Deprivation and access to care among patients with melanoma in the UK

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BACKGROUND AND OBJECTIVES

- Malignant melanoma is the fifth most common cancer in the United Kingdom and a leading cancer in average years of life lost.[1]
- Surgical resection is the main treatment for early-stage melanoma. Other therapeutic options for more advanced melanoma include chemotherapy, immunotherapy, targeted cancer drugs, and laser treatment.[2]
- It is not known, however, whether access to and utilization of melanoma treatment vary equitably.
- The aim of this research was to describe the patient journey using digital real-world data, and to investigate melanoma care disparities based on deprivation index data from residential postcodes.[3]

DATA

- The Melanoma UK Study is an observational, noninterventional digital registry of real-world data from people living with melanoma and its treatment in the United Kingdom.[4]
- The Melanoma UK Study was active from 2016 to 2021 with 1072 consenting participants and 2.6 years of average follow-up.

METHODS

- Components of the disease pathway were mapped using cross-sectional baseline data provided by study participants including diagnosis, staging, and interventions received.
- Deprivation index scores were assigned based on official English indices for residential postcodes reported by the study respondents and categorized based on quintiles.[3]
- Chi-squared tests were conducted, under a null hypothesis of no relationship, between deprivation quintiles and the following participant-reported data:
  - Whether respondents reported taking drug monotherapy or combination therapy
  - The specific drug therapies that respondents reported
  - Eastern Cooperative Oncology Group (ECOG) Performance Status Scale
  - Melanoma stage at diagnosis
  - Receipt of *BRAF* testing
  - Previous surgery

RESULTS

- There were 892 of the 1072 participants with postcode information and linked deprivation data; sample sizes for clinical data were smaller, ranging from 96 to 362 participants.
- Summary results for participants (all 1072) at baseline are provided in **Figure 1**.
- Participants resided in areas less deprived on average than the general population: 24% of the study were in the two most-deprived quintiles and 55% of the study were in the two least-deprived quintiles, rather than 40% for each as would be expected.
- There were no clear social gradients across melanoma stage at diagnosis, *BRAF* testing, prior surgery, or ECOG performance status.
- Drug therapies present a mixed picture. Overall, 60% of all drug therapy utilization was in participants residing in the two least deprived areas, vs 55% which would have been expected based on the population distribution.
- There is a statistically significant difference (*P*-value = 0.000) between deprivation and any drug vs no drug therapy (**Figure 2**), but not a statistically significant difference (*P*-value = 0.874) in mono- vs combination therapy regimens (not shown).
- There is a statistically significant difference (*P*-value = 0.047) between the distributions of deprivation and whether the drug therapy was exclusively immunotherapy (nivolumab, ipilimumab, nivolumab + ipilimumab, pembrolizumab) or not.
- We found that 65% of any immunotherapy use was in the least two deprived quintiles compared with 18% in the two most deprived, whereas the equivalent rates for no immunotherapy use were 49% in the least two deprived quintiles and 29% in the two most deprived (**Figure 3**).
- A range of utilization rates by regimen was observed, with no apparent social gradient (**Figure 4**).

FIGURE 1. Participant Characteristics

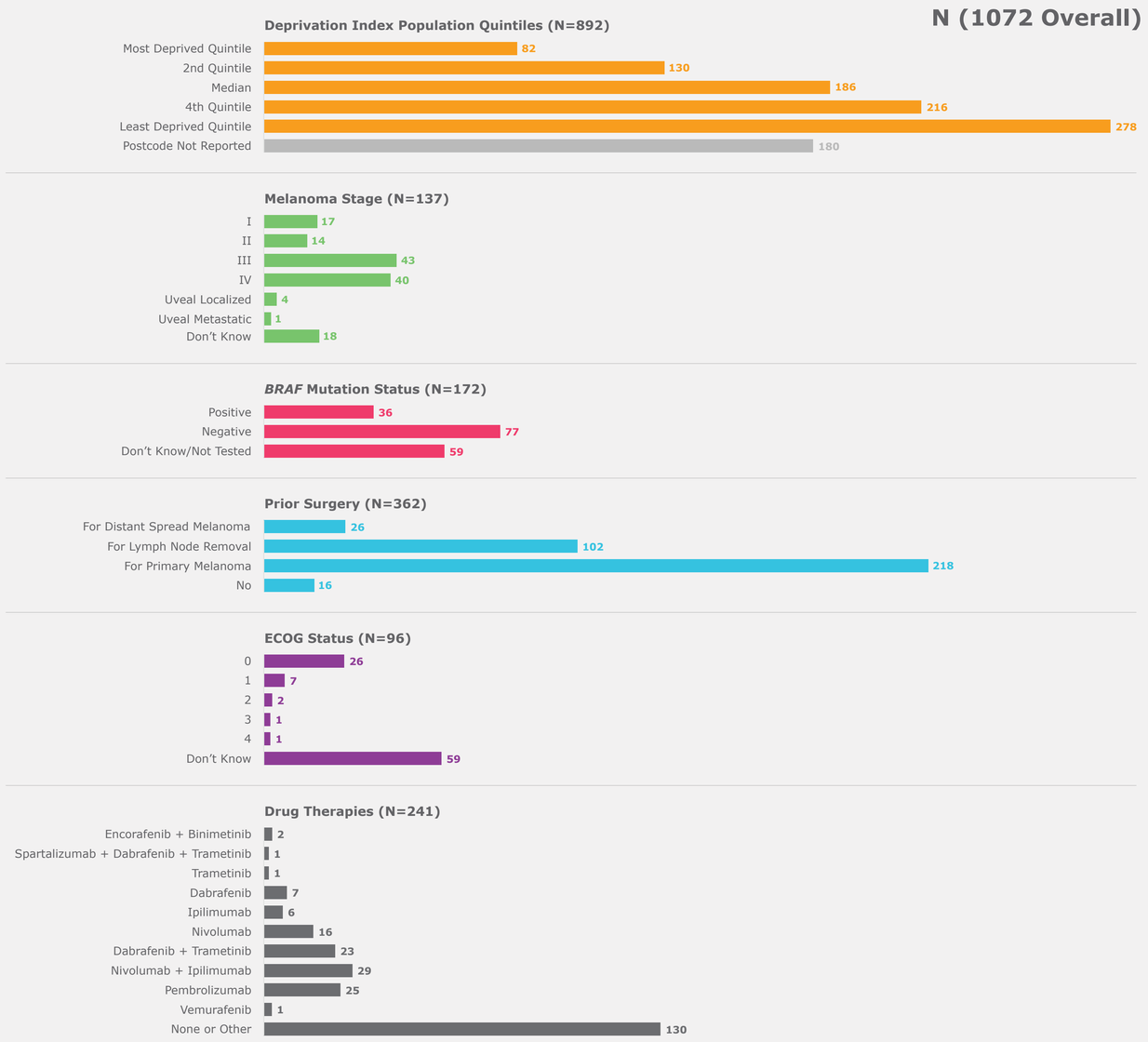


FIGURE 2. Comparison of deprivation among respondents reporting use of any drug therapy or no drug therapy (Chi-squared *P*-value = 0.000)

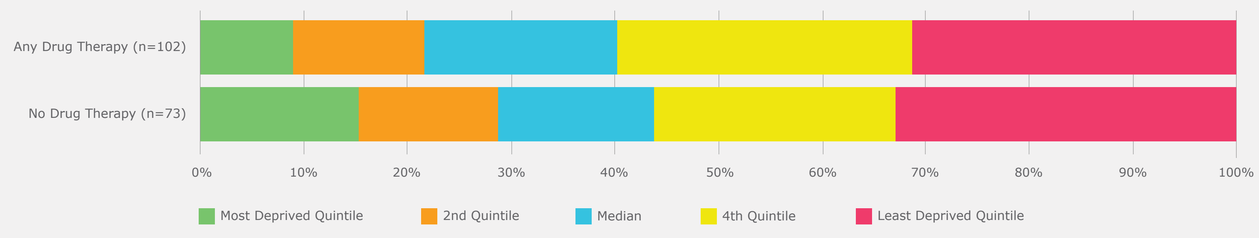


Figure 3. Comparison of deprivation among respondents reporting immunotherapy utilization (Chi-squared *P*-value = 0.047)

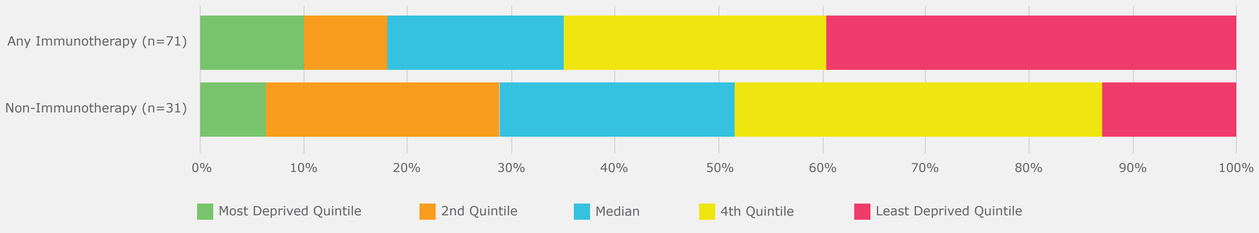
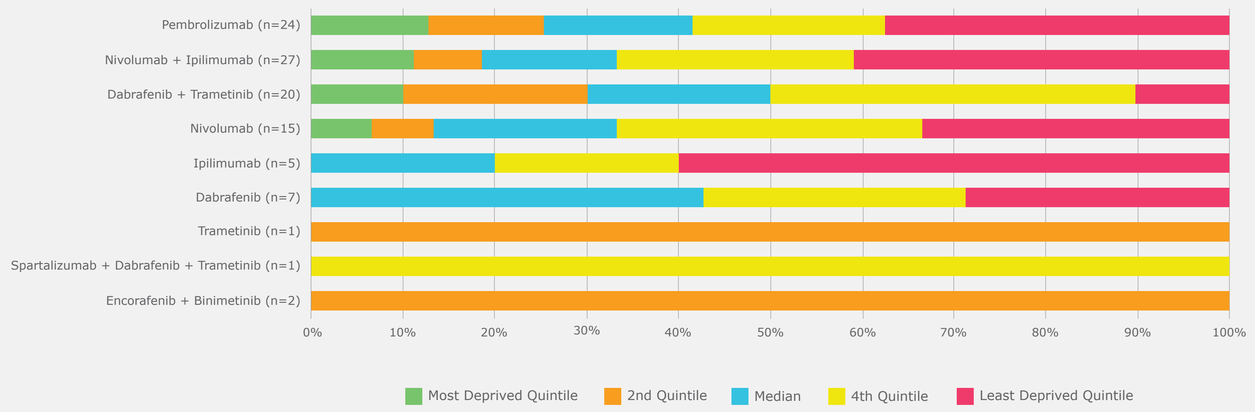


Figure 4. Comparison of deprivation among respondents reporting drug therapies by regimen



LIMITATIONS

- Multiple challenges exist in using digital real-world data to map the patient journey, in particular, low completion rates and population representativeness.
- Completion rates were heterogeneous not only across participants but also across questions and surveys. In this case, low rates of completion meant some unreliable tests.
- More participants resided in low deprivation than high deprivation areas, which may have resulted in selection bias.
- Despite the limitations, however, these data appear to show inequalities in use of immunotherapies vs other therapy, even while reported use by regimen shows no social gradient.

CONCLUSION

- The differences that we found in the utilization of immunotherapies across deprivation categories suggest that disparities do exist that should be addressed.
- Reducing health disparities in the United Kingdom will require more detailed individual data and analysis.

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