Health, illness and cancer in Reunion Island: Health services in a diverse but aging French territory

Meoïn Hagège, Emmanuel Chirpaz, Mohamed Khettab

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Auteurs: Hagège M[1], Chirpaz E[2], Khettab M[2,3]

[1] Univ Paris Est Créteil, INSERM, IMRB, F-94010 Créteil, France
[2] Centre d'Investigation Clinique, CHU de La Réunion, 97410, Saint Pierre, France.
[3] Service d'Hématologie-Oncologie, CHU de La Réunion, 97410, Saint Pierre, France, & Université de La Réunion, Saint Denis, France.

Résumé en français (250 mots)

Les grands changements sociaux, culturels, économiques et démographiques à La Réunion au cours des 70 dernières années ont transformé sa population et ses problèmes de santé publique. La transition démographique et les changements de mode de vie ont conduit à un vieillissement rapide de la population, et des besoins accrus de prise en charge de la dépendance et des maladies chroniques telles que les cancers. Cet article de synthèse a pour objectif de proposer un état de la littérature et des recherches en cours sur la santé et les cancers à La Réunion. Il passe en revue la littérature concernant les évolutions sociodémographiques de la population, de la démographie médicale et de l'organisation des soins en oncologie; il montre que les inégalités sociales sont importantes, mais que la démographie médicale permet une offre de soin proche de la moyenne nationale. Il propose ensuite une revue des publications de sciences sociales sur les expériences de santé et de maladie à La Réunion en contexte multiculturel et postcolonial, entre pluralisme médical et biomédecine. Il propose ensuite une focale sur l'épidémiologie de trois cancers, à savoir les cancers du sein, du col de l'utérus et de la prostate. Il conclut par une revue des recherches en cours et appelle à une adaptation rapide de l'organisation du système médico-social, afin de faire face aux problèmes de santé les plus urgents à la Réunion : les maladies chroniques telles que les cancers, et la dépendance.

Résumé en anglais (250 mots)

The major social, cultural, economic and demographic changes in Reunion Island in the last 70 years have had effects on its population and the evolution of its public health issues. The demographic transition and changes in lifestyle have led to a rapidly aging population with increased needs for care for dependency and chronic illness such as cancers. The aim of this paper is to offer a review of the literature and ongoing research on health and cancer in Reunion Island. It reviews the recent literature on these changes, including the socio-demography of the population, the medical demography and cancer care infrastructure. It highlights the significant social inequalities of the island, and shows its medical demography and healthcare services are close to national averages. It then offers a review of publications on the experiences of health and illness in Reunion Island in a multicultural and postcolonial context, between medical pluralism and biomedicine. It then offers a focus on the epidemiology of three cancers, namely breast, cervical and prostate cancers. It concludes with a review of known ongoing research, and calls for a rapid adaptation of the organization

of the medico-social system, in order to face Reunion Island's most pressing healthcare issues: chronic illnesses such as cancers, and dependency.

3-6 mots clés

La Réunion

Expérience de la maladie

Cancer du sein

Cancer du col

Cancer de la prostate

Démographie

3–6 key words

Reunion Island

Illness experience

Breast cancer

Cervical cancer

Prostate cancer

Demography

Introduction

Reunion Island is a 300-year-old society that has seen rapid social and political changes in the last 70 years, growing from a rural, crop-producing colony, to an economically diverse territory of the French Overseas (*Département-Région d'Outre-mer*). These changes have had effects on its population and its health. This article aims to offer a synthetic review of the most recent literature on the socio-economy of the population, the socio-anthropology of health and illness, and the epidemiology of three significant cancers in Reunion Island, breast, prostate and cervical cancers.

1. Social, Demographic and Economic Context

The rapid social changes in Reunion Island since the 1980s have significantly changed ways of procuring food and goods, eating, living and getting around. Massive schooling, rapid development of supermarkets, access of women to the workforce, mobility and the growing importance of cars, and changes in housing and ways of living have all contributed to the

transition from a rural and family-oriented traditional society to a modern urban society, hinged on new ways of socializing. In addition, Reunion Island's demographic transition has resulted in an accelerated aging of the population, with growing numbers of older residents and declining numbers of youths staying on the island for their studies and work (1). Today's problems in Reunion Island should be understood in light of these radical changes (2). Of particular interest in this article, several public health issues are more acute in Reunion Island than in hexagonal France (3), embedded in its social, demographic and economic context.

- Reunion Island's population is aging very rapidly and the number of people over 60 years old has increased from 11% in 2008, to 17% 2018 (4). It is also likely that it will lead to increased cancer incidence and a heavier burden on the healthcare system. Senior citizens in Reunion Island become dependent earlier than in hexagonal France, yet there are fewer beds in specialized facilities (43/1000 seniors over 75 years old, compared to 124/1000 seniors over 75 years old in hexagonal France) (5). This becomes problematic for elder care, as the emigration of youths and a deficient number of institutional care homes reduce options for managing dependency in older adults (6).
- Poverty levels are high, with 43% of the population living below the poverty threshold (Migration Famille et Vieillissement Survey, INED, publication pending), and a high proportion of individuals on state-sponsored supplementary health coverage (*couverture maladie universelle complémentaire, CMUc*); 50% of the population in Reunion Island benefits from CMUc, compared to 11% in hexagonal France (7)). 24% of the labor force was unemployed in 2018 and today 30% of seniors live with less than €800/month (5).
- Moreover, some indicators delineate specifically vulnerable populations. For example, in 2011, 23% of people living in Reunion Island experience difficulties reading, writing or understanding a simple text (8); or geographically isolated rural populations living in sparsely populated high mountains and natural amphitheaters (*cirques*), with little public transportation.
- Overall, people are in worse general health, with higher standardized morbidity ratios in the population with several chronic and infectious diseases as well as mental health disorders (9). In other words, there is a higher number of people suffering from diseases such as diabetes or dementia in Reunion Island than in the French population overall (9).
- Nevertheless, Reunion Island has 8 hospitals and clinics, and an overall density of specialists only slightly lower than in hexagonal France, with 323 physicians/100 000 people including 160 specialists in 2018 (10). As in most other French territories, some of these institutions have specialized services for all cancers. However, it includes fewer professionals than those in hexagonal France, except for gynecological cancers (11). Some treatments are not yet offered on the island (such as allogeneic bone marrow, irratherapy/iodine-131 treatment, or specialized radiotherapy for children) and require a transfer to metropolitan France. Lastly, due to distance from major cancer research centers and related costs, cancer patients in Reunion Island have deficient access to cancer clinical trials (12).

Even though there are healthcare services for cancer patients, the social and economic characteristics of the population and the resources allocated to health paint a picture of significant inequalities, within Reunion Island's population in particular. These bear effect on cancer patients' experiences, trajectories and access to care.

2. Experiences of Health and Illness in Reunion Island

According to M. Balcou-Debussche, food, care and disease in Reunion Island are permeated by two trends. The first entails going to nature and its products following the knowledge of the culturally diverse populations that have lived on the island; the second, more recent, comes from the western cultural and institutional models of hexagonal France among others (13). Therapeutic practices in Reunion Island families come from and reflect the cultural diversity of the island, born from its history of migration and (post)colonialism, i.e., mainly from Europe, Madagascar, East Africa, India, China, and marginally from Malaysia, Polynesia, and Australia. The framework of some health practices can be seen as one of a creole continuum that is continually evolving (14). In other words, the European medical theory of humors and Ayurveda have been appropriated and interpreted in Reunion Island, leading to individuals and families seeking to treat disease and misfortune in close relation to spirituality and the sacred, in Hinduism in particular (15). A diversity of practices and interpretations of health and healing coexist in Reunion Island. However, they come together in their overall logic: traditional healing follows a logic of projection, that is, healthcare seeks to reestablish a balance disturbed by an outside assailant, or to send harm or evil back to where it came from (nature, spiritual world, place of worship) (16).

Cancer patients' recourse to non-biomedical or alternative medicine, plant-based in particular, has been well described worldwide (17–19) but in Reunion Island, it is embedded in widespread existing health and illness practices. Traditional creole medicine is based on knowledge and use of herbal teas (*tisanes*), Ayurvedic medicine, biomedicine, and syncretic practices with Christian, Indian, Malagasy influences (20). Biomedicine has an ambiguous role in this context, as its results are supposed to be quick, but the modernity it stems from is seen as having brought its share of illnesses.

However, today and for many, biomedicine is the primary recourse to care. That is not to say that some patients do not find it challenging to adapt to medical care professionals and their institutional environment. It is not uncommon for biomedicine to set the pace of the healing process, as patients incorporate additional traditional medicines (13). This results in a diversity of practices, some of which are of some consequence: treatment interruptions, cutting ties with healthcare institutions after receiving a bad prognosis or misunderstanding a diagnosis, multiplying consultations with different practitioners, seeking protections or focusing narrowly on technical aspects of healing (13).

Relying on doctors who have limited knowledge of the local culture contributes to misunderstandings and to a relationship of ethnocentrism, as specialists often come from hexagonal France. According to Benoist, in some cases the relationship with the health professional is similar to the one that existed on the plantation: one where a doctors' sense of power is precisely where the patient's lack of power is rooted (20). This analysis of power dynamics in health has been pursued in recent work on women's health, which shows how intertwined dynamics of gender and colonial domination have historically produced an

unequal healthcare system in Reunion Island, in which poor women of color were and are left behind (21).

For some patients, illiteracy and languages difficulties (in Creole or French) are additional pitfalls when entering a biomedical care plan. For the medical and paramedical profession, the complexity of these realities is often discovered in everyday practice, as training institutions remain rather impervious to the contributions of the human and social sciences (22). This adds complexity to the relationship between the health professional and the patient, increasing the risk of inequalities in access to and retention in care. This may contribute to perceived health being low in Reunion Island: 11% of adults over the age of 15 in Reunion Island rate their health as "bad" or "very bad," compared to only 8% in hexagonal France, but 14% in Guadeloupe, Martinique and French Guiana and 21% in Mayotte (23). In some cases, patients' insecurities and misunderstandings are expressed as a recourse to additional, concurrent or non-sanctioned, health practices (*marronnage médical*), which signal both suffering and a willingness to heal (24).

3. Breast, Cervical and Prostate Cancers in Reunion Island

The epidemiological and social science data on cancers in Reunion Island show that although breast, prostate and cervical cancer are among the most frequent, patients have an array of care and treatment options, ranging from biomedicine to traditional practices. This paper focuses on three cancers, shedding light on the evolution of the disease, and its prevention and care. This section describes the epidemiology in Reunion Island of two of the most prevalent cancers, breast cancer (31% of cancers in women) and prostate cancer (23% of cancers in men), and a third, cervical cancer, as it is an indicator of inequalities in access to the healthcare system (25).

Breast cancer is the most frequent cancer in women and the first cause of cancer death in Reunion Island, with a 60.9/100,000 standardized incidence rate in 2014–2016 (25,26). Even though rates are lower than in hexagonal France (98/100,000 in 2015 (27)), breast cancer incidence has been increasing in Reunion Island since 1990, leading to 363 breast cancers reported annually for the period 2014–2016—whereas it has significantly decreased in hexagonal France since 2000 (27). Organized population-based screening has been implemented since 2004 in Reunion Island as in hexagonal France; women between 50 and 74 years of age receive letters inviting them to get a bilateral mammogram every 2 years. The screening rate was 46.5% in 2018–2019, which is closed to the national average rate for this period (28), with a decreasing trend since the mid-2010s. In 2016, about 1,300 women were under active breast cancer care, and 2,000 were monitored (29).

Prostate cancer is the most frequent cancer in men in Reunion Island: for the 2014–2016 period, an annual average of 379 prostate cancer have been recorded with a 69,7/100,000 standardized incidence rate (81,5/100,000 in hexagonal France) (25). Despite a significant decrease in mortality since 2001, prostate cancer is the third cause of cancer death in men, with a standardized mortality rate (36,7/100,000) higher than in hexagonal France (30,6/100,00) (29). The incidence rate has increased rapidly until the mid-2000s, and has been decreasing since; this trend is similar in Reunion Island and hexagonal France. There are no screening campaigns for prostate cancer. About 1,400 men were in active prostate cancer care, and 1,300 were monitored in 2016 (29).

Cervical cancer is the fourth most frequent cancer in women in Reunion Island (twelfth in hexagonal France), accounting for approximately 5% of all cancers in women (26). For the 2014–2016 period, an annual average of 52 cervical cancers has been recorded by the Reunion Island Cancer Registry (25). Mortality and incidence are greater in Reunion Island than in hexagonal France: the standardized incidence rate was 8,8/100,000 person-years for the period 2014–2016, a third more than the 6.2/100,000 in mainland France in 2012 (25,27). Incidence has decreased since 1990 but at a slower rate than in hexagonal France (30). The standardized mortality rate in 2013–2015 (4,4/100,000) was twice that of hexagonal France (2/100,000) (26,30). An organized cancer screening program has been implemented since 2019 (by pap smear every 3 years between 25 and 65 years of age), but has been recommended and practiced for many years in Reunion Island. The screening rate was 61.8% for the 2017–2019 period (unpublished).

Cervical cancer has benefited from specific investigation since the organization of screening campaigns, making the pathology and its screening better known by women in Reunion Island. A 2017 public health study of women's knowledge and social representations of cervical cancer shows that as women age, they are screened less often; and women are less up to date with their screening if they live in a socially deprived area, if they have low income or if they are covered by income-conditioned state health insurance (*Couverture médicale universelle*, CMU, or *Aide médicale d'Etat*, AME) (31). As for HPV immunization, young women in Reunion Island have witnessed both national vaccination campaigns and strong anti-HPV vaccine sentiment echoed in the press and social media. This explains the very low vaccine coverage for 16-year-old girls: 8% in Reunion Island vs. 15%-40% in the other territories (*départements*) (32).

4. Research Perspectives

Few recent social science studies contribute to shedding light on the social contexts and cancer experiences in Reunion Island. However, recent unpublished or ongoing studies should soon help fill this gap in understanding of cancer experiences and cancer care.

The ongoing CAMUCRI study promises to measure recourse to complementary and alternative medicine by patients treated for cancer at the Reunion Island University Hospital (33). This extends investigation into medical pluralism, following an investigation into the social representations of cancer among healthy youths in Reunion Island, which showed how specificities result in part from the embeddedness of traditional and modern understandings (*métissage*) of risk and cancer (26); and one into the recourse to herbal therapeutics, which is often used as complementary to biomedical care (27).

The experience of one particular vulnerable group, poor women and men living with cancer, and the discrimination they face in seeking and receiving care in Reunion Island and Mayotte hospitals in 2018–2019 is explored in the CORSAC3 study on a group of 25 patients with various cancers (results are unpublished, for protocol see (34)). Another vulnerable group, poor and older women, has been the focus of the RESISTE nested anthropological study on their knowledge of cervical cancer, and the obstacles to screening and reproductive health in Reunion Island in 2020 (35).

Therapeutic mobilities are a theme of recent renewed interest: analyzed in a study on the recourse to hematopoietic stem cell allograft in patients with malignant hemopathies, an ethnography sheds light on the therapeutic mobilities of patients diagnosed in Reunion Island and transferred to hexagonal France for transplant care. It highlights patients' experiences and representations, providing helpful insight for patient care for this particularly vulnerable population (36). The upcoming SENOVIE study will investigate the specifics of global therapeutic mobilities in breast cancer experiences of African women (37).

Lastly, the ongoing ISOCARMA study seeks to qualify and quantify social inequalities in cancer experiences and care trajectories in Reunion Island and Mayotte (2021–2025). Using qualitative and quantitative data on breast, cervical, colon, and rectum cancers, it will describe how experiences of health, disease and healthcare vary with gender, age, class, and origin, in order to identify processes of production and reproduction of inequalities in health and disease in these contexts.

Current clinical research includes: the upcoming GlioRun study on high-grade glioma; it aims to describe the epidemiology and experiences of care, through a mixed approach using clinical, biological and social science methods; the ongoing PROM SSCOL study, on the impact of a Papillomavirus vaccination promotion program in middle school; and the EPIMURE study, on the prevalence of EGFR Mutations in epidermoid Bronchopulmonary Cancers in Réunion Island.

It is too early to assess the additional effects of the covid-19 pandemic on cancer management, particularly in terms of incidence or survival, due to possible delays in management due to referrals or temporary interruption of organized screening during lockdowns. This trend should be understood in the broader context of the recent and rapid social and economic changes mentioned above.

Conclusion

This review article shows that the population of Reunion Island features significant social inequalities but that healthcare and medical demography are only slightly lower than national averages. Social science literature on the experiences of disease sheds light on the multicultural and postcolonial makeup of the island's history and people, leading to a specific context of medical pluralism. Some of the effects on medical care can include a cultural distance between patients and professionals and barriers to recourse or access to care due to language difficulties. The available epidemiological data of the three most prevalent cancers, i.e. breast, prostate and cervical cancers, shows : increasing trends in Reunion Island for breast cancer, while national trends are decreasing; and higher incidences for prostate and cervical cancers. A number of hypotheses regarding these data and their social contexts will be addressed by ongoing or upcoming research projects in social science, epidemiology, and oncology.

On the one hand, the demographic transition of Reunion Island has led to an unprecedented acceleration of aging, due both to older individuals returning to their native island, and younger ones leaving, for their studies and work mainly in hexagonal France (1,38,39). On the other hand, postcolonial development policies aimed at "modernizing" the island after

1946, have set the momentum for profound changes in mobility, education, and food among many others (24). According to some healthcare professionals, these have produced "westernized habits and lifestyles"—and the consequently increased exposure to risk factors for health issues such as obesity, diabetes, cardiovascular disease, and cancers. This foreshadows many public health issues related to the management of long-term illnesses such as cancers and dependency: the increase in their incidence and the evolution of familial and structural support of older dependent *gramounes* requires a rapid adaptation of the organization of the medico-social system.

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