

Association between Socioeconomicdeprivation and Pancreatic Adenocarcinoma

Routes to Diagnosis and Patient Outcomes

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Introduction

- Socioeconomic deprivation (SED) is often associated with worst overall health outcomes and has been associated with poorer survival outcomes in pancreatic adenocarcinoma (PDAC) in other countries^{1,2,3}
- However, there is a paucity of data regarding SED and PDAC survival outcomes in the UK.
- This study aims to examine associations between socioeconomic deprivation (SED) and routes to diagnosis (RTD) and long-term survival outcomes in PDAC patients.

Methods

- Patients presenting with PDAC between 2015-2020 in Northeast England were analysed.
- Deprivation (index of multiple deprivation [IMD]) was sourced from the English Indices of Deprivation 2019. Patients were grouped into most deprived (IMD 1-3); intermediately deprived (IMD 4-7); least deprived (IMD 8-10).
- Outcomes included long-term survival and post-operative complications. Kaplan-Meier (KM) survival curves and Cox regression were conducted.

Results

- A total of 1,558 patients were included in the analysis. There was a higher proportion of patients belonging to the most deprived group compared to least deprived (**Fig. 1**)
- Patients from the most deprived group were more often diagnosed via emergency presentations compared to less deprived patient groups (**Fig. 2**)

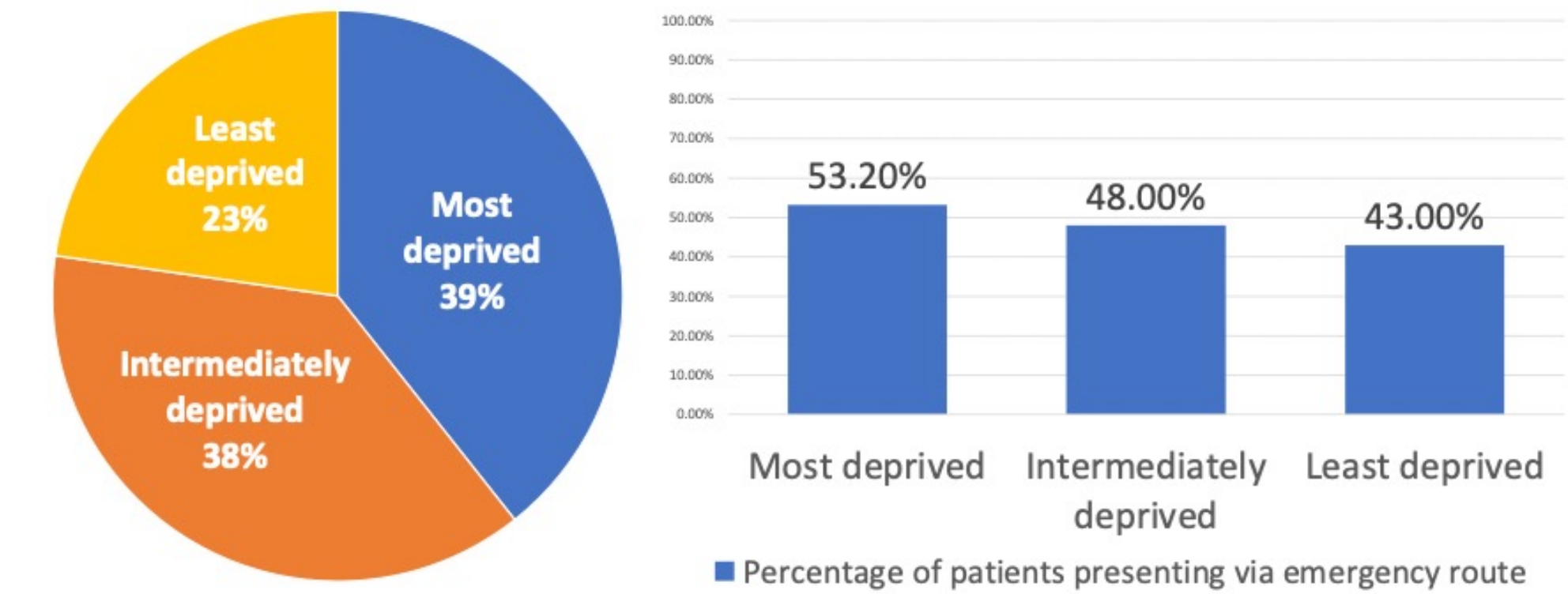


Figure 1: cohort by SED group

Figure 2: emergency presentation percent by SED groups

- Kaplan-Meier analysis demonstrates significantly poorer survival for more deprived groups (p=0.010) with shorter median survival length (**Figures 3 and 4**)

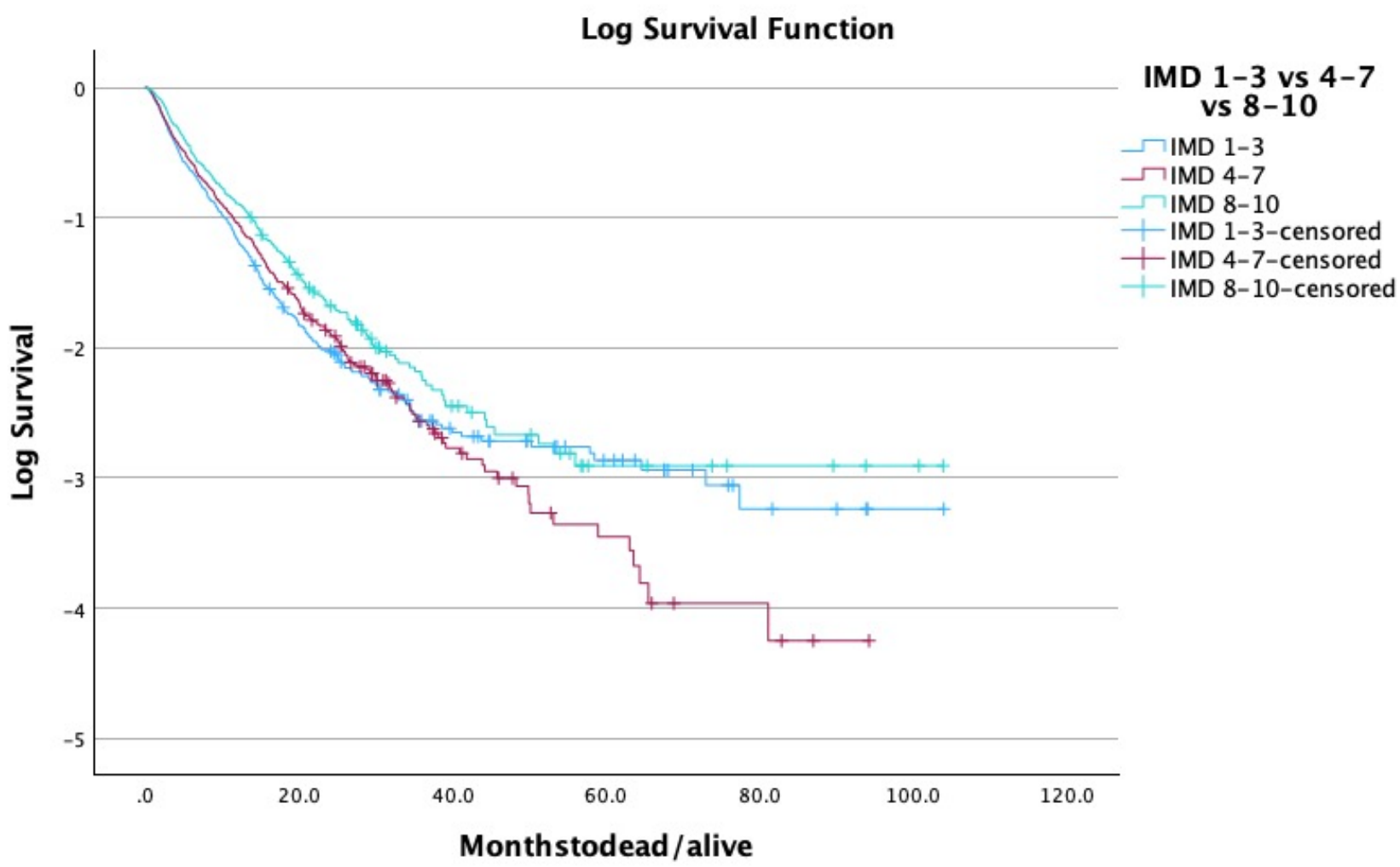


Figure 3: Kaplan-Meier survival analysis

Results

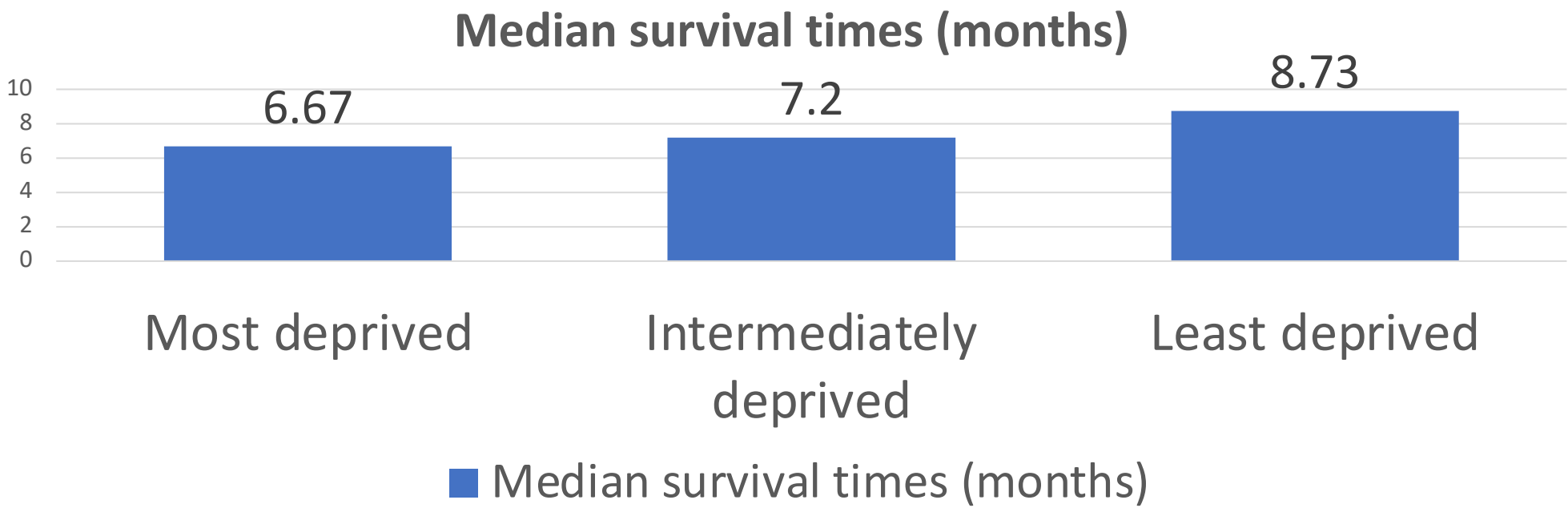


Figure 4: median survival times by SED groups

- Post-operative complications did not differ significantly by deprivation (**Table 1**)

	Most deprived	Intermediately deprived	Least deprived	P-value
Post-op mortality	0 (0.00%)	0 (0.00%)	1 (1.90%)	0.257
Length of hospitalisation (IQR)***	15.00 (9.00 – 23.00)	15.00 (10.00 – 22.00)	16.50 (10.00 – 25.50)	0.581
Overall post-op complication	18 (24.3%)	22 (31.0%)	17 (31.5%)	0.583

Table 1 – operative outcomes by SED group

- Significant predictors of emergency presentation include older ages, poor ECOG scores and socioeconomic deprivation. Sex was not significant (**Table 2**)

	Multivariate HR (95% CI)	P-value
Age 60-69	0.553 (0.306 – 0.998)	0.049*
Age 70-79	0.411 (0.228 – 0.741)	0.003*
Age 80 and above	0.520 (0.277 – 0.974)	0.041*
Male gender	0.987 (0.800 – 1.22)	0.901
Most deprived	1.33 (1.003 – 1.75)	0.048*
ECOG status 1	1.20 (0.927 – 1.55)	0.166
ECOG status 2	1.54 (1.13 – 2.10)	0.006*
ECOG status 3 and 4	2.20 (1.47 – 3.31)	<0.001*

Table 2 – Logistic regression estimating odds of emergency presentation

- Significant predictors of mortality include older age >70, poor ECOG scores, socioeconomic deprivation, emergency presentation and ethnicity. Sex was not significant
- SED was a significant predictors of survival (HR = 1.25, most vs least deprived, p=0.003) independent of age and performance status. (**Table 3**)

Results

	Multivariate HR (95% CI)	P-value
Age 70-79	1.42 (1.04 – 1.94)	0.026*
Age 80 and above	1.91 (1.37 – 2.67)	<0.001*
Male sex	0.928 (0.833 – 1.04)	0.179
Most deprived	1.25 (1.08 – 1.45)	0.003*
ECOG status 1	1.31 (1.15 – 1.50)	<0.001*
ECOG status 2	2.14 (1.82 – 2.52)	<0.001*
ECOG status 3 and 4	4.55 (3.67 – 5.63)	<0.001*
Non-British White	1.25 (1.04 – 1.51)	0.017*
Emergency presentation	1.00	–
GP 2WW	0.816 (0.724 – 0.920)	<0.001*
GP non-2WW	0.630 (0.507 – 0.783)	<0.001*
Outpatient	0.648 (0.516 – 0.814)	<0.001*
Inpatient	0.351 (0.129 – 0.950)	0.039*

Table 3 – Cox Proportional Hazards Regression of factors associated with mortality

Conclusion

- Socioeconomic deprivation is associated with poorer survival outcomes and diagnosis by emergency presentation.
- Given the rising incidence rates of pancreatic cancer in the UK and the substantial health inequalities in the Northeast⁴, its disease burden is likely to increase over time and a need for effective healthcare solutions to improve patient outcomes and reduce health inequalities

References

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