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The Harmful Consequences of Living with HIV in Contemporary Society

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Recent research conducted on the topic of risk has predominantly focused on the measurability of an event occurring in modern society. Although attempts are made to incorporate the theoretical examination of social dimensions in the study of risk, there remains considerable diversity in defining the nature of risk. This paper employs frameworks proposed by Foucault (1991, 1971), Douglas (1992), and Beck (1992) to understand the class-based positioning that occurs to define the concept of risk, and explores the effect of these understandings on the population. The inclusion of individual understandings of harm can assist in illuminating invisible hazards, reducing contradictory understandings of risk in social systems, and directing social research beyond the measurability of ill events.

Introduction

A number of disciplines using a technico-scientific approach to risk, including engineering, epidemiology, and mathematics, continue to define risk as the scientific calculation of probability within a population (Beck, 1992, 2009; Hillier, 2006). Risk in this perspective is increasingly political and controversial because these disciplines often fail to consider the subjective perceptions of and responses to risk in their discussions of this concept. However, for the purpose of this paper, risk deviates from the scientific assessment of harm in contemporary society and refers to the individual's subjective experience of risk. Ideas about risk decision making are also open to negotiation and contestation. It is important to note that risk and harm are defined similarly, and used interchangeably in this article.

As risk is viewed as chaotic and potentially disruptive to the social order, governments intervene and employ risk management plans as a way to identify, analyze, and respond to risk by minimizing the consequences of adverse events. The government's construction of risk and its effect on people living with HIV in westernized countries is the focus of this paper. The works of Foucault (1991, 1971), Douglas (1992), and Beck (1992) offer diverse perspectives on risk as a concept, but similarly argue that risk is a product of political decisions and human actions. These authors' discussions of risk inform more recent work like that done by Boholm (1996, 2003, 2015) and Trostle (2005) as a starting point to understand the effect of risk on society. The politicization of risk arises in their work and refers to the manipulation of the definition of risk for political gain (Lupton, 2006; Trostle, 2005). Trostle (2005) explains that the political discourse of risk speaks to:

> Whoever controls the definition of risk, controls the rational solution to the problem at hand. If you define risk one way, then one option will rise to the top as the most cost-effective, or the safest, or the best. If you define it another way, perhaps incorporating qualitative characteristics and other contextual

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> factors, you will likely get a different ordering of your action solutions. Defining risk thus is an exercise in power (p. 151).

Research conducted on the topic of risk has predominantly focused on the causality of harm related to technological and environmental factors, the development of models to limit the effects of risk, health-risk perceptions, and the measurability of risk as a basis for public decisions (Nichter, 2008; The Royal Society, 1992). Who is responsible for the construction of risk knowledge and the harmful consequences of risk? This is an area of research that requires additional exploration, especially when it affects people living with HIV.

This article draws on the work of Foucault (1991, 1971), Douglas (1992), and Beck (1992) to explore the harmful consequences of risk for people living with HIV. The paper will not exhaust the models that are available for defining risk, but will illustrate popular perspectives in social research that continue to influence current theorists' discussions of risk in society. I will create a hybrid risk model that combines classical definitions of risk in modern society to reveal the level of harm that is caused by conceptions of risk, especially concerning HIV infection. I will use the Foucauldian idea of government as the ultimate risk manager, and the perception of risk as a socially constructed phenomenon through culture values and ways of life according to the works of Douglas (1992) and Beck (1992). This will demonstrate that governments and other institutions are responsible for constructing ideas about risk in society, similar to the way that they construct ideas about HIV risk. These political institutions benefit from establishing the definition of risk through increased intervention in society, including contributions to public policy and practices; however, this may trope harm reduction initiatives in society. A hybrid approach to risk acknowledges that shifting meanings around risk phenomena are shaped by new ecologies, and that the struggles or limits over these meanings are important to identify. In this paper, attention is drawn to how discourses of risk influence the way people conduct themselves in daily life. The article will conclude with a discussion of risk that combines elements of all three authors presented in this paper using Boholm's (1996, 2003, 2015) and Trostle's (2005) approaches.

Defining the Concept of Risk

Defining risk may appear to be quite simple, but there is no consensus about what constitutes a political, economic, environmental or socio-cultural risk. What may be a risky state for one person or group may not be considered risky for another. Perceptions of risk are relative to one's social interactions, shared cultural traditions, shifting frameworks of knowledge, and relations of power. Risk is essentially a social and cultural construction rather than a strictly objective perspective. Therefore, the understanding of risk, risk-taking behaviours, and risk decision-making is affected by the cultural background in which it develops, as well as by personal experience.

Although there is considerable diversity in defining risk across the social sciences, individual explanatory models or perspectives are similarly interested in understanding the socio-cultural settings that influence risk. This section provides an evolutionary overview of the discussion of harm as it applies to the social sciences. The following authors provide differing perspectives on the concept of risk, illustrating the complexity of defining the effect of risk on society.

Michel Foucault and Governmentality

Michel Foucault's (1977, 1991) discussion of governmentality has had an enormous influence on the examination of risk, and his work continues to inform discussions on this topic in a number of disciplines. The concept of governmentality was first presented in the late 1970s at the *Collège de France* and remains largely unpublished (Lemke,

2001). *Governmentality*, from the perspective of Lupton (1999b), refers to the control of contemporary societies through forms of knowledge and institutions that render risk a calculable probability. The concept of governmentality also refers to the shifting nature of power from governments and institutions to the population by involving individuals in the process of governing (Lemke, 2001). This points to devolving the responsibility of harm reduction from governments and other political institutions to individuals. Foucault (1977) uses the symbol of the panopticon, a prison with the positioning of a guard tower in the center, to conceptualize his understanding of governmentality. The panopticon design leads individuals to assume they are being observed at all times and causes them to control their behaviours in fear of punishment. Social theorists continue to adopt the governmentality approach to examine issues such as the constraints of social behaviour and authoritarianism to understand the reasoning for government intervention (Higgs, 1998). The processes of surveilling and being surveilled by the panopticon, as metaphor for the government, highlights changes in decision-making practices and human behaviours associated with modern surveillance technology.

Although Foucault's approach has limited ability to speak to the mechanism of societal regulation more broadly, for instance in identifying who governs and who is self-governed in contemporary society, his analysis of power structures remains critical to understanding the evolution of discourse in society. Governmentality may be more effective in some societies than in others where power relations are de-centered (Joseph, 2013). The concept of governmentality is not just a tool for thinking about the way state-centered power is created and distributed between groups at a given time. Foucault's discussion of neo-liberal governmentality also contributes to understanding the sum of knowledge, beliefs, opinions, and attitudes held by those who are governed in society. Risk management manifests itself in a hierarchical top-down approach and comes to inform discourses of harm that become internalised by individuals and guide the behaviours of the population as a form of social control.

Governments and other political institutions often label certain groups in the population as being at higher risk for harm based on their behaviours, including for example the connection made between intravenous drug users and blood-borne diseases (Academy for Educational Development, 2000). Institutional agents use measuring techniques, such as censuses or other causal methods, to assess the level of risk affecting the population before implementing a mitigation strategy. The use of different measuring techniques to intervene in, regulate, and isolate problems from affecting the entire population may cause suspicion, distrust, and anger among various groups in society. For instance, government-led prenatal and perinatal transmission of HIV initiatives globally have led to a decline in the rate of mother-to-child transmission of HIV resulting from the early introduction of antiretroviral therapies. Given the high risk for HIV contraction by women through sexual activity, the availability of antenatal initiatives including HIV testing, counseling, and care are key to reducing the spread of disease. In Canada, there are two different approaches for screening pregnant women for HIV, known as voluntary and routine testing. With the availability of HIV screening in Canada, 80.4% of the 2,851 infants perinatally exposed to HIV between 1984 and 2008 were confirmed HIV negative (Public Health Agency of Canada, 2010). In spite of growing access to prenatal care, many women delay or avoid antenatal services, risking an increase in maternal and fetal morbidity and mortality, because of religious belief, empowerment issues, and professional and system failures (Haddrill et al., 2014). Reasons for delayed access to antenatal care remain a central concern for governments seeking to reduce the risk of HIV transmission and protect the health of the public. The number

of perinatal HIV cases reported annually by the Canadian Perinatal HIV Surveillance Program is on the decline, which represents an important achievement in public health.

Surveilling populations can also directly or inadvertently affect an individual's assessment of risk through methods that include, but are not limited to, census-derived data or a public-street video camera system. Hallinan and Friedewald's (2012) report on public perception of surveillance technologies in the European Union explains that individuals modify their behaviour as circumstances require in order to avoid negative consequences of negligent or harmful actions. Feelings of being under suspicion affect an individual's assessment of risk, and are a product of governments' attempts to measure and identify risks that place the population at harm in the first place (Hallinan & Friedewald, 2012; Singer & Page, 2014). The same conclusions can be drawn regarding westernized countries, and this is the primary reason that governmentality remains very present in current discussions of risk and risk management.

Mary Douglas and the Cultural Theory of Risk

Douglas and Wildavsky's (1983) work similarly views risk as highly politicized and value-laden discourse that attributes blame and responsibility onto individuals for the occurrence of events that affect all people in modern society. Both maintain that the categorization of risk needs to take into account the social dimensions of harm in order to understand the existing distribution of power and mitigate risk in contemporary society. Their views on risk stem from earlier work on differing perspectives of purity, pollution, and otherness.

Douglas' (1992) categorization of risk raises the question, "why it is that some dangers are identified as risks and others are not?" (Kowalewski et al., 1997, p. 315-316; Lupton, 1999a, p. 36). Her findings on the study of risk demonstrate that an individual's risk perception is shaped by governmental and institutional ideas or responses to harm. Douglas (1992) examines the ideologies that risk discourse is learned and that one's culture influences individual choices. She came to this conclusion in her later work on risk using the grid and group typology, which shows how individuals and groups view risk differently (Caplan, 2000)[1].

Bellaby (1990) explains that "*grid* means all the other social distinctions and delegations of authority that they [governments] use to limit how people behave to one another. *Group* denotes the outside boundary that people have erected between themselves and the outside world" (p. 468). For the purposes of Douglas' (1992) work on risk, the grid and group scheme helps to demonstrate that individuals construct their ideas of the world and of governments or institutions (Fox, 1999). The typology consists of four dimensions including the hierarchical, egalitarian, fatalist, and individualist. The *hierarchical* conforms to dominant norms in society and abides by the regulatory decisions made by the nation-state. *Egalitarians* engage in self-regulation and attribute blame to other groups. The *fatalist* is conscious of hazards that pose a risk to their health and accepts the responsibility for their decisions on how to address harm. The individualist is unable to perceive their level of risk and depends upon institutions and the nation-state to address the presence of harm in society (The Royal Society, 1992).

Douglas' (1992) thoughts on risk, specifically the grid and group typology, remain a relevant classifying process for studying social systems and the regulation of contemporary society through concepts closely connected to uncertainty, emotion, and phobia. However, its four dimensions fail to account for instances when an individual occupies multiple classifications (Caplan, 2000). Douglas' (1992) work on the interrelated concepts of group and grid laid the foundation in cultural anthropology to explore the construction of risk in contemporary society. The

four dimensional scheme is another limit of this approach that oversimplifies the social organization of contemporary society, and does not recognize the effect that governments and institutions have on people's knowledge of risk. According to Lupton (1999a), the grid and group typology is a product of political decisions and social processes designed to meet people's need for a classification system of harm. Beck's (1992) work on risk society combines the ideas of social theorists Michel Foucault and Mary Douglas. Both offer an alternative view of risk that is defined by human experiences in place of shared conventions of power.

Ulrich Beck and the Risk Society

Ulrich Beck's (1992) work expands on earlier discussions of risk, including Foucault's (1977, 1991) ideas of governmentality and Douglas and Wildavsky's (1983) typologies of risk, and he focuses on the devolution of contemporary social systems. Beck (1992) coined the term risk society in the 1980s in response to advancements in science and technology that place all people at risk, including the spread of disease across borders. His approach to risk remains relevant in the social sciences because it views harm as a sum of individual knowledge acquired from the social setting in which people live. Beck's (1992) definition of risk also does not confine itself to research from one particular discipline to understand the numerous factors that influence risk. Developments associated with modern society also create risk resulting from decisions made by governments and institutions (Beck, 2009). He suggests that advancements in western society have led to irreversible and incalculable harms such as the emergence of antimicrobial resistance and subsequent disease specific drug resistance due to the overuse of antibiotics. Using the Chernobyl disaster as an example, Beck (2009) details the health consequences of radiation on individuals during a global event, which contributed to lasting effects on the population and environment. Beck (1992) maintains that, in response to an event that affects a large population, there is a social dependency on governments, institutions, and modern science to identify and address risk as opposed to self-governance. This is due to the effect of risk-related constructs (immediate and non-immediate) that are beyond humans' perceptive abilities. Governments and other political institutions render risk, which affects all of contemporary society and is a political issue that requires a macro-structural solution to reduce the likelihood of increasing or creating new risk (Beck, 2009).

Although governments and institutions continue to play an important role in identifying and analyzing risk in society, these agents are increasingly decentralizing their responsibility in events identified as not posing risk to all people. These institutions also promote the participation of individuals in decisions that affect their lives. For example, the Canadian government is currently in the process of revising funding priorities for HIV and Hepatitis C organizations. A number of webinars addressing the new funding allocation for community-based organizations that provide support for people living with HIV and Hepatitis C are taking place across the country. These discussions involve stakeholders at all levels including provincial and territorial governments, national organizations, regional and local community organizations, and people living with HIV and Hepatitis C. Engaging all primary stakeholders in the decision-making process is the first step towards providing people living with HIV and Hepatitis C with influence over the new funding delivery model (Health Canada and the Public Health Agency of Canada webinar, December 18, 2015). In collaboration with other institutions and community agencies nation-wide, in order to improve the health care continuum in Canada, the new HIV strategy will be implemented in early 2017. According to Lupton (2006), the purpose of governmental or institutional decentralization is to allow for increased agency across the population, as seen in the development of a new federal initiative to

address HIV/AIDS in Canada. In spite of the advantageous nature of self-governance to expand people's involvement in governmental decision-making, governments remain an authority and continue to control the redistribution of functions across populations. For instance, although stakeholders including people living with HIV and Hepatitis C are involved in decision-making processes around the new funding priorities for HIV and Hepatitis C, Health Canada, and the Public Health Agency of Canada will ultimately make final funding decisions. Outlining geographical boundaries and other provisions under the terms of an agreement creates a social dependency on governments and institutions to address categorizations of risk, and places the population in a position to make decisions where no certainties exist.

The risk society thesis, as proposed by Beck (1992), highlights the complexity in redistributing responsibility from governmental and institutional authorities onto individuals. Although Beck's (1992) work may have limitations, including an extensive focus on environmental risk management, his theory on risk society aids people in thinking more broadly about socio-cultural, political, ecological, and individual risks (Beck, 1996; Matten, 2006).

Defining Risk in Society

Part of the difficulty in defining risk discourse is diverting from technico-scientific approaches that measure the rate of harm by recurring events. Governments and other political institutions are responsible for influencing individual perceptions of risk. The use of prevalence and trend data to surveil the population influences decision-making processes that affect all people and leads to a number of harmful consequences, including miscalculating the impact of diseases on society (Dean, 1999). This suggests that Euro-American political systems are flawed when applied on a large scale. For instance, a total of 75,500 persons or 0.23% of the population in Canada are living with HIV; individuals between the ages of 20 and 49 years account for the highest proportion of HIV infection in the country (Canadian AIDS Treatment Information Exchange, 2015). Many individuals living with HIV in Canada are either unemployed or intermittently employed as casual laborers; this is likely a result of the debilitating effect of HIV infection on workforce participation. Although Canada has an increasingly skilled and capital-intensive economy, the country is facing a major skills shortage that may worsen if the cost of future HIV testing and antiretroviral treatment remains unaddressed. Similar inferences apply to other countries with a pandemic number of cases of HIV infection.

Defining the types of risks that governments and other political institutions are faced with leads to interventions that protect the public interest. Governments are preoccupied with the future regulation of society, which may lead to actually miscalculating the impact of risk, creating harm for people (Beck, 1992; Denney, 2005). The United States Centers for Disease Control and Prevention (CDC) classification of specific groups at increased risk of HIV infection in the early 1980s, including homosexuals, haemophiliacs, heroin addicts, and Haitians, also known as the 4-H, is one example of a governmental miscalculation of risk (Ioan, 2013; Washer, 2010). The governmental decision at the time to ignore HIV prevalence rates among other groups of people, such as women and children, contributed to the continuing spread of this disease in the country (Gilman, 1987). The failure of scientists to consider the reasons for the rapid spread of HIV beyond the 4-H, such as sexual activity and other behavioural risks, as well as the epidemic's impact on the community and not solely on people living with the disease, was a miscalculation of risk on the part of the United States government (Bertozzi et al., 2006). Failing to protect society from the rising incidence of harm prompts legal liabilities and loss of reputation (Petersen & Wilkinson, 2008). This leads to questions of

whether governments and other political institutions will evade responsibility for miscalculating the impact of risk on society, and how people will respond to poor governmental decision making. The CDC's 4-H classification system for HIV infection in the early 1980s was used for HIV surveillance and monitoring HIV infection in western societies. The CDC retracted these 4-H claims throughout the 1980s, but the exclusion of other groups at risk for HIV infection in spite of blood serum evidence demonstrates the lack of governmental accountability for the spread of disease, especially when reports indicate the presence of a threat to human health. Governments and institutions redistribute responsibility to society in order to allow individuals to self-govern aspects of their lives that do not affect the health of all people. This practice avoids potential negative effects associated with the miscalculation of harm. In the presence of risk society, the incidence of risk is becoming the responsibility of the individual. Governments and other political institutions continue to monitor society and intervene when necessary to protect the well-being of the entire population.

From the perspectives of Trostle (2005) and Sapolsky (1990), governments and other political institutions in some instances provide contradictory guidelines on how to respond to risk. For example, recommendations about when to start antiretroviral therapy for HIV patients from expert organizations worldwide, such as the World Health Organization (WHO), the United States CDC, and the Public Health Agency of Canada, are inconsistent. Thresholds for starting antiretroviral therapy range from below 200 CD4 white blood cells/mm³ to above 500 CD4 cells/mm³, and are often left to the discretion of the treating physician (Keller, 2014). Specifically, the WHO (2015) recommends that physicians initiate antiretroviral therapy when an individual's CD4 cell count falls below 500 cells/mm³. By contrast, the CDC recommends that antiretroviral treatment begin when an individual's CD4 count is approximately 500 cells/mm³, and Canadian guidelines recommend starting therapy as soon as possible (Canadian AIDS Treatment Information Exchange, 2011; Keller, 2014). Guidelines for prescribing or initiating treatment of HIV are made in line with the availability of new drugs and their effectiveness to fight HIV infection. Inconsistent interpretations of when to initiate antiretroviral therapy lead to patient confusion associated with HIV treatment adherence and uncertainty among practitioners around prescribing antiretroviral therapy. This can lead to increased health risk when regulations are ignored. Contradictions may exist in society because institutions or researchers lack the experience or knowledge to classify different types of risk, those responsible, and proper measures to address harm.

Governments and other political institutions exercise a significant amount of power over the rest of society through the publication of credible environmental and public health reports, as well as risk measurement procedures for making decisions. Altering the phrasing and results of a project, according to Knowles and Cole (2008), occurs often in an effort to identify concerns that support governmental intervention, which may not necessarily benefit all people. For example, recent scientific work focusing on injecting HIV infection as a treatment for some opportunistic infections and cancer is misleading. Ryan (2013) and Arney's (2013) work provides further detail about this unpublished research. The alteration of original reports places individuals and groups at a higher risk for poor health and may lead to the emergence of new strains of familiar diseases or result in premature death because people were misinformed or only given partial information about the report topic. The effects of manipulating data for these studies on society are unknown at this time, but new risks may emerge in society because improper reporting of data has taken place.

Even with misleading or false publications regarding risk in contemporary society, people draw upon this misinformation to make everyday decisions. Statistical reports published by the government cause misconstrued credibility and can influence the behaviour of individuals in society. The top-down construction of risk-based knowledge, from the perspective of Trostle (2005), becomes embedded in the language individuals use to discuss harm and harm reduction behavior. Caplan (2000) suggests that, even with the top-down construction of risk, there remain significant differences in deciding "what is risky, how risky it is, and what to do about it" (p. 8). Mass media plays an important role in shaping and reinforcing ideas of harm created by governments and other political institutions. Although there are advantages in passing on information through different media outlets, information does not necessarily reach all people; the majority of people accessing mass education through media belong to the middle-class (Klaidman, 1990). When information fails to reach populations at higher risk for poor health, including people with mental health and substance abuse issues, refugees, and immigrants, or those of low socioeconomic status, these individuals face greater health disparities and health inequalities by comparison. Some thinkers, such as Lidskog and Sundqvist (2013), Gilbert (2003), and Klaidman (1990), suggest that more education is needed to help individuals read and understand research reports. Simplifying scientific or statistical information using different media outlets, which are surveilled by government agencies, may lead to improper reporting and misinterpretation of data by society. Inaccurate information in the media about risk may result in unintended consequences that negatively impact public health or safety, such as drug recalls. For example, a study by Yavchitz and colleagues (2012) focused on the distorted reporting of randomized controlled trials in press releases. The authors selected 41 press releases issued by medical journals in the United States, and found that most of the reports provide misleading information to society about the effectiveness of experimental treatments (Yavchitz et al., 2012). The gap between public perception and the actual effectiveness of treatment benefits can lead to unintended health consequences, including overprescribing antibiotics, which has led to bacterial resistance. To avoid misinterpretation of information released to the population, there is an effort by press and media outlets to increase the employment of reporters and editors with appropriate knowledge to improve the delivery of information to the public (Yavchitz et al., 2012).

Government interventions in social and economic matters designed to protect public interest prompt the establishment of an "us" and "them" mentality in which one group holds more authority than the other (Lupton, 1999a). Through this process of 'othering,' governments keep groups or communities divided in order to maintain social order. Such a division can cause ill effects in society and create harm for people by reducing the impact of risk for health inequalities that adversely affect all persons indiscriminately. Groups of individuals who do not agree with governmental or other institutional views on risk understandings are viewed as deviant and risky (Dean, 1999). These groups share common characteristics or behaviours, including gender, class, race, or ethnicity (Baer, Singer & Susser, 2003). Negative consequences associated with certain behaviours may feel lessened if an individual does not identify with the particular phenomenon that harms society, yet no one is exempt from becoming a victim of a traumatizing disease like HIV or from averting risk. According to Singer and Page (2014), the mediatization of risk by governments and other political institutions influences public perception of harm and shapes the idea of who is at risk in society. Identifying people living with HIV and AIDS as a threat to public safety shifts the blame from the government's failure to control health outcomes to others (Lupton, 1999a).

Defining risk and risk management too rigidly may cause harm, particularly to people that do not identify their behaviours with the types of risk categories or groups that governments and other institutions create (Lupton, 1999a). Programs designed to reduce the risk of sexually transmitted diseases in youth and young adults aged 15 to 24 years are most easily accessible in society and receive more research funding from governments and institutions than do programs for adults over 25 years of age, especially seniors. Many of these programs are directly or indirectly connected to political organizations (Public Health Agency of Canada, 2013). Public health priorities to improve access to sexual health information and services for adults are lacking in contemporary society (Public Health Agency of Canada, 2013). The absence of sexual health or reproductive programs for adults and seniors may lead to an increasing number of cases of sexually transmitted diseases because this group is commonly assumed to have knowledge on sexual health (Public Health Agency of Canada, 2013). An effort to increase sexual health knowledge and service delivery among all groups, especially adults, is necessary in order to protect the health of the public.

Health consequences associated with othering have also been shown to lead to depression and hypertension, and to create barriers to healthcare access (Grove, Zwi & Allotey, 2007; Johnson et al., 2004). A negative experience with the health system often discourages individuals from seeking treatment and may perpetuate victim blaming (Zur, 1995). Blaming individuals for their own illnesses or behaviours can lead to further resistance of governmental policies, creating new forms of risk (e.g., stigma) that are difficult to control. Fox (1999) discusses conversion parties, such as those held by bug chasers or barebackers, as groups of individuals who challenge dominant ideas of both risk and harm reduction initiatives around the transmission of HIV. Bug chasing refers to the act of HIV negative men engaging in unprotected sexual activity with HIV positive men (Fox, 1999). This phenomenon differs from previously identified risk behaviour for the transmission possibilities of sexually transmitted diseases. Although limited research is available detailing the motives for bug chasing, Frailich (2009) demonstrates that this behaviour relates to experiences of social exclusion and discrimination. Governments and other political institutions consider bug chasers to be a newer form of risk for contracting sexually transmitted diseases like HIV. Such risks are difficult to monitor because little is known about this group, which poses a danger to public health. The behaviour of seeking infection or placing other individuals at risk for infection conflicts with the regulatory goals of the government. For this reason, governments and other institutions are more closely monitoring the risk-taking behaviours of certain individuals and groups, which leads to perpetuating further blame in society for the maintenance of risk.

Contemporary Understandings of Risk

Ideas of risk are continuously changing in response to government and other political institutions' understandings of harm; this has become a shared convention in westernized countries. Social theories surrounding the perception of risk and risk communication, from the views of Foucault (1991), Douglas (1992), and Beck (1992), remain relevant in the social sciences and in contemporary studies on public health interventions. Trostle (2005) and Boholm (1996, 2003, 2015) adopt ideas proposed by these authors, including devolving the responsibility of harm from governments to individuals and the shifting nature of risk definitions, to explain the difficulty in discussing risk as a static framework because it is a socially constructed concept. Confining risk to one model, such as Douglas' (1992) grid and group typology, does not recognize myriad coexisting understandings of risk, and creates an amount of uncertainty around the impact of risk in society.

A new way of conceptualizing risk is to combine certain aspects of these existing risk models. A hybrid model that combines Foucault's (1977, 1991) concept of governmentality, Douglas and Wildavsky's (1983) cultural theory of risk, and Beck's (1992) theory of risk society gives rise to a diverse conceptual framework that acknowledges the persisting role of the government and other political institutions in managing risks that threaten the well-being of human societies, the social construction of risk implying a top-down model of risk communication, and, in spite of increasing efforts of governments and other agencies to control and re-establish social order, people reacting differently to nature and its risks. Acknowledging increasing efforts of the government and other political institutions to regulate society, the redistribution of responsibility in society, and the social dimensions of classifying harm are also important to guide future discussions of risk in society. Risk is a learned discourse, according to Douglas (1992), that is shaped by complex interactions between biology, culture, and social processes across time. Broadening contemporary understandings of risk to include aspects of all three social theorists, Foucault, Douglas, and Beck, accounts for both increasing harm to people and changing individual perceptions of risk. Trostle (2005) engages with the notion of risk as illustrated by these theorists, and similarly presents risk as affecting all of society and as a learned discourse. He argues that scientists and the general public have divergent understandings of risk discourse and approaches to risk management despite the statistical probabilities used to address the question of what risk is (Trostle, 2005). This line of thinking follows the arguments of Beck (1992), locating risk in society as a probabilistic event. According to Trostle (2005), "risk for scientists is an estimate of probability or likelihood of occurrence based on comparisons. Risk for the general public is a synonym of menace and danger: one takes risks, one risks one's life" (p. 152). The problem with scientists' definitions of risk is that the general public does not easily perceive probabilities solely represented using numbers. To address the mechanism of disease causation and cessation in society, governments require a clearer understanding of the general public's perception of risk. To do this, governments consider varying social characteristics or properties of the context. This includes the consideration of social determinants of health, such as changing forms of partnership and the duration of spousal separation in the spread of HIV infection (Trostle, 2005; World Health Organization, 2002).

Boholm's (1996, 2003, 2015) work provides another example of a conceptual framework of risk that considers both objective and subjective experiences of risk developed by earlier social theorists. According to Boholm (2003), an objective risk refers to the calculability of an event occurring in society. By contrast, subjective risk relates to the individual's perception of risk (Boholm, 2003). This approach to classifying risk helps to "compare hazards to arrive at conclusions…[the] dimension of calculated risk can then be incorporated in societal risk management strategies and in individual decision making [processes]" (Boholm, 2003, p. 167). Government interventions designed to manage more recent health hazards, including the availability of HIV-specific treatment and support centres, are preventative measures to control a global health hazard. Improving the availability and quality of HIV treatment and services remains important to reduce new HIV transmissions. Governments and other political institutions expect the population to practice healthy behaviours and to follow risk management strategies in order to reduce infection rates in the community.

Trostle's (2005) and Boholm's (1996, 2003, 2015) work illustrates that mutually exclusive events cannot be explained using a probabilistic model. To understand risk, one must consider both objective and subjective perspectives. Neglecting both conceptual frameworks of risk in attempting

to explain a phenomenon may cause new forms of harm that can affect society. Future work is needed in the context of testing this hypothesis across situations of different risks.

Conclusion

Risks are uncertainties that are produced by political decisions and human actions. Governments and other agencies play a dominant role in the framing of risk as a calculable probability rather than as a social construction of a social phenomenon, which shapes individual understandings of harm reduction in cases such as HIV infection. Although attempts have been made to incorporate the analytical examination of social dimensions into the study of risk and perceptions of risk, the measurability of an event has become the basis of knowledge and investigation in society (Douglas, 1992). The political discourse of risk has facilitated an increase in surveillance and social control of the population in order to isolate problems from affecting the entire population.

Douglas and Wildavsky (1983) ask, "if we can know the risks we face, now or in the future? No, we cannot; but yes, we must act as if we do. Some dangers are unknown; others are known, but not by us because no one person can know everything" (p. 1) The recent work of Trostle (2005) and Boholm (1996, 2003, 2015) may help in reducing contradictory understandings of risk in social systems and directing future models beyond the measurability of ill events. For instance, a hybrid risk model combining the views of Foucault (1977, 1991) with those of Douglas (1992) and Beck (1992) offers a new approach to understanding and managing risk in contemporary society, especially risk associated with HIV infection. This novel approach to risk considers the implications of social interactions, shared cultural traditions and identities, shifting frameworks of knowledge, and relations of power for understandings of risk in society as they affect people living with HIV infection. More than ever, the development of a hybrid model centered on individual understandings of harm reveals that ideologies of risk are constructed in response to governments' and other political institutions' understandings of harm. In spite of dramatically increased incidences of HIV infection in westernized countries, a lack of government-led information, education, and counseling activities evokes perceptions that the risk of contracting HIV infection is low when HIV risk factors are actually the same for everyone. The model ultimately reveals that harm discourse expressed by governments and institutions, especially concerning HIV transmission as unrecognized among the general public, becomes a shared convention in modern society; individuals do not perceive themselves to be at risk of HIV infection. The new model exposes the need to be more critical of harm discourse and classical definitions of risk as the products of governments and other agencies, and to broaden contemporary understandings of risk through shared experiences, attitudes, and opinions about human health.

Future discourse on the theory of risk should focus on the links between risk management guidelines established by governments and other political agencies, individual decision-making processes, and public perceptions of risk. This new framework will help theorists infer how individual understandings of risk add to problems that cause poor outcomes in society. The complexities involved in defining the term risk are advantageous to the study of current health-related events. Although governments and other political agencies are devolving their roles in society, developing self-governing arrangements with the population may lead to collaborative strategies that better protect public health. The hierarchical top-down approach of governance and decision-making impacts society and contributes to a number of consequences such as miscalculating the effect of risk or othering. Broadening the understanding of risk to consider social and cultural implications, and combining the works of Foucault (1977, 1991), Douglas (1992), and Beck (1992) into a hybrid model of risk, will help determine the impact of risk on social systems.

[1] See (Bellaby, 1990, p. 475) for the detailed typology diagram.

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