Samples of JMP Thesis Literature Reviews

SAMPLE 1

Source:

Goal: Define the phenomenon and the relevant terminology, theories, and methodologies of its research.

2. Background

2.1 Mammographic Density

2.1.A. What is mammographic density?

Mammographic density was first reported as a risk factor for breast cancer by John Wolfe in 1976 in an article in the American Journal of Roentology (5). Mammographic differences in light and dark correspond to different tissue types. The female breast is composed of stroma—supporting connective tissue—epithelium, and adipose tissue. Stroma and epithelium are radiodense on mammogram and appear light or white on the mammogram, adipose tissue is radiolucent and will therefore appear dark on the mammogram (6-7). The image below shows six different mammograms with increasing amounts of epithelial and stromal tissues, as can be seen by the increasing amount of white area in the mammogram.
Image I.1. Examples of mammographic density.

(a) 0%. (b) <10%. (c) <25%. (d) <50%. (e) <75%. (f) >75%

Image from Boyd, 2009 (8).

2.1.B. How is mammographic density measured?

In his debut article in 1976, Wolfe described categories of mammographic parenchymal patterns that he defined based on the distribution of epithelial, stromal, and adipose tissues. The distribution of these different tissues is visible on mammogram because of the different ways that they attenuate X-rays. Radiodense stromal and epithelial tissues appear white on a mammogram while nondense adipose tissue appears dark (6-7). Wolfe’s four categories were qualitative; he categorized a breast as N1 if it was predominantly fat, P1 if there was ductal prominence in less than 25 percent of the breast, P2 if there was ductal prominence in more than 25 percent of the breast, and DY if there was extensive dysplasia (8).

Since Wolfe’s report, three more methods have been introduced and are commonly used in the epidemiologic setting, one of which is widely used in the clinical setting as well. These are the Breast Imaging and Reporting System, visual assessment by radiologists and computer-assisted programs. Other measures, like the five grade Taber Classification and planimetry are not as widely used in epidemiologic studies (8-9).
Sample 2

Source:

Goal: Justify the need for research by identifying current research gaps and limitations as well as explaining the topic’s significance.

Sexual minority men are adversely impacted by homophobia of various forms, including societal stigma, prejudice events and internalized homophobia. These manifestations of homophobia have been identified as sexual minority stressors, which have been found to be associated with suicidal ideation and other indicators of psychological distress in gay men (Meyer, 1995). Gay men also disproportionately experience other negative mental and physical health outcomes, which are likely influenced by these sexual minority stressors. In order to reduce these health disparities, many studies focus on removing risk factors, the environmental stressors that accompany sexual minority status and increase the likelihood of negative health outcomes. However, eliminating individual risk factors and adverse structural factors is not always feasible. Future research must also explore protective factors that have the potential to mitigate against negative health outcomes within sexual minority communities.

While mental health disparities exist among sexual minorities, the majority of gay and bisexual men do not have significant mental health problems. This suggests that sexual minority men have adapted to stressors with protective coping mechanisms. One such potential protective factor is mentorship, a relationship with an emotional bond in which a person with more experience is concerned with the development of someone with less experience (Freedman, 1992). Mentorship has been associated with positive psychosocial and behavioral outcomes in a variety of adolescent populations (Dubois, Holloway, Valentine & Cooper, 2002). Gay mentorship, a mentorship relationship among gay men, may have distinct properties and significant health impact on sexual minority populations, but it has yet to be explored.

As mentorship is defined by the mentor’s concern for the development of the mentee, gay mentorship may have particular relevance to developmental processes unique to gay-identified individuals, including gay-identity formation and maintenance. Further, as stressors are disproportionately associated with sexual minority status and gay-identity development, gay mentorship may provide an important buffer against associated psychological distress. We conducted a
descriptive interview study to explore the development of gay mentorship relationships, particularly with relevance to the sexual identity formation process. In exploring these relationships, we also hope to elucidate the characteristics of gay mentorship that may protect against psychological distress in gay males. It is hoped that information from this study will add to our knowledge about protective factors that have the potential to reduce health disparities in sexual minority populations.

Gay men and health disparities

Extensive research over the past two decades has elucidated some of the negative health outcomes that gay men disproportionately face. Previous research indicates that gay and bisexual men are at increased risk of HIV infection, depression, suicidality, smoking and substance abuse, as compared to heterosexual controls (Brewer, Golden & Handsfield, 2006; Catania et al., 2001; Cochran & Mays, 2000; Cochran, Ackerman, Mays & Ross, 2004; Cochran, Sullivan & Mays, 2003; Jorm, Korten, Rodgers, Jacomb & Christensen, 2002; Marshall et al., 2008). In a meta-analysis of 25 population-based studies, lesbian, gay and bisexual people, as compared to heterosexuals, were found to have 2.47 (CI 1.87, 3.28) times higher risk of suicide attempts, 1.5 (RR range 1.54-2.58) times higher risk for depression and anxiety disorders, and 1.5 (RR range 1.51-4.00)) times higher alcohol and substance dependence. Further, lifetime prevalence of suicide attempts are remarkably higher in gay and bisexual men, occurring 4.28 (CI 2.32, 7.88) times more often than in heterosexuals (King et al., 2008).

Risk factors that are significantly higher in sexual minority males may further compound risk of adverse health outcomes in these individuals. For example, gay- and bisexually-identified men have been shown to experience sexual abuse at a significantly higher rate than heterosexual men, in some studies as high as 17-39% (Holmes, 1997; Jinich et al., 1998). Men who have sex with men (MSM) who have experienced forced sex have been shown to have significantly higher rates of HIV risk and psychological distress than MSM who have not experienced sexual abuse (Arreola, Neiands, Pollack & Catania, 2008; Jinich et al., 1998). Furthermore, the positive correlation between substance use and sexual risk behavior among MSM has been well documented (Chesney, Barrett & Stall, 1998; Colfax et al., 2005; Purcell, Moss, Remien, Woods & Parsons, 2005; Purcell, Parsons, Halkitis, Mizuno & Woods, 2001; Stall & Purcell, 2000). In an attributable risk analysis of a longitudinal study of 4,295 MSM in six US cities, 29% of HIV seroconversions were attributed to use of alcohol or drugs before sex (Koblin et al., 2006). Thus, in sexual minority males, substance abuse is both an adverse health outcome and a risk factor for additional adverse health outcomes, such as HIV infection.
SAMPLE 3

Source:

Goal: Summarize the current context and knowledge of the topic.

Selection for and spread of resistant organisms and resistance genes

The cause of drug resistance exhibited by microorganisms can be attributed mainly to two factors: the antimicrobial drug inhibits susceptible organisms and selects those that are resistant; and the genetic resistance determinants of resistant microorganism are selected along with their hosts [23]. Drug resistance emerges when these two factors are present in the environment or host simultaneously.

When microorganisms are exposed to strong selection pressure within environments of high antibiotic use—hospitals, veterinary medicine, agriculture, and food animal husbandry—those that survive these conditions are selected along with their resistance genes and spread. These genes and their bacterial hosts propagate under continued selection by antimicrobial use to spread the drug resistance traits to other hosts and to other geographic regions.

Indiscriminate use of antibiotics has contributed to the emergence of bacterial resistance, both in the hospital and community settings. Over-prescription by healthcare providers plays a major factor in this emergence [24]. However, patients’ attitudes toward antibiotics also contribute to this problem. One study conducted a patient survey in Europe, Asia, Africa, and South America to evaluate the patient contribution to unnecessary antibiotic use [25]. The study showed that patients exert pressure on their physicians to get antibiotics and that, in addition, on compliance in completing a full course of antibiotics represents another significant source of antibiotic misuse in the community. Furthermore, in all the countries where the study was conducted, it was possible to get antibiotics from the pharmacist without a medical prescription [25]. The selection of resistant bacteria is further enabled by the antimicrobials present in the environment. Antimicrobials have been reported in waste waters with increasing frequency [26]. One study reported that soil microbes provide a large reservoir of antibacterial resistance genes that can be mobilized and spread into other microbial environments under the selection pressure of antibiotic use [27].

Comment [W10]: Summarizes current understanding on the causes of the phenomenon.
Comment [W11]: Outlines different perspectives and studies on the indiscriminate use of antibiotics.
The ease of human air travel allows drug-resistant organisms and the resistance-conferring elements they carry, such as plasmids, to be spread rapidly between countries. Recently, a newly identified carbapenem resistance gene called \textit{bla}_{NDM-1} has been spreading worldwide. Spread of infections caused by the New Delhi metallo-beta-lactamase 1 (NDM-1) positive Enterobacteriaceae have been associated with travel to the Indian subcontinent [28]. The introduction of NDM-1 into the UK has prompted the release of a national alert notice by the Department of Health on the advice of the Health Protection Agency [29]. Three isolates harboring \textit{bla}_{NDM-1} have been reported in the United States, in which all three isolates were from patients who received recent medical care in India [30]. On a similar note, several cases of United Kingdom and US military and nonmilitary personnel returning from operations in Iraq and Afghanistan with infections caused by carbapenem-resistant A. baumannii have been reported [31, 32].

Some studies have reported a decline in resistance frequencies when an antibiotic use was halted [33], but the decline is difficult to sustain. In 1995, a nationwide reduction in co-trimoxazole prescriptions in the UK was implemented due to concern over hypersensitivity reactions attributable this drug. After five years, researchers investigated the effects of this restriction in use on the prevalence of resistance in E. coli. They concluded that the significant curtailment of prescribing practices does not necessarily result in a resistance rate decline [34]. Thus, non-human use of co-trimoxazole in agriculture may maintain a pool of resistant organisms that transfer to humans via the food chain.

\textbf{Comment [W12]}: Identifies recent developments.

\textbf{Comment [W13]}: Identifies related studies in order to triangulate findings.

\textbf{Comment [W14]}: Synthesizes findings to a new conclusion.