

Electronic Supplementary Material 1

For The Cost-Effectiveness of Psychosocial Interventions Following Self-Harm in Australia by Krysinska et al.

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Figure E1. *CBT Intervention Pathway and Schematic model*

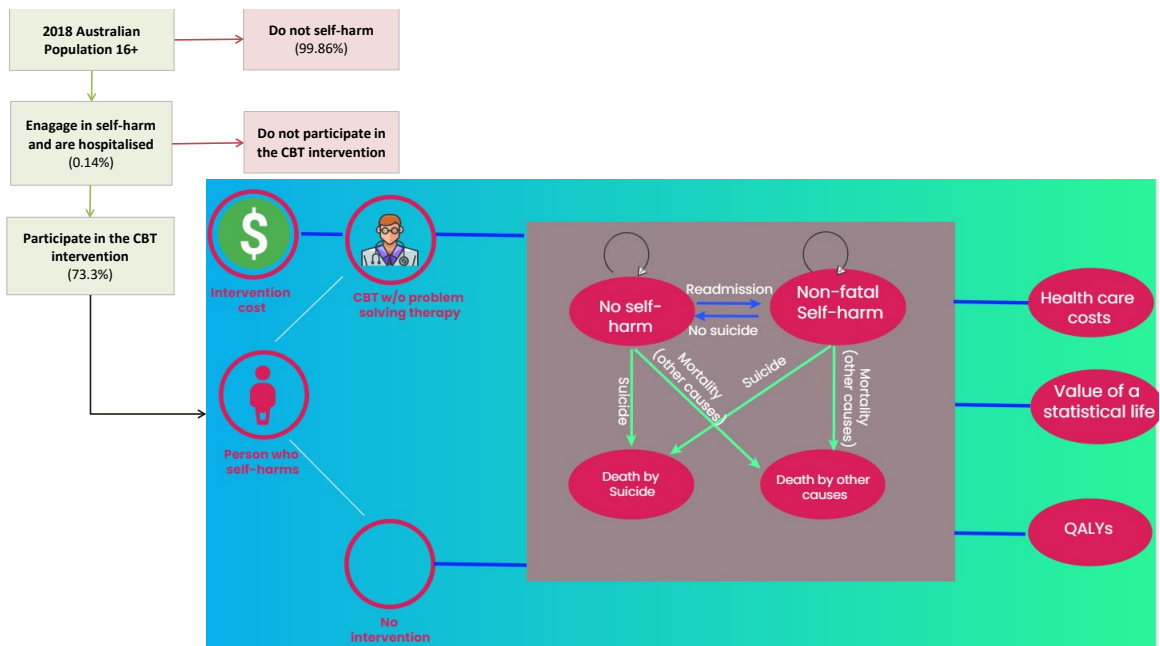


Table E1.

Input Parameters and Uncertainty Ranges for Health Benefit and Costing

Parameter	Value and uncertainty range	Uncertainty distribution	Source(s)
Input parameters and uncertainty ranges for health benefit			
Risk ratio for the CBT (by follow-up period)	6-month follow up: 0.54 (95% CI: 0.34 – 0.85) 12-month follow up: 0.80 (95% CI: 0.65 – 0.98)	Lognormal	A systematic review and meta-analysis (Hawton et al., 2016)
2018 Australian population	15-24 years: M 1,655,870; F 1,575,033 25-34 years: M 1,862,605; F 1,877,533 35-44 years: M 1,651,132; F 1,665,139 45-54 years: M 1,567,888; F 1,631,171 55-64 years: M 1,411,373; F 1,477,355 65-74 years: M 1,090,144; F 1,135,021 75-84 years: M 552,254; F 633,917 85+ years: M 191,285; F 312,400 Total: M 9,982,551; F 10,307,569	N/A	ABS Estimated Resident Population (ABS, 2017a)
Intentional self-harm rates (Hospitalisation)	15-19 years: M 0.17%; F 0.60% 20-24 years: M 0.16%; F 0.33% 25-29 years: M 0.14%; F 0.21% 30-34 years: M 0.12%; F 0.17% 35-39 years: M 0.13%; F 0.17% 40-44 years: M 0.12%; F 0.17% 45-49 years: M 0.12%; F 0.17% 50-54 years: M 0.09%; F 0.15% 55-59 years: M 0.08%; F 0.09% 60-64 years: M 0.05%; F 0.07% 65-69 years: M 0.04%; F 0.05% 70-74 years: M 0.03%; F 0.04% 75-79 years: M 0.03%; F 0.04% 80-84 years: M 0.04%; F 0.04% 85+ years: M 0.06%; F 0.03%	N/A	AIHW (2020) – Suicide and Self-harm monitoring – National Hospital Morbidity Database
Incidence of non-fatal repeated self-harm	Per year: 13.7% (95% CI: 12.3 to 15.3)	N/A	Carroll et al. (2014)
Incidence of fatal repeated self-harm	1 year M: 2.7% (95%CI: 1.8 to 4.0) F: 1.2% (95% CI: 0.7 to 1.9) 2 years: 2.1% (95% CI: 1.6 to 2.8) 5 years: 3.9% (95% CI: 3.2 to 4.8) 10 years: 4.2% (95% CI: 3.1 to 5.6)	N/A	Carroll et al. (2014)
Other cause mortality	15-19 years: M 0.04%; F 0.02% 20-24 years: M 0.06%; F 0.02% 25-29 years: M 0.06%; F 0.02% 30-34 years: M 0.08%; F 0.03% 35-39 years: M 0.11%; F 0.06% 40-44 years: M 0.14%; F 0.09% 45-49 years: M 0.22%; F 0.13% 50-54 years: M 0.32%; F 0.20% 55-59 years: M 0.49%; F 0.30% 60-64 years: M 0.75%; F 0.45% 65-69 years: M 1.12%; F 0.67% 70-74 years: M 1.80%; F 1.13% 75-79 years: M 3.07%; F 2.04% 80-84 years: M 5.64%; F 3.88% 85+ years: M 13.6%; F 11.7%	N/A	ABS (2017b)
Utility weight for non-fatal self-harm	0.54 (95% CI: 0.29 to 0.60)	Beta	van Spijker et al. (2011)
Utility weight for non-self-harm	0.64 (95% CI: 0.33 to 0.95)	Beta	van Spijker et al. (2011)

Input parameters and uncertainty ranges for costing analysis			
Number of CBT sessions	Mean: 7.25 Standard deviation (SD) 2.49	Lognormal	Individual studies from the meta-analysis published by Hawton et al. (2016)
Adherence to CBT sessions	67% (range: 38% to 100%)	Pert	Individual studies from the meta-analysis published by Hawton et al. (2016)
Unit cost for a 1-hour session of health professionals (public setting)	A\$115	N/A	Weighted average unit cost for GP specialising mental health, Psychologist, Psychiatrist from MBS (Department of Human Services, 2020)
Unit cost for a 1-hour session of health professionals (private setting)	A\$260	N/A	Australian Psychological Society (APS, 2020)
Unit cost for a screening session with a nurse	Wage rate for a nurse: A\$36.18 per hour (SE: 1.01)	Lognormal	ABS (2016)
Unit cost for a screening session with a GP	A\$36.76 per session	N/A	Weighted average cost of MBS items 3, 23, 2712
Psychologist supervision cost or training cost	Wage rate for a psychologist: A\$38.04 per hour (SE: 2.40)	Lognormal	ABS (2016)
Population ratio for health professionals	415 per 100,000 population	N/A	ABS (2017a)
Health expenditure for a suicide attempt	15-19 years: M A\$8,066; F \$6,320 20-24 years: M A\$7,367; F \$5,825 25-29 years: M A\$8,106; F \$6,834 30-34 years: M A\$8,752; F \$8,122 35-39 years: M A\$8,749; F \$7,718 40-44 years: M A\$6,849; F \$6,020 45-49 years: M A\$7,504; F \$6,218 50-54 years: M A\$8,352; F \$7,065 55-59 years: M A\$12,248; F \$9,292 60-64 years: M A\$6,555; F \$4,780 65-69 years: M A\$10,145; F \$7,520 70-74 years: M A\$13,993; F \$11,176 75-79 years: M A\$17,249; F \$14,112 80-84 years: M A\$14,705; F \$9,966 85+ years: M A\$13,774; F \$15,364	Lognormal	AIHW (2019)
Cost associated with suicide	Male: 806,544 Female: 421,123	N/A	KPMG report
Unit cost uncertainty	±20%	Pert	Expert opinion (Mihalopoulos et al., 2011; Vos et al., 2010)
Oncost^a	30%	N/A	Expert opinion

^a Wage rates were adjusted to incorporate 30% on-costs - i.e., additional loadings to account for administration costs, leave, superannuation, etc.

Uncertainty and Sensitivity Analysis

Uncertainty analyses were undertaken alongside each cost-effectiveness model to propagate parameter uncertainty (i.e., sampling error) from the input parameters to the final model outputs. Each uncertainty analysis was conducted using Monte Carlo simulation with 3,000 iterations. Estimates of incremental costs, QALYs, ROI ratios and ICERs were estimated with accompanying 95% uncertainty intervals (95% UI). Uncertainty iterations were represented on a cost-effectiveness plane. Uncertainty parameters are presented in Table E1.

We conducted sensitivity analyses (SA) to test the robustness of the model outputs to changes in the following input parameters/assumptions as explained above:

SA1: Referral is undertaken by GPs.

SA2: The intervention is delivered by a psychologist in a private setting with the cost of a psychologist consultation. The unit cost of A\$260 per 45- to 60-minute session was sourced from the 2019-2020 Recommended Schedule of the Australian Psychological Society (APS, 2020).

SA3: The intervention training costs for health professionals who delivered CBT were added. Based on the included trials evaluating CBT, health professionals may attend up to 36-hour training before delivering the intervention (Tapolaa et al., 2010). The number of health professionals required for this population sample were calculated based on the population rate of Medical Practitioners in Australia (415 per 100,000 population).

Table E2. *Scenario Analysis Results*

Scenario analyses	50% decay effect	50% decay effect
	ROI ratio (95% UI)	ICER (95% UI)
	<i>A\$ saving per A\$ invested</i>	<i>A\$ per QALY gained</i>
Base case analysis	6.0 (-29.6 to 61.2)	Dominant (Dominant to \$273,053)
SA1 – GP screening	5.2 (-10.1 to 27.9)	Dominant (Dominant to \$270,600)
SA2 – Intervention delivery in a private setting	2.5 (-4.8 to 13.3)	Dominant (Dominant to \$527,077)
SA3 – Accounting for training costs	5.1 (-9.8 to 27.8)	Dominant (Dominant to \$325,394)

Abbreviations: 95% UI - 95% uncertainty interval; A\$ - Australian dollars; QALY - Quality-adjusted life years; ICER - incremental cost-effectiveness ratio;

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