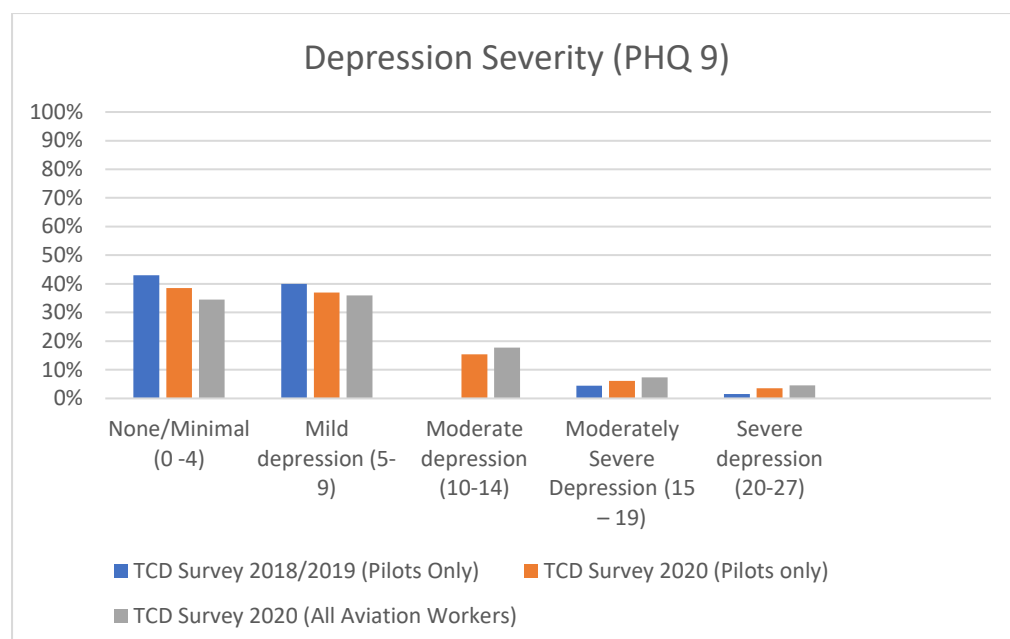
Overall, there seems to be an upward pattern in the prevalence of depression.

The COVID 2020 survey findings indicate an increase in the prevalence of depression for pilots as compared with the findings prior survey in 2019.

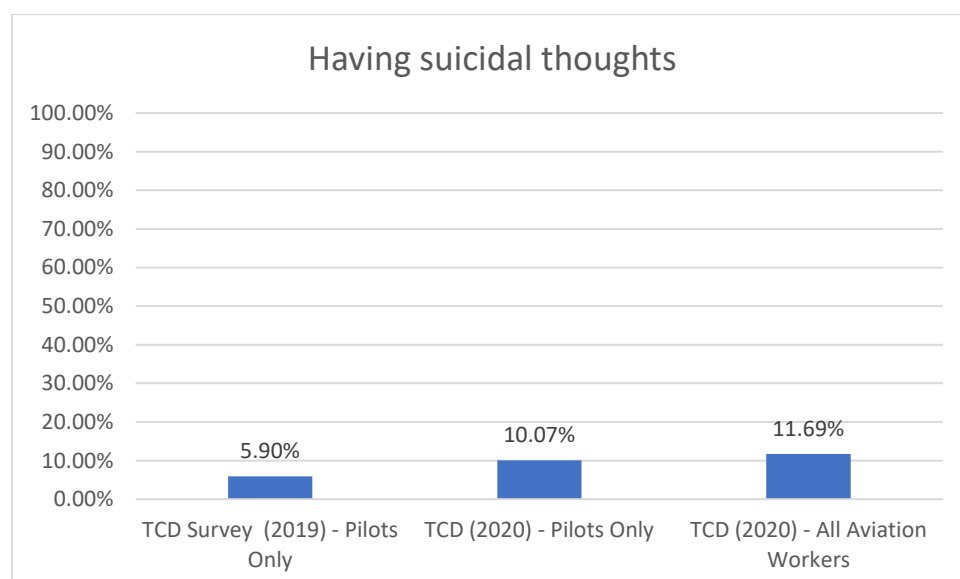


In terms of depression levels, there are higher numbers meeting the threshold for moderate depression (17.7%), moderately severe depression (7.4%), and severe depression (4.5%). Cabin Crew have higher levels of suicidal ideation, with maintenance workers experiencing levels similar to other aviation workers.

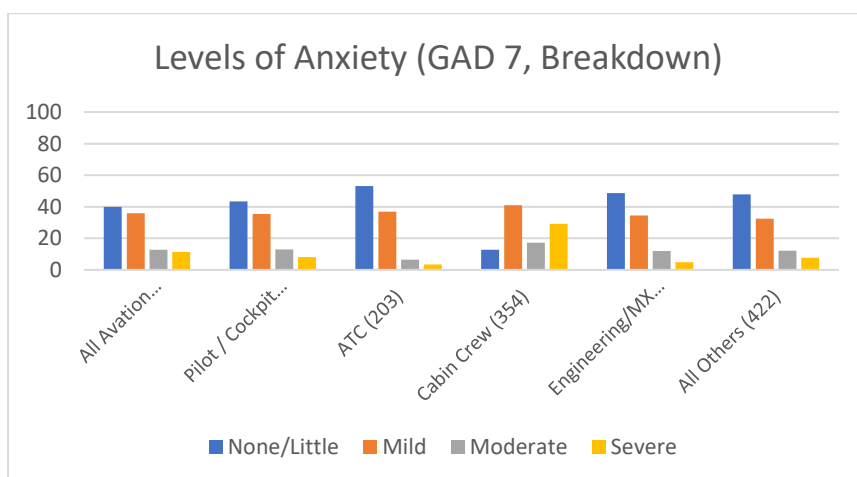
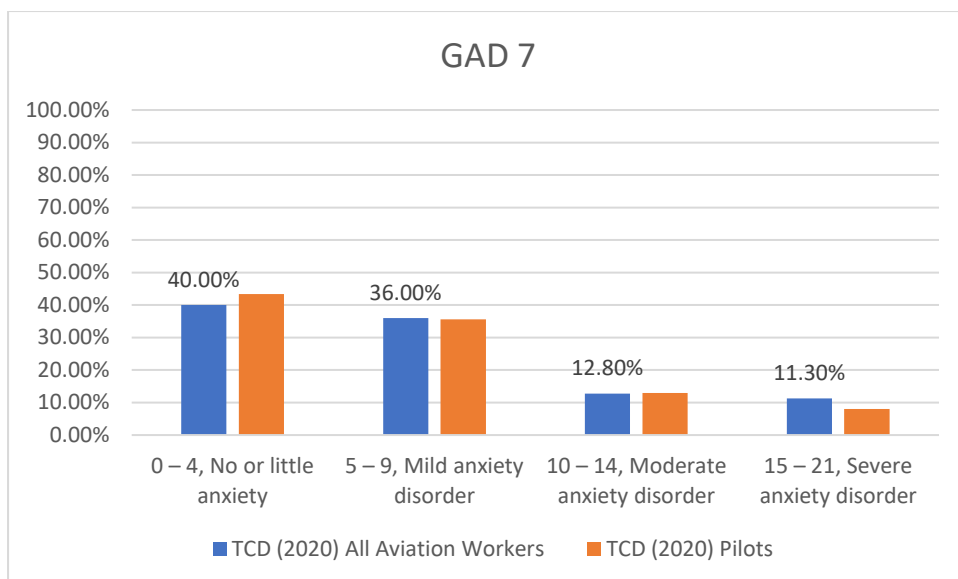
Further, there is an increase in numbers at higher end of scale – small number with significant levels of depression.



There is also an upward trend in the numbers of pilots reporting suicidal ideation (moved from 5.9% to 10.07%), with high numbers for all aviation workers (11.69%). Suicidal Ideation typically accompanies depression – however, this does not mean that person is going to harm themselves.

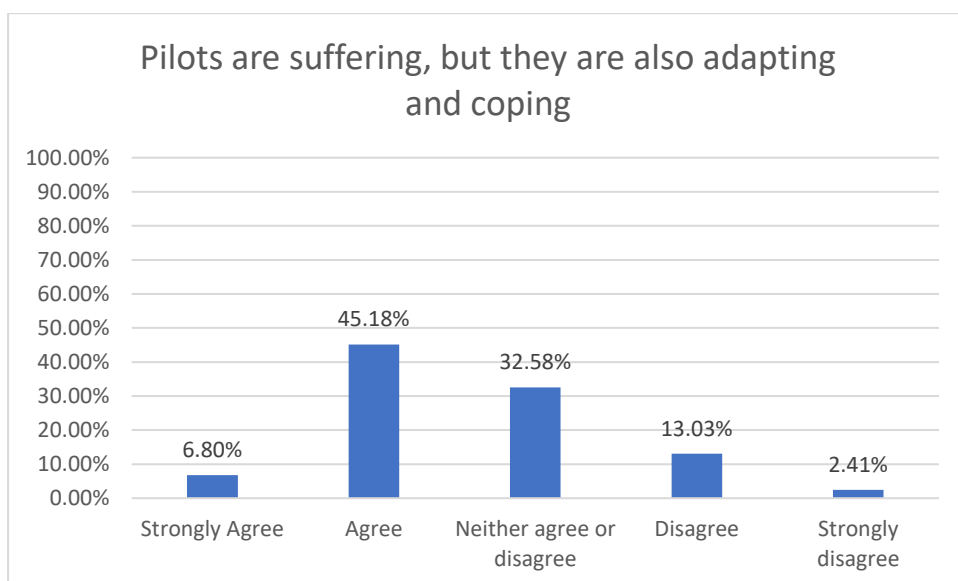


Anxiety was examined in the 2020 COVID survey only. Overall, aviation workers reported high levels of anxiety, with 36% (646) meeting the threshold for mild anxiety, 12.8% (230) moderate anxiety, and 11.3% (203), severe anxiety. Cabin Crew are most affected, with only 13% (45) reporting feeling no anxiety.



Theme 2: Perception of Coping & Use of Coping Strategies

The 2018/2019 survey asked pilots about their perception of coping. Approximately 52% reported that they are adapting and coping.



Respondents provided examples of both adaptive and maladaptive coping as detailed in Table 2 below.

Table 2: Examples of Adaptive and maladaptive coping – 2018/2019 Survey.

Adaptive	Maladaptive
Try to do things I enjoy (eating out, watch TV, hobbies etc.) Socialise/spending time with family & friends. Take exercise/sport. Manage my diet and nutrition. Focus on sleep & rest. Use specific relaxation-focus behaviour (e.g., yoga, meditation, massage etc.) Talk about my stress. Read books about stress management. Use professional/organised supports. Nature/outdoors Holidays Moving to Part/Time working arrangements Taking time off work Taking 'me time' Keeping journal Positive thinking Using mobile apps Use Computer Based Tools (as part of a clinical support programme) Intimacy/sexual activity Prayer/spirituality Keep busy. Volunteering Be prepared for work	Avoidance/Ignore. Smoking Substance misuse - alcohol Substance misuse - drugs Temper/lash out/aggressive behaviour. Self-harm Withdraw from people. Disordered eating Screaming/throwing things/tantrums Crying

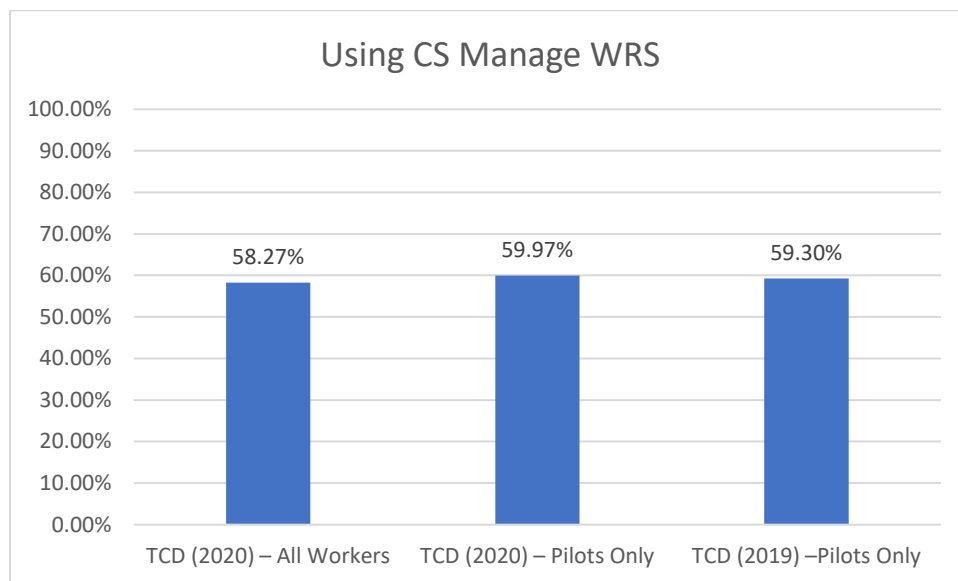
Here are some examples:

- *Have a life outside flying.*
- *Being outdoors for even just a short walk, even in winter/bad weather and on short layovers*
- *Try to read books on staying positive. And I daydream about winning the lottery so I can quit being a pilot.*

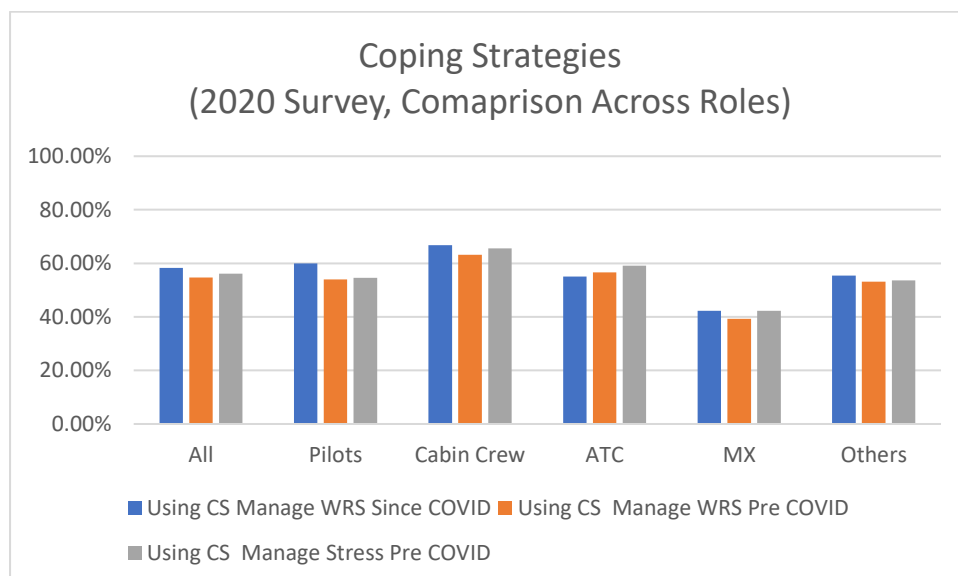
- *Sleep more. Go back to bed after school run.*
- *At my home you will not find anything aviation related. Not reading anything about my company during off time.*
- *Creating connection with colleagues by personally offering emotional health courses*
- *Deep breathing, positive self-talk.*
- *Cigarettes, sex*
- *Bitch*

Both surveys elicited feedback about the use of coping strategies.

Here, we see some positive trends - pilots and other aviation workers are continuing to use these strategies. Similar level of use pre and post COVID 19 - between 58% to 59% - across both time periods.



Since COVID - Cabin Crew have the highest use of CS (66.77%), followed by Pilots (58.27%). MX have the lowest use of CS (55.39%).



Theme 3: Disclosing Problems, Accessing Support & Who Approach if have problems?

Speaking Out about MH

- Low level of speaking out about MH issues.
- COVID Survey - 67% agree or strongly that there are low levels of speaking out and/or reporting about mental health among my work colleagues.
- 2018/2019 – 84% agree or strongly agree there are low levels of speaking out and/or reporting about mental health among my work colleagues.

More likely to approach family or friend – Low numbers talk to Line Manager, Peer Support & EAP (issues around trust and psychological safety)

If you had a mental health issue, would you willingly disclose it to your employer?

- COVID Survey (26.99%)
- 2018/2019 – low numbers talk to peer support (23.4 %)

Who did you speak to?

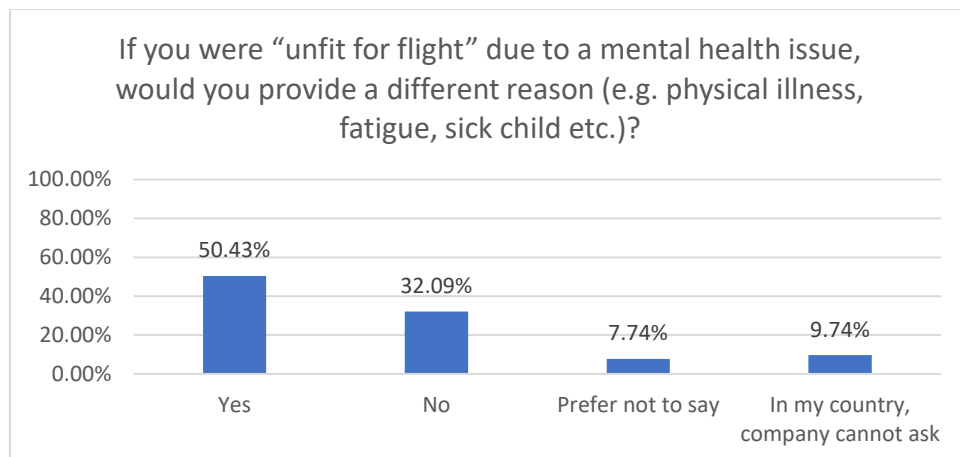
- COVID Survey – low numbers talk to peer support (2.89%)
- 2018/2019 – low numbers talk to peer support (3.92%)

COVID Survey – MX no peer support

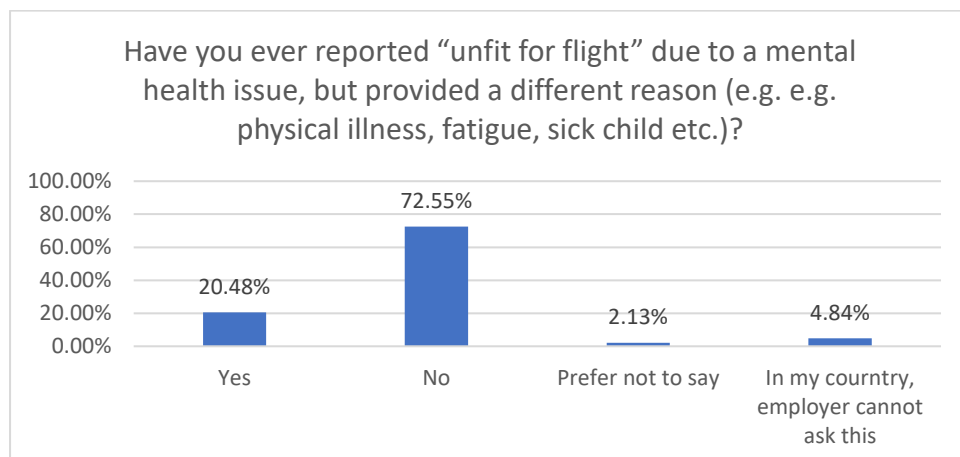
Theme 4: Reporting Unfit for Flight

The 2018/2019 survey addressed the issue of ‘reporting unfit for flight’.

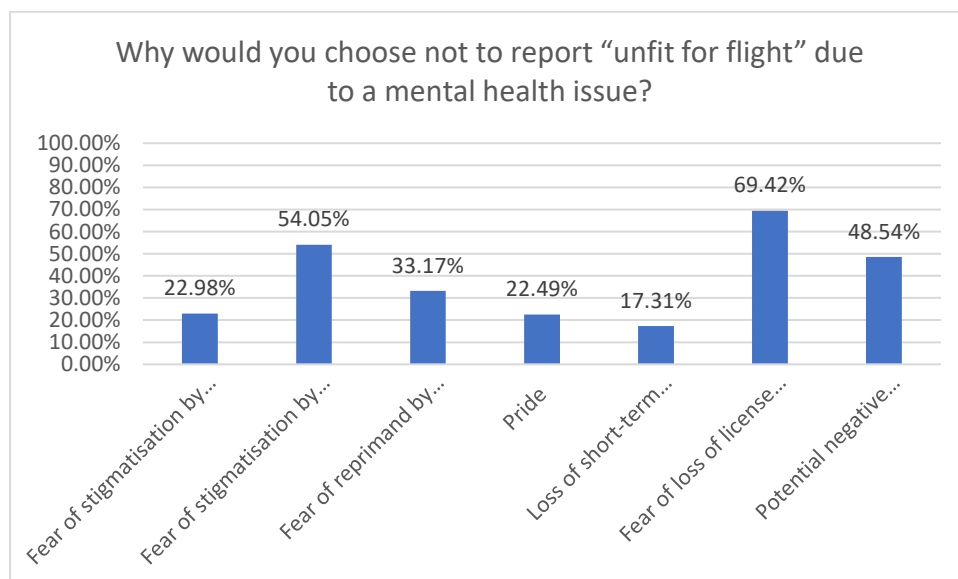
50.43% indicated that they might report unfit for flight and give a different reason (i.e., other than MH)



20.48% stated that the reported ‘unfit for flight’ but gave another reason.



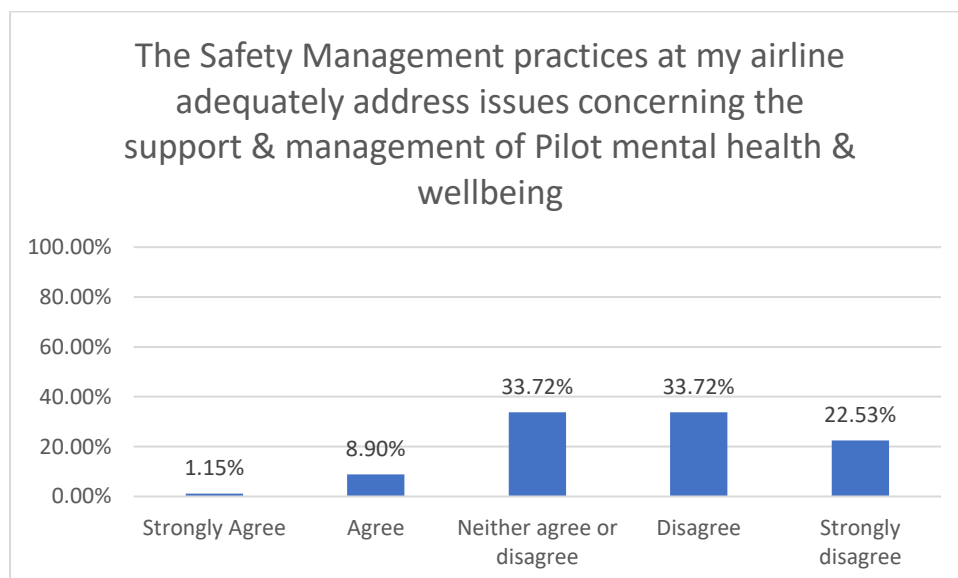
The most frequently reported reason for NO reporting “unfit for flight” due to a mental health issue was (1) Fear of loss of license and loss of long-term earnings (69.42%), followed by (2) fear of stigmatisation by employer (54%) and then Potential negative impact on career progression (48.54%)



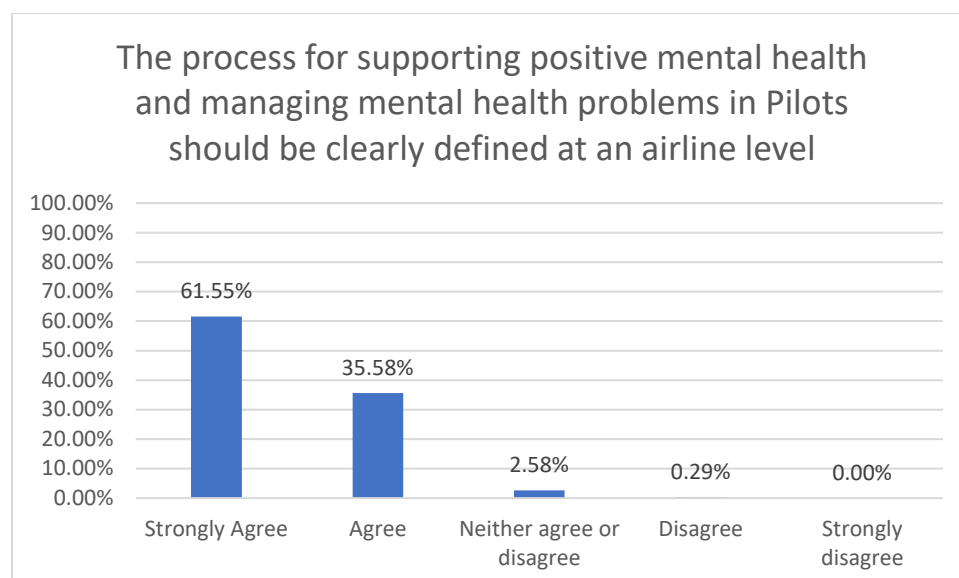
Theme 5: Wellbeing Processes & Safety Management

The 2018/2019 survey examined wellbeing processes and safety management processes.

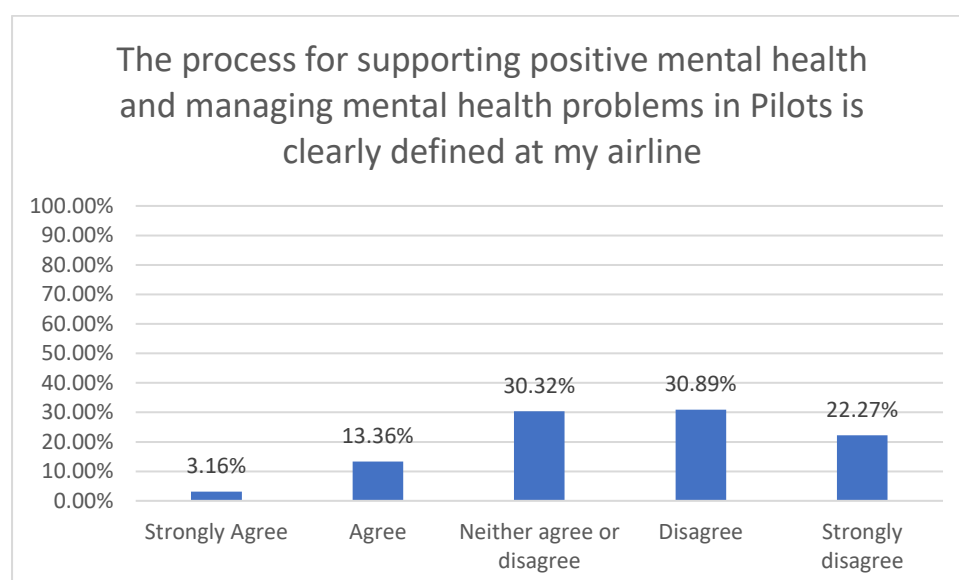
Only 10% agree or strongly agree that the Safety Management practices at my airline adequately address issues concerning the support & management of Pilot mental health & wellbeing.



97% indicated that the process for supporting positive MH Hand managing MH problems in pilots should be clearly defined at an airline level.

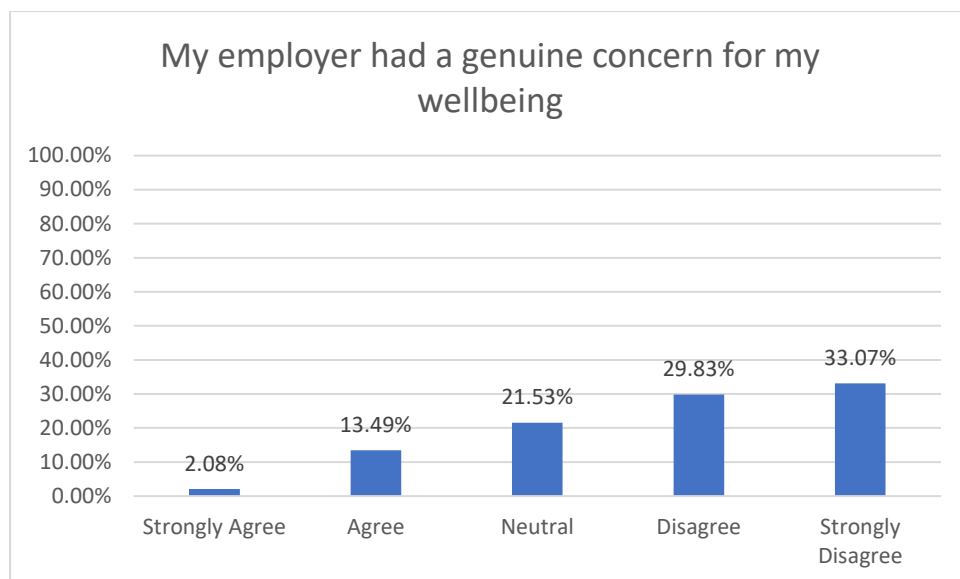


Very small number (26%) agree that process is clearly defined at their airline.



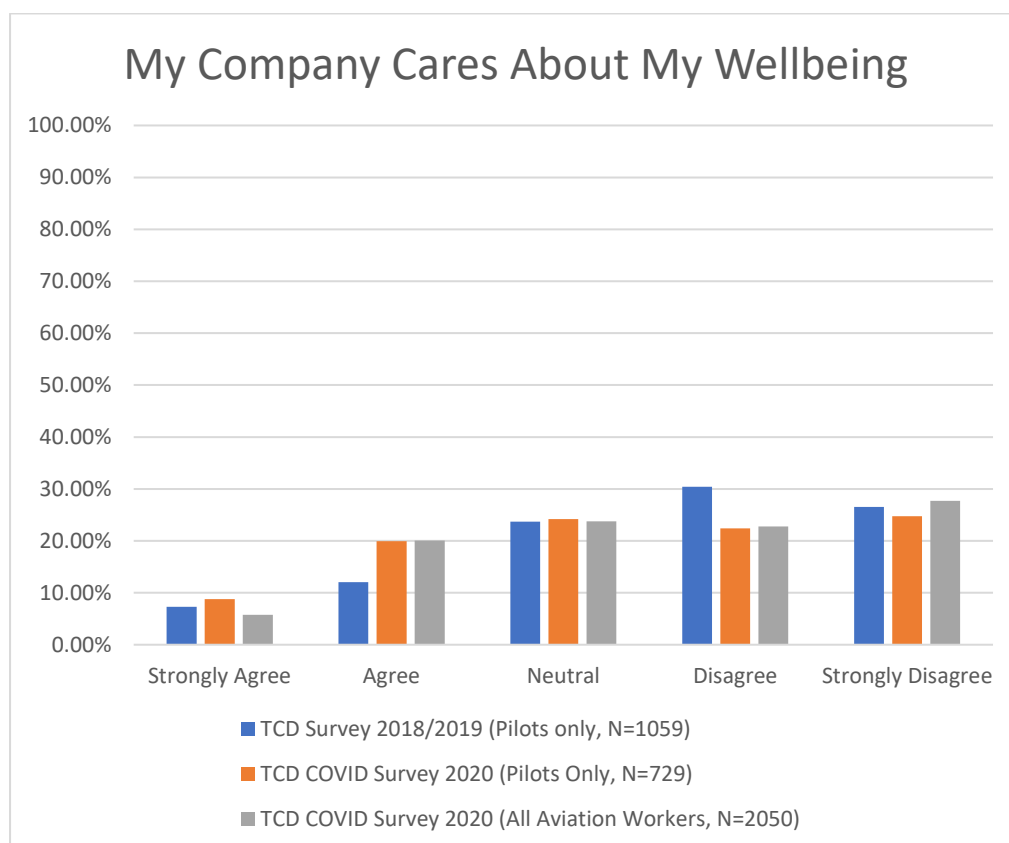
Theme 6: Org Priorities & Culture

Only 15% of respondents either agreed or strongly agreed that their employer has a genuine concern for my wellbeing (2018/2019 Survey).

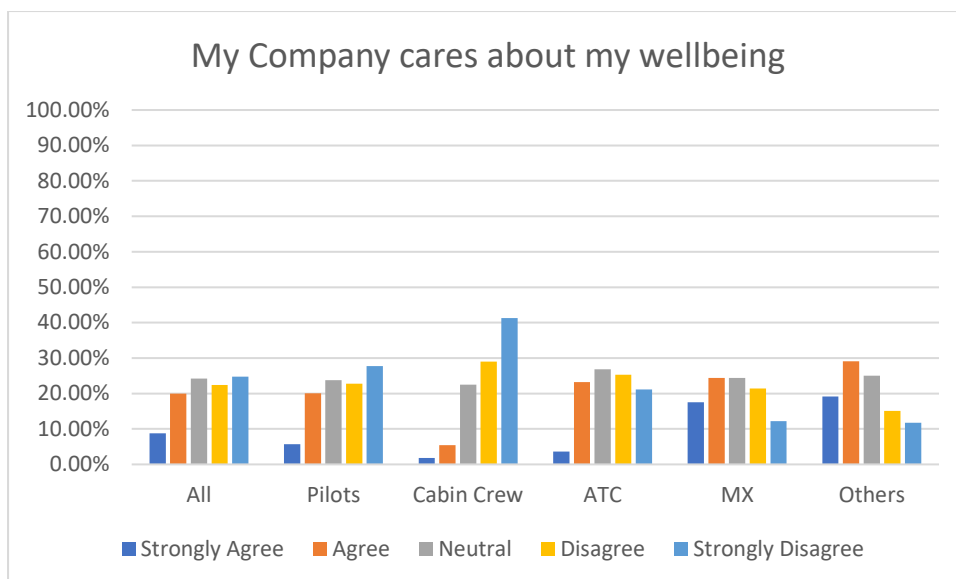


Caring about wellbeing – meaningful indicator – overall numbers very low

- 2018/9 Survey – 19% agree or strongly agree.
- COVID Survey (all) – 26% agree or strongly agree.
- COVID Survey (pilots) - 29% agree or strongly agree.



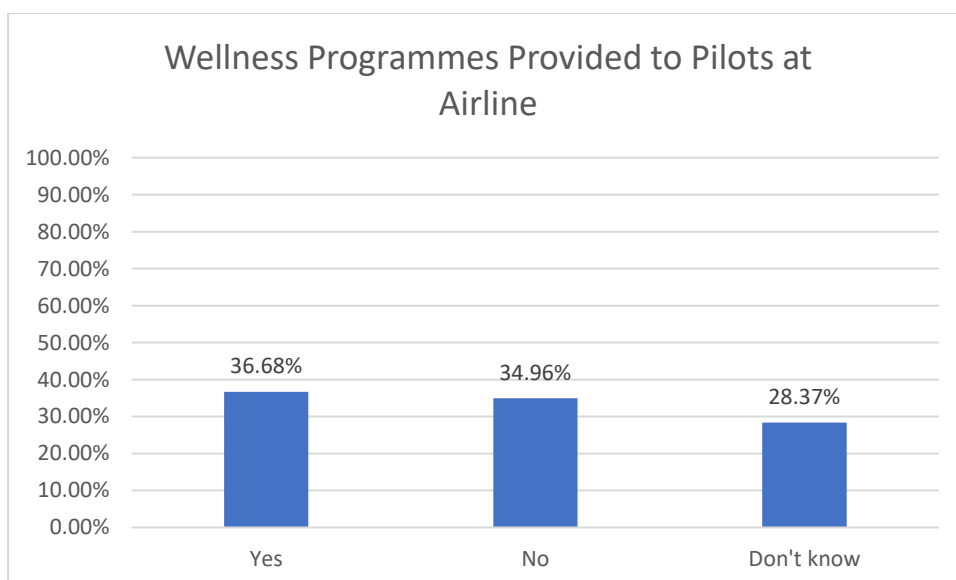
2020 survey – cabin crew lowest agreement



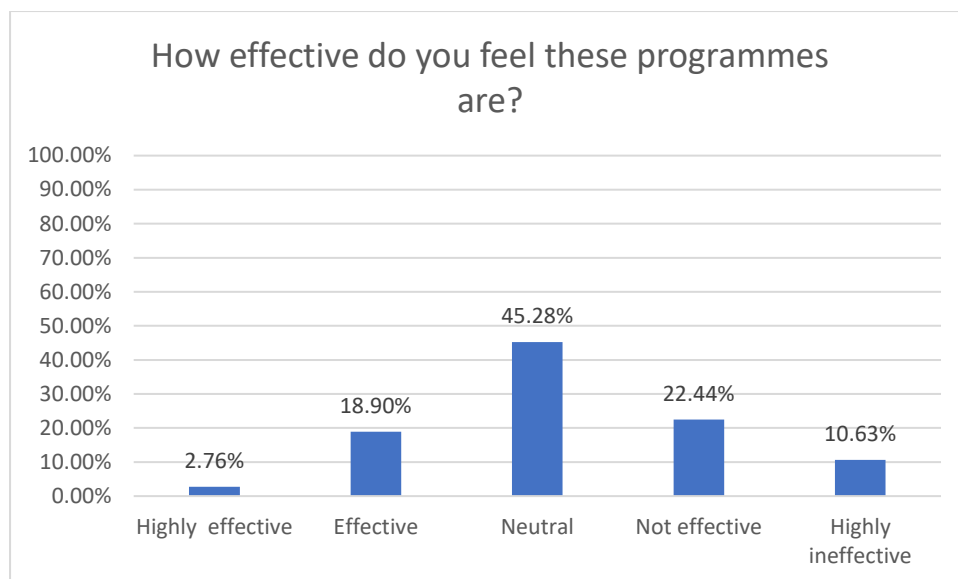
Theme 7: Wellbeing Programmes

The 2018/2019 survey examined the provision and effectiveness of wellbeing programmes.

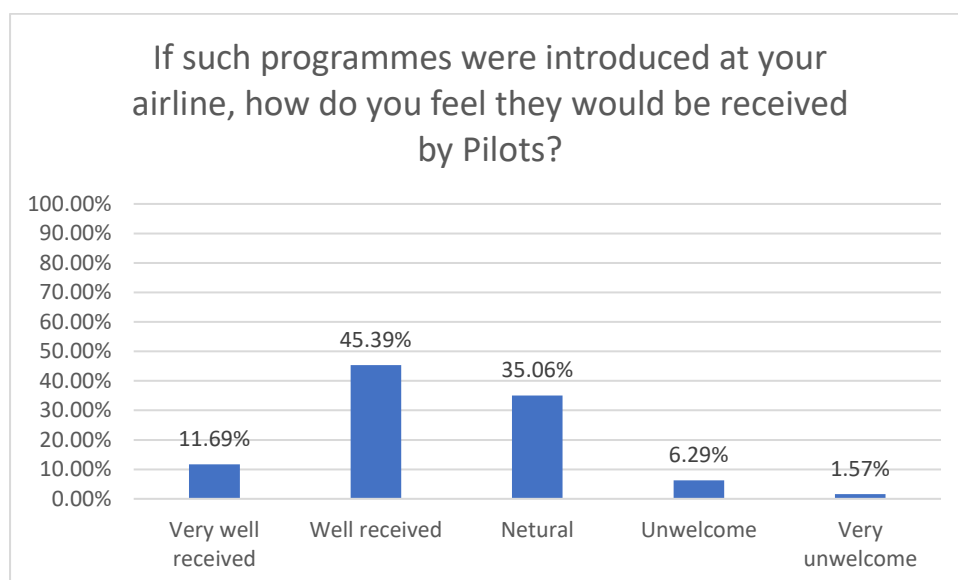
Low number report wellbeing programmes being provided (36.68%)



Only 22% consider these effective or highly effective.

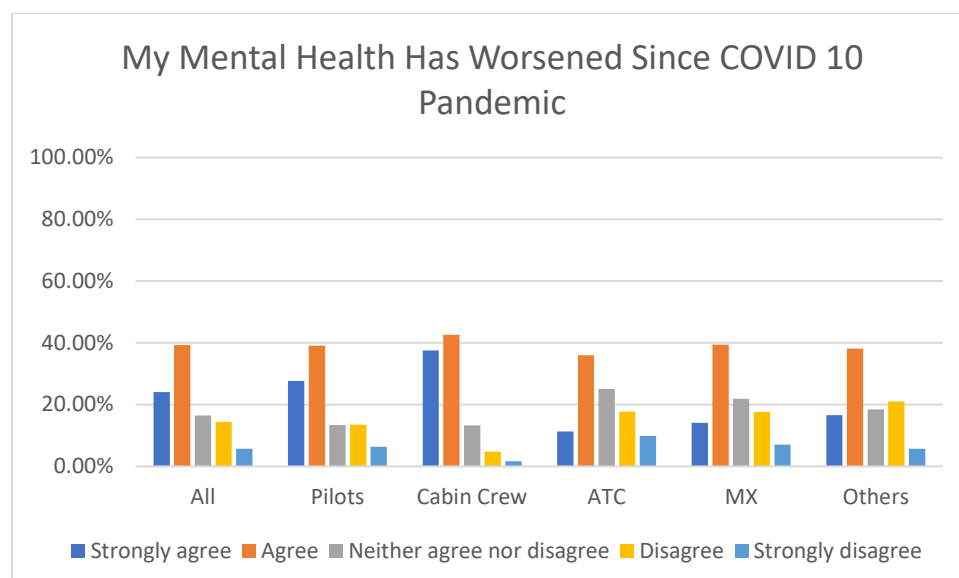


56% consider they would be very well or well received.

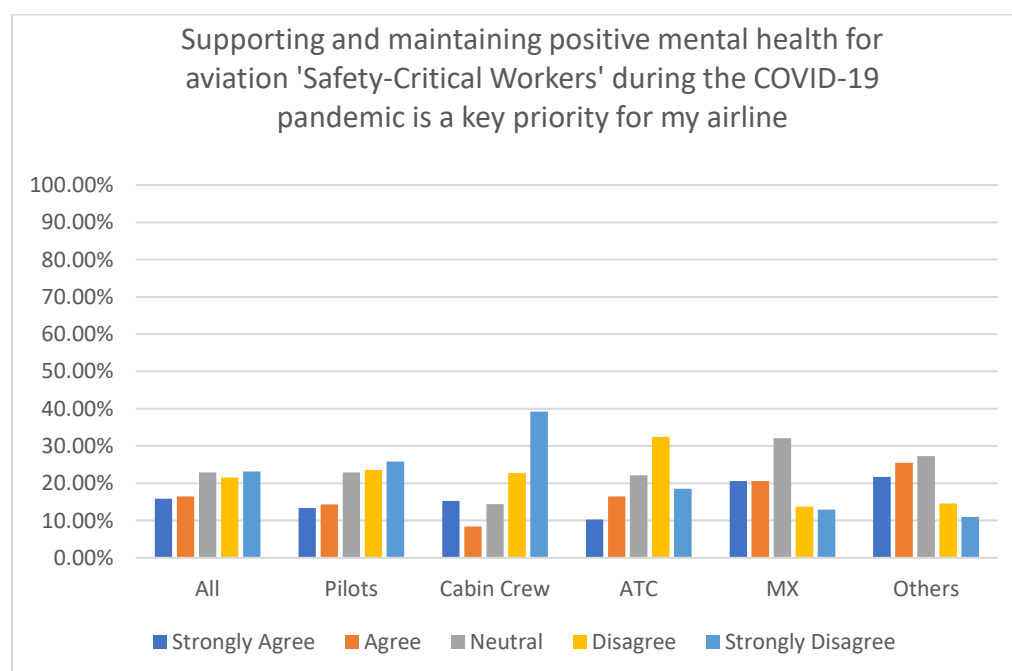


Theme 8: Wellbeing & COVID

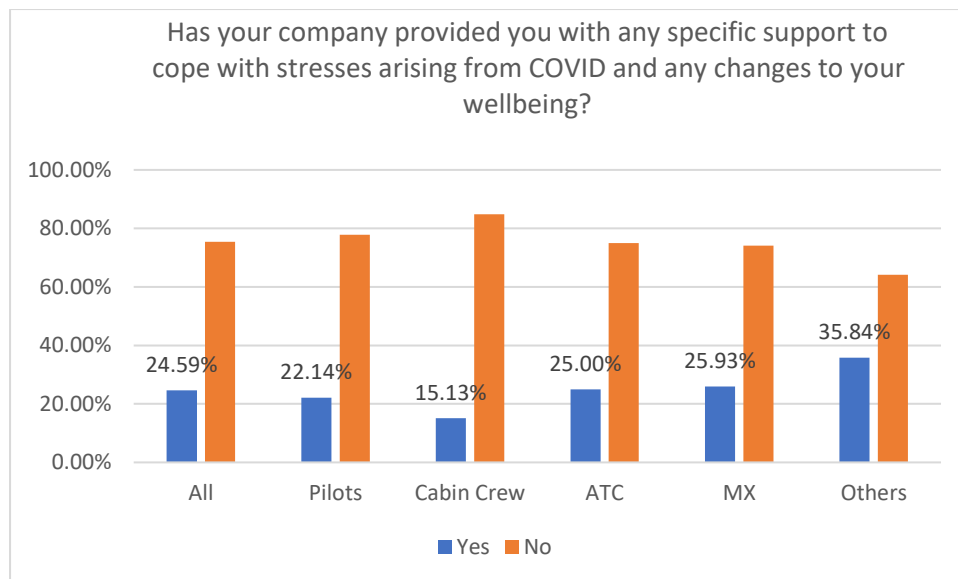
Nearly 60% think that their MH has worsened since the onset of the COVID 19 Pandemic with Cabin crew most impacted.



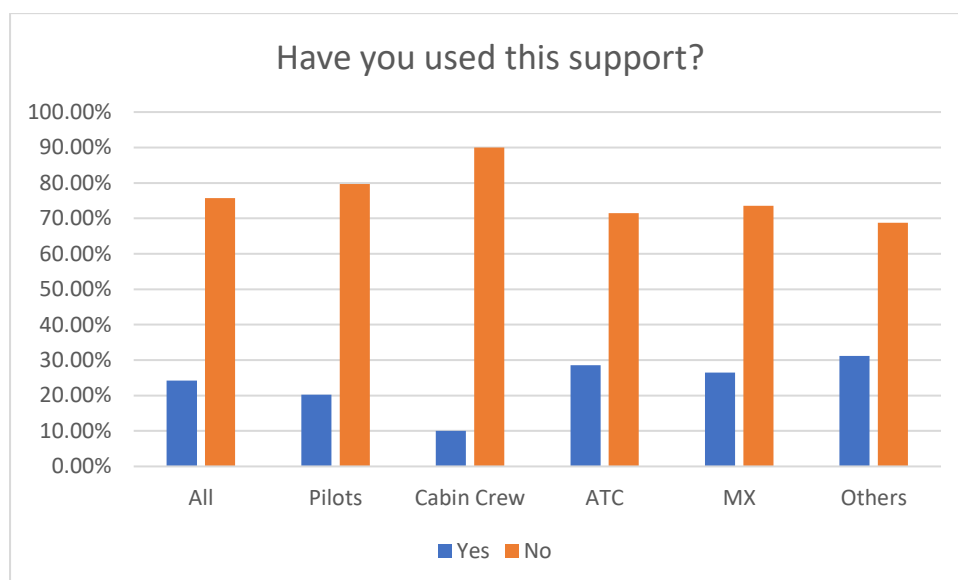
Only 32% strongly agree or agree that supporting and maintaining positive mental health for aviation 'Safety-Critical Workers' during the COVID-19 pandemic is a key priority for my company/airline.



Survey feedback indicates that there has been a weak response from organisations in terms of helping employees cope with stress arising from COVID and changes to wellbeing - 75.41% say company NOT provided supports – with Cabin Crew least supported.



For those who have been provided with supports – feedback indicates that the use of these supports is very low (24.27%) Why? How tally with fact that seeking supports – see other questions? Indicator that supports not fit for purpose.



Supports classified as

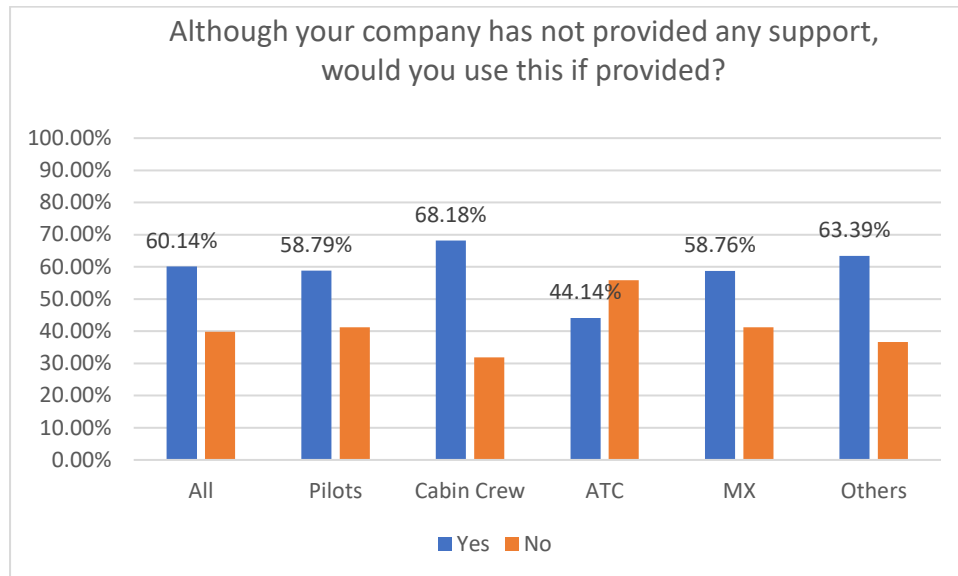
1. In house company services/support
2. Outside services (paid for by company)
3. Signposted to services outside the company.

In relation to internal supports – include.

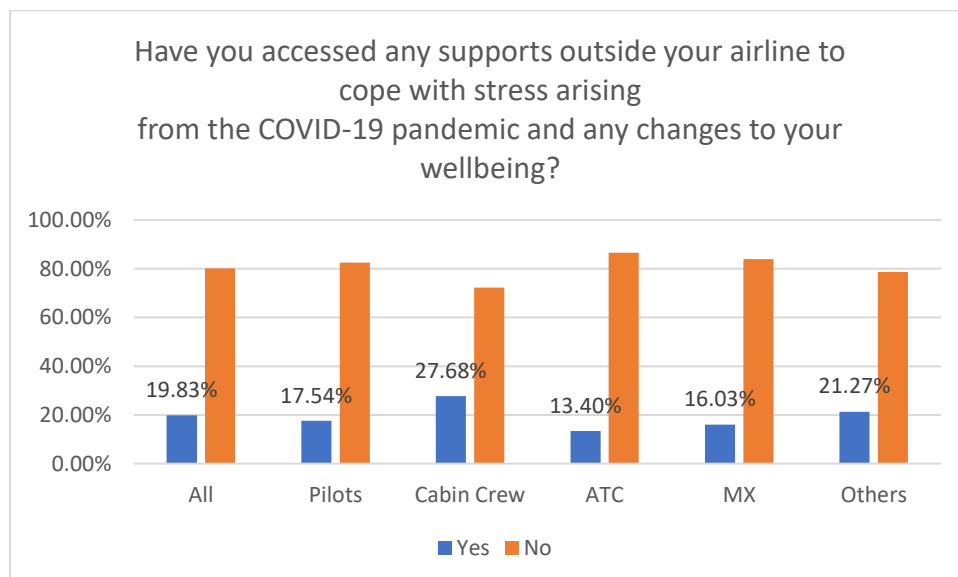
- One-way company communications
- Two-way communications (calls and meetings)
- Company Training
- Access to support
- Peer Support Service
- Employee Assistance Programme (EAP)
- Wellbeing clinics

- Changing working arrangements
- HIMS Programme (Alcohol)
- CISM Programme
- COVID safety protocols at work

Strong indication that would use supports if provided - 60% say would use if provided.

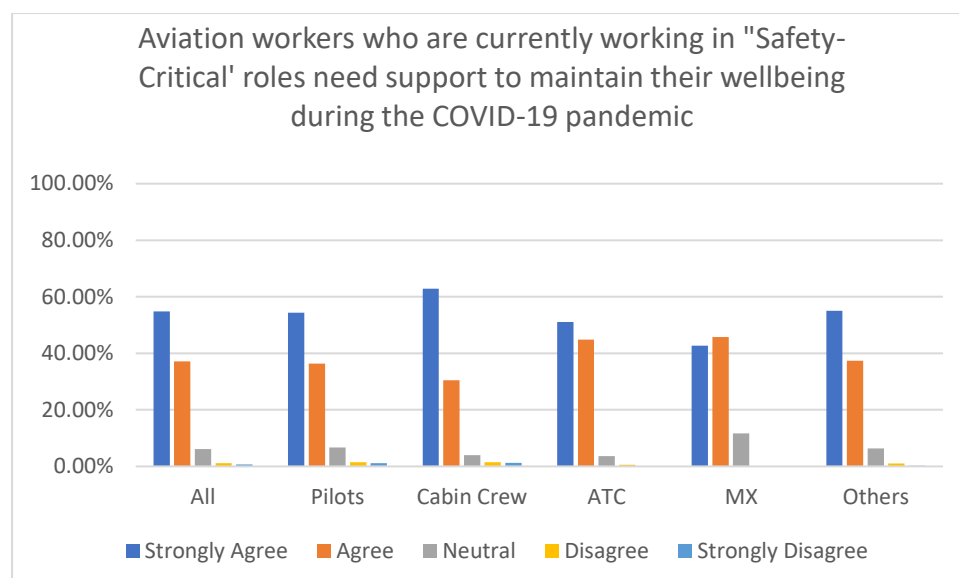


Very low use of outside supports - 19.83% accessed external supports – what help getting?

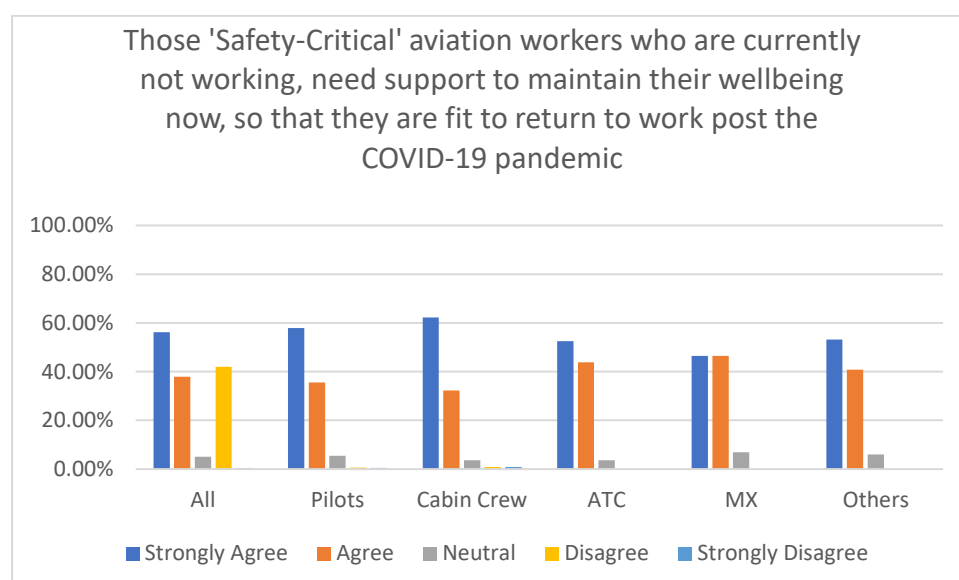


The survey also asked respondents about the requirements for supports to maintain their wellbeing.

Strong indication of need for supports for aviation workers in 'safety critical roles' and currently in work (**92% either strongly agree or agree that need support to maintain wellbeing during COVID pandemic**)

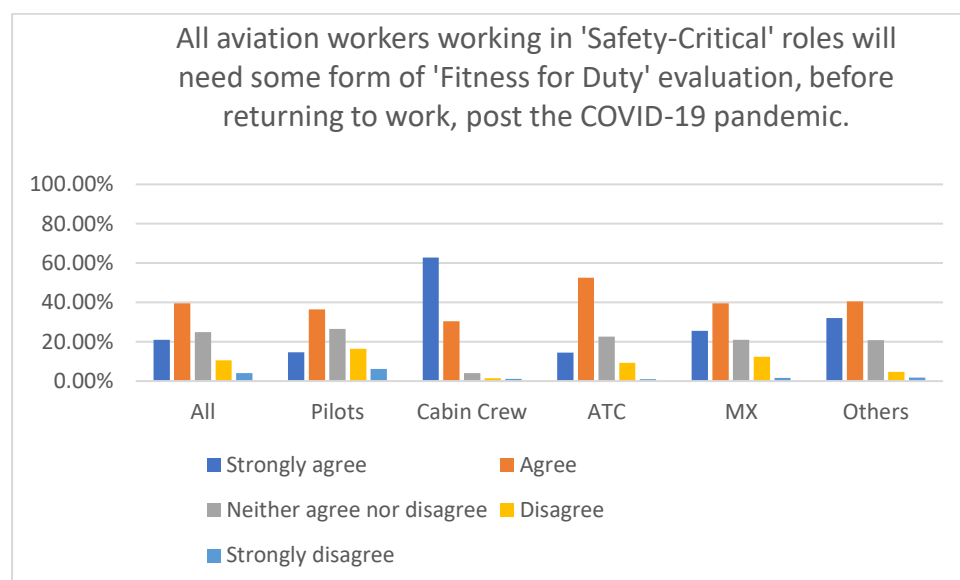
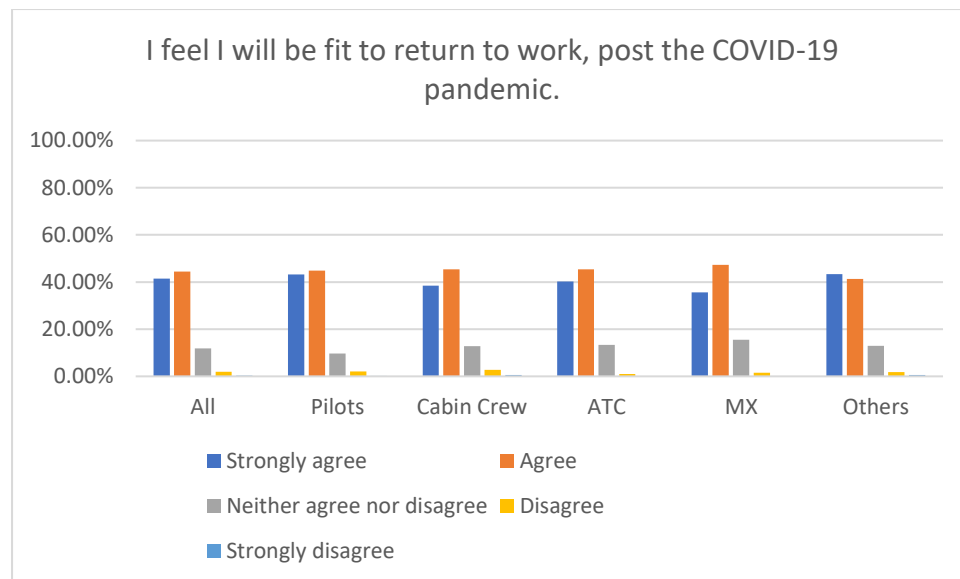


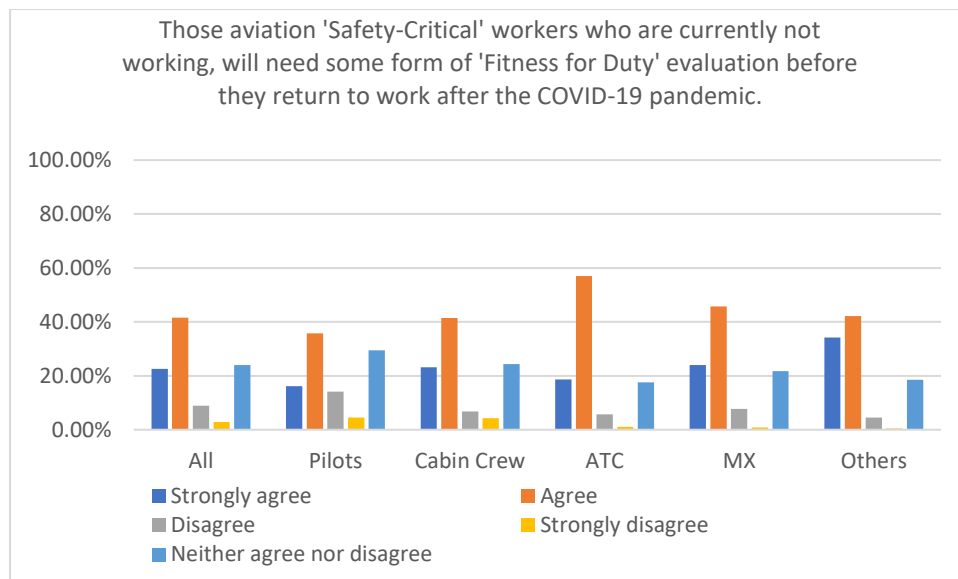
93% agree that those not working also need supports.



The survey also asked about fitness for work assessment.

- 86% agree or strongly agree fit for work.
- Strong indication of need for fitness for work assessment for all workers work – **61% strongly** agree or agree.
- Strong indication of need for same for those who are not working – 64%





Discussion

Case for change

The findings of the two surveys provide strong evidence of the need to change how wellbeing is managed by both aviation organisations and the regulator.

COVID negative impact on wellbeing – levels of burnout, high levels of anxiety, rise in depression levels. Also, perception that COVID worsened MH

Culture and mindset – 2018/2019 - pilots level – which links into fitness for fly – not feel safe to report problems, risk to licence - not motivated/incentivised to address – given fear of punitive consequences – impact on licence, on career progression.

Culture and mindset – 2020 – all aviation workers - similar issues for other aviation workers – not report to employer.

Aviation workers across different roles are practising self-care – this should be encouraged at all levels – linking to promoting a wellbeing culture and safe behaviour.

Not enough to focus on individual – must consider organisational role too.

Aviation workers clearly articulated requirements for wellness supports and fitness for duty assessment – something that aviation organisations need to provide.

Evidence that although aviation workers suffering –not using existing supports where available (EAP, Peer Support)

Indicator that existing supports at org level not fit for purpose.

Response from org during COVID – lack of support provided to staff.

Data raises question concerning perceived company values/priorities in relation to managing wellbeing.

Also, perception that wellbeing not a priority – cultural shift required – not acceptable.

Wellbeing not integrated in operational and org processes (SMS and training)

Negative outcomes for different stakeholders - wellbeing not being addressed at org level.

At Germanwings time -characterize as Wellbeing 0 – was not being addressed, largescale stigma, going unreported.

PreCOVID at Wellbeing 1 stage – not integrated in SMS, not preventative, but there is some level of awareness of issue and attempt to address (EASA IR)

Need to move to Wellbeing 11 – beyond EASA approach – predictive and preventative/SMS, wellbeing culture – endemic to org – focus on preventative, alleviation suffering, positive wellbeing.

Relationship between Wellbeing II and Safety II – focus on (1) what is happening in the operation (which includes what is going well), (2) using data to learn about what is going on and (3) preventative and proactive approach.

In line with CDC - involve a coordinated, systematic, and comprehensive approach – to promote the protective factors, reduce the risk factors, and prevent ill health (including mental ill heath).

Key part - wellbeing threats managed within SMS.

With increasing use of operational intelligence and reporting systems and machine learning/AI – opportunity to use technology to further enhance safety approach – intelligent SMS – which depends on reporting information across stakeholders – include operational personnel reporting on their wellbeing.

However, this will only happen if have strong safety/reporting culture – willing to disclose – SMS is dependent on wellness culture, safety culture, culture of reporting.

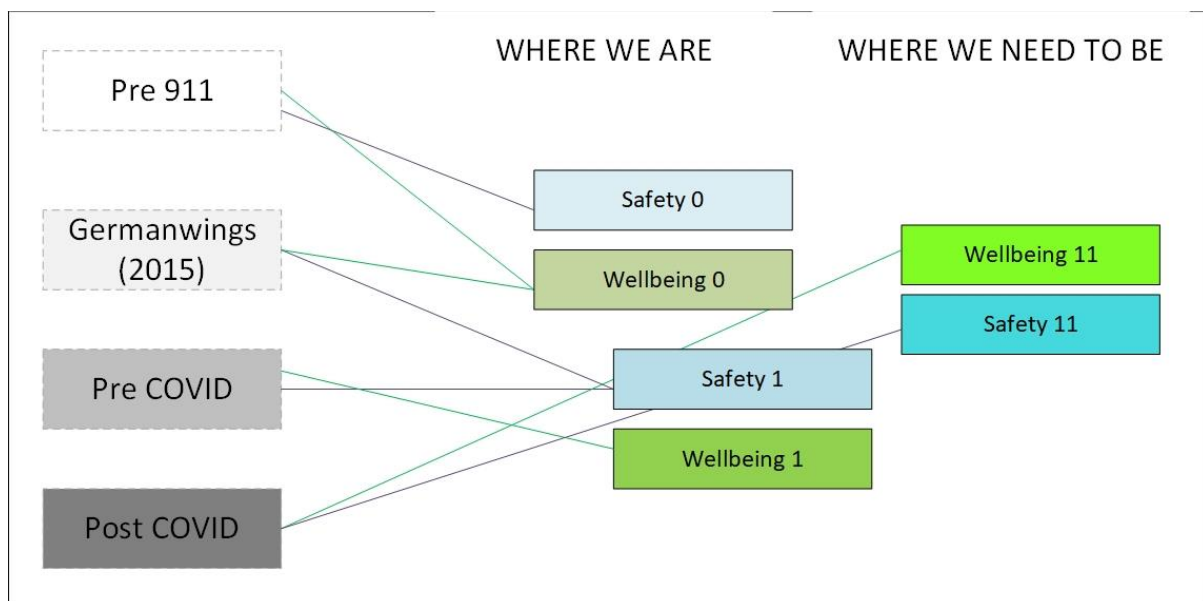


Figure 1: Timeline and locating Wellbeing II.

HF/Systems Approach to Addressing Wellbeing/Defining Wellbeing II

Firstly, it is argued that Using HF approach

Research starts with understanding and framing problem – first step before defining preliminary solutions, evaluate solutions and move onto implementation (HF approach)

Different stakeholders – all have roles in this.

Prior research by Cahill et al (2019, 2020) – framing of wellbeing problem – for pilots - see Appendix 1.

Apply same principle/structure for all aviation workers/orgs.

Validate prior research - Stakeholders include.

1. Aviation workers
2. Aviation organisations supporting them.
3. People & community supporting them.
4. Regulator
5. Aviation industry
6. Society
7. Government

Survey findings suggest that the three primary intervention areas concern three core stakeholder groups – aviation workers, aviation orgs supporting aviation workers and the regulator.

Also, validated problem space -with regulator and org values/priorities (culture) a big issue

- Dimension of the problem space
- Job demands, managing WRS & home/work interface.
- Attitudes to mental health and reporting problems.
- Coping strategies & behaviours
- Aviation organisation: culture & design of existing supports (training, EAP, peer support etc)
- Aviation organisation: approach to risk/safety management
- Regulator approach and aeromedical assessment
- COVID 19 Pandemic

Org Capacity, Regulation & Change

Difficult to motivate aviation organizations to change – in absence of IR compelling them to do so.

Tend to follow IR – compliance – currently, nothing mandating them to do so.

COVID situation – staff in more challenging situation and aviation organizations have less money for this/attention is elsewhere – maintaining the business – compounds the problem.

But still need to look after people – staff that will need when industry is back on its feet.

Changes requires leadership – led by regulator.

Motivate different groups to lead change.

Focus on benefits – individual employee level (lifestyle, quality of life, lived experience), professional level (safety), org level (safety, efficiency, motivated workforce)

Safety Culture & Wellbeing Culture

Main barrier – culture, linking to culture of reporting wellbeing/fitness for work.

No specific measure of wellbeing culture – we have made inferences based on survey data around levels of supports, attitudes of staff, COVID response.

Bring concept of wellbeing culture into safety culture.

Issues around aviation workers MH need to be destigmatized. Staff need to be encouraged to put their hands up if they are experiencing difficulties. Critically, staff will not do this if they believe the outcome will be punitive (i.e., loss of license, impact on career progression).

Aviation community understands the role of 'just culture' in relation to safety – wellbeing culture needs to be framed from this perspective - safe disclosure, psychological safety.

Evidently, this only means something if protected – enshrined in regulation/law.

Not enough to talk about 'just culture' – this needs to be supported by regulation that protects aviation workers – so that can disclose problem and/or seek help, without fear of this impacting on their licence and career progression.

Future Vision: Wellbeing II & Safety II

Vision

Wellbeing integrated in everything the company does – systems approach.

Systems perspective – people, process, training, culture, tools – cite CTW paper (Cahill, 2019)

Define at two levels – staff/employee and org levels – underpinned by regulation (third key level)

Within staff – consider individual and colleagues.

Leadership support – culture of health requires alignment of health and business objectives.

Requires an org function/role dedicated to this – steer policy, ensure governance etc.

Strong wellbeing culture – starts from this – staff safe to disclose problems/challenges – and protections/safeguards there – not going to happen without IR/regulatory protections.

In most cases, going beyond existing IR, but compatible with AMC and GM.

Table 4 below provides summary indication (i.e., yes/no) of the potential implications of these recommendations in relation to changes to existing the implementing rules (IR), acceptable means of compliance (AMC) and guidance material (GM) as documented by EASA (2019) is also provided.

Table 4: Summary Vision/Systems Approach

#	Socio-technical element	Staff/Employees	Organisation	Recommendations & Regulatory Change		
				IR	AMC	GM
1	Culture and values		MH issues for staff need to be destigmatized. Staff need to be encouraged to put their hands up if they are experiencing difficulties. Critically, staff will not do this if they believe the outcome will be punitive (i.e., loss of			

			license, impact on career progression).			
2	Process	Briefing processes – pre-flight (include wellbeing) New anonymous reports - wellbeing	Define new safety performance indicators in relation to management of staff WRS and wellbeing/MH. Advancement of new processes and tools to support risk assessment in relation to WRS. • Applying biopsychosocial framework • Integrated into SMS and reporting in relation to WRS. Gather data around WRS/wellbeing threats and include in risk assessment process. Wellbeing surveys			
3	Tools & Technology	New operational tools to enable wellbeing briefing, risk assessment and reporting – on duty. New tools to support wellbeing management for operational staff – off duty	Extension of SMS and allied reporting systems Extension of fatigue risk management systems to other biopsychosocial dimensions of wellbeing so that fatigue understood in context of relationship to other factors (i.e., diet, hydration, exercise)			
4	Training	Training on coping Training should focus on the less serious and more common physical and mental health issues and	Training organisational leadership re MH and culture initiatives addressing stigma Training Peer support and EAP staff –			

		conditions that can arise because of WRS (i.e., link to the job) Include training in risk identifying behaviour – as part of TEM. Training in self-management/taking responsibility for own health	wellbeing and managing challenges			
5	Environment					
6	Specific functions		EAP - implement a service focussing on preventing the onset of wellbeing problems. This might include an array of employee wellness activities to assist pilots with learning how to recognize and cope with stress in a healthy way. Development of wellness management services – yoga, meditations, groups to talk - require adaptation given the working schedule of aviation workers and fact that often work away from home.			

Wellbeing is embedded in operational and org processes – not something happens alongside.

Need to do further research to investigate what Wellbeing 11 looks like at an organisational level – specifically integration in SMS and feedback to SMS.

Different indicators for wellbeing culture – complex

Need evidence-based strategy – collect data about what is going on at different levels – workers, org – look at culture, reporting, use of supports.

Arguably, risks pertaining to worker WRS/wellbeing and their impact on performance and safety might be more adequately managed at an organisational level. Overall, field research results indicate that aviation org need to actively manage these risks and adopt a systemic approach to assessing and maintaining the health and wellbeing of staff both ‘on the line’ and at an earlier stage (i.e., recruitment and training). In accordance with safety management system approaches, specific

wellbeing issues and associated performance/safety risks need to be identified, prioritised, measured, and managed.

Concept in infancy – need to scope and implement (pilot implementation) – see areas for further research.

See as is and future system diagrams in appendices.

Capture operational data – reporting flows – make use of this in the operation – planning/rostering.

Evidence of self-management using technologies – potential for data collected by operational staff to be used in SMS – data on and off duty – cite technologies paper.

Key issue around management and protection of personal data – including health data.

Roles & Responsibilities

Who is responsible for what in Wellbeing II?

Table 5 below lists different stakeholders – role for employer and employee and others.

Firstly, shift in focus from employee to a greater emphasis on role of employer.

Concept of Responsible Society & Dignity in Work

Scenarios of people who have lost jobs – not fall between the cracks.

Role of community, of volunteer groups and of government – providing support.

Table 5: definition of roles & responsibilities

#	Stakeholder	Roles & Responsibilities
1	Individual/aviation worker	Behaviour and loops between what do in work/out of work Self-management Supporting colleagues Training and awareness
2	Aviation Organisation	At org level, changing requirements for different functions. • EAP • Peer Support • Occupational Health & Safety • Safety/Risk • Flight Planning & Rostering (Operations Management) • SMS (Safety II) Integration of functions Metrics report on wellbeing – link to business operations (efficiency/productivity/safety) Reporting culture – just, disclosure
3	People and communities supporting	

4	Regulator	Aviation Regulator – changes to existing IR – move to preventative approach, move to more protections for employees. Leadership to guide the change required – shepherd the different stakeholders. Wellbeing at centre of safety and operational policy/procedures Health and safety regulator As above
5	Society	
6	Government	

Wellbeing II and States

It is not a simple question of going from absence of health to good health or not coping to adaptive coping and resilience.

Life is complex – exist in the grey – spectrum of wellbeing at different times for person.

Rather frame as states to promote, to manage/mitigate and to avoid.

This includes states at (1) aviation worker level and (2) organisational level.

Table 6 provides some examples for aviation workers/employees. Table 7 provides some examples for aviation organisations.

Table 6: States (Employee Level)

State to Promote/Support	Manage/Mitigate/Reduce	Avoid
Wellness in work Psychological wellbeing in work	Work related stress/WRS, Anxiety in work, Pressure, Poor mental health in work	Worsening of health in work, Work contributing to health problems, Poor mental health, Presenteeism, Absenteeism
Fit for work (fatigue levels)	Fatigue	Exhaustion & Burnout
Healthy behaviour	Unhealthy behaviour	Unhealthy behaviour
Coping/adaptive coping, Self-management of health	Maladaptive coping	Maladaptive coping, Self-harm
Work/life balance	Work negative impact on home life. Work/home conflict.	No work/life balance. Work negative impact on home life. Work/home conflict.
Self-efficacy	Loss of control/agency	Post-neurotic subject at work

Identity in work	Loss of identity	Objectification of worker
Professionalism	Challenges to professionalism	Lack of professionalism
Safe and effective performance	Performance errors, Unsafe behaviour, Near misses (safety events), Minor safety events	Performance Errors, Safety events, Incidents, and accident in work

Table 7: States (Organisational Level)

State to Promote/Support	Manage/Mitigate/Reduce	Avoid
Healthy workforce	Health issues arising from stress in work, poor MH in work, absenteeism, presenteeism	Unhealthy workforce, absenteeism, presenteeism,
Acceptance of problem - need for change/wellbeing culture	Fear of problem. Failure to communicate about problem/challenges.	Avoidance of problem – case for change/case for addressing wellbeing culture
Positive attitude to change and organisational learning. Org learning/change – build resilience at different levels	Fear of change. Fear of conversations around wellbeing and MH – and requirement to address from organisational perspective	No change/no adapting to challenges
Safety culture, just culture	Fear of reporting	Lack of reporting, blame culture
Positive work culture, culture of attending to wellbeing, disclosing problems	Fear disclosing MH problems, poor communications between staff regarding health and wellbeing	Unhealthy work culture, lack of disclosure
Responsible business (CSR & positive contribution to society and environment)	Negative impact – people, society, environment	Negative impact – people, society, environment
Compliance with regulatory requirements	Compliance breach and penalties	Compliance breach and penalties

Wellbeing II & Key Concepts

Wellbeing – structuring concept for management of person in work (and by implication – safety)

Wellbeing II articulated in relation to these concepts – which unite and are relevant to all stakeholders – relevant to (1) them and (2) cohesion in their relationships.

Several common concepts to explore in context of managing problem of wellbeing -at individual and organisational level.

- Responsible work
- Dignity at work
- Duty of care/responsibility
- Compassion
- Safety Oversight
- Professionalism and safe performance
- Trust
- Just culture
- Psychological safety

Responsible work concepts - work should be designed to benefit all stakeholders.

This includes employers, employees, and society. This follows from the argument that social justice is a basic premise for quality of employment and quality of life and associated concepts such as 'Corporate Social Responsibility', 'Decent Work' and Tripartism .

Avoid precarious work – have job security – company employ you has responsibilities.

Dignity at work is the principle of maintaining a healthy, safe, and enjoyable place to go about your employment.

Dignity is fundamental to wellbeing.

Roles and responsibilities on different sides

Role here for employer – processes and procedures that address wellbeing - addressing lived experience and sources of WRS – work should not be detrimental to other spheres of your life.

Professionalism

Fitness for duty

Relationship trust, just culture and psychological safety

Concept of Safety Behaviour, Professionalism & The Right Stuff

Concept pertains to both people and organisations – in same way as talk about resilience.

Safety behaviour concerns

- Individual – what do in work and outside work
- Org – how support employees in terms of promoting wellbeing and embedding it in org and op functions.

Professionalism and the right stuff – possible to change the narrative and not focus simply on the individual. Think about the concept across 'the problem space – about roles and responsibilities (for people themselves, for org, for those supporting them). Changing narrative around org responsibilities and role

Org – not just recruitment/psychometric tests based on idea of right person and think responsibility ends there...select in and select out criteria.

About supporting people – wellbeing culture, about training in coping, about processes that enable wellbeing (integrated in operational/org way of work)

Setting people up for success

Aviation workers have responsibilities – self manage, cope, awareness.

Aviation workers who are practicing self-care are example of the right stuff – experience challenges and coping.

The right stuff is the right org with people who are being supported & self-managing (right stuff)

Methodologies to Define Wellbeing II (Storytelling & Scenarios)

HF methods – focus on the person – using stakeholder evaluation methods.

Participatory approaches to define requirements (Bødker & Burr, 2002)

Often involve use of personae (Pruitt) and scenarios (Carroll, 2005)

Key tenet of HF – learn about requirements through implementation – address motivations, enablers, and barriers from different stakeholder perspectives.

Adopt these approaches to elaborate on the principles and requirements for Wellbeing II – with a focus on implementation.

Story is about sustainable people centred operations which reflects a balance across the triple bottom line.

As such, evaluating whether an organisation has fulfilled its obligations in relation to ‘Wellbeing II’ enables the completion of a ‘balance score card’ which defines how an organisation is addressing the triple bottom line – people, profit, and the planet.

Define three high level scenarios for Wellbeing II – (1) preventing suffering, (2) managing suffering and (3) promoting positive wellbeing.

Table 8 provides some example scenarios linked to each of these high-level scenario types/taxonomy - links to literature on wellbeing scenarios.

- TCD scenarios (impact of wellbeing on performance and safety)
- FSF 3 scenarios – in work, out of work, returning to work (COVID context)

Table 8: Example story telling scenarios and outcomes.

#	High level classification of scenarios	Example Scenario
1	Preventing suffering	ATC/Pilots – adapting to new shift/roster (change in lifestyle/habits)
		Pilot reports to Line Manager that is struggling to manage home/work interface – not spending enough time with family/roster design
		MX/Engineer Line Manager not supportive of staff talking about wellbeing/MH & challenges
2	Managing suffering – different levels of severity	Cabin Crew – finding job stressful and high levels of exhaustion
		During flight, Captain declare to FO that marriage breaking up and is struggling
		Pre-flight briefing, First Officer is unwell/unstable, but will not self-declare as unfit to fly
3	Positive wellbeing	

Preliminary scoping of this concept involves (1) defining roles and responsibilities for core stakeholders, (2) describing mechanisms in relation to how wellbeing is managed (i.e., managed from perspective of organisation's operational and org processes – span policy, training, process, technologies (including SMS) etc, (3) defining states to be achieved at individual and org level – see earlier section and (4) defining expected outcomes across triple bottom line.

In relation to (1) looking at scenarios from 3 different perspectives – (a) individual/operator – includes the person suffering and their colleagues, (b) organisation, and (c) regulator.

Limitations & Areas for Further Research

COVID survey - convenience sample, cross-sectional data, which is a weakness.

COVID survey – data taken from August 2020 data – dynamic situation is – situation of aviation workers may have dis-improved since then.

Need to examine concept of wellbeing culture in more detail - pursue measure of wellbeing culture in context of broader concept of safety culture – area for further research.

Need to investigate what Wellbeing II concept look like at org level – research with stakeholders.

Stakeholders will have differing perspectives. These perspectives influence how they think about the problem and the solution. Thus, we need to engage all stakeholders to find the best possible solution for all.

Need to work with regulator – addressing change.

Next steps - coping and pilot implementation with aviation company – with regulator support.

Conclusions

General:

Evidence of wellbeing challenges – situation of pilots – got worse (comparison of these groups across two surveys)

Similar trends/issues – for other aviation workers

Addressing wellbeing - using HF/systems approach

Defined problem space in relation to 7 levels

Roles and responsibilities on different sides

The roles and responsibilities of different stakeholders (i.e., workers, organisations, regulator, society/charities, government) in relation to managing wellbeing require rethinking and clarification.

All stakeholders need to identify a path to integrating different wellbeing functions within aviation organisations (i.e., peer support, EAP, safety/risk management, health promotion) - linking to aeromedical assessment and regulation. This might be 'guided' by the regulator.

Specifically, need new vision/culture requiring changes at (1) regulatory, (2) organisational and (3) individual level – key levels where have leverage for change.

Further, focus on positive wellbeing – framed in relation to positive wellbeing and associates states at different levels (individual and org)

Requirement to integrate different wellbeing functions across aviation org.

Safety culture is important but not properly defined – to include wellbeing.

Wellbeing culture part of safety culture - this can include risks associated with WRS.

Leadership support – culture of health requires alignment of health and business objectives.

Promote safety culture/wellbeing culture – requires change at different levels.

Different indicators for wellbeing culture – complex

Need evidence-based strategy – collect data about what is going on at different levels – workers, org – look at culture, reporting, use of supports.

In line with CDC - involve a coordinated, systematic, and comprehensive approach.

Promote the protective factors, reduce the risk factors, and prevent mental ill health.

Concepts of worker wellbeing/worker wellness in aviation companies – defined somewhat negatively.

Aviation organisations need to address issues pertaining to their wellbeing culture – promoting healthy behaviour, supporting disclosure around mental health issues/challenges, promoting awareness of MH.

SMS only work if safety culture, reporting culture, wellbeing culture – otherwise no proper data to measure wellbeing risk.

Look at training.

Further, need to look at supporting workers – self management.

- Healthy behaviours and practice of coping strategies – on the rise
- Resilience becoming part of the public debate/conversation.

Organisations and workers need to manage specific sources of stress (including work related stress) and anxiety, and specific impact of COVID 19 on aviation workers.

Aviation workers across different roles are practising self-care – this should be encouraged at all levels – linking to promoting a wellbeing culture and safe behaviour.

The regulator needs to address the timeline for new regulation in relation to the management of wellbeing and mental health for safety critical workers – this cannot be postponed.

Society and government need to address the provision of health supports for those who are no longer in employment (i.e., with no access to organisational supports which may have been previously used).

Further research required to develop this Wellbeing II approach and identify what embedding wellbeing in SMS looks like

COVID Specific

Those people who have lost their jobs and/or are experiencing MH difficulties require immediate support.

Aviation organisations need to rethink their objectives and approach in terms of providing appropriate wellbeing supports for those currently in work and off work.

Fitness to work assessment is required for those currently working and those returning to work.

Org Strategic

Accountability across the triple bottom line – economic, society and ecological

Balance score card – wellbeing drives this.

Wellbeing Culture & Safety Culture

No specific measure of wellbeing culture – we have made inferences based on survey data around levels of supports, attitudes of staff, COVID response. Need to examine this and pursue measure in context of broader concept of safety culture.

Wellbeing & Tech

With increasing use of operational intelligence and reporting systems and machine learning/AI – opportunity to use technology to further enhance safety approach – intelligent SMS – which depends on reporting information across stakeholders – include operational personnel reporting on their wellbeing.

Acknowledgements

Over 3,000 aviation workers who have been involved in our research to date.

FSF – Harry Nelson

RAeS – Mark Atherton and Sarah Flaherty

EASA – John Franklin

AsMA – David Schroeder

References

Baxter, Gordon & Sommerville, Ian. 2011. Socio-technical systems: From design methods to systems engineering, *Interacting with Computers*, Volume 23, Issue 1, January 2011, Pages 4–17, <https://doi.org/10.1016/j.intcom.2010.07.003>

Besèr A, Sorjonen K, Wahlberg K, Peterson U, Nygren A, Asberg M. Construction, and evaluation of a self-rating scale for stress-induced exhaustion disorder, the Karolinska Exhaustion Disorder Scale. *Scand J Psychol*. 2014 Feb;55(1):72-82. doi: 10.1111/sjop.12088. Epub 2013 Nov 15. PMID: 24236500; PMCID: PMC4235404.

CCD, Workplace Health Model. <https://www.cdc.gov/workplacehealthpromotion/model/>

Dekker, Sidney (2018). *Just Culture: Balancing Safety and Accountability*. Ashgate Publishing.

Demerouti E., et al. Burnout among pilots: psychosocial factors related to happiness and performance at simulator training. *Ergonomics*. 2019;62(2):233–245.

John Elkington, "Towards the Sustainable Corporation: Win-Win-Win Business Strategies for Sustainable Development," *California Management Review* 36, no. 2 (1994): 90–100

Goldhagen B.E., et al. Stress and burnout in residents: impact of mindfulness-based resilience training. *Advances in medical education and practice*. 2015;6:525.

Goetzel, R.Z., Ozminkowski, R.J. The health and cost benefits of work site health-promotion programs. *Annual Review of Public Health*. 2008;29:303-323

International Standards Organisation (ISO). 2020. Standard 6385 Available from: <https://www.iso.org/standard/63785.html>.

National Institute for Occupational Safety and Health (NIOSH). (2008). The Essential Elements of Effective Workplace Programs and Policies for Improving Worker Health and Wellbeing. <https://www.cdc.gov/niosh/docs/2010-140/pdfs/2010-140.pdf>

OECD. (2021) Better Life index. <http://www.oecdbetterlifeindex.org>

OECD (2020), "Executive summary", in How's Life? 2020: Measuring Well-being, OECD Publishing, Paris. DOI: <https://doi.org/10.1787/ea714361-en>

OECD (2020), How's Life? 2020: Measuring Well-being, OECD Publishing, Paris, <https://doi.org/10.1787/9870c393-en>.

Seligman, Martin. Flourish. (2011) Penguin Random House Australia.

Reason, J. (1998) Achieving a safe culture: theory and practice Work and Stress, 12, 293-306.

WHO-5 Well-being Index (1998)

WHO healthy work model.

[https://www.who.int/occupational_health/healthy_workplaces/en/#:~:text= The WHO healthy workplace model: a comprehensive,3 broader social and environmental determinants.](https://www.who.int/occupational_health/healthy_workplaces/en/#:~:text=The WHO healthy workplace model: a comprehensive,3 broader social and environmental determinants.)

WHO healthy work model

https://apps.who.int/iris/bitstream/handle/10665/44307/9789241599313_eng.pdf;jsessionid=0E204EC9C545F5DD6FBF1A30350771E7?sequence=1

World Economic Forum. <https://www.weforum.org/agenda/2020/01/mental-health-workplace/>).

Simionato, G., K. & Simpson, S (2018), Personal risk factors associated with burnout among psychotherapists: A systematic review of the literature. Journal of Clinical Psychiatry. <https://doi.org/10.1002/jclp.22615>

Appendices

Appendix 1: Survey 1, Topic, Questions & Measures

Table 9. Survey 1 – Topic, Questions & Measures

#	Topic	Research Question	Measures
1	Job Satisfaction. Sources of WRS. Experience of WRS		• Job satisfaction • Job balance/home work interface • Experience of Work-Related Stress • Sources of Work-Related Stress
2	Job & Lived Experience. Job and Ability to Establish Health Behaviour.	What is the impact of the job on wellbeing (including sleep, diet, activity, social interaction, family life etc)?	
3	Overall Health & Wellbeing		• Overall satisfaction with life • Physical wellbeing • Mental wellbeing
4	Impact of Job and Health & MH	What is the impact of the job on a pilot's health and wellbeing? What is the impact on their mental health?	•
5	Depression	What is the prevalence of depression in pilots?	• PHQ 9
6	Burnout		• Oldenburg Burnout
7	Impact of job on performance and safety	What is the impact of the job on crew performance and flight safety?	• Impact on performance • Impact on performance and potential to impact on safety
8	Attitudes to MH & disclosure	Attitudes to MH and talking about MH? Willingness to disclose MH issues to others & employer.	• Talking about MH • Who talk to? • Attitudes to disclosing MH issues. • Willingness to disclose to others. • Willingness to disclose to employer. • Willingness to seek help.

			• If sought help/talked to others previously
9	Coping Methods	Are Pilots coping? What strategies enable some pilots to cope better than others?	• Use coping methods for stress in general. • Use coping methods for work related stress. • What methods use
10	Wellbeing Culture	Is wellbeing a priority for organisations? Are existing organisational supports fit for purpose? Willingness to disclose MH issues to employer.	• Company cares about person's wellbeing. • Company/airline support for wellbeing/MH • Wellbeing as a priority for the company/airline

Appendix 2: Survey 2, Topic, Questions & Measures

Table 10. Survey 1 – Topic, Questions & Measures

#	Topic	Research Question	Measures
1	COVID 19 Pandemic and impact on wellbeing	What is the impact on aviation worker wellbeing and mental health?	• Rating of wellbeing - physical • Rating of wellbeing – psychological and emotional • Rating of impact of COVID on mental health • Impact on mental health – depression (PHQ 9) • Impact on mental health - anxiety (GAD 7)
2	COVID 19 Pandemic and impact on job and employment	What is the impact in terms of job/employment?	• Financial wellbeing • Job loss • Employment terms (reduced salary/hours) • Perception of job security • Confidence in future for company
3	COVID 19 Pandemic and impact on performance and safety (individual level) and safety oversight (organisational level)	What is the impact on (1) performance and (2) flight safety?	• Perception of fitness to do the job. • Impact on engagement • Impact on safety behaviours/procedures • Rating of change in relation to company safety practices since COVID • Rating of change in relation to regulator safety oversight since COVID
4	COVID 19 Pandemic and self-care/seeking help	Are aviation workers coping? Demonstrating healthy behaviours? Seeking help, if needed?	• Use of coping strategies (self-management)? • Willingness to seek support/help if needed? • Willingness to use organisational supports if provided? • Existing use of organisational supports – if provided? • Use of supports/services outside organisation
5	Attitudes to MH & disclosure	Attitudes to MH and talking about MH? Willingness to disclose MH issues to others & employer.	• Talking about MH • Attitudes to disclosing MH issues. • Willingness to disclose to others. • Willingness to disclose to employer

6	COVID 19 Pandemic, requirements for support and organisational wellbeing culture	Is wellbeing a priority for organisations? Are existing organisational supports fit for purpose? Willingness to disclose MH issues to employer.	• Perception of whether wellbeing is a priority for worker's organisation. • Provision of peer support • Are organisations providing wellbeing supports – since COVID? • Are existing supports being used by aviation workers? • Willingness to disclose MH issue to employer
7	COVID 19 Pandemic, remote work, impact, and change	What has the experience of remote work been like for aviation workers? How has it impacted their work and home/work interface?	• Perception of impact on productivity • Perception of impact on workload • Perception of impact on work efficiency • Perception of impact on teamwork • Perception of impact on home/work interface
8	COVID 19 Pandemic and need for supports	Do aviation workers in safety critical roles need support in relation to maintaining their wellbeing during pandemic (1) currently working, (2) currently not working	• Perception of need for supports for workers currently in work. • Perception of need for supports for workers currently off work
9	COVID 19 Pandemic, return to work and requirements for aeromedical assessment	Do aviation workers need require some form of fitness to work assessment on returning to work	• Requirements for all • Requirements for safety critical workers

Appendix 3: Framing Problem

Table 11. Framing the Problem

#	Level	Description	Example Problems
1	Worker level (lived experience, practices/behavior, culture)	In work Outside work Home/work interface	Attitudes to mental health Health behaviors amongst pilots Machoism and culture Reporting and disclosure culture
2	Aviation Org	Sociotechnical system level—processes, training, technologies, business model, and culture and values Link to wider aviation community and industry	Inflexible working schedules Presenteeism, restrictions on sick leave and difficulties reporting sick. Machoism and culture Reporting and disclosure culture Nature of airline Employee Assistance Program (EAP) and access to support Design of existing safety management system (lack of focus on risks relating to the human factor)
3	Community and social system	Public expectations, pricing, 24/7, health system, and access to support	Public expectations, pricing, 24/7, also health system and access to support
4	Health and safety in work (regulator/regulation)	Health and safety authorities at national and European level	Current strategy for evaluating WRS. Current strategy for managing psychological wellbeing in work and associated stress
5	Aviation regulator and regulation	Aviation authorities at national and European level	Regulation pertaining to safety/risk management, HF management, wellbeing and mental health monitoring and assessment. Design of existing regulation—mental health assessment, aeromedical assessment
6	Broader aviation industry	Technology providers, aircraft manufacturers, insurance companies	Current process for insuring airlines—flight safety, human assets/pilots

Appendix 4: Word clouds (2020 Survey, Company COVID Support)

Word clouds Frequency 2



Word clouds Frequency 10



Word clouds Frequency 20



Word clouds Frequency 20



Appendix 5: Org Supports (COVID)

Table 12. Company Supports (internal)

#	Classification	Examples/Quotes
1	One-way company communications	Email/newsletter communications (regular updates to staff) - situation updates, wellbeing documentation, signposting to staff re services
2	Two-way communications (calls and meetings)	Virtual team meetings and briefings
		Check in calls (daily, weekly)
		Virtual coffee catches up meetings/social
		Outdoor meetings (gatherings, runs)
		Occupational health and safety - meetings
		Fleet captains
		HR meetings
		Line Manager meetings
3	Company Training	Training - awareness/MH, self-care, managing stress, mindfulness
		Access to online resources (COVID guides, information about supports/help, information about MH and wellbeing)
		Workshops (stress, wellbeing)
		Webinars/advisory sessions (online)
4	Access to support	Confidential company phonenumber

		Company psychologist (MH Support)
		MH First Aid
		Financial advice
5	Peer Support Service	
6	Employee Assistance Programme (EAP)	
7	Wellbeing clinics	Clinic/check-in
		Exercise class
		Yoga class
8	Changing working arrangements	Flexible WFH arrangements
		Time off work
		Flexible working hours
		Equipment to work from home
		Cycle to work?
		Facilities/hotels (better sleep)
9	HIMS Programme (Alcohol)	
10	CISM Programme	
11	COVID safety protocols at work	General COVID procedures
		Temperature testing
		COVID testing
		COVID safety procedures

Table 13: Outside Services (Paid for by Company)

#	Primary classification	Examples
1	Mental Health	Counselling with Psychologist
		Training from stress management therapist

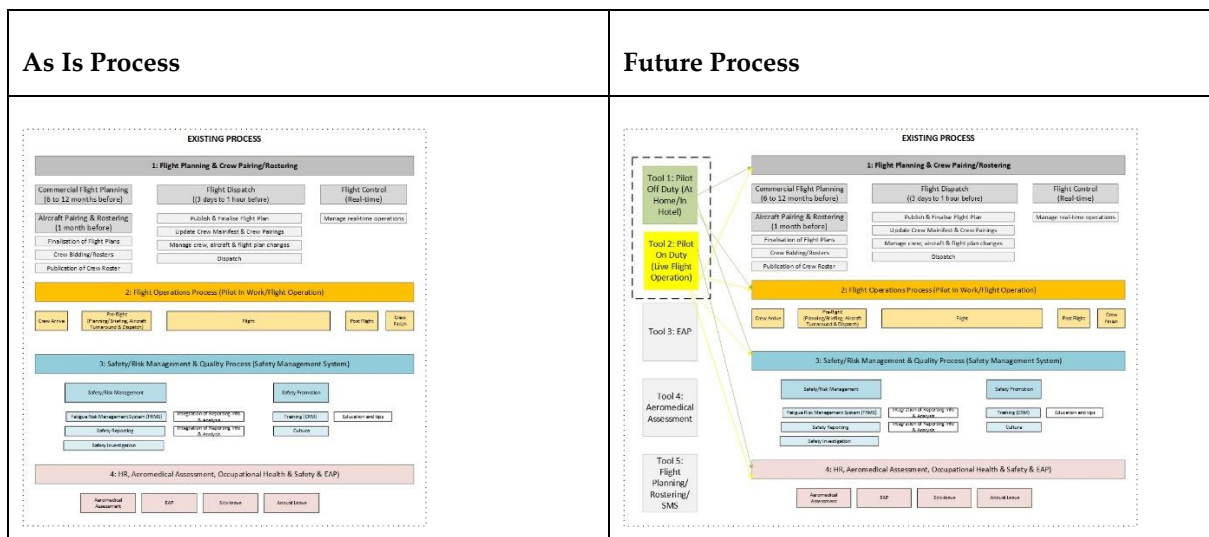
		Helpline - psychological support from trained professionals
2	Physical health support	GP/Medical Assistance

Table 14: Support Outside Company

#	Primary classification	Examples
1	Union	Pilot Advisory Group (Union)
2	Support networks	Peer Assistance Network (PAN)
3	Apps	Mindfulness Apps, Headspace

Appendix 6: As Is & Future Process (Embedding Wellbeing in Org)

Update with Process Definition – Integration across different levels.



Appendix 8: Coping Strategies (2018/2019 Survey)

Word clouds Frequency 2



Word clouds Frequency 3



Word clouds Frequency 5

