

# **PERSPECTIVES ON HEALTH DISPARITIES IN CANCER**

by

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## **ABSTRACT**

**Purpose:** The purpose of paper is to review the literature that explores health disparities in cancer and, by using the 'multi-contextual framework', to make sense of what is in the literature and what are the gaps in research in health disparities in cancer.

**Methodology:** A mixed analysis (quantitative and qualitative) of the 120 selected studies was conducted. Two coding lists- one with inductive codes and one with deductive codes- were developed and used for categorizing the articles and their placement in two matrixes. A quantitative analyzes was conducted for the 59 articles included in 'multi-contextual matrix'.

**Results:** All 59 articles included in 'multi-contextual matrix' focus on contextual factors. Most articles address 'cultural context' (56%) and 'socioeconomic context' (32%). Less than 50% focus on 'health care context' and 'demographic context'. The disparity types mainly researched are disparities in quality and access to health care (in 70% of studies).

**Keywords:** cancer, disparity, diversity, inequality

**Subject Terms:** disparities in cancer, cancer mortality, quality of health care system, access to care, and literature review

## EXECUTIVE SUMMARY

In Canada and worldwide, cancer is one of the most frequent fatal diagnoses. Currently, 'cancer' incidence, prevalence, and mortality vary among different WHO regions and population groups. Quality of health care and access to care for people at risk of cancer or having a cancer diagnosis differ. All these differences can be expressed through one term - health disparities in cancer. Health disparities in cancer are differences in quality of health and quality of health care for people at risk of developing cancer or for cancer survivors. The variability in 'burden of cancer' for different populations sustains the role of ' socio- *environmental factors*' in carcinogenesis. Previous approaches to health disparities in cancer have stressed their importance. One such model is Krieger's 'cancer disparities analytic grid' (2005, p. 11) that have been used to analyze gaps in research in varied areas of 'social inequality across cancer continuum', Krieger (2005). For a deeper exploration, understanding, and control of these disparities, a conceptual framework to define 'disparities in cancer' is developed in this paper as well as a new approach to explore the focus of research in this area. The approach is called a 'multi-contextual approach' and acknowledges Krieger's 'domains of social inequality' in the model's horizontal axis- 'contexts': (demographic, socioeconomic, cultural and health care). This review paper examines the focus of the available research on disparities in cancer and uses a

new approach to analyze the study sample included in this review and to make sense out of what is and what is not the focus of research.

In the 59 studies included, 98.33% focus on contextual factors, 56% focus on the 'cultural context', 32% on the 'socioeconomic context', 25% on the 'health care context', and 22% on the 'demographic context'. The most researched disparities are disparities in quality of and access to health care (in 70% of studies). Only 36% of the study sample focus on disparities in cancer outcomes and 14% focus on disparities in the incidence and prevalence or risk.

The approach used in this review shifts some of the factors that might have an impact on disparities in cancer from an 'individual characteristics group' to a 'contextual factors group'. This approach is inclusive; it brings more clarity to different concepts such as disparities in quality and access to cancer care, diversity, etc., and it stresses the importance of contexts or 'non- individual factors' in exploring and addressing disparities in cancer. The gaps in research revealed by this approach are mainly in exploring attitudes and beliefs, spirituality, acculturation, interconnectedness, life burden and social support, occupational class, and the health care system regulation domain.

At the end of this paper, we propose some suggestions for future research. One suggestion is that research needs to expand its focus on disparities in cancer and causal associations between contextual factors and degree of disparities that have been poorly researched previously. In addition, further research is required to examine, explain, and solve (or 'dissolve') the identified gaps in research.

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## CHAPTER 1: BACKGROUND AND RATIONALE

*Cancer* is one of the leading causes of death in the world. There is an increasing global and national burden of cancer. Globally, in 2008, the number of newly diagnosed people with cancer increased to 12.4 million and the number of deaths caused by cancer was 7.6 million (IARC, 2008). In the same year, of the 12.4 million new cancer cases, 29.7% were in WPRO, 27.5% in ERO, 20.9% in PAHO, 12.8% in SEARO, and 3.7% in EMRO (IARC, 2008). IARC's *World Cancer Report, 2008*, estimates that most of these numbers will double by 2030 and differences between regions will be maintained.

In "*World Cancer Report, 2008*", the IARC reports differences in cancer incidence among and within different WHO regions and countries for different types of cancers. A summary of the type of cancer with the highest estimated incidences and mortality for each WHO region is presented in Table nr 1.

**Table 1: The type of cancer with the highest estimated incidence and mortality for each WHO region**

WHO region	Type of cancer with the highest estimated incidence		Type of cancer with the highest estimated mortality	
	Male	Female	Male	female
WHO African Region (AFRO)	Kaposi sarcoma	Cervix uteri	Kaposi sarcoma	Cervix uteri
WHO Pan- American Region( PAHO)	Prostate	Breast	Lung	Lung
WHO South East Asia Region( SEARO)	Lung	Cervix uteri	Lung	Cervix uteri
WHO Eastern Mediterranean Region( EMRO)	Bladder and lung	Breast	Lung	Bladder
WHO Western Pacific Region (WPRO)	Stomach	Breast	Lung	Lung
WHO Europa Region (EURO)	Prostate	Breast	Lung	Breast

This data suggests that there are important variations among regions in terms of cancer incidence, mortality, and types of cancer that have the highest incidence and mortality. .

The difference in the burden of cancer experienced by different populations throughout the world, changes in levels of different types of cancer in those regions over time, and the acquisition by immigrants of the “cancer pattern” (IARC, 2008, p. 28) of the migration place, all support the importance of ‘*environmental factors*’ in carcinogenesis. The IARC’ report states that 80 to

90 % of cancers in humans can be attributed to 'environmental factors' and therefore one of the most efficient ways to decreasing cancer mortality should be primary prevention (decreasing exposure to cancer risk factors through the adoption of healthier lifestyle).

In order to plan for adequate health care services, it is vital to have a good estimation of the current and future 'burden of cancer' (IARC, 2008, p. 16) for each region, country, or population at risk for certain types of cancer.

### **'Cancer Burden'- definition**

'Cancer burden' is a complex concept that can be defined primarily in terms of the magnitude of cancer incidence and mortality in a population (IARC, 2008). This concept also covers domains such as the 'economic burden of cancer' (US National Cancer Institute) which refers to the financial cost associated with cancer. This cost includes two components: how much a country or system spends on cancer control programs and how much patients and their families spend or lose because of cancer (US National Cancer Institute). 'Patient costs' could be expanded beyond the financial or material costs, to cover the decrease in 'health related quality of life' (Ashing-Giwa, 2005. p. 297) caused by cancer. This refers to the loss in quality of life that people (cancer survivors) experience as a result of changes in their health caused by cancer (Ashing-Giwa, 2005).

Over time, it is estimated an increase in 'cancer burden' mostly in developing countries (IARC, 2008, p. 42) and this will result in higher economic costs for a relatively deprived population. This lack of economic resources in

developing countries, resulting in a lack of: research health care services, health care personnel, public health interventions in this domain, etc., (IARC, 2008) might increase the 'cancer burden' and, secondarily might increase or perpetuate the gaps in the negative effects of cancer among and within different WHO regions or countries.

In consequence, aiming to reduce 'global cancer burden' needs to be paired with aiming to achieve a decrease in gaps in the quality of health among and within nations and a decrease in gaps in the quality of and access to health care services among and within populations.

### **'Socio- environmental factors and cancer'**

Socio-environmental determinants are also factors that can impact the quality of health and the quality of health care in the general population and also in patients with cancer.

Many authors present these determinants from different angles. Krieger (2005) sees them from an equity perspective and calls them 'domains of social inequalities' (Krieger, 2005). Ashing-Giwa (2005) adopts a more neutral terminology ('contextual factors'). Freeman and Reuben (2001) use positive terminology ('elements of diversity') and avoid the negative connotations of the word 'difference'.

In the *Social Inequalities and Cancer* (IARC, 1997), 'overall social inequality' and 'socioeconomic factors' are discussed as possible explanations for differences in the chance of receiving a cancer diagnosis (IARC1997, p. 17).

IARC (1997) explores the association between (1) 'socioeconomic differences' among populations, (2) 'mechanisms' through which they alter health in certain groups (tobacco use, alcohol, dietary patterns, etc.) and (3) cancer or cancer incidence, cancer mortality, patients' survival, or cancer screening.

To analyze gaps in research in varied areas of 'social inequality across the cancer continuum', Krieger (2005) proposed a 'cancer disparities analytic grid' (Krieger, 2005, p. 11). The vertical axis contains the 'domains of social inequality' and the horizontal axis contains the 'cancer continuum' ("prevention, incidence, etiology, screening, diagnosis, access to clinical trials, treatment, survival, morbidity and mortality") (Krieger, 2005, p. 11). This 'grid' highlights the association between inequalities among populations with different cultural, socioeconomic, health insurance status and the increase of 'cancer disparities across the continuum of care' (Krieger, 2005, p. 11).

Krieger emphasizes the fact that 'defining and investigating cancer disparities is essential' (2008, p. 11) for two reasons: their embodiment and persistence. For this, more efforts, combined approaches, and multidisciplinary teams, are needed (Krieger, 2005). Consistent with Krieger's standpoint, this paper develops a conceptual framework to define 'disparities in cancer' and a new approach to explore the focus of research in this area. The approach is called a 'multi-contextual approach' and acknowledges Krieger's 'domains of social inequality' in the model's horizontal axis- 'contexts': 'demographic context', 'socioeconomic context', 'cultural context' and 'health care context'. (This last 'context' corresponds for 'insurance status' in Krieger's domains). The 'multi-

contextual approach' explores 'socio- environmental factors' that influence disparities in health and health care. Krieger's model and the 'multi-contextual model' are similar in one axis and differ in the second one. Krieger's model facilitates exploration of research focusing on cancer care ('continuum of care') which is mostly about quality of care from prevention to palliation. The 'multi-contextual approach' allows exploration of both, disparities in quality of health and disparities of quality of health care. It will be used to analyze the focus of articles included in this review.

### Health disparities

Given the difficulties related to defining concepts such as 'disparities in cancer', Pesquera, Yoder, and Lynk's (2008) definition for 'health disparities' will be used as the foundation in this paper. "Health disparities refer to gaps in the quality of health and health care" (Pesquera, et al., 2008, p.114) in *diverse* subpopulations (ethnic groups, groups with different socioeconomic status, etc.). The 'multi-contextual approach' includes both components of what Pesquera (2008) defines as being 'health disparities'- (1) differences in health, associated with cancer (disparities in cancer incidence, prevalence, mortality, quality of life in cancer survivors) and (2) differences in health care services for cancer control (quality of health care and access to health care services).

Disparities in health associated with cancer have been already partially addressed using data from *World Cancer Report, 2008* (IARC). In the third chapter, the way of presenting these gradients in health associated with cancer and important elements to be considered in monitoring and analyzing them will

be discussed. Disparities in quality of care and access to health care services for patients with cancer are also discussed in the third chapter.

### Paper Goal and Objectives

The aim of this paper is to present health disparities in cancer and research in this domain from a new perspective. The author of this paper names this new perspective a *multi-contextual perspective*. The name has been informed by three sources that will be specified later in this paper. This perspective is chosen for two reasons: (1) it includes under the three classes of disparities many subclasses, this makes it quasi- exhaustive; and (2) its focus is mainly on contextual factors correlated to disparities in cancer.

The objectives were to:

1. Synthesize the literature and develop a conceptual framework that will help explore, understand, and present health disparities in cancer.
2. Present an approach or framework that can be used to understand disparities in cancer and current research focus in this domain
3. Discuss the advantages and disadvantages of this approach
4. Summarize the focus of research and gaps in research revealed by this approach
5. Propose additional elements that would address the approach's weaknesses in order to improve its usefulness
6. Establish issues that can be explored in the future

## Paper Outline

The main issues discussed at each stage of the project are:

1. First stage: conduct a literature review of articles relating to cancer, categorize them and present a conceptual framework of health disparities in cancer
2. Second stage: describe a *multi- contextual approach* to health disparities in cancer.
3. Third stage: present the results of the literature review and discuss the focus of research with regard to contextual factors that influence these disparities
4. Fourth stage: establish future possible steps for a deeper examination of disparities in cancer.



## CHAPTER 2: METHODS

In this paper, we included academic literature searched through the SFU library, using EBSCO and Medline (PubMed).

The academic articles were searched in two databases: PubMed database, and CINAHL from 1969 to 2008 using the following keywords: *cancer and (disparities or inequalities or inequities or diversity)*. Titles and the abstracts were reviewed only for articles published after 1980. Those studies that had mentioned cancer and at least one of the other concepts previously mentioned in its title or abstract were exported to RefWorks (509 articles from CHINAL and 117 articles from PubMed). After reading the title and abstracts of the 626 articles saved in RefWorks, these were pile sorted in 18 folders. The categories emerged from the articles reviewed. Those are: disparities, diversity, inequalities, inequities, access to health care, screening, diagnosis, prevention, human rights, information, interventions, monitoring, policy, research, risk behaviors, survival, treatment, and vaccination. In this paper, only articles (N=120) from seven piles were used, diversity (8), disparities (41), inequalities (10), inequities (1), health care access (26), screening (29), and survival (2). Some articles from other piles were used where more support was required for clarifying different issues. These categories were chosen to serve the interest of this paper.

## ***Data collection and management***

A qualitative and quantitative analysis of these articles was conducted. The first step was to code and pile sort the abstracts into the 18 categories, as previously mentioned. For this, a list of inductive codes was developed while reading the articles' titles and abstracts. The second step was to select and skim the 120 articles from the seven piles mentioned previously and to identify a few articles that helped to develop a conceptual frame and to generate two approaches to the studied issue – a “multi-contextual” approach and a “multi-levels of care” approach. In the end, only the ‘multi-contextual approach’ is presented because it was developed based on the conceptual frame for disparities in cancer that we had adopted in this paper.

To develop the conceptual frame we used the categorization of health disparities of the U.S. Agency for Healthcare Research and Quality (AHRQ). The multi- contextual approach was informed by: (1) AHRQ's categorization of health disparities (AHRQ, 2005), (2) Ashing-Giwa' s contextual model of health related quality of life (Ashing-Giwa, 2005), and (3) Roberts' health care system ‘control knobs’ (Roberts, Hsiao, Berman, & Reich, 2004).

Of the 120 articles reviewed, 59 were included in the multi-contextual matrix. The placement of articles in the matrix was done after reading the articles. The *multi- contextual matrix* and *multi-levels of care matrix* were used as sets of deductive (a priori) codes. In Table 1, the multi-contextual matrix's variables that are part of deductive (a priori) code categories or themes can be seen: Types and subtypes of disparities in cancer (vertical variables) and

contextual and individual-level factors (horizontal variables). The final step was to conduct and present the results of the quantitative analysis of the current research interest on disparities in cancer using the multi-contextual approach.

## **CHAPTER 3: HEALTH DISPARITIES IN CANCER – CONCEPTUAL FRAMEWORK**

This paper approaches health disparities in cancer by creating a conceptual framework based mainly on the AHRQ's 2006 National Healthcare Disparities Report (NHDR). NHDR's definition for disparities is: they are "any differences among populations" (AHRQ, 2006, p. 2). In accordance with this definition, health disparities are organized into three categories: disparities in cancer incidence and prevalence; disparities in cancer outcomes (mortality, subjective outcomes); and disparities in access to cancer care and services (AHRQ, 2006; Rao, Debb, Blitz, Choi, & Cella, 2008). In the following section each of these categories is expanded upon. A graphic representation of all these categories can be seen in Appendix 1 and vertical axis of Figure 1.

### **1. Disparities in cancer incidence and prevalence and disparities in cancer outcomes (mortality, subjective outcomes)**

Disparities in incidence, prevalence or mortality between populations are presented as rates, ratios, or trends. Trends in disparities are obtained by comparing sub-populations (by race, ethnicity, socioeconomic status, etc.) with a designated 'reference group', at different points in time, for each 'core measure' (AHRQ, 2005, p. 2) (quality indicators or access indicators). To adequately

evaluate and monitor trends in health disparities, the following is required: (1) use of as many 'disparity indicators' (Harper et al., 2008, p. 894), as possible (2) adequate judgments on what notion of disparity should be considered to address the issue raised, given the fact that there are a multitude of constructs of disparities (Harper et al., 2008), (3) the selection of a 'standard reference group' (Harper et al., 2008), and (4) 'methodological decisions' (deciding a proper 'reference point' from which to measure disparity, using measures of 'relative disparity' or 'absolute disparity', weighing of studied groups, etc) (Harper et al., 2008, p. 896). A high quality monitoring system for trends allows the observing of modifications in disparities (improvement or worsening) over time.

In this sphere of disparities in health attributed to cancer, differences in rates or ratios (comparative to standard reference groups) are useful to quantify the magnitude of disparities and to identify the major disparities faced by specific groups (AHRQ, 2005; Harper et al., 2008).

## **2. Disparities in quality of health care and access to health care services for patients with cancer**

This class of disparities refers to the "extent to which providers and hospitals deliver evidence-based care" (AHRQ, 2006, p.1). Health disparities in cancer across all dimensions of quality of care (effectiveness, patient safety, timelines, patient centeredness) (AHRQ, 2006), access to care (utilization, facilitators and barriers); at all levels of types of care (from health promotion to palliative care); and within different subpopulations (classified by gender, age, ethnicity, residence- rural vs. urban, etc.) are addressed.

## **2.1. Disparities in quality of health care**

“Quality health care means doing the right thing, at the right time, in the right way, for the right people—and having the best possible results” (AHRQ, 2006, p.33). Following the AHRQ’s stand on this issue, a high- quality health care is characterized by the following accomplishments:

*2.1.1. Effective provision of services* founded on sound science and guided by critical discernment between those who might and might not benefit from these services (AHRQ, 2006)

*2.1.2. Patient safety* is the first priority goal- ‘primum non nocere’ (AHRQ, 2006)

*2.1.3. Timely delivered services*- avoiding any form of delay (e.g. waiting lists or late referrals to a diagnostic or treatment procedure, etc.) and their damaging consequences for both- patients and services (AHRQ, 2006)

*2.1.4. Patient centered services* with provision of care that is guided by patient and their family (accommodates and respects patient’s values, choices, needs, etc) (AHRQ, 2006)

*2.1.5. Equitability* in the provision of care ensuring equal quality of and access to services for any person or group (demographic, cultural, socioeconomic, etc.) (AHRQ, 2006)

*2.1.6. Efficiency* in the process of delivering health care services of good quality preventing unnecessary costs in terms of “equipment, supplies, ideas, and energy” (AHRQ, 2006, p. 33)

## 2.2. Disparities in access to care

The Institute of Medicine defines ‘access’ as a ‘timely use of personal health services to achieve the best possible health outcomes’ (Institute of Medicine, 1993, p. 33). It is morally fair that people will have guaranteed an ‘equitable access to health care (which) requires that all citizens be able to secure an adequate level of care without excessive burdens’ (President's Commission for the Study of Ethical Problems quoted by IOM, in “Access to Health Care in America”, 1993, p. 32).

The individual’s access to the health care system depends on a multitude of factors that can aid or impede one’s utilization and access to care.

### C.2.2 Utilization of health care services

Given the fact that *utilization of medical services* has been previously used as a proxy measure for access to health care services, those factors that influence utilization of services for cancer control and interventions that will promote *fairness in utilization* of health care services are discussed

One set of factors that influences the utilization of health services available is *individual utilization factors or ‘group factors’*. Some of these are: rescheduling the appointment because patients forgot to present (Crump et al., 2008; Yabroff et al., 2005), limited general knowledge on cancer and on secondary and tertiary prevention of cancer (Peragallo et al, 1998), the burden generated by the extreme complexity of getting involved in cancer management decisions, the emotional flow (Allen, Shelton, Harden, & Goldman, 2008),

individual choice in deciding how much they get involved in their cancer management (Johnston Polacek, Ramos & Ferrer, 2007), inequalities in communication (Viswanath & Emmons, 2006), lack of effective communication abilities- (health literacy level, language, or type of communication adopted )(Allen et al., 2008), patients' trust in their capacity to act as self-advocate (Allen et al., 2008), individuals' accountability for taking care of themselves (Allen et al., 2008),etc.

Another set of factors that influences the utilization of medical services can be generically called 'provider factors'. Some of these are "availability of an appropriate supply of human and material medical resources, geographical accessibility to medical facilities, affordability of medical expenses, accommodation of medical facilities and the acceptability by patients of medical facilities" (Penchansky and Thomas cited by Kim, Leea & Hongc , 2005, p. 189).

### C.2.1. Access barriers to health care

*Freeman and Reuben (2001) present four categories of 'access barriers to health care'. Those are: (1) obstacles associated with "organization and operation of the health care system" (Freeman & Reuben, 2001, p.7),(e.g., distribution of services, qualification of medical personnel, technology, referral system, etc.), (2) 'financial barriers' (e.g. out-of pocket payments) , (3) 'physical barriers' (Freeman & Reuben, 2001, p.17) ( e.g. transportation for rural*



population.), and (4) barriers linked to “*information and education*” of both-patients and health care providers (Freeman & Reuben, 2001, p.21). Frequently, these barriers are interconnected. For example, a lack of financial resources will limit the structure and the focus of the health care system, which will affect patients’ access to care and will limit the health care providers’ ability to improve access to care for patients with cancer.

The first three categories have a strong representation in the “President’s Cancer Panel Report of the Chairman 2000–2001” (2001) and comprises multiple issues. Some of them are: the system focus on acute care in the detriment of public health, end of life care; an inequitable system of health insurance that negatively impacts both providers and beneficiaries; and the perpetual problem of inequitable distribution of cancer care and the difficulties to access care for remote or rural populations; etc.

The fourth class of barriers to health care services covers three sub-classes of barriers: “*provider- related barriers*” (Freeman & Reuben, 2001, p. 21), ‘*patient-associated barriers*’ and “*cancer control planning and implementation*” *barriers* (Freeman & Reuben, 2001, p.29).

The first group of ‘*provider-associated barriers*’ includes: gaps in knowledge about cancer and cancer management, poor access to current research in cancer care (especially in less developed countries), unreliability of cancer care information delivered by personnel, deficiencies in diagnosis (mistakes or delays), insufficient understanding of palliative care services, health care personnel’s limited training and skills in delivering culturally sensitive

messages, lack of adequate channels for delivering the message especially for remote or deprived communities, and inadequate mechanisms for patient monitoring and follow-up (Freeman & Reuben, 2001).

The second group of *patient-associated barriers* includes: difficult access to accurate and up-to-date information on cancer, inadequate health messages (high literacy level, not culturally tailored, not written in plain language), poor coping mechanisms and ability to control fears, myths and beliefs (Freeman & Reuben, 2001), need for 'translators' of information on cancer, lack of assistance in navigating the complex and fragmented cancer care system (Freeman & Reuben, 2001).

The third group of cancer control *planning and implementation barriers* includes: the poor data availability on groups with the highest susceptibility, etc. (Freeman & Reuben, 2001).

## CHAPTER 4: “MULTI- CONTEXTUAL APPROACH” TO HEALTH DISPARITIES IN CANCER

### 4.1 Multi- contextual approach- description

The approach to health disparities in cancer proposed in this paper gives a picture of disparities by classes of disparities (on the vertical axis) and type of contexts (on the horizontal axis) (Table 1).

‘Disparity or ‘inequality’ implies ‘diversity’ of groups or individuals that differ through one or multiple characteristics.

‘Diversity’ (allows) ” ...the integration and inclusion of races, ethnicities, genders and groups from different geographies, cultures and social classes into organizations, decision-making tiers, institutions and systems from which they are and have historically been excluded. Diversity creates a climate where there is variety in the quantity and quality of interactions and equitable power brokering among stakeholders, where the composition and group exchanges influence the generation and validation of research ideas, philosophy, conceptualization, theoretical approaches, design, implementation and interpretation.” (Fagan et al., 2007,p. 19).

The President’s Cancer Panel in *Report of the Chairman 2000-2001* lists the following ‘*elements of diversity:*’ “ ethnicity, race, culture, religion, nation of origin, native language, literacy level and educational attainment, income level,

gender, and age”(Freeman & Reuben, 2001). All these have been grouped into four categories: demographic, socioeconomic, cultural and health care using the contextual model proposed by Ashing-Giwa (2005). Ashing-Giwa’s model includes four “contexts” that have an influence on health-related quality of life (HRQoL): “cultural context”, “demographic context”, “socioeconomic context”, and “healthcare context” (Ashing-Giwa, 2005).

Each ‘context,’ independently or in interaction with others, can influence the health disparities in quality of health or health care. Also, they have an impact on an individual’s behavior, and – ultimately-on individual and population health outcomes.

The ‘*cultural context*’ is defined through the following variables: “ethnicity, ethnic identity, acculturation, interconnectedness, attitudes and beliefs, and spirituality “(Ashing-Giwa, 2005, p. 300). Peragallo et al. (1998) defines *acculturation* as participation of minority populations in the ‘adoptive’ (majority’s) culture. Roux, Dingley, Lewis, and Grubbs conceptualize interconnectedness as the ‘sense of support and nurturance from self, family, friends and a spiritual power’ (2004, p. 36).

It is important to consider the cultural dimension in addressing health disparities in cancer for at least two reasons. The first reason is the fact that people’s cultural values and beliefs affect how—or even if—they approach and interact with the health care system and with individual providers. The second reason is the fact that the cultural approach of the health care provider has the

potential to affect behavior and decision-making that is not related to an individual patient's medical condition (Freeman & Reuben, 2001; Liang, 2002).

In the article "*Understanding Culture Care Practices of Caregivers of Children with Cancer in Taiwan*", Liang (2002) mentions the six dimensions of health related behavior influenced by culture. Those are: "customs, the cognition and communication of disease, the mechanism of social relationships, seeking behavior of disease, responses of disease, and health care practice" (Liang, 2002, p. 206; quoting Hu, 1988). In the article "*Community Health Navigators for Breast-and-Cervical-Cancer Screening among Cambodian and Laotian Women: Intervention Strategies and Relationship-Building Processes*" (Nguyen et al., 2008), the cultural dimension of two ethnic groups are discussed and similarities and differences in program strategies and impacts between the two Southeast Asian populations with similar geographic characteristics are presented.

Liang (citing Kleinman, 1980) emphasizes the three components of health care practice used in a ' pluralistic medical system' : "the professional sector [western medicine, Chinese medicine], the folk sector[ sacred or secular treatments] and the popular sector[self-treatment, self-medication without professionals involvement] "(2002, p. 206). In some communities the folk and popular components are considerable and do not always complement the professional care. Sometimes, a lack of harmony among the three can amplify disparities in care and health outcomes, between individuals and sub-communities. Examples of interventions that could bridge these three sectors

are: lay care workers, community health navigators through the health care system, cultural advisors, translators, etc.

The “*demographic context*” includes age and gender. These variables are frequently used by researchers to present differences in cancer epidemiology, quality of health care, access to health care, and survivorship (Ananthakrishnan Schellhase, Sparapani, Laud, & Neune, 2007; Gonzalez et al., 2005; Morales et al., 2004; Roux et al., 2004; Tyczynski, Hill & Berker, 2006). In addition, this category includes the regional variables (e.g. rural or urban regions; health authority regions; geographical areas) and profile of families (family members’ characteristics) (Lengerich et al., 2005; Shi et al., 2005; Wilkes & White, 2005; Yabroff et al., 2005).

The “*socioeconomic context*” comprises concepts such as socioeconomic status (SES), life burden, and social support (Earle et al., 2002). SES has been consistently associated with disparities in quality of health care and access to health care for patients with cancer. These are the result of differences in modelsof care for patients from different SES groups (Earle et al., 2002); differences in the use of preventive services by household wealth, poverty level, and education (Morales et al., 2004); differences in levels of awareness and health literacy, health insurance status (a significant factor determining affordability of health care) (Ananthakrishnan et al., 2007). Life burden refers to “living situation, role or functional strain, neighborhood resources/ characteristics as well as overall day-to-day stressors” (Ashing-Giwa, 2005, p. 300).

The “*health care context*” refers to health care system performances and structure. The five quality ‘control knobs’ we include in this section are: financing, payment, organization, regulation, behavior (how people or health care personnel take action in relation to health and health care) (Roberts et al, 2004).

At the individual level, cancer outcomes are influenced by *individual characteristics* such as “general health and comorbidity, health efficacy, cancer-specific medical characteristics, and psychological well-being” (Ashing-Giwa, 2005, p. 303) and by *health related behaviours and activities* that are permanently shaped by socio-environmental factors (Edwards, Mill, and Kothari, 2004; Glass & McAtee, 2006). In this paper, we acknowledge these determinants of health disparities in cancer but we are not including them in the matrix for the *multi-contextual approach*.

## **CHAPTER 5: RESULTS**

### **5.1 Overview of studies included in the ‘multi-contextual approach’ to disparities in cancer**

The sample included 59 studies. All focus on one or multiple contextual determinants of health disparities in cancer. Of these, 56 % focus on the ‘cultural context’, 32% on the ‘socioeconomic context’, 25% on the ‘health care context’, and 22% on the demographic context’. (Some articles have been included in more than one category)

By class of disparities in cancer, of the 59 studies that focus on contextual factors, 14% focus on disparities in the incidence and prevalence , 36% focus on disparities in cancer outcomes, and 70% focus on disparities in quality and access of health care ( 34% on quality and 66% on access).

A matrix with the reviewed studies can be seen in the following table and in Appendix 2



## FRAMEWORK- 'MULTI- CONTEXTUAL APPROACH' TO HEALTH DISPARITIES IN CANCER

Study sample by: → ↓	Contexts			
	Demographics (age and gender)	Culture	Socioeconomic context	Health care system
Class of disparity	Age Gender, region, family unit,	ethnicity, ethnic identity, acculturation, interconnectedness, attitudes and beliefs, and spirituality	SES, life burden, and social support, education, occupational class	Financing, payment, organization, regulation, behaviors
Disparities in Incidence and prevalence ( risk disparities)	<a href="#">Law, 2003</a> ;	<a href="#">Apelberg, 2005</a> ; <a href="#">Glanz, 2003</a> ; <a href="#">Polacek, 2007</a> ; <a href="#">Salant, 2007</a> ;	<a href="#">Apelberg, 2005</a> ; <a href="#">Linder, 2008</a>	<a href="#">Igene, 2008</a>
Disparities in cancer outcomes (mortality, subjective outcomes)	<a href="#">Kwon, 2008</a> ; <a href="#">Tsark, 2007</a> ; Tyczynski, 2006; <a href="#">Yabroff, 2005</a> ,	<a href="#">Altpeter, 2005</a> ; <a href="#">Aziz, 2008</a> ; <a href="#">Birdsey, 2007</a> ; <a href="#">Ezendam, 2008</a> ; <a href="#">Glanz, 2003</a> ; <a href="#">Meghani, 2007</a> ; <a href="#">Polacek, 2007</a> ; <a href="#">Shaw, 2006</a> ; <a href="#">Smith-Bindman, 2006</a> ; Tyczynski, 2006;	<a href="#">Aziz, 2008</a> ; <a href="#">Glied, 2008</a> ; <a href="#">Kessle, 2005</a> ; <a href="#">Menvielle, 2007</a> ; <a href="#">Shaw, 2006</a> ; <a href="#">Shi, 2005</a> ; <a href="#">Viswanath, 2006</a> ; <a href="#">Wrigley, 2008</a>	<a href="#">Decker, 2002</a> ; <a href="#">Igene, 2008</a> <a href="#">Shi, 2005</a> (3)
Disparities in quality and access to cancer care and services	<a href="#">Black 2008</a> ; <a href="#">Gonzalez, 2005</a> ; <a href="#">Livingston, 2000</a> ; <a href="#">Nguyen, 2008</a> ; <a href="#">Penson, 2008</a> ; Peragallo et al, 1998; <a href="#">Shih, 2008</a> ; <a href="#">Katz, 2000</a> ; <a href="#">Yabroff, 2005</a> ;	<a href="#">Ayanian, 2005</a> ; <a href="#">Freeman, 2001</a> . <a href="#">Polacek, 2007</a> ; <a href="#">Tsark, 2007</a> ; <a href="#">Vallerand, 2006</a> ; <a href="#">Wilkes, 2005</a> ;	<a href="#">Norredam, 1998</a> ; <a href="#">Polacek, 2007</a> ; <a href="#">Tsark, 2007</a> ;	<a href="#">Crump, 2008</a> , <a href="#">Tsark, 2007</a> ;
		<a href="#">Altpeter, 2005</a> ; <a href="#">Ananthkrishnan, 2007</a> ; <a href="#">Aziza, 2006</a> ; <a href="#">Bigby, 2003</a> ; <a href="#">Bickell, 2002</a> ; <a href="#">Carasquillo, 2004</a> ; <a href="#">De Alba, 2005</a> ; <a href="#">Dodd, 2008</a> ; <a href="#">Koroukian, 200</a> ; <a href="#">Masi, 2007</a> ; <a href="#">Malley, 2005</a> ; <a href="#">Moy, 2008</a> ; <a href="#">Ngo- Metzger, 2008</a> ; <a href="#">Peragallo, 1998</a> ; <a href="#">Sambamoorthi, 2003</a> ; <a href="#">Press, 2008</a> ; <a href="#">Rutten, 2004</a> ; <a href="#">Thompson, 2004</a> ,	<a href="#">Katz, 2000</a> , <a href="#">kessle, 2005</a> ; Kim, 2005 : <a href="#">Malley, 2005</a> ; <a href="#">Moy, 2008</a> ; <a href="#">Peragallo, 1998</a> ; <a href="#">Sambamoorthi, 2003</a> ;	<a href="#">Ananthkrishnan, 2007</a> ; <a href="#">Bickell, 2002</a> ; <a href="#">Bigby, 2003</a> ; <a href="#">Carasquillo, 2004</a> ; <a href="#">Earle, 2002</a> ; <a href="#">Fernandez, 2007</a> ; <a href="#">Miller, 2008</a> ; <a href="#">Moy, 2008</a> ; <a href="#">Rutten, 2004</a> ; <a href="#">Szwajcer, 2004</a> ,

Figure 1: ' Multi-contextual approach' to health disparities in cancer- study sample

A multi-contextual approach to health disparities is a complex approach, which provides important insights into the representation of different contextual factors that influence the three classes of health disparities in cancer in the currently available research.

As can be seen in Appendix 3, the most commonly researched factors that impact disparities in cancer care are from two contexts- cultural and socioeconomic (about 75% of studies). Researchers seemed to be less interested in 'demographic context' and 'health care context'; together, the latter are the centre of 48% of studies.

In the study sample, the most commonly researched types of disparities were disparities in quality and access to cancer care and services (about 70% of studies). Less than half of the studies focus on disparities in incidence, prevalence and cancer outcomes.

## **5.2 'Disparities in quality and access to cancer care and services'**

This class of disparities in cancer is the most frequent centre of attention for researchers.

### **5.2.1 *Disparities in access to health care***

*'Disparities in access to health care'* is the category explored most. It covers two subcategories – utilization and barriers to health care. In these studies, different types of barriers to health care are identified. These barriers are:

(1) health care system barriers (Allen et al., 2008; Bickell, 2002; Bigby, Linda, Johns, David & Ferrer,, 2003; De Alba, Ngo-Metzger, Sweningson & Hubbell, 2005; Masi & Blackman, 2007; Rutten, Nelson, & Meissner,, 2004; Tsark & Braun, 2007),

(2) physician and patient level of information and education barriers (Allen et al., 2008; Bigby et al., 2003; Rutten et al., 2004; Thompson, Valdimarsdottir, Winkel, Jandorf, & Redd, 2004),

(3) financial barriers (Crump et al., 2008; Earle et al., 2002; Morales et al., 2004; Nguyen et al. 2006; Tsark & Braun, 2007; Tyczynski et al., 2006),  
and

(4) physical barriers (Allen et al., 2008; Bigby et al., 2003; Crump et al., 2008).

*Disparities in access to health care* were more frequently studied in relationship to factors from two contexts- cultural (67%) and health care (37%). The socioeconomic context and demographic context were assessed in 25% and 11% studies, respectively.

Although most study samples included in this section focus on disparities in cancer linked to *cultural factors*, the pallet of cultural factors represented is very limited. Approximately 61% of studies focus on ethnicity (Ananthakrishnan, 2007; Bigby et al., 2003; Carasquillo & Pati, 2004; De Alba et al., 2005; Malley, Forrest, Feng, & Mandelbalatt, 2005; Masi & Blackman, 2007; Moy et al., 2008; Ngo- Metzger, Phillips, & McCarthy, 2008; Peragallo et al., 1998; Press, Carrasquillo, Sciacca & Giardina, 2008; Sambamoorthi, 2003). Only seven articles (18%) address another element of cultural context: health beliefs, attitudes, and acculturation (Altpeter, Mitchell & Pennell, 2005; Azaiza & Cohen, 2006; Bickell, 2002; Dodd, Watson, Choi, Tomar & Logan, 2008; Peragallo et

al., 1998; Rutten et al., 2004; Thompson et al., 2004). None of the reviewed articles addressed interconnectedness and spirituality.

The *health care context* was researched in 39 % of articles. Three domains have equal representation of 36% the payment domain- insurance (Ananthakrishnan et al., 2007; Carasquillo & Pati, 2004; Malley et al., 2005; Moy, Greenberg & Borsky, 2008); the health care organizational domain- system and physician factors (Bickell, 2002; Bigby et al., 2003; Malley et al., 2005; Rutten et al., 2004); and the behavioural domain (Earle et al., 2002; Fernandez & Morales, 2007; Miller et al., 2008; Szwajcer, Hannan, Donoghue & Mitten-Lewis, 2004). One study included in this section in this review analyzed the impact of financing and regulation on health disparities in access to cancer care and services (Bickell, 2002).

In the *socioeconomic context*, about 85% of studies were interested in linking socioeconomic status to disparities in access to care (Katz, Zemencuk & Hofer, 2000; Kessle & Peters, 2005; Kim, Leea, & Hongc, 2005; Malley et al., 2005; Moy et al., 2008; Sambamoorthi & McAlpine, 2003) and three studies explored education (Katz, et al. 2000; Malley et al., 2005; Sambamoorthi & McAlpine, 2003).

Peragallo et al. (1998) conducted a survey in which he covered two contextual areas: Sociodemographics and acculturation. His study is the only one that explored acculturation in relation to health disparities in access to care.

### **5.2.2 Disparities in quality of health care**

'Disparities in quality of health care' were investigated in 22% of studies focusing on contextual factors. About 38% of these explored cultural context, 23% socioeconomic context, 38% demographic context, and 15% health care context. Similar to the previous class of disparities, in this section, cultural context is represented predominantly (80%) by studies assessing the impact of race/ ethnicity on disparities in quality of cancer care (Ayanian et al., 2005; Nguyen et al., 2008; Tsark, 2007; Vallerand, Hasenau, Templin & Collins-Bohler, 2006). Another cultural factor explored is interconnectedness (Wilkes & White, 2005). Two-thirds of studies explored the linkage between SES and quality of health care (Norredam, Groenvold, Petersen & Krasnik, 1998; Tsark & Braun, 2007) and one third assessed health literacy (Johnston Polacek et al., 2007).

Three studies focused on the health care impact of the quality of health services offered, three explored organizational interventions (e.g., use of additional services such as *community lay health advocates*, and improvement of patient – provider communication) (Johnston Polacek et al., 2007), and one evaluated health care capacity (Tsark & Braun, 2007). One study analyzed behavioural interventions (new tools for information as a decisional support for treatment paths) (Johnston Polacek et al., 2007).

### 5.3 Disparities in cancer outcomes (mortality, subjective outcomes)

*Disparities in cancer outcomes (treatment outcomes, survival, mortality, subjective outcomes such as perceived quality of life)* were explored in 35% of studies. Approximately 48 % of these focused on 'cultural context', 75% on 'socioeconomic context', 19 % on 'demographic context', and 14 % on 'health care context'.

'*Cultural context*' is represented by studies focusing on race/ ethnicity or minority populations in 90% of cases (Altpeter et al., 2005; Aziz, Iqbal, and Akram, 2008; Birdsey, Alterman & Petersen, 2007; Ezendam et al., 2008; Glanz & McAtee, 2003 ; Shaw, Blakely, Sarfati, Fawcett & Peace, 2006; Smith-Bindman et al., 2006; Tyczynski, 2006). Cumulated, meanings and attitudes (Meghani & Houldin, 2007) are explored in 10% of cases.

In the '*socioeconomic context*', there were two studies that analyzed multiple factors that impact disparities in quality of cancer care. Shi et al. (2005 ) explored income inequality, unemployment, and education level in association with cancer mortality. Viswanath and Emmons (2006) addressed social class, social organizations and neighbourhoods in exploring their moderator role on message effects on health outcomes. The remaining studies focused primarily on social class (37%) (Aziz et al., 2008; Kessle & Peters, 2005; Wrigley et al., 2008) education (25%) (Glied & Lleras-Muney, 2008; Shaw et al., 2006 ), income (25%) (Shaw et al., 2006; Shi et al., 2005), and occupational class (2/8%) (Menvielle, Leclerc, Chastang, Melchior & Luce, 2007; Shi et al., 2005).

In the '*health care context*' three domains - insurance (Decker & Rapaport, 2002), financing (Igene, 2008), and services (Shi et al., 2005) - had equal representation of 33%.

#### **5.4 Disparities in Incidence, prevalence, or risk**

This class of disparities includes studies that assess contextual factors associated with disparities in epidemiological realm. The total number of studies included is eight. About 50% focus on factors related to the cultural context, mostly ethnicity (66%) (Apelberg, Buckley & White, 2005; Glanz & McAtee, 2003; Johnston Polacek et al., 2007), and 12.5% focus on socioeconomic and health care contexts, respectively (Igene, 2008; Linder Marko & Sexton, 2008).

#### **Demographic context**

'Demographic context' has the lowest representation in the study sample and these factors were researched most commonly in relation to disparities in the quality of cancer care (50%). Some of the demographic factors explored in these studies are age, gender, geographic region, and family profile. This result was unexpected and might be due to the fact that articles with a secondary focus on demographic factors or without a key interest on this variable were not placed in this category. (We chose the category of placement of each article based on its major focus or research question.)

## CHAPTER 6: DISCUSSIONS

### 6.1 Critique of the multi-contextual approach

A contextual approach to health disparities in cancer is a comprehensive approach that organizes and presents health disparities in cancer in relation to non- individual factors, de-emphasizing the role of 'individual level factors '. It confers a different perspective on studies reviewed through transferring the focus from individual characteristics to socio- environmental factors.

Overall, the 'multi-contextual approach' is a relatively valuable approach given the fact that it accommodates about 50% of all reviewed articles (59 out of 120 articles were placed in the multi-contextual matrix).

Similar to any approach, the 'multi-contextual approach to disparities in cancer' has *advantages and disadvantages*. Some of the advantages of this approach are:

1. It is comprehensive – covers all classes of disparities in cancer and all types of contextual factors.
2. It relocates some of the factors previously considered individual (person or patient) characteristics among contextual factors. For example, individuals' attitudes and beliefs are included in our framework in 'cultural context', and age and gender are included in 'demographic context'. This



change suggests that beliefs, attitudes, age, gender, etc., are not simply individual, unalterable characteristics but 'group characteristics' that have to be targeted through strategies beyond the individual realm.

3. It brings more clarity to two distinct concepts: disparities in quality and access to cancer care and 'health care context'. Our definition for 'health care context' differs from Ashing-Giwa's definition. This new definition was required in order to avoid overlap with one category of the health disparities in cancer- 'disparities in quality and access to cancer care. Ashing-Giwa's systemic factors that impact the HRQoL are: "access to cancer treatment and follow-up care, and quality of medical care" (Ashing-Giwa, 2005, p. 302).
4. It stresses the importance of contexts or non- individual factors in exploring and addressing disparities in cancer.

One disadvantage of this approach is that it cannot accommodate the concept of 'continuum of care' and the six levels of cancer care (Shavers, Fagan, Moolchan, Lawrence, Fernander & Ponder, 2007; Ward et al., 2004), or more than nine domains of 'continuum of care' from Krieger's 'grid'. Traditionally, the levels of care offer an organized sequence of potential possibility- levels for intervention to reduce disparities in cancer care and a familiar frame for researchers. This weakness of the multi- contextual approach was a reason why some articles (from the seven reviewed folders) did not fit into the 'multi- contextual' matrix. This suggests the complementarity of the two approaches and the need for multiple frameworks if inclusiveness is desired. The additional

frame might be developed in the future based on the matrix from Appendix 4. In this matrix, studies in which health disparities are addressed, were recorded by level of care and might partially overlap with studies recorded in the multi-contextual matrix. Given the limitations imposed by this paper, this additional frame is not discussed here.

## **6.2 Limitations:**

One of the limitations of this study is related to the sampling method and article sample included in this review. I have not used a previously validated method or frame to distinguish the studies. The categories were developed (emerged) as the papers were reviewed. The study sample analyzed is not exhaustive but relatively limited (fifty-nine studies). For this paper, the quality of these studies or effectiveness of included programs have not been assessed. Furthermore, the type of epidemiologic studies included (quantitative or qualitative; descriptive, analytical or experimental) have not been analyzed and discussed. Another limitation is due to the fact that this paper analyzes studies from a certain perspective- 'contextual perspective'. In consequence, the identified gaps in research- are 'relative gaps' or 'perceived gaps'- which might be incongruent with those one might identify researching this topic from a different perspective / approach.

In addition to all these limitations, we mention the fact that the results presented in this paper cannot be generalized. They only apply to the sample analyzed.

### **6.3 Perceived gaps:**

In summary, we observed that despite the fact that cultural context is the most commonly researched context, the range of cultural factors explored is disappointing, being limited frequently to race/ ethnicity. In total, ethnicity is analyzed 28 times (out of 103) or 27 %. Within these studies some deficiencies were observed in exploring attitudes and beliefs. Major gaps were identified in three sub- contexts: spirituality, acculturation and interconnectedness.

In the 'socioeconomic context' group, the 'perceived gaps' in research identified in this study are in the following sub-contexts: life burden and social support and occupational class. In total, these appear only four times in the reviewed studies.

Generally, the 'health care context' is poorly represented in this study sample. It only appears 18 times in 15 studies. The major gap in this group appears to be in the regulation of health care system.

Surprisingly, the demographic context has the lowest representation- it only appears 14 times in the study sample. This might be a consequence of the fact that we placed the article in the matrix based on their focus, or question, or hypothesis. For example, articles relating to gender were not included in the table under the 'gender' variable if their focus was on issues other than gender, even when the type of cancer researched was gender specific (e.g. prostate cancer).

#### **6.4 Issues to consider for future research**

1. Future research should expand its focus on the impact of previously less researched contextual domains. Some of these domains are- acculturation, interconnectedness, spirituality, life burden and social support, occupational class, financing and regulation of health care system. In addition, scientists should address multiple contextual factors in relation to health disparities in cancer.
2. Further research of 'perceived gaps' should be conducted to identify valid explanations for these gaps. For example, disparities in incidence and prevalence of cancer are not explored in linkage with health system quality 'control knobs' (financing, payment, organization, regulation, behaviour). These parameters might not have a relevant impact on disparities in incidence and prevalence and this could be the reason why this association fails to be explored.
3. Another issue that might be investigated is the absence of studies linking *disparities in cancer outcomes* to acculturation, interconnectedness, attitudes, beliefs, spirituality, and life burden and social support. It is expected that these factors would have an important impact on length and quality of survival, and place and 'quality of death' (outcomes).
4. It is considered necessary that future studies investigate an unexpected gap perceived in this paper- a lack of research focus on the association between quality of health care and health care system

(“control knobs”). This relationship is only analyzed in three articles. It was anticipated that the health care system’s characteristics are the most important contextual factors responsible for disparities in quality of health care. In consequence, it is expected that future research will emphasize the role of these contextual factors on analyzing and solving disparities in quality of health care.

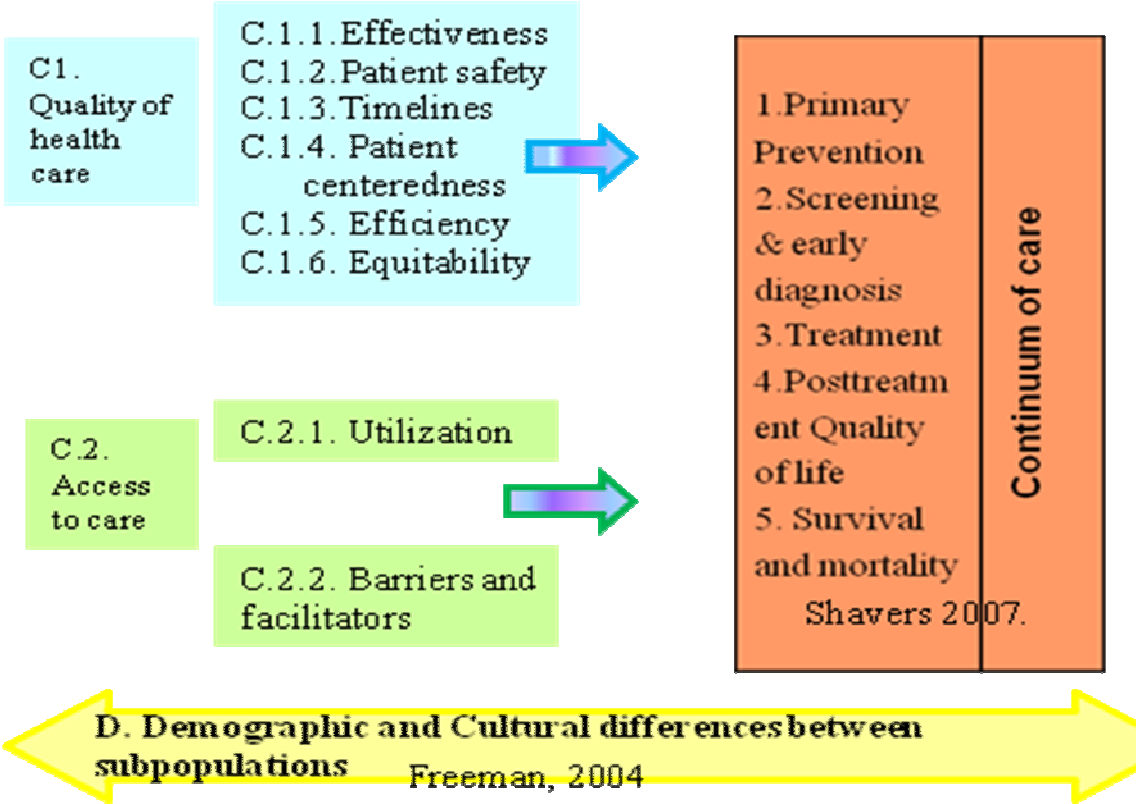
**APPENDIX 1- HEALTH DISPARITIES IN CANCER- CONCEPTUAL FRAMEWORK**

**Health disparities- conceptual framework**

A. Cancer incidence and prevalence

B. Cancer outcomes (mortality, subjective outcomes)

**C. Quality of health care and access to health care**



## APPENDIX 2- MULTI-CONTEXTUAL APPROACH TO HEALTH DISPARITIES IN CANCER- FRAMEWORK

### FRAMEWORK- 'MULTI- CONTEXTUAL APPROACH' TO HEALTH DISPARITIES IN CANCER

Study sample by: → ↓	Contexts			
	Demographics (age and gender)	Culture	Socioeconomic context	Health care system
Class of disparity	Age Gender, region, family unit,	ethnicity, ethnic identity, acculturation, interconnectedness, attitudes and beliefs, and spirituality	SES, life burden, and social support, education, occupational class	Financing, payment, organization, regulation, behaviors
Disparities in Incidence and prevalence ( risk disparities)	<a href="#">Law, 2003</a> ;	<a href="#">Apelberg, 2005</a> ; <a href="#">Glanz, 2003</a> ; <a href="#">Polacek, 2007</a> ; <a href="#">Salant, 2007</a> ;	<a href="#">Apelberg, 2005</a> ; <a href="#">Linder, 2008</a>	<a href="#">Igene, 2008</a>
Disparities in cancer outcomes (mortality, subjective outcomes)	<a href="#">Kwon, 2008</a> ; <a href="#">Tsark, 2007</a> ; <a href="#">Tyczynski, 2006</a> ; <a href="#">Yabroff, 2005</a> ;	<a href="#">Altpeter, 2005</a> ; <a href="#">Aziz, 2008</a> ; <a href="#">Birdsey, 2007</a> ; <a href="#">Ezendam, 2008</a> ; <a href="#">Glanz, 2003</a> ; <a href="#">Meghani, 2007</a> ; <a href="#">Polacek, 2007</a> ; <a href="#">Shaw, 2006</a> ; <a href="#">Smith-Bindman, 2006</a> ; <a href="#">Tyczynski, 2006</a> ;	<a href="#">Aziz, 2008</a> ; <a href="#">Glied, 2008</a> ; <a href="#">Kessle, 2005</a> ; <a href="#">Menvielle, 2007</a> ; <a href="#">Shaw, 2006</a> ; <a href="#">Shi, 2005</a> ; <a href="#">Viswanath, 2006</a> ; <a href="#">Wrigley, 2008</a>	<a href="#">Decker, 2002</a> ; <a href="#">Igene, 2008</a> <a href="#">Shi, 2005</a> (3)
Disparities in quality and access to cancer care and services	<a href="#">Black 2008</a> ; <a href="#">Gonzalez, 2005</a> ; <a href="#">Livingston, 2000</a> ; <a href="#">Nguyen, 2008</a> ; <a href="#">Penson, 2008</a> ; Peragallo et al, 1998, <a href="#">Shih, 2008</a> ; <a href="#">Katz, 2000</a> ; <a href="#">Yabroff, 2005</a> ;	<a href="#">Ayanian, 2005</a> ; <a href="#">Freeman, 2001</a> , <a href="#">Polacek, 2007</a> ; <a href="#">Tsark, 2007</a> ; <a href="#">Vallerand, 2006</a> ; <a href="#">Wilkes, 2005</a> ;	<a href="#">Norredam, 1998</a> ; <a href="#">Polacek, 2007</a> ; <a href="#">Tsark, 2007</a> ;	<a href="#">Crump, 2008</a> ; <a href="#">Tsark, 2007</a> ;
		<a href="#">Altpeter, 2005</a> ; <a href="#">Ananthakrishnan, 2007</a> ; <a href="#">Azaiza, 2006</a> ; <a href="#">Bigby, 2003</a> ; <a href="#">Bickell, 2002</a> ; <a href="#">Carasquillo, 2004</a> ; <a href="#">De Alba, 2005</a> ; <a href="#">Dodd, 2008</a> ; <a href="#">Koroukian, 200</a> ; <a href="#">Masi, 2007</a> ; <a href="#">Malley, 2005</a> ; <a href="#">Moy, 2008</a> ; <a href="#">Neo- Metzger, 2008</a> ; <a href="#">Peragallo, 1998</a> ; <a href="#">Sambamoorthi, 2003</a> ; <a href="#">Press, 2008</a> ; <a href="#">Rutten, 2004</a> ; <a href="#">Thompson, 2004</a> ;	<a href="#">Katz, 2000</a> ; <a href="#">kessle, 2005</a> ; <a href="#">Kim, 2005</a> ; <a href="#">Malley, 2005</a> . <a href="#">Moy, 2008</a> ; <a href="#">Peragallo, 1998</a> ; <a href="#">Sambamoorthi, 2003</a> ;	<a href="#">Ananthakrishnan, 2007</a> ; <a href="#">Bickell, 2002</a> ; <a href="#">Bigby, 2003</a> ; <a href="#">Carasquillo, 2004</a> ; <a href="#">Earle, 2002</a> ; <a href="#">Fernandez, 2007</a> ; <a href="#">Miller, 2008</a> ; <a href="#">Moy, 2008</a> ; <a href="#">Rutten, 2004</a> ; <a href="#">Szwajcer, 2004</a> ;

## APPENDIX 3- MULTI-CONTEXTUAL APPROACH- CONTEXT SUBCATEGORIES

### 'Multi-contextual approach'- representations of different subcategories in our sample

Study sample (59) by: →		Contexts (59)																
↓		Demographics (13)				Culture (33)				Socioeconomic context (19)				Health care system (15)				
Class of disparity		Ade Gender ( + gay, lesbian, bisexual, and transgender (GLBT) community	Region	Family profile (+birthplace)	Ethnicity, ethnic identity,	Acculturation	Interconnectedness	Attitudes and beliefs	Spirituality	SES (household wealth, poverty level-> income)	Life burden, and social support,( living situation, neighborhood resources ; day-to-day stressors)	Education/ health literacy	Occupational class	Financing	Payment ( including health insurance status	Organization	Regulation	Behaviors (+ utilization )
Disparities in Incidence and prevalence ( risk disparities) (8)		-	-	2	-	3	-	1	-	-	1	1	1	1	-	-	-	-
Disparities in cancer outcomes (mortality, subjective outcomes (21)		1	-	3	-	9	-	-	1	-	6	1	3	2	1	1	1	-
Disparities in quality and access to cancer care and services	Quality of health care (13)	-	4	-	1	4	-	1	-	-	2	-	1	-	-	1	-	1
	Access to health care (28)	-	-	2	1	12	1	-	6	-	6	-	3	-	1	4	4	1
Total(103)		1	4	7	2	28	1	2	7	-	15	2	8	2	3	5	6	1



## APPENDIX 4:- ADDITIONAL FRAMEWORK- MULTI-LEVELS OF CARE APPROACH TO HEALTH DISPARITIES IN CANCER

### ADDITIONAL FRAMEWORK- MULTI- LEVELS OF CARE APPROACH TO HEALTH DISPARITIES IN CANCER

Socioecologic model	Level of care ( <a href="#">Norredam, 1998</a> ; <a href="#">Shavers, 2007</a> ; <a href="#">Ward, 2004</a> )					
	Health promotion (2)	Primary prevention( cancer risk) ( 22)	Screening ( 28)	Early/ new diagnosis (18)	Treatment(20)	Survival and mortality (30)
Individual – level ( human action/ behavior)- origins(25)		<a href="#">Benjamins, 2004</a> ; <a href="#">Law, 2003</a> ; <a href="#">Dodd, 2008</a> ; <a href="#">Leistikow, 2006</a> ;	<a href="#">Altpeter, 2005</a> ; <a href="#">Benjamins, 2004</a> ; <a href="#">Bickel, 2002</a> ; <a href="#">Drake, 2008</a> ; <a href="#">Rutten, 2004</a> ; <a href="#">Allen, 2008</a> ; <a href="#">Azaiza, 2006</a> ; <a href="#">Peraqallo, 1998</a> ; <a href="#">Shih, 2008</a> ; <a href="#">Thompson, 2004</a> ;	<a href="#">Allen, 2008</a> ; <a href="#">Bigby, 2003</a> ; <a href="#">Dodd, 2008</a> ; <a href="#">Linder et al., 2008</a> ;	<a href="#">Bonham, 2001</a> ; ; <a href="#">Bigby, 2003</a> ; <a href="#">Linder et al., 2008</a> ; <a href="#">Polacek, 2007</a> ; <a href="#">Ayanian, 2005</a> ;	<a href="#">Altpeter, 2005</a> ; <a href="#">Ayanian, 2005</a> ; <a href="#">Linder et al., 2008</a> ; <a href="#">Menvielle, 2007</a> ; <a href="#">Miller, 2003</a> ; <a href="#">Wrigley, 2008</a> ; <a href="#">Roux, 2004</a> ;
Micro-level (groups, family, social networks, etc) ( 17)	<a href="#">Waterbor, 2004</a>	<a href="#">Glanz, 2003</a> ; <a href="#">Kok, 2008</a> ; <a href="#">Lawlor, 2006</a> ; <a href="#">Sambamoort, 2003</a> ;	<a href="#">Sambamoorthi, 2003</a> ; <a href="#">Norredam, 1998</a> ; <a href="#">Fiscella, 2004</a> ; <a href="#">Smith, 2008</a> ;	<a href="#">Aziz, 2008</a> ; <a href="#">Glanz, 2003</a> ; <a href="#">Miller, 2008</a> ; <a href="#">Norredam, 1998</a>	<a href="#">Aziz, 2008</a> ; <a href="#">Miller, 2008</a> ; <a href="#">Nguyen et al 2006</a> ; <a href="#">Norredam, 1998</a> ;	<a href="#">Aziz, 2008</a> ; <a href="#">Black, 2008</a> ; <a href="#">Kessle, 2005</a> ; <a href="#">Kim, 2008</a> ; <a href="#">Shaw, 2006</a> ; <a href="#">Wilkes, 2005</a> ;
Mezzo-level (work-sites, schools, communities, healthcare) (22)		<a href="#">Tsark, 2008</a> ; <a href="#">Allen, 2008</a> ; <a href="#">De Alba, 2005</a> ; <a href="#">Linder, 2005</a> ; <a href="#">Mallev, 2005</a> ; <a href="#">Salant, 2007</a> ;	<a href="#">Tsark, 2008</a> ; <a href="#">Rutten, 2004</a> ; <a href="#">Allen, 2008</a> ; <a href="#">Bickel, 2002</a> ; <a href="#">Bigby, 2003</a> ; <a href="#">Crump, 2008</a> ; <a href="#">Drake, 2008</a> ; <a href="#">Fiscella, 2004</a> ; <a href="#">Nguyen's (2008)</a> ; <a href="#">Press, 2008</a> ;	<a href="#">Tsark, 2008</a> ; <a href="#">Allen, 2008</a> ; <a href="#">Bigby, 2003</a> ; <a href="#">Crump, 2008</a> ; <a href="#">Penson, 2008</a> ; <a href="#">Siminov, 2006</a> ; <a href="#">Szwajcer, 2004</a> ;	<a href="#">Tsark, 2008</a> ; <a href="#">Allen, 2008</a> ; <a href="#">Bickel, 2002</a> ; <a href="#">Bigby, 2003</a> ; <a href="#">Crump, 2008</a> ; <a href="#">Earle, 2002</a> ; <a href="#">Penson, 2008</a> ; <a href="#">Szwajcer, 2004</a> ; <a href="#">Siminov, 2006</a> ; <a href="#">Yabroff, 2005</a>	<a href="#">Bickel, 2002</a> ; <a href="#">Birdsey, 2007</a> ; <a href="#">(Occ)</a> ; <a href="#">Briggs, 2003</a> ; <a href="#">Miller, 2008</a> ; <a href="#">Ngo- Metzger, 2008</a> ; <a href="#">Wrigley, 2003</a> ; <a href="#">Szwajcer, 2004</a> ; <a href="#">Wilkes, 2005</a> ;
Macro-level (National/state and large-area dynamics, policy.) (20)	<a href="#">Tsark, 2007</a> ;	<a href="#">Apelberg, 2005</a> ; <a href="#">Tsark, 2007</a> ; <a href="#">Carasquillo, 2004</a> ; <a href="#">Morales, 2004</a> ; <a href="#">Morales, 2004</a> ; <a href="#">Tyczynski, 2006</a> ; <a href="#">Crump, 2008</a> ; <a href="#">Leistikow, 2006</a> ;	<a href="#">De Alba, 2005</a> ; <a href="#">Tsark, 2007</a> ; <a href="#">Carasquillo, 2004</a> ; <a href="#">Koroukian, 2004</a> ; <a href="#">Morales, 2004</a> ; <a href="#">Morales, 2004</a> ; <a href="#">Moy, 2008</a> ; <a href="#">Crump, 2008</a> ; <a href="#">Ananthakrishnan, 2007</a> ;	<a href="#">De Alba, 2005</a> ; <a href="#">Tsark, 2007</a> ; <a href="#">Carasquillo, 2004</a> ; <a href="#">Tyczynski, 2006</a> ; <a href="#">Crump, 2008</a> ; <a href="#">Decker, 2002</a>	<a href="#">De Alba, 2005</a> ; <a href="#">Tsark, 2007</a> ; <a href="#">Carasquillo, 2004</a> ; <a href="#">Tyczynski, 2006</a> ; <a href="#">Crump, 2008</a>	<a href="#">Hausdorf, 2008</a> ; <a href="#">Leistikow, 2006</a> ; <a href="#">Lengerich, 2005</a> ; <a href="#">Livingston, 2000</a> ; <a href="#">Shi, 2005</a> ; <a href="#">Yabroff, 2005</a> ); <a href="#">Decker, 2002</a> ; <a href="#">Kwon, 2008</a>
Global-level (Geopolitical, economic and environmental dynamics)		<a href="#">Slimani, 2002</a> ;	<a href="#">Katz, 2000</a> ;			<a href="#">Igene, 2008</a> ; <a href="#">Ezendam, 2008</a> ;

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