



Early Career Research Award Application Cover Sheet

Entry Title: Innovative digital approach to support young adults
at risk of suicide

Name of Applicant: Dr Jin Han

Organisation: Black Dog Institute/University of New South Wales

1. Additional Information (max 400 words)

Suicide is a leading cause of death in young adults aged 18-25 years in Australia and worldwide. In 2020, 381 young adults died of suicide in Australia, accounting for 39% of all deaths. This is the highest number over the past ten years. Alarming, 50%-70% of young adults did not seek help from face-to-face health services when experiencing suicidal thoughts or behaviour due to barriers such as limited accessibility and high cost of services, concerns about privacy, and stigma.

In response to this, Dr Han worked with a cross-disciplinary team and lived experience advisors in the past five years to understand risk of suicide in young adults and empower them to become “digitally-engaged” in their own medical care and preventative health efforts. Her work has established the premise of using smartphone-based digital tools to detect, monitor, and reduce the risk of suicide in young adults, highlighted by two innovative digital products.

ProHelp: The ProHelp program developed by Dr Han and her team is the first online psychoeducational program designed for promoting help seeking for suicidal thoughts in young adults. Using interactive videos, the program addresses the key barriers to help seeking identified in the target population. The ProHelp significantly improved young people’s knowledge of suicide prevention and help-seeking attitudes in university students, results of which were published on the journal of Internet Interventions (ranked 20/95 in Health Informatics). The program was further adapted for the Chinese LGBTI population through international collaborations with Tsinghua University and the Beijing LGBT Centre. The adapted program showed similar benefits for the LGBTI population: improving knowledge and help-seeking intentions. The trial results were submitted to the Lancet Digital Health (under review).

LifeBuoy: The LifeBuoy app developed by Dr Han and researchers at the Black Dog Institute is the world-first smartphone-based therapeutic intervention for suicidal young adults. Leveraging from the evidence-based Dialectical Behaviour Therapy and Acceptance and Commitment Therapy, the LifeBuoy offers structured therapeutic sessions and interactive exercises to help young adults manage suicidal thoughts and distress in daily life. Six weeks’ usage of the LifeBuoy significantly reduced suicidal thoughts in a trial of 455 suicidal young Australians. The benefits lasted three months after usage. The results were published on the journal of PLOS Medicine (ranked 15/793 in General Medicine). Dr Han was awarded the Bupa Emerging Health Researcher for her innovative work in designing the LifeBuoy app.

2. Focus

Dr Han’s research is innovative in using digital technology to bridge the gaps in the current landscape of suicide prevention amongst young adults. Young adults were found to be 30% less likely than older adults to seek help from health services when experiencing suicidal thoughts and behaviour. The ProHelp and the LifeBuoy developed by Dr Han and her colleagues are the world’s first of their kind. These digital programs innovatively address the gap by supporting young adults to understand their situations and access support at any time and place anonymously. In addition, animations, interactive quizzes, sounds and audio were incorporated into the digital programs to facilitate young people’s engagement with the content. Beyond this, Dr Han is currently leading the self-monitoring stream of a cutting-edge,

Artificial Intelligence (AI)-driven adaptive trial amongst 1,200 Australian university students funded by the Medical Research Future Fund (\$5 million). Findings from the trial are expected to improve our knowledge on how young people's daily feelings and activities will influence their engagement with digital therapies, and how AI can support better treatment decisions by integrating data collection, intervention delivery and optimisation.

3. Potential Impact

Current face to face services are struggling, with workforce and distance issues paramount. Digital products and services are the way of the future for suicide prevention. Dr Han's research provides a novel digital approach that has the strong potential to amplify suicide prevention efforts. The ProHelp program and the LifeBuoy app equip young adults with knowledge of suicide prevention and skills to manage suicidal thoughts and distress in daily life respectively. The successful adaption of the ProHelp program for the Chinese-speaking LGBTI population indicates the use of digital solutions may access a large number of young people, including hard to reach population. Given there is increasing interest to invest in youth suicide prevention in Australia and beyond, Dr Han's research will lead to interventions that can be implemented in a scalable and cost-effective manner, forming critical steps toward addressing current barriers to help-seeking and suicide prevention.

4. Consumer's Contribution

The digital programs were developed in extensive consultations with young adults who have lived experience of suicidal thoughts and behaviour. Dr Han surveyed and interviewed lived experienced young adults on their use habits of smartphone apps, their preference of app features and designs, and how they may use apps to manage suicidal thoughts in the LifeBuoy study. Findings were used to inform the LifeBuoy app design and the consumer engagement strategies. In addition, suicidal young adults who received the LifeBuoy app in the randomised controlled trial were interviewed to understand users' perspectives of the app and how it could be improved. A lived experience youth advisory group was established following the trial to advise on modifications and improvements to the LifeBuoy. The LifeBuoy app was then built based on consumers' feedback. It is currently being evaluated through a second randomised controlled trial, aiming to understand if increasing engagement with the app will enhance its effectiveness.

Curriculum Vitae: Dr Jin Han

Response to eligibility rules

PhD awarded within 5-years of the closing date of the award (22/11/2017)
Holding the academic level of 'Lecturer'
Being available to attend and present at the annual TheMHS Conference

Qualifications

2017 Ph.D. (conferred November 2017), Australian National University (ANU)
2012 M.S. in Biology (Neurobiology), Shanghai Jiao Tong University (SJTU)
2009 B.S. in Biotechnology, Shanghai Jiao Tong University (SJTU)

Employment & Academic Appointments

2021 - current Research Fellow, Black Dog Institute, UNSW
2018 - 2020 Research Associate, Black Dog Institute, UNSW
2017 - 2018 Research Assistant, Centre for Mental Health Research, ANU

Awards, Prizes, and Scholarships

2022 10th IASP Asia Pacific Conference Early Career Researcher Bursary A\$1,058
2020 Bupa Emerging Health Researcher (Winner), Bupa Health Foundation, A\$25,000
2019 Top 1% reviewers in Psychiatry and Psychology Global Peer Reviewer Award, Web of Science Group
2018 The Black Dog Institute Travel Grant, A\$2,000
2017 The Kortzen Prize for Best Published Research Paper by a PhD Candidate, ANU
2016 Best Student Poster at the National Suicide Prevention Conference, Canberra, Australia
2016 ANU Vice-Chancellor's Travel Grant - Higher Degree Research, A\$1,500
2016 ANU-IARU Travel Grant, A\$1,500
2015 ANU-IARU Travel Grant, A\$1,500
2013 ANU PhD Scholarship, A\$24,653 per annum
2013 ANU PhD Research Scholarship, A\$5,372 per annum
2012 Excellent Postgraduate in Shanghai Jiao Tong University, Top 3%
2011 Tang You Shuqi Scholarship (Alumni Scholarship), Top1%, RMB 8,000
2010 Academic Excellence Scholarship (first-class) of SJTU, Top 3%, RMB 1,500
2008 Academic Excellence Scholarship (first-class) of SJTU, Top 3%, RMB 1,500
2007 SONY Academic Scholarship in Shanghai Universities, Top 1%, RMB 4,000

Grants

2023 - 2025 CIA, Integrated online mental health services for Chinese international students, National Foundation for Australia-China Relations Focussed Grant (under embargo), A\$200,000

- 2022 - 2025 AI, The LifeTrack Project: Longitudinal cohort study to understand suicidal transitions, NHMRC Clinical Trials and Cohort Studies, A\$742,927
- 2022 - 2023 CIA, Online mental health education for university students, the Universitas 21 Health Sciences Group Early Career Researcher Fund, £5,000
- 2021 - 2023 AI, Practical research of stress management training for gifted university students, Ministry of Education of the People's Republic of China National talent training program for university students, RMB 100,000
- 2021 - 2022 CIB, Interpreting for patients with bipolar disorder in psychotherapy, WSU, A\$6,000
- 2021 - 2022 CIA, Online mental health education for international students, Australian Academy of Science COVID-19 Digital Grant, A\$8,940
- 2021 - 2024 CII, The Under the Radar Project, MRFF-Million Minds Suicide Prevention Project Grant, A\$3,729,420
- 2020 - 2023 Stream leader, Optimising Treatments in Mental Health Using AI, MRFF Applied Artificial Intelligence Research in Health Project Grant, A\$4,995,434
- 2020 - 2022 CIA, Cognitive and behavioural response styles to negative affect precipitating youth suicidal thoughts, Suicide Prevention Australia National Suicide Prevention Postdoctoral Research Fellowship, A\$265,436
- 2020 - 2022 CID, The LifeBuoy App: A randomised controlled trial of a mHealth intervention to help young people manage suicidal thoughts, Australian Rotary Health, A\$153,014
- 2020 - 2021 AI, Developing a Resilience Program for university students in the Talent Program, Shanghai Jiao Tong University, RMB 10,000
- 2019 - 2020 CIB, Developing and evaluating novel, web-based, gamified cognitive assessments for older adults, UNSW-USYD Mental Health & Wellbeing Grant, A\$19,953
- 2017 - 2021 CIC, Development of an online system to provide targeted support to depressed individuals on social media platforms, National Natural Science Foundation of China, RMB 480,000

Peer Reviewed Publications in the Past Five Years (Career total: 40, total citations = 1,164, h-index=16, *: Corresponding-Author, †: Co-First Author)

1. Torok M†, **Han Jin**†, McGillivray L, Wong Q, Werner-Seidler A, O'Dea B, Calear A, Christensen H. (In press). The effect of a therapeutic smartphone application on suicidal ideation in young adults: Findings from a randomized controlled trial in Australia. *PloS Medicine*, 19(5), e1003978.
2. McGillivray L, Gan DZ, Wong Q, **Han Jin**, Hetrick S, Christensen H, Torok M. (In press) A three-arm randomised controlled trial of an m-health app and digital engagement strategy for improving treatment adherence and reducing suicidal ideation in young people: Study protocol. *BMJ open*, 12(5), e058584.
3. Batterham PJ, Calear AL, Reily N, Tang S, **Han Jin**, Christensen H. Factors associated with professional mental health service use among adults with suicidal ideation. *Journal of Affective Disorders*, 307, 278-285.
4. Ren D, Wang Y, Han M, Zhang, Y, Cai C, Liu K, Li R, Liu H, Ou J, Wang Y, **Han Jin**, Chen R. (2022). Internet-based interventions to promote help-seeking for mental

health in LGBTQ+ young adults: Protocol for a randomized controlled trial. *Internet Interventions*, 100524.

5. Tang S, Reily NM, Arena AF, Sheanoda V, **Han Jin**, Draper B, Batterham PJ, Mackinnon A, Christensen H. (2022). Predictors of not receiving mental health services among people at risk of suicide: a systematic review. *Journal of Affective Disorders*, 301, 172-188.

6. Holder LJ, Prasad A, **Han Jin**, Torok M, Wong QJ. (2021). Shifting as a key executive function underlying cognitive restructuring for individuals with elevated social anxiety. *Psychology and Psychotherapy: Theory, Research and Practice*, 94(2), 217-230.

7. Gan DZ, McGillivray L, **Han Jin**, Christensen H, & Torok M. (2021). Effect of engagement with digital interventions on mental health outcomes: a systematic review and meta-analysis. *Frontiers in Digital Health*, 3.

8. Wu Y, Chen Z, Batterham PJ, **Han Jin***. (2021). Perceived suicide stigma and associated factors in Chinese college students: translation and validation of the Stigma of Suicide Attempt Scale and the Stigma of Suicide and Suicide Survivors Scale. *International Journal of Environmental Research and Public Health*, 18(7), 3400.

9. Holder LJ, Prasad A, **Han Jin**, Torok M, & Wong QJ. (2021). Shifting as a key executive function underlying cognitive restructuring for individuals with elevated social anxiety. *Psychology and Psychotherapy: Theory, Research and Practice*, 94(2), 217-230.

10. Larsen M, Nicholas J, **Han Jin**, Lemon C, Okun K, Tye M, Wong D, Wong I, Wong Q, Huckdale K. (2020). Here's something I prepared earlier: a review of the time to publication of cross-sectional reviews of smartphone health apps. *BMJ Open*, 10(12), e039817.

11. **Han Jin***, McGillivray L, Wong Q, Werner-Seidler A, Wong I, Calear A, Christensen H, Torok M. (2020). A mobile health intervention (LifeBuoy app) to help young people manage suicidal thoughts: protocol for a mixed-methods randomized controlled trial. *JMIR Research Protocols*, 9(10), e23655.

12. Loo Gee B, **Han Jin**, Benassi H, Batterham PJ. (2020) Suicidal thoughts, Suicidal Behaviours and Self-Harm in Daily Life: A Systematic Review of Ecological Momentary Assessment Studies. *Digital Health*, 6, 2055207620963958.

13. O'Dea B, **Han Jin**, Batterham PJ, Achilles MR, Calear AL, Werner-Seidler A, Parker B, Shand F, Christensen H. (2020). Evaluating the acceptability and effectiveness of a relationship-focussed mobile phone application for improving adolescent. *Journal of Child Psychology and Psychiatry*, 61(8), 899-913.

14. Batterham PJ, **Han Jin**, Mackinnon A, Werner-Seidler A, Calear AL, Wong Q, Torok M, Christensen H. Factors associated with engagement in online self-help programs among people with suicidal thoughts. (2020). *Journal of Affective Disorders*, 265, 402-409.

15. Reyes N, Boulton K, **Han Jin**, Torok M, & Wong Q. (2020). Cognitive bias modification for the induction of negative versus benign interpretations of the self in individuals with elevated social anxiety: Effects on self-related and anxiety outcomes. *Cognitive Therapy and Research*, 1-14.

16. Torok M, **Han Jin**, Baker S, Werner-Seidler A, Wong I, Larsen M, Christensen H. (2020). Suicide prevention using self-guided digital interventions: a systematic review and meta-analysis of randomised controlled trials. *The Lancet Digital Health*, 2(1), e25 - e36.

17. Toit S, Kade S, Danielson C, Schweizer S, **Han Jin**, Torok M, Wong Q. (2020). The Effect of Emotional Working Memory Training on Emotional and Cognitive Outcomes in Individuals with Elevated Social Anxiety. *Journal of Affective Disorders*, 261, 76-83.
18. **Han Jin***, Torok M, Gale N, Wong Q, Werner-Seidler A, Hetrick S, Christensen H. (2019). Use of Web Conferencing Technology for Conducting Online Focus Groups Among Young People with Lived Experience of Suicidal Thoughts: Mixed Methods Study. *JMIR Mental Health*, 6(10), e14191.
19. Desborough J, Parkinson A, Aung E, **Han Jin**, Korda R. (2019). The practical use of the Patient Enablement and Satisfaction Model in nurse-led outpatient cardiac clinics. *Collegian*, 26(4), 415-421.
20. Batterham PJ, **Han Jin**, Calear AL, Anderson J, Christensen H. (2019). Suicide stigma and suicide literacy in a clinical sample. *Suicide and Life-threatening Behaviour*. 49(4), 1136-1147.
21. Ma J, Batterham PJ, Calear AL, **Han Jin**. (2019). Suicide risk across latent class subgroups: A test of the generalisability of the Interpersonal Psychological Theory of Suicide. *Suicide and Life-threatening Behaviour*, 49(1), 137-154.
22. **Han Jin***, Batterham PJ, Calear AL, Ma J. (2018). Seeking professional help for suicidal ideation: a comparison between Chinese and Australian university students. *Psychiatry Research*, 270, 807-814.
23. Jiang J†, **Han Jin†**, Zhang Y, Huang X, Zhuang J, Shen F, Liu J. (2018). Quality of life among patients during subacute phase following stroke during hospitalisation period in Shanghai. *International Journal of Psychiatry in Clinical Practice*, 22(4), 296-303.
24. **Han Jin***, Batterham PJ, Calear AL, Wu Y, Xue J, Van Spijker BA. (2018). Development and pilot evaluation of an online psychoeducational program for suicide prevention among university students: A randomised controlled trial. *Internet Interventions*, 12, 111-120.
25. **Han Jin***, Batterham PJ, Calear AL, Randall R. (2018). Factors influencing professional help-seeking for suicidality: A systematic review. *Journal of Crisis Intervention and Suicide Prevention*, 39(3), 175-196.
26. Walsh E, Shou Y, **Han Jin**, Brinker JK. (2017). Development and validation of a Chinese language version of the Ruminative Thought Styles Questionnaire. *Journal of Psychoeducational Assessment*, 0734282917696937.

Social Engagement, Global Impact, Leadership

2022 - current	Associate Editor, <i>BMC Psychiatry</i>
2021 - current	Member, Centre of Research Excellence in Suicide Prevention Capacity Building Committee
2020 - current	Member, the Black Dog's Research Governance Advisory Group
2020 - current	Mentor, the Future Research Leaders Mentoring Program in Suicide Prevention in Australia
2020 - current	Review Editor, <i>Journal of Crisis Intervention and Suicide Prevention</i>
2020 - current	Review Editor, <i>Frontiers in Digital Health</i>
2016 - current	Peer-reviewed > 100 papers for 34 journals, including <i>Australian & New Zealand Journal of Psychiatry</i> and <i>Health Psychology Review</i> , and one grant application for the Government of Western Australia

Referees



9 June 2022
TheMHS Awards Committee
PO BOX 192
BALMAIN NSW 2041

To whom it may concern,

I am writing to strongly support Dr Jin Han's application for the TheMHS ECR Award (2022). Dr Jin Han is a Research Fellow at the Black Dog Institute. Since her appointment in 2018, Jin has contributed to multiple suicide prevention projects that lead to national and international impacts. Jin's suicide prevention research program is strongly focused on developing and testing interventions that can be implemented at-scale.

The LifeBuoy app developed in Jin's Postdoctoral program is the world-first smartphone-based therapeutic intervention for suicidal young adults, a group whose mental health and self-harm rates have been heavily impacted by the pandemic. In a randomised controlled trial, the app significantly reduced suicidal thoughts after six-weeks' self-paced practice in young adults. The app will be further implemented in community and clinic settings under Black Dog Institute's suicide prevention strategies to facilitate broader benefits. In addition, Jin is currently supporting the design and implementation of two large-scale projects: the Optimise project (\$5 million) and the Under the Radar project (\$3.7 million). The Under the Radar project aims to design and test a strategy to engage men who are at-risk of suicide but not receiving help. She is also working to understand how self-monitoring data (e.g. recording daily feelings and locations) collected by smartphones can inform early detection of suicide warning signs and optimise treatments for the population.

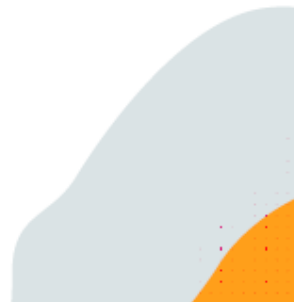
Jin is an emerging leader in suicide prevention. She has published 26 peer-reviewed articles in prestigious journals since 2017, including the Lancet Digital Health, PLOS Medicine, and Journal of Child Psychology and Psychiatry. She has been awarded over \$10 million in research funding, including \$500K as CIA. In recognition of the excellence of her work, she has been awarded the Bupa Emerging Health Researcher in 2020.

Dr Jin Han's work has innovatively addressed the current gaps in suicide prevention via digital technologies. I therefore support her application for the TheMHS Early Career Research Award (2022) without hesitation.

Sincerely



Fiona Shand
Associate Professor, Head of Suicide Prevention Research
Black Dog Institute
Hospital Road, Randwick NSW 2031



Contact details for an additional referee who may be contacted by phone

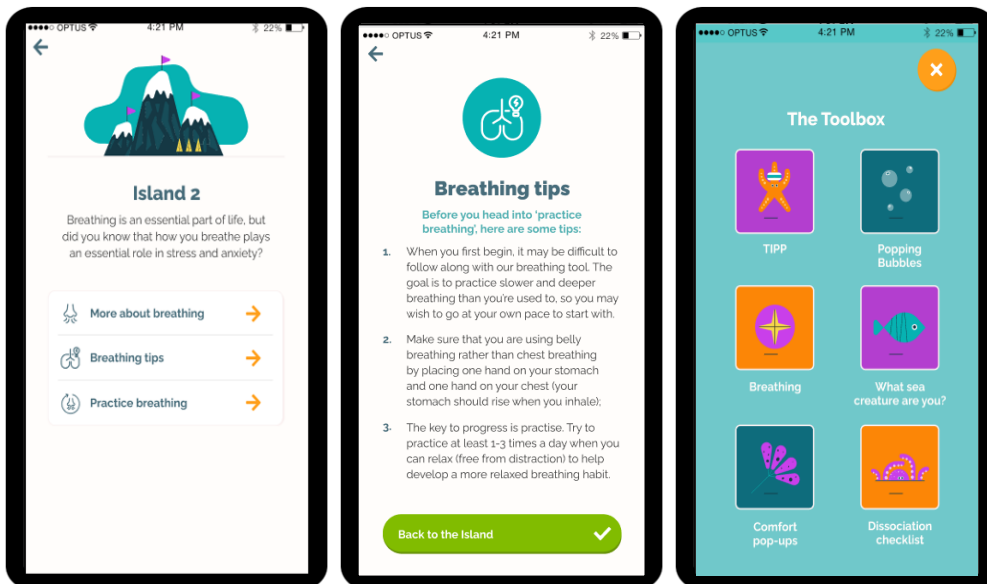
Scientia Professor Helen Christensen
University of New South Wales, Sydney and the Black Dog Institute

Supporting Material

Look and feel of the ProHelp



Look and feel of the LifeBuoy



LifeBuoy trial results at baseline, post-intervention, and 3-month follow-up on the severity of suicidal thoughts measured by SIDAS (LifeBuoy-C: control, LifeBuoy: intervention)

