
Development and psychometric assessment of a Pilot's Wellbeing Scale: A study on Indonesian commercial pilots

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Abstract

Flight success and accidents rely on the pilot's condition. To date, there is no psychometrically tested instrument to measure the psychological well-being of pilots. This study aims to develop items for measuring the well-being of commercial pilots in Indonesia. The constructs, dimensions, and indicators were formulated through literature reviews and interviews with pilots about their well-being. We develop well-being as a state in which a person feels positive, healthy, prosperous, comfortable, and valued in their work, able to control and contribute to the social environment. The instrument conveyed six dimensions, namely (1) positive emotion, (2) health, (3) competence, (4) recognition, (5) work security, and (6) social relationship. We implemented summated rating scale model (Likert's scale) to write 80 items on a 6-point scale. The scoring was from 1 (never/strongly not agree) to 6 (almost always/strongly agree); the scores for the unfavourable items were reversed. We applied CVI and SCVI methods to examine the instrument's content validity, corrected-item total correlation to test the item homogeneity, and Cronbach's alpha formula to assess the scale reliability. In content validity, we included two psychometrics experts and one well-being expert to evaluate the items' quality via qualitative and quantitative methods. In the qualitative approach, the expert appraised the item's sentence: whether it derived from the indicators, dimensions, and construct, and whether the sentences were comprehended. In quantitative form, the experts assigned scores from 1 to 4, indicating the item's relevance with the construct, clarity, simplicity, and freedom of ambiguity. We recruited 117 commercial pilots via convenience sampling. The content validity testing suggested that 31 items should be revised. The quantitative test showed satisfying results with a CVI average for the relevance aspect of 0.92 and an SCVI/UA of 0.93. Based on the content validity assessment, we decided to retain 62 items. Next, the corrected item-total correlation revealed that 61 items were homogenously measuring the construct. Finally, the reliability testing indicated satisfactory reliability with an alpha of 0.95.

Introduction

Background

Humans are one of the main factors causing plane crashes, apart from technical and environmental factors. According to aviation accident investigation data in 2010-2016, humans are responsible for 67.12% of accidents (NTSC, 2016). As an aircraft operator, the pilot is fully responsible for the condition of the aircraft, ensures the safety of passengers and cabin crew during the flight, is administratively responsible for everything that happens during the flight, and decides on rescue operations (Nrangwesti, 2011). According to Syabilah et al., (2015), the burden and work demands for the pilot are very high, especially for commercial airplane pilots, one of the professions with the highest stress levels in the world. According to Wilson et al. (2022), pilots have better health status than the general group because of work demands that encourage pilots to always be in top shape (fit). However, being a pilot is a profession with high risk. Their work conditions include irregular work patterns, fatigue, exposure to cosmic radiation, irregular mealtimes, and the mental stress demands associated with flight safety, noise, vibration, and cabin air quality. According to the Indonesian Aviation Health Center, the results of examinations on 20,100 cross-class pilots in September 2019 showed that 2,023 pilots should have to re-check their health because they were in an unacceptable condition. (Antara, 2019). However, the examination results were limited to a physical examination and did not include a psychological assessment. Even though the pilot's wellness guide states that well-being comprises physical, psychological, and social health, the comprehensive measurement will enable pilots to manage stress well to increase their work performance. (Flight Safety Foundation, 2020).

The German Wing 9525 plane crash is one event caused by human factors. This accident happened because the pilot attempted suicide during his flying assignment due to a mental health disorder that the aviation health agency did not identify (Branch, 2021). In Indonesia, plane crashes have been repeatedly found due to human factors, for example, the crash of the Lion Air JT 904 in the Bali Sea. In that incident, the pilot claimed to have experienced hallucinations during the landing (Torrence, 2018). Another example is the crash of Air Asia QZ 8501 in the Java Sea due to miscommunication between the two pilots on the flight (Bellamy, 2015). The most recent incident was the crash of the Boeing 737-800NG aircraft owned by China Airlines in March 2022. The analysis of the Flight Data Recorder and Cockpit Voice Recorder revealed an allegation that the pilot deliberately crashed the plane. (BBC News, 2022). We assume that one reason for these incidents is the lack of regular mental health testing/evaluation conducted by aviation health agencies.

Since the German Wing 9525 incident, the world's aviation health agencies have a well-being guide to guide pilots in managing their physical, mental, and social well-being is a state of a person who is happy because he is healthy, has good education and wages, is optimistic, free from worry, is religious, confident, and has good insight. By paying attention to pilot well-being, international aviation agencies plan to improve the performance of pilots and maintain security and safety in air transportation. Still, even though the guideline has mentioned it, there is no specific training or follow-up and evaluation of the success of the well-being guide.

Aim of the study

Considering the need for a well-being assessment, we developed an instrument measuring the pilot's well-being. This study aimed to test the psychometric elements of the instrument items comprising the item's validity and test reliability. The measurement tool is prominent because it includes the work and life context welfare aligned with the Flight Safety Foundation standard (2020).

Well-being

We specified the dimension of pilot well-being based on an analysis of several well-being perspectives and theories (Huppert & So, 2013; Page & Vella-Brodrick, 2013; Seligman, 2011). We define well-being as a state in which a person feels positive, healthy, prosperous, comfortable, and valued in their work, can control, and contribute to his social environment and can develop himself.

Dimensions

1. *Positive emotion*: positive emotions involve comfortable and enjoyable life, hope, happiness, and life satisfaction. Positive emotions are exemplified by feeling happy and hopeful. Positive emotions can consciously direct a person's feelings for the better, increase resilience, and reduce stress.
2. *Health*: healthy physical, mental, and spiritual state. It entails practicing a nutritious diet, moving regularly, having quality sleep, and maintaining cleanliness. Individuals with high well-being will maximize their energy to keep moving and choose healthy behaviors even though they feel busy.
3. *Social Relationship*: making the best use of time to form a balance activity between work and personal life (work-life balance). Individuals have social networks that support each other.
4. *Receive recognition*: acknowledgment for good performance. Here, the employee has positive feelings toward work and life because they receive appreciation and acknowledgment from the organization and others for their excellent performance. They feel that they are valued and accepted by their families and superiors. They gain the appropriate amount of wages, benefits, and rewards.
5. *Competence*: Individuals feel that they have good abilities to carry out their duties. A belief that they can think clearly, concentrate, and make good decisions.
6. *Job security*: Security is an employee's satisfaction with the work position and having a sense of security in the work position.

Method

Item development phases

The development of the instrument follows the stages of constructing a psychological measurement tool described by Crocker and Algina (2008):

1. Collect behavioral characteristics of well-being from literature studies and interviews with pilots.
2. Formulate the instrument specifications (item statements and responses)
3. Writing the items.
4. Content validity testing.

5. Revise the item based on content validity testing.
6. Collect data for construct validity and reliability testing.
7. Test the validity and reliability.

Statistical method for construct validity and reliability testing

In this study, we implemented content validity, construct validity, and reliability. The content validity testing involved several experts and participants. The evaluation by experts involves quantitative (content validity index) and qualitative assessments. In quantitative assessment, the experts reviewed by using a 4-point rating scale whether the statements were relevant to the indicator, domains, and construct. Whether they were clear sentences, simple and easily understood, and unambiguous. Scores 1 and 2 indicate inappropriate quality, while scores 3 and 4 describe a good-quality item. We calculated the index at the item (I-CVI average) and scale level (S-CVI/UA). S-CVI/UA (universal agreement) is the percentage of the total number of items that get a score of 3 or 4 from all experts (Grant & Davis, 1997).

Meanwhile, S-CVI/AVE is the average value of I-CVI for all items in the measuring instrument (Polit & Beck, 2006). The participants can evaluate whether the items are relevant to them, readable - easily comprehended, and unambiguous. They can tell the construct of the scale with their understanding and words. Their explanation may help us identify the scale's construct from the participants' perspective.

We applied the internal criteria analysis in construct validity testing by employing corrected item-total correlation. The total score represented the scale's construct because it is a cumulative score from each item presenting the construct's behavioural indicators. It is said "corrected" because we subtract the total score from the item score that is being analysed. This technique can make the two variables (item and total scores) independent. We employed the Pearson correlation to test the items. The decision to retain or reject the items used r-critical values that depend on the number of participants (Gravetter et al., 2018).

The reliability testing included Cronbach's Alpha method. We employed the standard of 0.70 to affirm the scale's reliability (Anastasi & Urbina, 1997). We need to test whether the items measure the construct consistently. In the data analysis, we utilized the JASP ver. 0.14.3.

Participants

We recruited 117 pilots from national commercial airlines via the convenience sampling method. All the participants have an active flight certification. Most participants are males (N=79, 69.9%) from 22 to 63 years old. They have been working as a pilot for six months to 39 years (M = 9.38, SD = 8.03). We distributed the scale to participants online.

Item specification

We applied a summated rating scale method for item writing by using a 6-point rating scale that participants should choose one response option from "Very disagree /never" (score 1) to "Very agree/almost always" (score 6).

Result

Items

We draft 80 items deriving from six dimensions. Table 1 describes examples of the scale.

Table 1. Sample of items from each dimension

| Dimension | No. | Items |
|-------------------------|-----|--|
| Positive emotion (P) | 1. | I am happy with my life as a pilot (disagree-agree) |
| | 2. | I am proud as a pilot (disagree-agree) |
| Health (H) | 3. | I have trouble sleeping with a regular pattern (never-almost always) |
| | 4. | My current physical condition is fit as a pilot (disagree-agree) |
| Competent (C) | 5. | I can control an emergency during my duty (never-almost always). |
| Receive recognition (R) | 6. | In decision-making, opinions of all levels of positions in my airline are listened to (disagree-agree) |
| Job security (K) | 7. | I feel my future is guaranteed with my profession as a pilot disagree-agree) |
| Social relationship (S) | 8. | I have many friends who give positive support to me (disagree-agree) |

Content validity testing

We incorporate three experts to evaluate the items. Two of the experts were psychological measurement specialists, and one expert was a well-being researcher. We also involved one experienced pilot as a participant in readability and face validity testing. Table 2 describes the result of the quantitative analysis of content validity testing.

Table 2. Content Validity Index of Pilot's Well-being Scale

| Aspects | I-CVI average | S-CVI/UI |
|----------------------|---------------|----------|
| Relevance | 0.92 | 0.93 |
| Sentence clarity | 0.89 | 0.80 |
| Sentence simplicity | 0.87 | 0.75 |
| Sentence unambiguity | 0.89 | 0.81 |

Data in Table 2 showed that the relevance aspect of the items was above 0.90 (recommended ≥ 0.90 (Waltz et al., 2016) which means the items were valid, representing the indicator, domain, and construct. However, the assessment of the other three aspects did not show satisfying results. We dropped 17 items and revised the

others. The revision was based on the expert's recommendation to enhance the expression of the statements.

Construct validity testing

In construct validity testing, we run the corrected item-total correlation to 63 items by correlating the items' scores to the domain and construct scores. We used the critical value of 0.156 ($df = 115$, $\alpha = 0.05$) to retain or reject the items. Most coefficient correlations were above the required value, but one item, "I am reluctant to be known as a pilot," did not succeed ($r_{\text{item-domain}} = 0.139$, $r_{\text{item-total}} = 0.097$). Therefore, we retain 62 items (Table 3). Subsequently, we chose 20 items with a high coefficient as the final scale (Table 4).

Table 3. The corrected item-total correlation coefficients of 62 items

| No. | Items in Bahasa Indonesia | Items in English | r |
|------|--|---|-------|
| P1.1 | Saya merasa cemas dengan kondisi penerbangan saat ini | I feel anxious about the current flight conditions | 0.319 |
| P1.2 | Saya bahagia dengan hidup saya sebagai penerbang | I am happy with my life as a pilot | 0.596 |
| P1.5 | Aktivitas sebagai penerbang sangat cocok untuk saya | The activity as a pilot is perfect for me | 0.511 |
| P2.1 | Saya merasa nyaman dengan bekerja sebagai penerbang. | I feel comfortable working as a pilot. | 0.523 |
| P2.2 | Saya merasa tenang pada saat tugas terbang | I feel calm on flying assignments | 0.690 |
| P2.3 | Bekerja di pesawat membuat saya merasa gelisah | Working on an airplane makes me feel uneasy | 0.437 |
| P2.5 | Rotasi jadwal terbang di maskapai saya bekerja sangat nyaman | The flight schedule rotation on my airline works very conveniently | 0.668 |
| P2.6 | Saya nyaman dengan kondisi pesawat di maskapai saya bekerja | I am comfortable with the condition of the aircraft in the airline I work for | 0.637 |
| P2.8 | Saya tidak nyaman dengan lingkungan di bandar udara | I am not comfortable with the environment at the airport | 0.353 |
| P3.1 | Saya merasa bangga dengan kehidupan sebagai penerbang | I feel proud of life as a pilot | 0.549 |
| P3.2 | Saya enggan dikenal sebagai seorang penerbang | I am reluctant to be known as a pilot | 0.097 |
| P3.5 | Saya bersyukur dapat bekerja sebagai penerbang | I am grateful to be able to work as a pilot | 0.421 |
| H1.1 | Kondisi tubuh saya fit sebagai penerbang | My body condition is fit as a pilot | 0.444 |
| H1.2 | Saya merasa fisik saya cukup kuat untuk menghadapi jadwal terbang dengan waktu tidak menentu | I feel that I am physically strong enough to face flight schedules with uncertain times | 0.533 |
| H1.3 | Saya mudah merasa lelah setelah menjalankan tugas terbang | I get tired easily after running errands | 0.336 |
| H2.1 | Saya mudah merasa tertekan dalam kehidupan sebagai penerbang | I easily feel pressured in life as a pilot | 0.699 |

| No. | Items in Bahasa Indonesia | Items in English | r |
|------|--|---|-------|
| H2.2 | Profesi penerbang membuat saya mudah merasa kesepian | The flying profession makes me feel lonely easily | 0.593 |
| H2.4 | Saya mendapatkan jatah cuti yang layak dari perusahaan untuk membuat saya lebih relaks | I get proper time off from the company to make me more relaxed | 0.477 |
| H2.6 | Pekerjaan saya membuat saya lebih rajin beribadah | My job makes me more diligent in worship | 0.318 |
| H3.1 | Profesi saya membuat saya memilih makan makanan yang sehat | My profession makes me choose to eat healthy food | 0.467 |
| H3.2 | Saya rutin berolahraga walaupun saya sibuk dengan tugas terbang | I exercise regularly even though I am busy with flying duties | 0.194 |
| H3.3 | Saya mengalami kesulitan tidur dengan pola teratur | I have trouble sleeping on a regular pattern | 0.477 |
| H4.1 | Saya memiliki indikasi penyakit jantung, hipertensi,diabetes | I have indications of heart disease, hypertension, diabetes | 0.198 |
| H4.3 | Saya menderita sakit maag | I have stomach ulcers | 0.317 |
| H4.4 | Seberapa sering anda gagal/ recheck dalam medical check-up? | How often do you fail/recheck in medical check-ups? | 0.169 |
| S1.1 | Saya mampu membagi jadwal terbang dan kehidupan pribadi dengan baik | I am able to divide flight schedule and personal life well | 0.567 |
| S1.2 | Saya tidak membawa urusan pribadi pada saat melakukan tugas terbang | I do not bring personal matters when flying assignments | 0.388 |
| S1.4 | Saya merasa tertekan saat harus meninggalkan rumah/keluarga pada saat bertugas | I feel pressured when I have to leave my home/family while on duty | 0.535 |
| S2.1 | Saya mempunyai banyak teman yang memberikan dukungan positif pada saya | I have many friends who give me positive support | 0.468 |
| S2.3 | Saya memiliki komunitas penerbang yang mendukung saya | I have a community of aviators that support me | 0.510 |
| S2.4 | Saya merasa lingkungan saya mendukung saya menjadi penerbang | I feel my environment supports me to be a pilot | 0.473 |
| S3.1 | Saya memiliki relasi yang baik dengan keluarga saya | I have a good relationship with my family | 0.534 |
| S3.3 | Keluarga saya selalu menantikan kedatangan saya di rumah sepulang saya menjalankan tugas terbang | My family always looks forward to welcoming me home after my flying assignments | 0.234 |
| S3.4 | Saya menikmati waktu libur saya bersama orang-orang yang saya cintai | I enjoy my time off with the people I love | 0.398 |
| R1.1 | Saya mempunyai riwayat performa terbang yang baik | I have a history of good flying performance | 0.491 |
| R1.2 | Saya merasa hasil kerja saya dalam menjalankan tugas terbang kurang diakui oleh perusahaan | I feel that my work in carrying out flying assignments is not recognized by the company | 0.587 |

| No. | Items in Bahasa Indonesia | Items in English | r |
|------|--|--|-------|
| R1.4 | Kinerja saya dipuji oleh atasan saya | My performance is praised by my superiors | 0.433 |
| R2.1 | Saya merasa mendapatkan jadwal terbang yang adil dari perusahaan | I feel I get a fair amount of flying from the company | 0.647 |
| R2.4 | Saya diterima di lingkungan kerja saya sama seperti orang lain | I am accepted in my work environment just like everyone else | 0.633 |
| R2.5 | Semua level jabatan di maskapai saya didengarkan suaranya dalam pengambilan keputusan | All levels of positions in my airline are heard in decision-making | 0.527 |
| R3.1 | Saya merasa upah yang diberikan perusahaan sesuai dengan resiko pekerjaan saya | I feel the wages given by the company are in accordance with the risk of my work | 0.633 |
| R3.2 | Saya bersyukur dengan keuntungan dan keistimewaan dari perusahaan saya (selain upah) | I am grateful for the benefits and privileges of my company (besides wages) | 0.660 |
| R3.3 | Saya merasa maskapai memberikan fasilitas kesehatan yang baik kepada saya | I feel the airline provides good health facilities to me | 0.595 |
| R3.4 | Saya merasa puas dengan hotel yang dipilih maskapai saya untuk remain overnight duty. | I am satisfied with the hotel my airline chose to remain on overnight duty. | 0.671 |
| C1.2 | Saya takut ketika menghadapi proficiency check | I was scared when I faced a proficiency check | 0.553 |
| C1.1 | Saya dapat menyelesaikan proficiency check saya dengan hasil yang memuaskan | I was able to complete my proficiency check with satisfactory results | 0.482 |
| C1.5 | Saya mampu menjalankan tugas terbang saya sesuai dengan standar operating procedure | I am able to carry out my flying duties in accordance with standard operating procedures | 0.467 |
| C2.1 | Saya mampu berkonsentrasi dengan baik selama tugas terbang | I am able to concentrate well during flying assignments | 0.550 |
| C2.2 | Saya mampu berfikir jernih dalam situasi apapun tidak terkecuali situasi kritis/ darurat | I am able to think clearly in any situation, including critical/emergency situations | 0.449 |
| C2.3 | Saya memiliki situational awareness yang baik setiap tugas terbang. | I have good situational awareness of every flying assignment. | 0.495 |
| C3.2 | Saya mampu membuat keputusan dalam situasi apapun | I am able to make decisions in any situation | 0.556 |
| C3.4 | Saya mampu mengambil keputusan dengan cepat dalam tugas terbang | I am able to make quick decisions on flying assignments | 0.487 |
| C3.5 | Terkadang saya merasa gugup ketika membuat keputusan dalam tekanan | Sometimes I get nervous when I make decisions under pressure | 0.480 |
| C3.6 | Saya mampu mengendalikan situasi darurat dengan baik | I am able to handle emergency situations well | 0.560 |

| No. | Items in Bahasa Indonesia | Items in English | r |
|------|---|--|-------|
| K1.2 | Terkadang saya merasa ingin berhenti menjadi penerbang. | Sometimes I feel like I want to quit being a pilot. | 0.574 |
| K1.3 | Saya puas bekerja dengan tipe pesawat saya saat ini | I am satisfied working with my current aircraft type | 0.440 |
| K1.4 | Saya merasa aman bekerja di perusahaan saya saat ini | I feel safe working at my current company | 0.672 |
| K2.2 | Profesi penerbang kurang terjamin masa depannya | The future of the pilot profession is less secure | 0.627 |
| K2.3 | Perusahaan menjamin keamanan pekerjaan saya sebagai penerbang sampai saya pensiun | The company guarantees the security of my job as a pilot until I retire | 0.571 |
| K3.1 | Saya merasa aman karena diberikan kompensasi jika saya kehilangan lisensi penerbang secara mendadak | I feel safe because I am compensated if I suddenly lose my pilot's license | 0.330 |
| K3.3 | Saya merasa dapat bekerja di airlines saya hingga saya pensiun. | I think I can work in my airlines until I retire. | 0.617 |
| K3.2 | Saya merasa takut akan kesejahteraan hidup saya pada saat saya pensiun sebagai penerbang. | I fear for the well-being of my life when I retire as a pilot. | 0.495 |

Table 4. The list of the final 20 items

| No | Bahasa Indonesia | English | Item-total (total score of 20 items) |
|----|---|---|--------------------------------------|
| 1 | Saya bahagia dengan hidup saya sebagai penerbang (F) | I am happy with my life as a pilot (F) | 0.593 |
| 2 | Saya merasa tenang pada saat tugas terbang (F) | I feel calm when flying (F) | 0.691 |
| 3 | Saya merasa bangga sebagai seorang penerbang (F) | I feel proud as a pilot (F) | 0.572 |
| 4 | Kondisi tubuh saya saat ini <i>fit</i> sebagai penerbang (F) | My current body condition is fit as a pilot (F) | 0.410 |
| 5 | Saya mudah merasa tertekan dalam kehidupan sebagai penerbang (UF) | I easily feel pressured in life as a pilot (UF) | 0.688 |
| 6 | Saya mengalami kesulitan tidur secara teratur (UF) | I have trouble sleeping on a regular pattern (UF) (frequency) | 0.494 |
| 7 | Saya merasa tertekan saat harus meninggalkan rumah/keluarga pada saat bertugas (UF) | I feel pressure when I have to leave home/family while on duty (UF) | 0.458 |

| No | Bahasa Indonesia | English | Item-total (total score of 20 items) |
|----|---|--|--|
| 8 | Saya mempunyai banyak teman yang memberikan dukungan positif pada saya (F) | I have many friends who give me positive support (F) | 0.482 |
| 9 | Saya memiliki relasi yang baik dengan keluarga saya (F) | I have a good relationship with my family (F) | 0.533 |
| 10 | Saya merasa hasil kerja saya dalam menjalankan tugas terbang kurang diakui oleh perusahaan (UF) | I feel that my work in carrying out flying assignments is not recognized by the company (UF) | 0.632 |
| 11 | Semua level jabatan di maskapai saya didengarkan suaranya dalam pengambilan keputusan (F) | All levels of positions in my airline are heard in decision-making (F) | 0.576 |
| 12 | Saya merasa upah yang diberikan perusahaan sesuai dengan resiko pekerjaan saya (F) | I feel the wages given by the company are in accordance with the risk of my work (F) | 0.629 |
| 13 | Saya merasa maskapai memberikan fasilitas kesehatan yang baik kepada saya (F) | I feel the airline provides good health facilities to me (F) | 0.645 |
| 14 | Saya merasa puas dengan hotel yang dipilih maskapai saya untuk <i>remain overnight duty</i> . (F) | I am satisfied with the hotel my airline has chosen to remain on night duty. (F) | 0.708 |
| 15 | Saya dapat menyelesaikan <i>proficiency check</i> saya dengan hasil yang memuaskan (F) | I was able to complete my proficiency check with satisfactory results (F) | 0.446 |
| 16 | Saya memiliki <i>situational awareness</i> yang baik setiap tugas terbang. (F) | I have good situational awareness of every flying task. (F) | 0.473 |
| 17 | Saya mampu mengendalikan situasi darurat dengan baik(F) | I am able to handle emergency situations well(F) | 0.537 |
| 18 | Saya merasa aman bekerja di perusahaan saya saat ini(F) | I feel safe working in my current company(F) | 0.636 |
| 19 | Saya merasa masa depan saya terjamin dengan profesi sebagai penerbang (F) | I feel my future is secure with the profession as a pilot (F) | 0.699 |
| 20 | Profesi penerbang kurang terjamin masa depannya (UF) | The future of the flying profession is less secure (UF) | 0.644 |

Reliability

The scale with 62 items is reliable with alpha 0.95 (95% CI *lower bound* = 0.94 dan 95% CI *upper bound* = 0.97). All dimensions are also reliable, with an alpha of 0.83 for positive emotion, 0.78 for health and social relationship, 0.89 for competence and recognition, and 0.86 for security. The reliability coefficient for the short version with 20 items was satisfactory, with an alpha of 0.92.

Conclusion

This study aimed to develop a well-being scale for the pilot. We successfully created 61 items with suitable validity and reliability for both long and short versions. This research is outstanding because of two aspects, and firstly, the indicator includes interviews and literature reviews. Secondly, the participants were pilots with a wide range of ages and flying experiences, guaranteeing data heterogeneity. For the following research, we suggest including confirmatory factor analysis and correlation with other well-being scales for construct validity testing and performance indicator for predictive validity.

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