



Soft factors have an impact on health status

Cancer, social status and socioeconomics

When it comes to cancer mortality why does one person of the exact same age and sex with the exact same cancer diagnosis die and another survive?

To gain a better understanding of this, 'soft factors' including the social status and socioeconomic status pertaining to cancer patients were examined, to look for clues as to who would go on to become the cancer survivors, and who would not.

The life insurance industry routinely suggests ratings for applicants with a history of a cancer diagnosis based on specific cancer type, stage of disease, histological grade and number of years since diagnosis.

These factors will understandably vary slightly by company or by cancer type and a final underwriting decision is then determined not only by these factors, but also by the applicants' co-morbidities and overall health status.

Life ratings for a history of cancer are usually derived from evidence based resources such as the Seer¹ database.

This paper describes the recent research efforts made looking into these other so called 'soft factors', which may or may not impact cancer prognosis.

¹ The 'Surveillance, Epidemiology and End Results Program' of the National Cancer Institute in the US, which collates and provides information on cancer statistics in the US. It is widely considered the premier cancer database globally.

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Best wishes,

Gabriele Teichmann

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Social support

The first factor studied was that of social support. A meta-analysis² of 87 studies assessing the associations between social networks and cancer mortality looked at:

- Network size
- Marital status
- Perceived social support

They found that having a larger social network leads to a decrease in relative risk for mortality of up to 20%. Likewise, a perception of having a high level of social support decreased the relative risk by up to 25% and matrimony decreased the relative risk by up to 12%. Given these significant findings the reasons for their influence needs to be considered further.

This paper postulates that the reasons for these improvements are psychological and biological effects that increase survival.

With regard to psychological responses, we know that marriage and maintaining a larger social network are protective of individuals and associated with better health outcomes. Those with a large circle of friends, along with a supportive spouse, tend to suffer from less mood disorders such as depression.



Social contacts have positive impacts on health

² Pinquart / Duberstein, M., Pages 122 - 137

The lifestyles of those with a larger social network also tend towards healthier behaviours such as better diets, improved overall engagement with healthcare services owing to the support they receive - for example a network of family and friends taking turns to drive the person to their healthcare appointments.

These individuals have more reliable access to health care and assistance with navigating its complexities and are more likely to receive proactive cancer treatment, thereby enabling them to make more effective treatment decisions³.

Those with a large circle of friends, along with a supportive spouse, tend to suffer from less mood disorders such as depression.

With regard to biological responses, there is evidence to suggest lower cortisol levels and improved immunity (through higher natural killer cell activity) which ultimately results in better health outcomes for these individuals.

In light of the significant decrease in the relative risk of mortality in individuals with a higher perceived level of spousal and social support it is important to consider the evidence from those without such social support.

The stark differences between various groups are:

Group	Increase in relative risk
never married as compared to those who are married	23%
divorced or separated compared to those who are married	16%
widowed compared to married	14%

³ Pinquart / Duberstein, M., Pages 122 - 137

It must be pointed out that part of this increase in mortality observed in single individuals whom are widowed may in fact be a response to the loss of a spouse rather than as a result of the lack of support offered by a spouse.

The social support offered by mothers to children and teenagers plays an integral role in determining survival. Interestingly, teenagers with acute leukaemia live longer than other acute leukaemia sufferers.

This is most likely as they are treated by paediatric Oncologists rather than adult oncologists, which tends to result in better engagement with both mother and teenager in general.

Overall the literature review conducted on this topic strengthened the hypothesis that having greater social support improves cancer survival outcomes and armed with this information a closer look these factors in the context of breast cancer, a politically high profile cancer, was taken.

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Social support and breast cancer

To this end, we reviewed a study⁴ which included a sample of 2,835 women from the Nurses' Health Study.

All participants had been diagnosed with breast cancer which included 224 deaths over the course of the study.

Social networks were assessed three times over the course of the study (1992-2002) using the Berkman-Syme Social Networks Index.

This study found that socially isolated women had an elevated risk of mortality after a diagnosis of breast cancer.

⁴ Kroenke, H. / ao, Pages 1105 - 1111

This was most likely because of lack of access to beneficial caregiving from friends, relatives and adult children.

Women without close relatives or living children also did worse than those with the most social ties.

Conversely, it was found that neither the participation in religious or community activities nor having a confidant was related to mortality outcomes.

The Berkman-Syme Social Network Index

A self-reported questionnaire for use in adults aged 18–64 years old that is a composite measure of four types of social connections:

1. marital status (married vs. not),
2. sociability (number and frequency of contacts with children, close relatives, and close friends),
3. church group membership (yes vs. no), and
4. membership in other community organizations (yes vs. no).

The Berkman-Syme Social Network Index allows researchers to categorize individuals into four levels of social connection:

1. socially isolated (individuals with low intimate contacts – not married, fewer than six friends or relatives, and no membership in either church or community groups),
 2. moderately isolated,
 3. moderately integrated, and
 4. socially integrated.
-

Social support and breast cancer

Number of living children

Children	All-cause mortality	Breast cancer mortality
None	4x	5.6x
1-2	2.4x	4.6x
3-5	2.4x	3.2x
6 or more	1.0	1.0

Number of close relatives

Relatives	All-cause mortality	Breast cancer mortality
None	1.66x	2.65x
1-2	1.52x	3.58x
3-5	1.1x	1.75x
6-9	1.31x	1.81x
10 or more	1.0	1.0

Social support: spotlight Japan

In light of Western studies supporting the notion that cancer outcomes are impacted by social support, it becomes important to validate this in other cultures.

A Japanese study⁵ which had prospectively examined the associations between the incidence and mortality of total and site-specific cancer, within a cohort of 44,152 Japanese men and women, aged 40-69 found that low social support is associated with higher risk of both colorectal cancer incidence and mortality in men.

However, social support was neither associated with other site specific cancer incidence nor cancer outcomes in women.

It appears that whilst the effect is still evident for certain populations the difference in cultural observations may be due to the concept of “burden”-, the act of offering support to one whilst they are suffering with cancer creating a burden – which may diminish the effect that the social support itself provides.

Socioeconomics

The role of socioeconomics and cancer survival was also examined and the following facts were considered:

- Socioeconomically disadvantaged individuals are disproportionately affected by cancer in the US.
- Residents of counties in the US with a greater than 20% poverty rate have a 13% higher death rate in men and 3% higher in women.
- 5yr survival rate is more than 10% higher for persons in affluent areas.
- Stage at diagnosis does not fully account for the socioeconomic differences in survival.

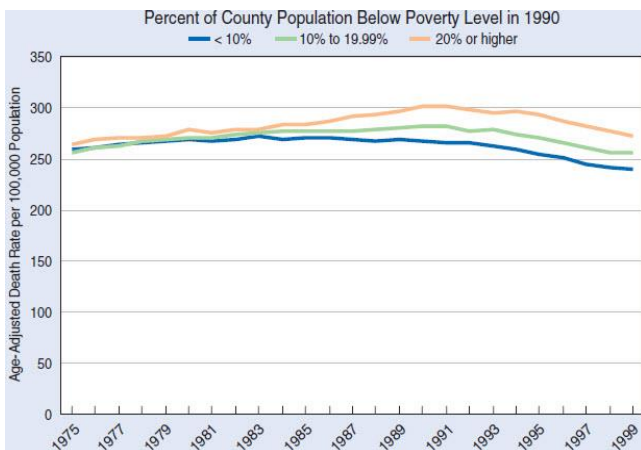


Access to health care ensures proactive cancer treatment

Recent cancer trends in the US demonstrated that in some instances the gap between cancer outcomes in socioeconomically diverse groups has been widening:

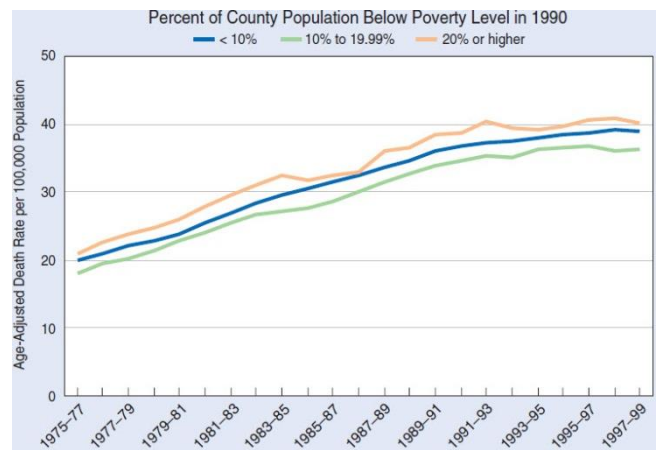
⁵ AI IKEDA, ao, Pages 847 – 860

Trends in lung cancer mortality among U.S. men, 1975-1999



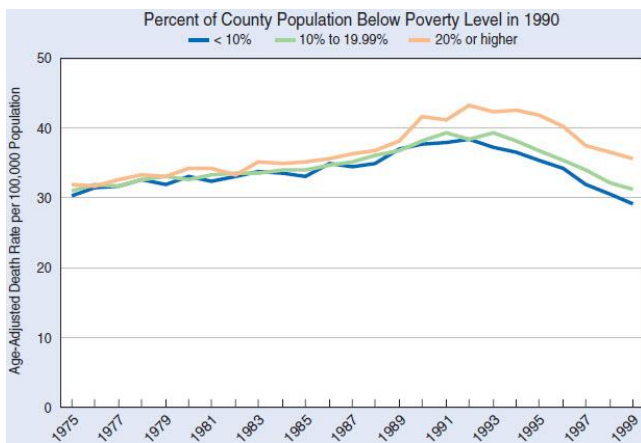
Singh GK, Page 38

Trends in SEER lung cancer mortality among women (three-year moving averages), 1975-1999



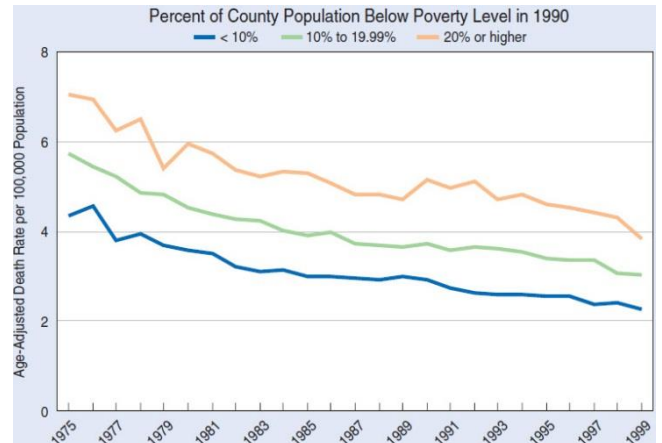
Singh GK, Page 39

Trends in U.S. prostate cancer mortality, 1975 -1999



Singh GK, Page 48

Trends in U.S. cervical cancer mortality, 1975-1999



Singh GK, Page 54

In other examples, the situation remains largely unchanged:

Based on the graphs above, socioeconomic status does play a role in cancer survival for which the explanations such as higher smoking rates amongst lower socioeconomic groups, increased occupational hazard exposure and lower rates of screening, may appear reasonable however this is not the case.

These factors explain incidence, rather than survival and instead it is factors such as diet and exercise habits

along with healthcare disparities (access to care, standard of care and new treatment – such as drug trials) which are the most likely of explanations for the disparities seen.



Socioeconomic status does play a role in cancer survival

Universal healthcare

Recognizing that differences in cancer mortality exist amongst differing socioeconomic groups and may in part be explained by healthcare disparities Sweden – a country with universal healthcare – was an ideal case study.

Despite the fact that Sweden offers universal healthcare, it was found that socioeconomic disparities continue to persist in terms of cancer mortality outcomes with the exception being the mortality statistics for breast cancer⁶.

The most profound differences were shown to exist between female service workers with lung cancer and male service workers with prostate cancer. Possible explanations for these differences are lead time bias or adverse behavioural and lifestyle aspects.

Lead time bias

The length of time between the detection of a disease and its clinical presentation and diagnosis.

Adverse behavioural and lifestyle factors refer to factors such as unsafe sex practices, diet, and exercise habits.

Conclusions

It is clear that differences in cancer survival can be explained by factors such as social support and socioeconomic status.

The purpose for conducting this research was to identify non-traditional factors when assessing cancer survival outcomes on which underwriting ratings are historically based.

These findings suggest that the potential exists for us to reconsider the way we underwrite cancer survivors.

⁶ Weires., M., ao, Page 340

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