

Parental Cancer and Adult Children's Sickness Absence in a Nordic Welfare Context

Astri Syse¹, Michael J Thomas (presenting author, mjt@ssb.no)^{1,2}, Øystein Kravdal¹

¹Norwegian Institute of Public Health, Oslo, Norway. ²Statistics Norway, Oslo, Norway.

It is well known that young children and adolescents can be severely affected by serious parental health shocks in general, and cancer specifically. In short, parental cancer may have significant negative psychological, social, and behavioural impacts on adolescent and young adult offspring, and especially if the cancer leads to death. Some studies suggest that daughters are more severely affected than sons (McDonald et al., 2016), whereas others do not detect gender differences in impact (Inhestern et al., 2021), or only study one sex (Chen et al., 2018). The importance of the gender of the parent with cancer is less researched, and most research examines mothers (Momen et al., 2019) and not fathers, or suggests that the mother-daughter dyad is most severely affected (Huizinga et al., 2011). Adult offspring may also be affected, but there is much less research on potential negative health outcomes, labour market efforts or welfare uptake for offspring in prime working age with a parent seriously ill from cancer.

Prime working age, here defined as 30-40 years of age, is a critical period in life when individuals often carry several demanding and sometimes competing social roles, e.g., balancing work commitments with the simultaneous demands of child rearing. In the case of poor health in parents, these existing demands are often expanded to include caregiving to parents, a situation which places affected adult children into the so-called 'sandwich generation' of intensive caregivers (Grundy & Henretta, 2006). While calls have long been made to better understand the impacts on this subgroup of caregivers in the context of care provision to family members with cancer (Kim & Given, 2008), few (if any) empirical studies have emerged to meet these calls.

Against this backdrop, improving current understanding of *who* experiences the greatest burdens, and what these burdens are, thus carries potential implications for the planning of sustainable modern welfare societies, for formulating policies that safeguard family members' coping skills and ability to work, as well as for grasping the possible impacts in terms of productivity loss and costs.

The Norwegian setting

Norway has a comprehensive welfare state, with public health care universally accessible and provided to all residents at minimal direct cost. Financial barriers to medical care are therefore negligible, and as in most Western contexts, the Norwegian system largely compensates employees for illness-related income loss. The extensive public provision of healthcare services, including home health care and palliative care, reduce reliance on family caregiving and may mitigate potential trade-offs between work and care responsibilities among adult children (Løken et al., 2017). Nevertheless, formal care does not fully replace family involvement: estimates suggest that close to half of adult care in Norway is provided by family members (Rostgaard et al., 2022). Labour market participation among adults in their 30s is high for both women (>80%) and men (>90%). Although part-time work is more common among women, most individuals studied here are employees with incentives to obtain a doctor-certified sickness absence certificate if health problems interfere with work.

Research questions, data and methods

RQ₁: Does parental cancer affect adult offspring's sickness absence?

RQ₂: Do the effects vary over the years following a parental cancer diagnosis?

RQ₃: Do the effects depend on whether the parent with cancer remains alive or dies?

RQ₄: Are the patterns similar across the main diagnoses resulting in sickness absence (mental health, musculoskeletal or neither)?

RQ₅: Do the effects vary depending on the sex of the parent and/or adult offspring?

RQ₆: How do the effects of parental cancer compare with those observed after other life crises (divorce or spousal death)?

We address these questions using register data covering the entire Norwegian population, focusing on offspring aged 30–40 years (prime working age) when their parent is diagnosed with cancer, and examining their sickness absence within the same age interval during 2000–2018. We apply individual fixed-effects models to account for all time-invariant factors, including unobserved characteristics that may influence both the probability of parental cancer and offspring sickness absence. Our outcome measure is doctor-certified sickness absence (measured in days), which is objectively recorded and tied to the receipt of sickness benefits.

Since the offspring will be older at follow-up, and age itself may affect sickness absence, it is important that we control for age. This was done by including an age-control group, who only contribute to the age effects, while the remaining sample (our population of interest) contributes to the estimation of time-since diagnosis effects.

Preliminary results

Summary statistics

Table 1 shows the number of one-year observations included in the analyses, the number of individuals contributing to these observations, and the averages of the outcome variable. In the main analysis of parental cancer, more than 100,000 affected individuals are included, contributing on average approximately 9.4 person-years each.

Table 1. Number of observations and proportions with a health care consultation within one year in the groups included in the analyses

	Group A: Offspring experiencing parental cancer diagnosis		Group B: Age control group		
	Number of one-year obs.	Number of offspring	Average value of outcome variable in the years before the event (days of SA) ²	Number of one-year obs.	Average value of outcome variable (days of SA) ²
Type of analysis	All years before the event:				
Parental cancer diagnosis/death	1,048,239	111,579	17.0	6,941,891	17.0

Notes: ¹Descriptive statistics of the main samples used. ²SA=Sickness absence.

Preliminary results for the effects of a parental cancer (diagnosis and death)

Figure 1 presents the estimated effects of parental cancer on offspring sickness absence, by time since diagnosis (from 10 years before to 8 years after). The point estimates suggest a slight increase in sickness absence prior to the parental diagnosis, although none of these estimates are statistically significant. In the year of the cancer diagnosis and the following year, offspring experience, on average, one additional day of sickness absence compared to the year immediately preceding the diagnosis. This corresponds to a 7 per cent increase of the average level over the years before the diagnosis (17 days, as shown in Table 1). In subsequent years, no significant differences are observed relative to the pre-diagnosis period. Overall, this indicates that the effect of a parental cancer diagnosis on offspring sickness absence is rather modest.

Whereas the impact associated with a parental cancer *diagnosis* is minor, the impact is more marked for cancer *death* (Figure 2). The greatest effect (an additional 6.5 days of doctor-certified sickness absence) is observed when the parent is diagnosed with a cancer that proves rapidly fatal and dies within the same year. More generally, the largest effects are in the year of parental cancer death. No significant effects are observed in the years following death. As such, it appears that sickness absence may be used as a temporary coping strategy. In next steps, we will identify the main diagnoses associated with sickness absence, with the expectation that mental health diagnoses will dominate. Beyond this, we will assess whether there is a larger response observed among adult daughters than sons, or when the mother has cancer as compared to the father. Finally, we will situate these effects with reference to those derived from equivalent models related to other life crises, namely divorce and spousal death.

The comprehensive Norwegian system of public health and care services likely mitigates the health response to parental cancer and the need for prolonged or large-scale labour withdrawal of family members. Where balancing labour market participation with rising demands for informal caregiving is a central challenge in ageing societies with (proportionally) shrinking working-age populations and wider age gaps between children and parents, this is a reassuring finding. In countries with less extensive public provision, the consequences for offspring may be more severe.

References:

- Chen, R., et al. (2018). Impact of parental cancer on IQ, stress resilience, and physical fitness in young men. *Clinical Epidemiology*, 10, 593-604.
- Gautun, H., & Bratt, C. (2024). Caring for older parents in Norway – How does it affect labor market participation and absence from work? *Social Science and Medicine*, 116722.
- Grundy, E., & Henretta, J. C. (2006). Between elderly parents and adult children: A new look at the intergenerational care provided by the 'sandwich generation'. *Ageing & Society*, 26(5), 707-722
- Huizinga, G.A., et al. (2011). Psychological impact of having a parent with cancer. *European Journal of Cancer*, 47 Suppl 3, S239-246.
- Inhestern, L. et al. (2021). Families Affected by Parental Cancer: Quality of Life, Impact on Children and Psychosocial Care Needs. *Frontiers in Psychiatry, Volume 12 - 2021*.
- Kim, Y., & Given, B. A. (2008). Quality of life of family caregivers of cancer survivors. *Cancer*, 112(S11), 2556-2568.
- Løken, K. V. et al. (2017). Lifting the Burden. *Journal of Human Resources*, 52(1), 247
- McDonald, F.E.J. et al. (2016). Correlates of unmet needs and psychological distress in adolescent and young adults who have a parent diagnosed with cancer. *Psycho-Oncology*, 25(4), 447-454.
- Momen, N.C. et al. (2019). Mental and behavioural disorders in the children of mothers diagnosed with cancer: A Danish population-based register study. *Psycho-Oncology*, 28(2), 408-414.

Ramirez Lizardi, E. et al. (2025). Effects of Health Shocks on Adult Children's Labor Market Outcomes and Well-Being. *Health Economics*, 34(10), 1804-1820.

Rostgaard, T. et al. (2022). Revisiting the Nordic long-term care model for older people—still equal? *European Journal of Ageing*, 19(2), 201-210.

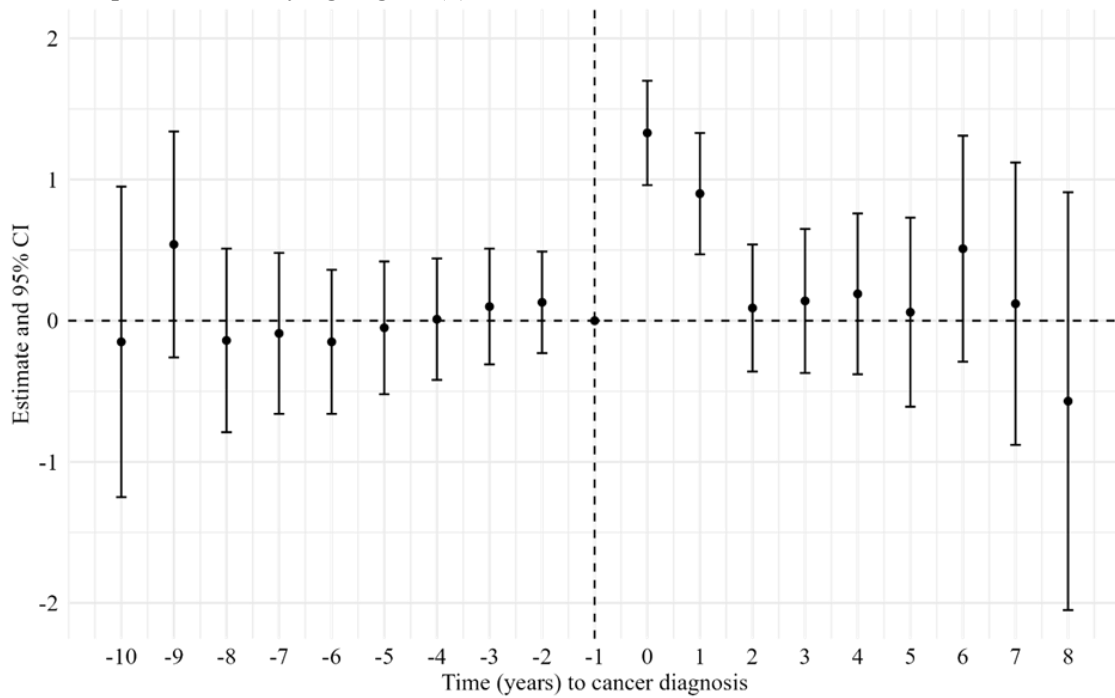


Figure 1. Effects of parental cancer diagnosis on offspring's annual days of sickness absence in years before and after the diagnosis

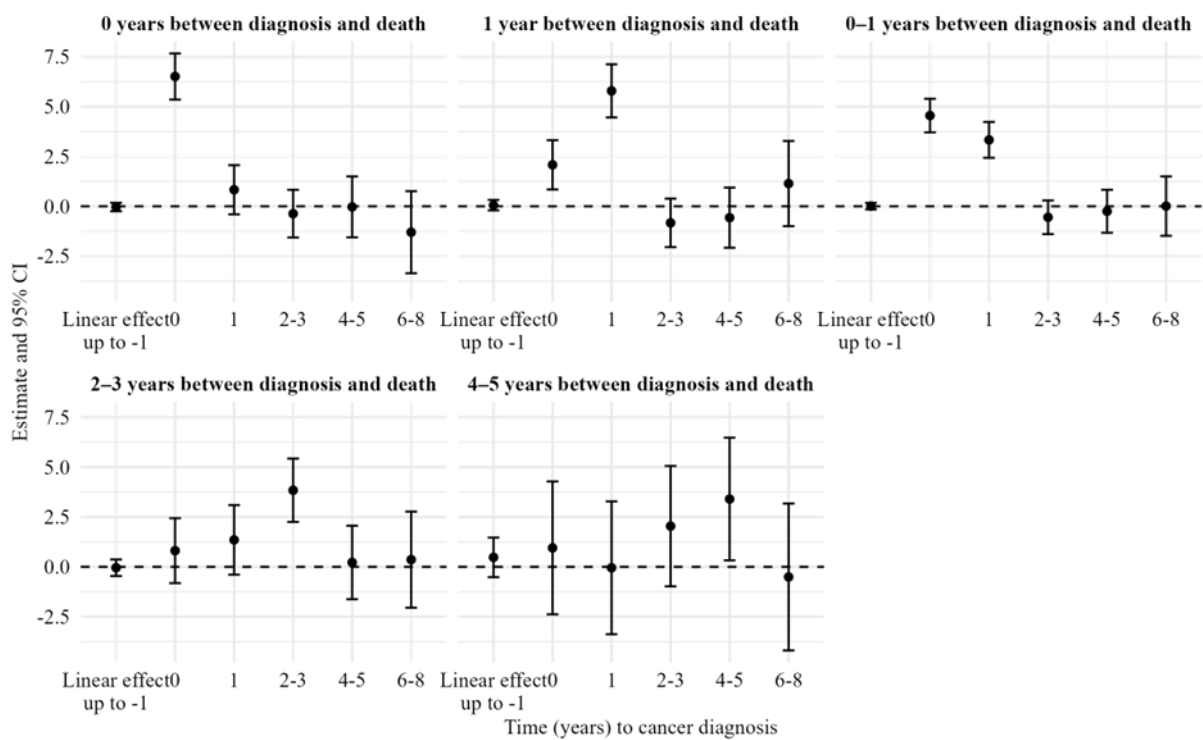


Figure 2. Effects of parental cancer diagnosis on offspring's annual days of sickness absence, among those whose parent with cancer died, at selected time periods between diagnosis and death