Socioeconomic background in relation to stage at diagnosis in women with breast cancer.

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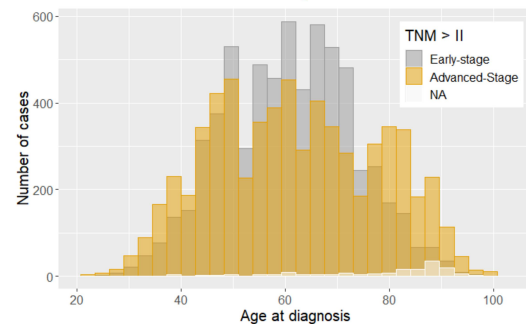
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It's Time to Consider the Causes of the Causes

Breast cancer (BC) risk has been associated with socioeconomic status and residence context. However, it's still unclear how these factors interplay to affect the proportion and incidence of early and advanced BC.

## The role of socioeconomic background in breast cancer inequalities ?

Taking advantage of the Loire-Atlantique/Vendée cancer registry (France), we investigated the association between **early** (TNM stage < 2) and **advanced** (TNM stage ≥2) BC and the **socioeconomic background (SB)** of women diagnosed in the study region from 2008 to 2015 (14,542 BC cases (**<45**=12%, **45-74**=79% & **>74**=19%)).

Residence information at the smallest geographical unit of France (~2000 inhabitants) was used to approach by the socio-economic status (French-European Deprivation Index(MapInMed platform INSERM U1086, Caen)) and the urban/rural context (INSEE) of the study population.

We created a composite variable to define 4 categories: Affluent-Urban, Affluent-Rural, Deprived-Urban & Deprived-Rural.
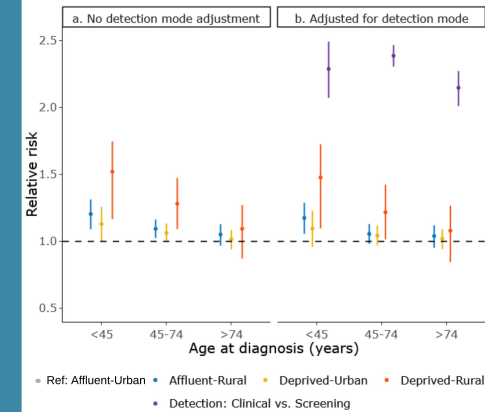

The impact of the socioeconomic background on BC incidence vary according to the age and stage at diagnosis.

· Ref: Affluent-Urban · Affluent-Rural · Deprived-Urban · Deprived-Rural
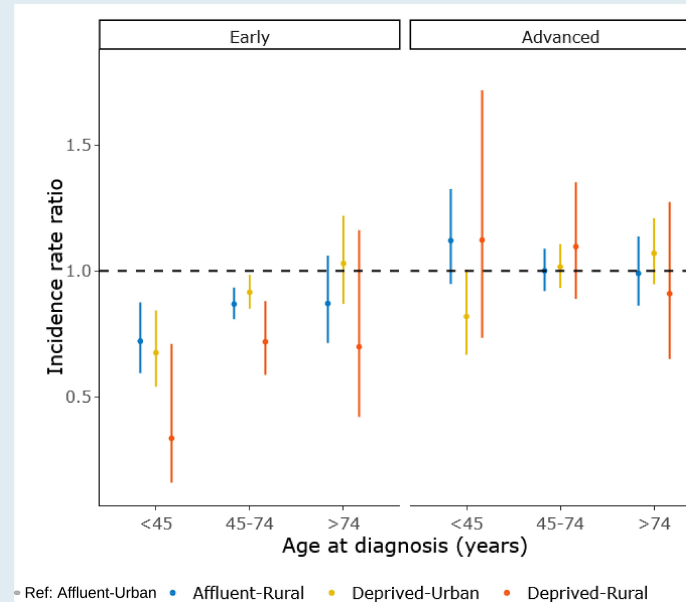
Advanced stage at diagnosis was more frequent among deprived–rural women aged under 74 years and coincided with the low incidence rates of early stages in this population. No inequities in the incidence rates of advanced BC were detected according to the SB in any age class, suggesting other factors may be stronger contributors to the advanced stage at diagnosis.

Our findings will be useful for health-care planning in reducing BC inequities, because early diagnosis and access to BC treatment still representing main barriers for deprived and rural populations. Furthermore, implementing preventive actions against obesity, alcohol consumption and sedentarism in target populations may contribute in the reduction of BC inequities.

In terms of proportions ...

· Ref: Affluent-Urban · Affluent-Rural · Deprived-Urban · Deprived-Rural
· Detection: Clinical vs. Screening

· Women aged under 74 years living in deprived-rural areas faced a greater proportion of advanced BC stage at diagnosis compared with those living in affluent-urban areas.
· After adjustment by detection mode, the effects of SB remained unchanged.

But the problem with proportions is the influence of the population size.
e.g: sizes of rural populations are often smaller than urban ones.

In terms of rates !
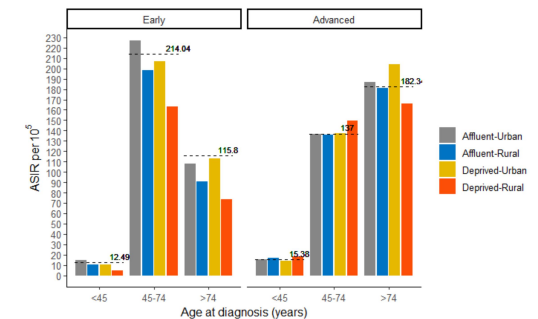
ASIR= age-standardized incidence rate; ---------- Mean ASIR by group age

In women populations under 74 years:
· *Affluent-Urban* areas had the highest **early** ASIR, whereas *Deprived-Rural* areas had the highest **advanced** ASIR.

In women populations over 74 years:
· *Deprived-Urban* areas had the highest **early & advanced** ASIR, whereas *Deprived-Rural* areas had the lowest **early & advanced** ASIR.

What next?

Future studies should address whether the role of detection practices may influence the inequities in the early stage at diagnosis for women under 74 years. Likewise, further efforts are required in identifying the main determinants of BC in women over 74 years. Finally, next investigations need to determine the link between socioeconomic background and the main reproductive factors that are causally associated with BC, such as breastfeeding, parity and age at first childbirth. *This study was supported by SIRIC-ILIAD, INCA-DGOS-Inserm_12558*