

Impact of Child Maltreatment on the Costs of Health Service Use and Productivity Loss: Findings from the Australian Child Maltreatment Study

RWD231

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OBJECTIVE: To estimate the costs of health service use and productivity loss associated with child maltreatment in Australia.

BACKGROUND

- Child maltreatment (CM)** - is a major public health concerns and highly prevalent in Australia and worldwide [1].
- Nearly **2 in 3** Australians (62.2%) experienced some forms of child maltreatment [2]
- Australians who experienced **child maltreatment** have [3]:
 - 3.1x Risk of anxiety disorder
 - 4.6x Risk of PTSD
 - 4.6x Risk of suicide
 - 2.6x Risk of alcohol abuse
 - 1.39x Risk of overnight admissions
 - 2.37x Health consultation with GPs
- Research gap:** Annual **costs of health service use (HSU)**, including health consultations and overnight hospital admissions, as well as **costs of productivity losses** among **Australians** with **child maltreatment** from a societal perspective still remains **unknown**.

METHOD

- Data from the **Australian Child Maltreatment Study** was used
 - Measurements:**
 - Child maltreatment:** Juvenile Victimization Questionnaire-R2: Adapted Version
 - Health Service Utilization & Employment:** National Survey of Mental Health and Well-Being HSU module (Adapted)
- Micro-costing** methodology was used to **estimate the cost of HSU**
 - Health consultation: Frequency of visits (ACMS) x Weighted unit cost of visit (MBS Online Medicare Benefits Schedule)
 - Overnight hospitalization: $[PW \times A_{paed} \times (1 + A_{res})] \times NEP$
 - Price Weights ↓ Paediatric adjustment
 - Residential ↑ adjustment ↓ National Efficient Price
 - Total Health Service Use Cost
- Two-part models** were utilized to analyze the **costs of HSU**
 - Part 1: Logistic regression** To estimate the *probabilities* of accessing healthcare services & incurring any costs
 - Part 2: Generalized linear model** To estimate the costs among service users (*cost per user*)
 - Both parts were adjusted for age, sex, BMI, socioeconomic status, geographic remoteness, and current financial stress
 - Comparisons:**
 - No Maltreatment vs Any maltreatment
 - No Maltreatment vs Each type of maltreatment
 - No Maltreatment vs Number of maltreatment types
- The **human capital approach** estimated the **productivity loss**

RESULTS

1. Costs of health consultation services (HCS)

Child Maltreatment Classification	Average annual per person costs A\$ [95% CI]				
	Psychologists	Allied health professionals	Psychiatrists	General practitioner	All health consultations
No maltreatment	109 [88, 131]	168 [145, 192]	21 [14, 29]	233 [220, 246]	759 [707, 812]
Any maltreatment	362** [324, 402]	323** [286, 360]	155** [124, 187]	346** [327, 365]	1459** [1373, 1545]
Any emotional abuse	511** [452, 573]	381** [328, 435]	239** [184, 297]	391** [364, 419]	1783** [1645, 1919]
Any physical abuse	423** [366, 485]	352** [300, 406]	205** [159, 254]	381** [355, 407]	1629** [1505, 1752]
Any sexual abuse	481** [416, 549]	378** [325, 433]	191** [141, 246]	407** [378, 436]	1778** [1638, 1918]
Any neglect	630** [499, 772]	515** [389, 650]	321** [186, 473]	473** [415, 530]	2293** [1916, 2654]
Any exposure to domestic violence	402** [353, 453]	332** [289, 379]	177** [135, 223]	356** [332, 380]	1543** [1425, 1661]
1 type of maltreatment	191** [148, 237]	242** [196, 293]	50** [34, 67]	283** [255, 312]	1069** [966, 1177]
2 types of maltreatment	302** [247, 359]	295** [233, 361]	134** [94, 180]	326** [295, 358]	1318** [1177, 1457]
3 or more types of maltreatment	560** [486, 640]	418** [350, 487]	255** [191, 324]	421** [389, 453]	1920** [1742, 2098]

Notes: *p < .05; **p < .01

- a) CM vs No CM:** Costs of HCS was nearly **2x higher** among those with **CM**; **Mental health** related consultations were among the **largest contributors**.
- b) Each type of CM vs No CM:** Experiencing **any of the CM subtypes**, especially **neglect and emotional abuse**, led to considerably **higher costs of HCS**.
- c) Number of CM types vs No CM:** Costs of HCS increased with the **number of CM types** experienced. **Mental health** services were the **largest contributors** for those with **≥3 types**.

2. Costs of overnight hospital admissions (OHA)

Child Maltreatment Classification	Average annual per person costs A\$ [95% CI]		
	Mental Health	Physical health	All hospital admissions
No maltreatment	151 [13, 336]	1081 [897, 1286]	1255 [1036, 1488]
Any maltreatment	720** [444, 1031]	1554** [1383, 1735]	2171** [1842, 2508]
Any emotional abuse	1187** [621, 1854]	1568** [1355, 1792]	2471** [2008, 2970]
Any physical abuse	1138** [661, 1676]	1800** [1525, 2096]	2589** [2132, 3083]
Any sexual abuse	891** [455, 1414]	1772** [1519, 2043]	2455** [2032, 2910]
Any neglect	1748** [434, 3386]	1607** [1181, 2079]	2862** [1880, 3942]
Any exposure to domestic violence	840** [447, 1279]	1539** [1329, 1761]	2201** [1826, 2596]
1 type of maltreatment	148 [40, 296]	1395 [1116, 1696]	1651 [1281, 2056]
2 types of maltreatment	400 [151, 727]	1546* [1184, 1942]	1987** [1523, 2488]
3 or more types of maltreatment	1642** [685, 2751]	1711** [1445, 1992]	2767** [2152, 3418]

Notes: *p < .05; **p < .01

- a) CM vs No CM:** Costs of OHA was significantly **higher** among those with **CM**; **Both physical & mental health** admissions contributed to the increased costs.
- b) Each type of CM vs No CM:** Experiencing **any of the CM subtypes**, especially **neglect and emotional abuse**, led to considerably **higher costs of HCS**.
- c) Number of CM types vs No CM:** Costs of HCS increased with the **number of CM types** experienced. **Mental health** services were the **largest contributors** for those with **≥3 types**.


3. Costs of health service utilization (HSU)

Child Maltreatment Classification	All health services
	Average annual per person costs A\$ [95% CI]
No maltreatment	2014 [1736, 2294]
Any maltreatment	3684** [3315, 4057]
Any emotional abuse	4442** [3779, 5092]
Any physical abuse	4302** [3703, 4896]
Any sexual abuse	4443** [3836, 5051]
Any neglect	5697** [4155, 7270]
Any exposure to domestic violence	3780** [3318, 4236]
1 type of maltreatment	2678* [2239, 3115]
2 types of maltreatment	3201** [2678, 3716]
3 or more types of maltreatment	4997** [4176, 5825]


Notes: *p < .05; **p < .01


- a) CM vs No CM:** Individuals with **any experience of CM** had significantly **higher total HSU costs** compared to those **without CM**
- b) Each type of CM vs No CM:** Experiencing **any of the five CM subtypes**, especially **neglect & sexual abuse**, led to **higher HSU costs**
- c) Number of CM types vs No CM:** A clear **dose-response relationship** was observed between the **number of CM types experienced** and the **costs of HSU**.

4. Annual Incremental Costs Associated with Child Maltreatment in Australia


**Healthcare service utilization:**

A\$21.6 Billion



**Productivity loss due to unemployment:**

A\$24.1 Billion



A\$45.7 Billion

CONCLUSIONS

- Child maltreatment** significantly **increases the costs of HSU and productivity loss** in Australia.
- Child neglect** had the **highest incremental costs** among the 5 CM subtypes.
- Dose-response relationship** was observed as **costs rose progressively** with more CM subtypes.
- Findings highlight the **urgent need to invest in preventive interventions** for CM in Australia.

References:

- [1] Carr, A., Duff, H., & Craddock, F. (2020). A Systematic Review of Reviews of the Outcome of Noninstitutional Child Maltreatment. *Trauma, Violence & Abuse*, 21(4), 828–843.
- [2] Mathews, B., Pacella, R., Scott, J. G., Finkelhor, D., Meinck, F., Higgins, D. J., Erskine, H. E., Thomas, H. J., Lawrence, D. M., Haslam, D. M., Malacova, E., & Dunne, M. P. (2023). The prevalence of child maltreatment in Australia: Findings from a national survey. *Medical Journal of Australia*, 218(S6), S13–S18. <https://doi.org/10.5694/mja2.51873>
- [3] Haslam D, Mathews B, Pacella R, Scott JG, Finkelhor D, Higgins DJ, Meinck F, Erskine HE, Thomas HJ, Lawrence D, Malacova E. (2023). The prevalence and impact of child maltreatment in Australia: Findings from the Australian Child Maltreatment Study: Brief Report. Australian Child Maltreatment Study, Queensland University of Technology.

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