

Mental health and happiness of healthcare workers: narrative review, realist review, and proposed study design

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A thesis submitted in partial fulfillment of the requirements for the degree of

Master of Science
in
The Faculty of Graduate and Postdoctoral Studies
(Population and Public Health)

The University of British Columbia
(Vancouver)

December 2019

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Mental health and happiness of healthcare workers:
narrative review, realist review, and proposed study design

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the degree of Master of Science
in Population and Public Health

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ABSTRACT

Introduction: Healthcare workers experience high rates of mental ill health such as burnout, stress and depression, due to workplace conditions including excessive workloads, workplace violence and bullying. Based on the significant burden of mental ill health in the healthcare workforce as well as the recognized need for research on how to promote mental health in the workplace, this thesis aims to synthesize the state of knowledge in this area and chart future research that would be useful to provide further evidence-based insight on ways to promote mental health of healthcare workers.

Methods: This thesis comprises three components needed to advance knowledge in this field: a narrative review on the mental health of healthcare workers, a realist review on workplace-based interventions to promote mental wellbeing among healthcare workers, and a detailed proposal for a three-phased cluster randomized controlled trial to develop and evaluate workplace-based interventions to promote mental wellbeing among healthcare workers in Gauteng, South Africa.

Results: The narrative review affirmed the significant burden of mental ill health among healthcare workers and the need for workplace-based solutions to improve the current situation. In addition, the narrative review highlighted the growing recognition and adoption of positive mental health constructs such as happiness while also highlighting the complexity and challenges involved in workplace-based health promotion. Similarly, the realist review highlighted the complexities of both mental health in the workplace and the implementation and evaluation of workplace-based interventions, as well as issues of sustainability, the importance of employee engagement, and challenges around aligning organizational-level factors to affect change in individuals' mental health. Lastly, the proposed study presents a comprehensive approach to designing, developing, implementing, and evaluating workplace-based interventions to promote mental wellbeing among a diverse and distributed healthcare workforce.

Discussion: With healthcare workers experiencing significant mental ill health in various professions, countries and settings around the world, there is an urgent need to test and evaluate workplace-based interventions to promote mental wellbeing within this sector. In particular, more research from low- and middle-income countries is needed, as well as more research on organizational-level changes that can be done to improve healthcare workers' mental wellbeing.

LAY SUMMARY

Healthcare workers provide foundations for healthy people and communities around the world. From delivering life-saving care, advocating for the underserved, supporting people through their most vulnerable moments and more, healthcare workers are integral throughout our life course as individuals and to our society as a collective. And yet, the mental health of the healthcare workforce is often neglected. Healthcare workers experience high rates of mental ill health, which not only affects them as individuals but also the care and services they provide. There is increasing understanding and awareness of mental health issues among healthcare workers, but there remains a lack of knowledge of what can be done to improve the situation. Research, as outlined in this thesis, is needed to help inform individual-, organizational-, and societal-level changes to promote mental wellbeing among healthcare workers – both for the workers themselves and for the health of people and communities around the world.

PREFACE

The work in this thesis is based on an ongoing partnership between the Global Health Research Program at the University of British Columbia in Canada, and the Gauteng Department of Health and the National Institute for Occupational Health (NIOH) in South Africa. I became involved in this project on the mental health and happiness of healthcare workers in November 2017 after the need for the study was identified by the Gauteng Department of Health. I travelled to Johannesburg, South Africa in January and May 2018, during which time I participated in and played a major role in the initial planning and design of the study with partners at the Department of Health, NIOH and the University of the Witwatersrand, including conducting the literature reviews and crafting the study instruments for input by others.

A version of chapter three was presented in a poster session at the eleventh joint meeting of the Scientific Committee of Occupational Health for Health Workers held in Hamburg, Germany from October 22-24, 2019. In addition, a version of chapter three was accepted in October 2019 for publication in the *International Journal of Environmental Research and Public Health* for its special issue entitled “Well-being, Mental Health and Prevention of Psychosocial Risks in Contemporary Working Life”.

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Figure 1. Flow diagram of search and selection process for realist review.

LIST OF ABBREVIATIONS

CBT	Cognitive Behavioural Therapy
CCGHR	Canadian Coalition for Global Health Research
CIHR	Canadian Institutes of Health Research
DALYs	Disability-Adjusted Life-Years
GDP	Gross Domestic Product
GEMS	Government Employees Medical Scheme (South Africa)
GNI	Gross National Income
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome
LMICs	Low- and Middle-Income Countries
NIOH	National Institute for Occupational Health (South Africa)
OECD	Organisation for Economic Co-operation and Development
PSC	Psychosocial Safety Climate
PSC-12	Psychosocial Safety Climate Scale
PTSD	Post-Traumatic Stress Disorder
UBC	The University of British Columbia
UN	United Nations
US	United States of America
WHO	World Health Organization
YLD	Years Lived with Disability

ACKNOWLEDGEMENTS

I am incredibly grateful to the many people who have supported me during my studies and the completion of this thesis. Dr. Annalee Yassi, thank you for your support and guidance throughout the program. When I first enrolled in your class before starting this degree, I never could have imagined the journey it has taken me on, and I am so thankful for the opportunities you have provided. Dr. Jerry Spiegel, thank you for your teaching and dedication throughout this project. Your insights and feedback never failed to spark new ideas while your optimism inspired commitment. Dr. Siphon Senabe, thank you for sharing your expertise, experiences and knowledge. I greatly appreciate your curiosity and passion through which I learned so much.

I would also like to thank Karen Lockhart and Stephen Barker in the Global Health Research Program for all of their help and support over the past few years.

I extend special thanks to my family for their endless support and encouragement. And, a final thank you to my husband Carlos for always listening, inspiring, and cultivating happiness.

CHAPTER ONE: INTRODUCTION

This thesis emerged in response to a need from the Department of Health in Gauteng province, South Africa, to examine the mental health and happiness of healthcare workers in the province as well as to design, implement and evaluate interventions to promote mental health and happiness among the workforce. This thesis was thus explicitly designed in such a way so as to contribute to the process and content relevant to meet this need, including a background narrative review to guide and inform the substance and design of the next step in this project; a realist review to synthesize evidence on workplace-based interventions promoting mental health among healthcare workers; as well as proposing the study design itself. Accordingly, the overall objectives for the thesis are (1) to explore the evidence, literature and research approaches related to the mental health and happiness of healthcare workers, in order to guide and inform the development of the proposed study; (2) to synthesize the evidence on workplace-based interventions at the organizational level promoting mental health and wellbeing among healthcare workers, in order to garner insights and inform the development, implementation and evaluation of interventions which are a part of the proposed study; and, (3) to present a proposed complex and multi-year cluster randomized controlled study on promoting mental health and happiness among healthcare workers in Gauteng province, South Africa.

The catalyst for the project started with a pre-existing research partnership (see below) and expanded with new collaborations and connections among researchers and partners. As the project entered a new subject area for the team (mental health and happiness) as well as assumed a multi-disciplinary approach (including economics, occupational health, psychiatry, epidemiology and public health), the initial narrative review (chapter two) provided an opportunity to explore the subject area across disciplines and to gain knowledge and insights with which to guide and inform the study design and development. In addition, the realist review (chapter three) synthesized evidence on *how* workplace-based interventions could promote mental health and happiness among healthcare workers – insights which would then inform the implementation of a science-based process of designing, implementing and evaluating workplace-based interventions in a cluster randomized controlled study. Finally, the process of initiating and developing the study among an international and interdisciplinary team provided an opportunity to reflect on how to develop an international partnership across university, government and community partners. Therefore, the

fifth and final chapter of this thesis includes a discussion on the challenges of global health work framed around the Canadian Coalition for Global Health Research's six principles for global health research.

1.1 South Africa

South Africa's history of racial discrimination, inequalities, violence and political resistance has shaped the health and health systems of the country (Coovadia, Jewkes, Barron, Sanders, & McIntyre, 2009). Apartheid – a system of legalized and institutionalized racial segregation and oppression formally established in 1948 – has had lasting effects on the health of the country's population. For example, in 2004 – ten years after the end of apartheid – life expectancy was 49 years for black people compared to 64 years for white people (Marten et al., 2014).

The economy has grown since the end of apartheid, although this growth has been threatened by an economic drop experienced over the past decade: the GDP per capita peaked in 2011 before dropping from 2011 to 2016 (World Bank, 2019). Unemployment remains high, with an overall unemployment rate of 27.6% in the first quarter of 2019, which surges to a rate of 55.2% among youth aged 15-24 years (Africa, 2019). Significant inequality also remains in the country. In 2018, the World Bank estimated South Africa as the most unequal country in the world with a Gini coefficient of 63, on a scale of 0 to 100 ("World Development Indicators | DataBank," 2019). Similarly reflecting this drastic inequality, the top 10% of households hold 70.9% of the country's wealth, while the bottom 60% of households hold 7.0% (Sulla & Zikhali, 2018). Further, the inequality is disproportionately distributed: female-headed households, black South Africans, the less educated, unemployed, large families, and children consistently face the highest levels of poverty (Sulla & Zikhali, 2018). A breakdown of social stratifications by race also shows the disproportionate poverty among black South Africans: 94.8% of chronically poor people as compared to 17.7% of the elite class are black; by contrast, 0.0% of chronically poor as compared to 65.4% of the elite class are white (the same study notes that in the total population breakdown, 79.9% are black and 9.1% are white) (Schotte, Zizzamia, & Leibbrandt, 2018).

In addition, there remains a divide between private and public health care systems, perpetuating better quality and access for the wealthy and privileged (van Rensburg, 2014). The South African government is committed to universal health care, with a focus on primary health care and

subsequent plans for a National Health Insurance Fund funded through tax revenues (Marten et al., 2014). Although the South African government has committed plans for universal health care, inequities remain in health care access with poor, uninsured, black Africans, and rural groups experiencing the greatest barriers to access (Harris et al., 2011).

South Africa is currently facing four main colliding epidemics: HIV and tuberculosis (TB); chronic illness and mental health; injury and violence; and maternal, neonatal, and child health (Mayosi et al., 2012). South Africa has one of the highest rates of TB in the world, with more than 500 new cases per 100,000 population in 2017 (“WHO | Global tuberculosis report 2018,” 2018). HIV/AIDS is the leading cause of death in South Africa (Institute for Health Metrics and Evaluation (IHME), 2017). The prevalence of HIV was estimated at 12.2% in 2012, an increase from 10.6% in 2008, with the highest prevalence among Black Africans (15.0% compared to less than 1% for Whites), although there has also been improved access to antiretroviral therapy (Zuma et al., 2016). The rise in non-communicable diseases and accompanying multimorbidity introduces more complex treatment needs in the healthcare system. For example, among patients attending a primary healthcare clinic in South Africa, at least 80% of the participants with hypertension, diabetes, respiratory disease or depression had at least one of the other three conditions (Folb et al., 2015).

South Africa faces challenges in the area of human resources for health. There are shortages in healthcare workers due to emigration of health professionals to other countries and to the private sector, among other reasons (van Rensburg, 2014). Healthcare workers also face occupational health and safety risks, including higher risks of TB. For instance, healthcare workers have been found to have a 5 to 6 fold increased rate of hospital admission with multi-drug resistant tuberculosis or extensively drug resistant tuberculosis (O’Donnell et al., 2010).

Overall, the thesis relates to concerns expressed about the mental health and happiness of healthcare workers in South Africa. The concept for the thesis initially arose in late 2017 from a need identified by the Gauteng Department of Health. The Department requested research on mental health of health workers following an incident that occurred in 2016 to 2017 involving more than 100 psychiatric patient fatalities (The Economist, 2018). The Life Esidimeni incident – named after the institution from which the patients were moved prior to the fatalities – prompted critical attention towards mental health issues, including the mental health of workers within the Department.

Furthermore, the July 2018 suicide of a renowned South African cardiologist brought renewed urgency and commitment to mental health of healthcare workers in South Africa (Nyathi, 2018).

The connection between researchers from Canada and South Africa for this project drew upon longstanding partnerships between health and research institutions in both countries. The international partnership first began in 2006 at a meeting in Milan, Italy for World Health Organization collaborating centres, at which Drs. Annalee Yassi and Jerry Spiegel from the University of British Columbia demonstrated an occupational health information system initially developed for Canadian health facilities. A partnership subsequently evolved between UBC, the National Institute for Occupational Health in South Africa, and the South African Department of Health, aiming to build capacity in both countries to address occupational health and infection control as well as featuring mutual exchanges of knowledge, experiences and insights (Yassi et al., 2016). The Canadian-South African team began with a pilot of a locally-adapted occupational health and safety information system (OHASIS) at a hospital in Free State province. The partnership continued and grew over the ensuing years, including through the expansion of OHASIS, work in the area of TB infection control among healthcare workers, and the implementation of HealthWISE – a participatory quality improvement tool for health facilities (International Labour Organization, 2014) – in South Africa, Zimbabwe and Mozambique. Drawing on the previous work and connections around the occupational health of healthcare workers, this project on the mental health and happiness of healthcare workers marked the first time the Canadian-South African team collaborated in the area of mental health. Following the impetus for this project on mental health as noted above, Dr. Sipho Senabe, Chief Director of Human Resource Development and Employee Health and Wellness Programme in the Gauteng Department of Health, re-connected in late 2017 with the Canadian researchers with whom he had worked more than a decade previous on the earlier collaboration in Free State province, and plans for the project began to form. It was at this point that I became involved in the project, and thus started work on synthesizing available information needed to move this project forward, liaising with partners and collaborators, and mapping out a rigorous approach to address the issues at hand.

CHAPTER TWO: NARRATIVE REVIEW

2.1 Rationale for review

The proposed study on the mental health and happiness of healthcare workers in Gauteng province, South Africa brought together a partnership of university, government and community partners representing multiple disciplines and entering a new domain for the particular group assembled for the project. As such, through the process of developing and designing the study, there was a need to review the literature to date in order to guide and inform the substance and design of the study (chapter four). As it “attempts to summarize or synthesize what has been written on a particular topic” in order to “provide the reader with a comprehensive background for understanding current knowledge and highlighting the significance of new research” (Paré & Kitsiou, 2017), the narrative review approach is well suited to compile scholarly information in this new subject area at the start of a new collaborative research project. The following narrative review explores the evidence, literature and research approaches related to topics surrounding the mental health and happiness of healthcare workers.

2.2 Objectives and focus of review

The following narrative review covers topics related to mental health and happiness, mental health at work, and mental health of healthcare workers. The overall goal of the narrative review was to explore the evidence, literature and research approaches to date as they relate to studying how to promote mental health among healthcare workers in Gauteng, South Africa (see chapter four). More specifically, the three objectives were to: (1) explore and understand the issue of mental health among healthcare workers; (2) assemble current evidence on how to promote mental wellbeing at work; and, (3) examine considerations relevant to the evaluation and implementation of workplace-based interventions to promote mental health and happiness.

2.3 Methods

The narrative review was conducted iteratively during the initial planning stages and the development of the proposed research study (see chapter four). An exploratory approach was used for the narrative review whereby the topics were explored thematically.

First, in order to explore and understand the issue of mental health and happiness of healthcare workers, the literature was explored using a cascading approach to each of the subject areas relevant to the location, sector, and focus of the proposed study: the burden of mental illness – first at the global scale, then in low- and middle-income countries; the state of mental health at work – first in workplaces generally, then in the healthcare workplace; and, the connections between mental health and happiness – first the relationship generally, then specifically in the workplace.

Second, in order to assemble current evidence on how to promote mental wellbeing at work, a similar cascading approach was used. This began by exploring the evidence to date on workplace-based interventions to promote mental health and happiness, and was followed by more specifically exploring workplace-based interventions promoting mental health and happiness among healthcare workers, as this is the focus of the proposed study.

Third, in order to examine considerations relevant to the evaluation and implementation of workplace-based interventions to promote mental health and happiness, a variety of topics were explored including participatory- and arts-based methods in mental health research, theories of organizational change, theories of workplace-based health promotion, and challenges and limitations of workplace-based wellness programs.

2.3 Exploring the issue of mental health and happiness among healthcare workers

2.3.1 Global burden of mental illness

Globally, mental illness accounts for 32.4% of years lived with disability (YLDs) and 13.0% of disability-adjusted life-years (DALYs), an increase from earlier estimates of 21.2% of YLDs and 7.1% of DALYs (Vigo, Thornicroft, & Atun, 2016). In addition to the significant disability burden, mental illness contributes to increased mortality. People with mental disorders have a mortality rate that is 2.22 times higher than that of people without mental disorders, while an estimated 14.3% of deaths worldwide are attributable to mental disorders (Walker, McGee, & Druss, 2015). In recognition of the significant impact of mental health worldwide, in September 2015 the United Nations included mental health for the first time in the Sustainable Development Goals adopted by world leaders (Votruba & Thornicroft, 2016).

The increased global burden of mental health is part of the epidemiological transition from communicable to non-communicable diseases. The rise of non-communicable diseases presents a significant economic burden, with poor mental health as one of the most dominant contributors to the economic burden, along with cardiovascular disease. The global cost of mental illness was estimated at US\$2.5 trillion in 2010 and is projected to increase to US\$6.0 trillion by 2030, with approximately two thirds of the global costs being indirect costs such as lost income and other personal costs (Bloom et al., 2011). While the economic burden is high, the relative returns from investing in mental health are favourable: every dollar invested in scaling up treatment for common mental illnesses such as depression and anxiety leads to a four-fold return in better health and ability to work (WHO, 2018b). Despite the widespread need and favourable returns, global investment in mental health is limited. Mental health accounts for less than 1% of development assistance for health (Gilbert, Patel, Farmer, & Lu, 2015).

In addition to the significant and increasing burden of mental illness worldwide, mental illness is also present with other diseases and health conditions. Comorbid mental illness has been found with conditions such as diabetes, HIV/AIDS, tuberculosis, malaria, and cancer (Nakash et al., 2014; Prince et al., 2007). The resulting comorbidity of mental illness and other diseases increases disability, influences prognosis, and complicates help-seeking, diagnosis and treatment (Prince et al., 2007). Furthermore, mental illness may cause or contribute to other diseases and conditions, thus creating additional burdens. For instance, major depression has been shown to be an independent risk factor for ischemic heart disease (Charlson et al., 2013).

The large burden of mental illness is often exacerbated by stigma and discrimination. The negative impacts of stigma occur, for example, through victimization, mistreatment, loss of support networks, and difficulties accessing housing (Kakuma et al., 2010). In addition, stigma has been found to deter or delay help-seeking among individuals with mental illness, with a disproportionate effect among ethnic minorities, youth, men, military personnel, and health professionals (Clement et al., 2015). Stigma and discrimination can in turn worsen the social and economic costs of mental illness. Individuals who experience discrimination against mental illness in a healthcare setting have almost double the costs of health service usage (Evans-Lacko et al., 2015). As for efforts to reduce stigma against mental illness, research to date has shown short-term improvements from social

contact-based interventions; however, there is limited evidence on how best to reduce stigma in the long term (Thornicroft et al., 2016). In addition, research on interventions to reduce mental health-related stigma is limited for both healthcare workers and in low- and middle-income countries (Thornicroft et al., 2016).

The stigma against mental illness also negatively impacts family members and caregivers of people living with mental illness. Stigma has been found to be significantly associated with caregiver distress, empowerment and family functioning among adult relatives of people with mental illness, with stigma-related experiences being a significant stressor even in the face of considerable other stressors such as dealing with difficult behaviours and dependencies (Muralidharan, Lucksted, Medoff, Fang, & Dixon, 2016). Indeed, family members and caregivers experience multiple burdens in addition to stigma, such as uncertainty, emotional burden, financial burden, physical burden, restriction in routine, disruption in routine, and problems with health services and governmental support, among others (Kardorff, Soltaninejad, Kamali, & Shahrababaki, 2016). With the significant burdens experienced by family members and caregivers, there is a recognized need for caregiver support (Yesufu-Udechuku et al., 2015), although such support is particularly limited in developing countries (Ae-Ngibise, Doku, Asante, & Owusu-Agyei, 2015).

There is also a mental health treatment gap which is particularly pronounced in low- and middle-income countries: between 76% and 85% of people with severe mental disorders receive no treatment for their disorder in these countries (WHO, 2013), with an even lower proportion of treatment for moderate and mild cases (Demyttenaere et al., 2004). Similarly, a recent review of World Mental Health surveys in 21 countries found that, of individuals with an anxiety disorder who perceived a need for care, 75% in high-income countries accessed healthcare services as compared to 46% in low- and middle-income countries (Alonso et al., 2018). Globally, one in ten people require mental healthcare at any given time; however, in low-income countries there are as few as two mental health workers per 100,000 people, compared with more than 70 mental health workers per 100,000 people in high-income countries (WHO, 2018b). (According to the World Bank, low-income countries are those with a gross national income (GNI) per capita of \$995 or less; middle-income countries have a GNI per capita of \$996 - \$12,055; and high-income countries have a GNI per capita of \$12,056 or more. South Africa is classified as an upper-middle income economy (“World Bank Country and Lending Groups – World Bank Data Help Desk,” 2019).)

Although the health and economic burden of mental illness is high, and challenges including comorbidity, stigma, and treatment gaps remain, there is growing political and social will to address and improve the situation. In 2013, the World Health Assembly adopted the Mental Health Action Plan 2013–2020, signifying a global recognition of and commitment to mental health (Saxena, Funk, & Chisholm, 2013). In addition, 72% of the World Health Organization’s 194 member states have a standalone policy or plan for mental health, and 62% have updated their policy or plan in the last five years (WHO, 2018a).

2.3.2 Mental health in low- and middle-income countries

The epidemiological transition is similarly predicted for Sub-Saharan Africa, where it is estimated that the population will double in size and age significantly between 2010 and 2050 (Charlson, Diminic, Lund, Degenhardt, & Whiteford, 2014). In South Africa, mental health is among the four colliding epidemics: HIV and tuberculosis; chronic illness and mental health; injury and violence; and maternal, neonatal, and child health (Mayosi et al., 2012). The lifetime prevalence for common mental disorders in South Africa is 30.3% — with the most prevalent being anxiety disorders — and being female was associated with increased severity of 12-month mental disorders (Herman et al., 2009). More recently, a high prevalence of suicidal ideation and behaviour has been found in South Africa: of people presenting at a primary care facility, 14.8% reported suicidal ideation, 9.5% reported suicide planning, and 7.4% reported attempted suicide – with South Africa experiencing the highest rates of these three measures among the five low- and middle-income countries studied (Jordans et al., 2017). In addition, there is a treatment gap in South Africa, with only one in four people with a common mental disorder receiving treatment of any kind (Petersen et al., 2016).

Although mental health poses a large and increasing burden to low- and middle-income countries (LMICs), populations living in LMICs are underrepresented in mental health research. Only 3.7% of research published in six high-impact general psychiatric journals was from LMICs, which account for more than 80% of the global population (Patel & Kim, 2007). Similarly, a systematic review of population-based research on mental health found only 14.6% of all papers included data from LMICs (Angermeyer & Schomerus, 2017). Comparatively, mental illness has been much less represented in global health research and funding than communicable diseases. The number of research publications addressing global mental health trails other disease categories such as

HIV/AIDS, malaria, and tuberculosis (Becker & Kleinman, 2013). As further evidence of the gap in mental health research in LMICs, the Cochrane Global Mental Health initiative was established in 2017 to support and advance mental health research in LMICs (Barbui et al., 2017).

In addition to the underrepresentation of LMICs in mental health research, there remains a scarcity of mental health research capacity in LMICs (Razzouk et al., 2010). This scarcity of research capacity may be further widening the treatment gap and access to services: building mental health research capacity is a key priority to address the mental health treatment gap and improve access to mental health services (Wainberg et al., 2017). More specifically in Africa, increasing mental health research is needed to improve mental health on the continent, as “research-generated information helps to identify local needs, select local priorities, propose cost-effective interventions, monitor their implementation, and evaluate their effectiveness” (Thornicroft, Cooper, Van Bortel, Kakuma, & Lund, 2012).

The introduction and rise of the field of global mental health is not, however, without criticism (Kirmayer & Pedersen, 2014). Critiques on the current approach to global mental health include the validity of global burden estimates of mental illness (Summerfield, 2008), the suitability and applicability of evidence – generally generated in higher-income countries – to local contexts within LMICs (Kirmayer, 2012), and the pervasive individualistic, illness-oriented and monocultural model that is often applied to mental health (Fernando, 2012). Similarly, in introducing the new Cochrane Global Mental Health initiative, the authors noted that global mental health research is inadequately hearing the voices of non-Western cultures, including the considerations needed to adapt 'global' recommendations to local contexts (Barbui et al., 2017).

Stigma against mental illness remains a significant barrier to treatment in LMICs. Anti-stigma programs and their evaluation are scarce in LMIC settings (Mascayano, Armijo, & Yang, 2015), and more research is needed on the effectiveness of interventions to promote help-seeking for mental health problems in LMICs (Xu et al., 2018). Within South Africa, a study on the integration of mental healthcare into primary healthcare highlighted the opportunity to decrease stigma towards mental illness through the integration of chronic disease service delivery, although stigma remained a challenge due to lack of specific anti-stigma programs for mental health and the staff to support such programs (Marais & Petersen, 2015). Again within South Africa, stigma has been identified as a

barrier to suicide prevention among people with substance use disorders (Goldstone & Bantjes, 2017).

Although limited, research in South Africa and other LMICs provides evidence for strategies to reduce mental health-related stigma. From the perspective of social workers, areas needing focus include the active involvement of mental healthcare users in program design and decision-making, general education and continuous awareness, creating income-generating opportunities for mental health care users, and ensuring constant provision of support for mental health care users (Matsea, 2017). From the perspective of health care managers and policy makers, suggested activities to reduce stigma in South Africa include campaigns, mass media, and testimonials from role models, while using peer educators to deliver the anti-stigma programs, and targeting all audiences, including the community, employers, service providers and the patients themselves (Marais & Petersen, 2015).

2.3.3 Mental health and the workplace

Mental illness generates significant impacts on workplaces, with depression and anxiety disorders costing the global economy US\$1 trillion in lost productivity in 2017 (WHO, 2017). As evidence of the growing recognition of mental ill health in the workplace, the World Health Organization classified burnout in May 2019 for the first time as an “occupational phenomenon” in the eleventh revision of the International Classification of Diseases (WHO, 2019). There is also an increasing awareness of not only absence and direct costs due to mental ill health but also the effects on employees who are present at work. Employers are increasingly paying attention to presenteeism – decreased productivity due to health problems by employees who are present at work (Schultz & Edington, 2007). Indeed, presenteeism has been shown to contribute a larger economic cost than absenteeism and employer health costs (Ammendolia et al., 2016).

The significant burden of mental ill health in the workplace is common to many countries including Canada and South Africa. In Canada, approximately 21.4% of the working population has been estimated to be living with a mental health problem or illness. Furthermore, such disorders constitute one of the top three drivers of disability claims for more than 80% of employers (Mental Health Commission of Canada, 2013). In South Africa, at least one in four employees is diagnosed with depression (Stander, Bergh, Miller-Janson, Beer, & Korb, 2016). Similarly, in a multi-country study on workplace productivity for people with depression, 25.6% of respondents in South Africa

reported having a previous diagnosis of depression by a doctor or medical professional – the highest percentage of the eight countries included in the study (Evans-Lacko & Knapp, 2016). In terms of the economic costs of mental illness, the total annual cost in lost earnings to South Africans living with severe depression or anxiety disorders is \$3.6 billion, with a much greater impact on women's income than men's (Lund, Myer, Stein, Williams, & Flisher, 2013). Looking more specifically at the economic impact of depression on absenteeism and presenteeism in the workforce, it has been estimated that the productivity costs of depression associated with absenteeism accounts for 0.62% of GDP in South Africa, while the productivity costs of depression associated with presenteeism accounts for 4.23% of GDP (Evans-Lacko & Knapp, 2016).

Stigma against mental illness exists within the workplace, affecting both prospective and current workers. One experimental study on the stigma of mental illness in the labour market found significant discrimination for job applicants with a history of mental illness, including for both standard job postings as well as for jobs that could be done mostly from home (Hipes, Lucas, Phelan, & White, 2016). Similarly, a population-based survey of Canadian workers found a third of workers would not tell their managers that they were experiencing mental health problems, with the most prevalent reason for not disclosing being they are afraid it would affect their careers (Dewa, 2014).

There are a variety of causes of mental ill health in the workplace. Research has identified both work- and non-work- related factors influencing the mental health of workers. One systematic review identified twelve work-related risk factors for increased rates of common mental health problems: high job demand, low job control, low workplace social support, effort–reward imbalance, low organisational procedural justice, low organisational relational justice, organisational change, job insecurity, temporary employment status, atypical working hours, bullying and role stress (Harvey et al., 2017). Similarly, the multilevel determinants of workers' mental health model takes into account the influences of multiple factors on workers' mental health, including workplace context and work organisation conditions as well as the structures of daily life and agent personality (Marchand, Durand, Haines, & Harvey, 2015). The view of the multilevel determinants model is also supported by previous research indicating that non-work determinants such as family status and social support networks are important to the prediction of workers' mental health (Beauregard,

Marchand, & Blanc, 2011). The variety of factors from both work and non-work domains highlights the complexity of mental health in the workplace.

Psychosocial safety climate (PSC) is a construct encompassing policies, practices and procedures protecting the psychological health and safety of workers (Dollard & Bakker, 2010). The PSC construct represents the organizational-level climate mostly influenced by senior management, including senior management's support and communication of, involvement in, and commitment to psychological safety within the workplace and employee wellbeing. PSC subsequently influences risk factors at the employee level, such as job demands and resources, worker engagement and psychological health, as well as the group level, such as average levels of emotional exhaustion and work engagement (G. B. Hall, Dollard, & Coward, 2010). The four factors of organizational PSC can be measured with the Psychosocial Safety Climate Scale (PSC-12): management commitment, management priority, organizational communication, and organizational participation. The PSC-12 is associated with employees' mental health and happiness. It has been shown to be correlated positively with worker engagement and job satisfaction, as well as correlated negatively with three mental health scales: emotional exhaustion, psychological distress, and depression (G. B. Hall et al., 2010).

2.3.4 Mental health and the healthcare workplace

The health and wellbeing of healthcare workers is crucial for the ongoing support of peoples' and communities' health around the world. In particular, healthcare workers' wellbeing is imperative in pursuit of universal health coverage – a key target in the United Nations' Sustainable Development Goal number three: “Ensure healthy lives and promote wellbeing for all at all ages” (United Nations, 2017). However, universal health coverage requires substantial numbers of healthcare workers. By current estimates, the global health workforce is more than 43 million health workers, including 9.8 million physicians, 20.7 million nurses/midwives, and approximately 13 million other health workers (WHO, 2016b). However, the World Health Organization (WHO) projects a potential deficit of approximately 18 million health workers by 2030, largely in low and lower middle-income countries (WHO, 2016a), indicating the pressing need to recruit and retain healthcare workers.

The healthcare workplace in particular has been recognized as a sector with high rates of mental ill health such as burnout (Qiao et al., 2016; Shanafelt et al., 2012, 2015). Mental ill health among

healthcare workers is a global issue. In the United States, burnout and satisfaction with work-life balance among physicians in the United States worsened from 2011 to 2014, with more than half of US physicians now experiencing professional burnout (Shanafelt et al., 2015). In China, a cross-sectional study of health workers at 27 hospitals found that 32.3% of participants were considered to have some degree of post-traumatic stress disorder, and participants had higher rates of self-rated anxiety and depression than the general population (Zhou et al., 2018). In Ireland, a cross-sectional survey of intern doctors at four teaching hospitals found that 55.4% reported high levels of emotional exhaustion, 51.5% reported high depersonalisation, and 41.6% reported a low sense of personal accomplishment, with 43.5% experiencing psychological distress (Hannan et al., 2018). In England, 80% of physicians were at high or very high risk of burnout, and 40% were experiencing symptoms of depression, anxiety, burnout, stress, emotional distress or a mental health condition that is impacting on their work (British Medical Association, 2019). In Canada, 30% of physicians reported high burnout, with higher rates among females as well as junior physicians with less than five years of practice (Canadian Medical Association, 2018).

Furthermore, mental ill health among healthcare workers appears to occur throughout career progression including during medical school and training. A systematic review of 17 studies from 13 countries found the prevalence of suicidal ideation among medical students ranged from 1.8% to 53.6% (Coentre & Góis, 2018). Similarly, another systematic review and meta-analysis of 195 studies from 47 countries found the prevalence of depression or depressive symptoms among medical students was 27.2%, while only 15.7% of students who screened positive for depression sought treatment (Rotenstein et al., 2016).

In addition to physicians and other hospital-based health care workers, first responders also experience high rates of mental ill health. Emergency ambulance workers have been found to have a 22% rate of post-traumatic stress disorder (PTSD), 10% clinical levels of depression, and 22% clinical levels of anxiety (Bennett, Williams, Page, Hood, & Woollard, 2004). The challenging and distressing work environment of first responders has been found to directly impact their mental health. Critical incidents such as those involving patient death cause significant distress among ambulance workers, including feeling unable to help and intense compassion (Halpern, Gurevich, Schwartz, & Brazeau, 2009).

There are a variety of causes of mental ill health in the healthcare workplace. These include excessive workloads (Anderson, Pfeil, & Surawicz, 2017; Groenewegen & Hutten, 1991; Laubach & Fischbeck, 2007; Shanafelt et al., 2016, 2009; Van Ham, Verhoeven, Groenier, Groothoff, & De Haan, 2006), restricted autonomy (Eckleberry-Hunt, Kirkpatrick, Taku, Hunt, & Vasappa, 2016; Enns, Currie, & Wang, 2015; Scheurer, McKean, Miller, & Wetterneck, 2009), working in emotionally-charged situations (Adriaenssens, De Gucht, & Maes, 2015), stigma against seeking care (Dyrbye et al., 2015), the culture of health professions (Center et al., 2003; Wallace, Lemaire, & Ghali, 2009), workplace violence (B. J. Hall, Xiong, Chang, Yin, & Sui, 2018; Yang, Stone, Petrini, & Morris, 2018), unintentional medical errors (Robertson & Long, 2018), and regulatory complaints (Bourne et al., 2015). In Ethiopia, a qualitative study on wellbeing, stress and burnout among healthcare workers found threats to wellbeing comprised both work-related stressors – workload, role ambiguity, job security, relationship with service users, and physical work environment – as well as non-work-related stressors – gender, weak personality, and educational status (Selamu, Thornicroft, Fekadu, & Hanlon, 2017).

Workplace violence is also a significant issue in healthcare with subsequent effects on the mental health of healthcare workers. In Gauteng province, South Africa, for example, psychiatric nurses experience substantial violence and aggression from patients, with contributing factors including the patients' mental status and conditions, staff shortage, lack of support among multidisciplinary team members, and lack of orientation among new staff members (Bimenyimana, Poggenpoel, Myburgh, & van Niekerk, 2009).

There is also evidence of significant bullying among healthcare workers which can negatively impact mental health. A study on workplace bullying in neonatal intensive care units in Greece found that 53.5% of employees were victims of bullying, and those who were bullied as well as those who witnessed bullying experienced lower levels of psychological health status (Chatziioannidis, Bascialla, Chatzivalsama, Vouzas, & Mitsiakos, 2018). Bullying in the healthcare workplace impacts the individual employees' mental health as well as the organization such as through increased health care costs. In two American hospitals, workers who experienced workplace incivility and bullying had higher mental health care utilization and spending than their unexposed peers (Sabbath et al., 2018). While bullying has been found to be associated with burnout among healthcare workers, the relationship between bullying and burnout can be moderated by job autonomy and occupational

self-efficacy suggesting that in addition to preventing workplace bullying, increasing employees' job autonomy and occupational self-efficacy could serve as a coping mechanism (Livne & Goussinsky, 2018).

There are also new and emerging causes of mental ill health in the healthcare workplace. Interestingly, with the ubiquity of social media and online public fora, new policies allowing patients to express dissatisfaction with the quality of care in a public forum were viewed as a threat to wellbeing (Selamu et al., 2017). Similarly reflecting the influence of public opinions and perceptions on healthcare workers' mental health, a study of Chinese physicians found that public trust and respect for their job was the third highest factor influencing job satisfaction, after income distribution and working environment safety (Sun et al., 2017). The increased time spent managing electronic health records also places additional time pressures on face-to-face patient care (Tai-Seale et al., 2017).

Gender is well recognized as a key factor in mental health (WHO, 2002), with females experiencing a greater burden from mental disorders than males. Furthermore, women and men experience different types of mental health problems, with women generally having significantly higher rates of anxiety and mood disorders, whereas men have significantly higher rates of externalizing and substance use disorders (Pearson, Janz, & Ali, 2013). Given the fact that women occupy up to 70% of health-related jobs (J. Campbell, 2017), a gender-inclusive approach is essential to address mental health concerns in the healthcare workplace. Already, a gendered approach to occupational mental health has been recognized; for example, a study on 63 workplaces in Québec, Canada examining gendered pathways to burnout found that gender distinctively shapes environmental and individual pathways to burnout, such as through decision latitude, overqualification, and work-family conflict (Beauregard et al., 2018).

Within healthcare, the health and wellbeing of workers also extends beyond the effects on the workers themselves, and is associated with poorer patient outcomes and safety. In a meta-analysis of 47 studies on more than 42,000 physicians, physician burnout was associated with an increased risk of patient safety incidents, poorer quality of care due to low professionalism, and reduced patient satisfaction (Panagioti et al., 2018). Indeed, this has been observed across multiple professions of healthcare workers and in multiple countries. In the United States, medical residents with depression

made significantly more medical errors than their peers who were not depressed (Fahrenkopf et al., 2008). Similarly in the United States, a survey of more than 6,500 physicians across all specialties found that physicians with burnout or fatigue were more likely to have reported medical errors (Tawfik et al., 2018). In Thailand, nurse burnout has been associated with negative patient outcomes including self-reported fair or poor quality of care, patient falls, medication errors, and infections (Nantsupawat, Nantsupawat, Kunaviktikul, Turale, & Poghosyan, 2016). Among nurses in the United States, burnout has been associated with lower patient satisfaction (Vahey, Aiken, Sloane, Clarke, & Vargas, 2004). In Canada, nurse burnout was found to be a mediating factor in patient safety outcomes (Spence Laschinger & Leiter, 2006).

The mental health burden among healthcare practitioners also leads to shortages among the workforce, as burnout and declining job satisfaction drives practitioners to reduce work hours or leave the field. Burnout and declining satisfaction among physicians has also been found to be associated with reductions in professional work effort (Shanafelt et al., 2016). Burnout, dissatisfaction with work-life integration, and dissatisfaction with the electronic health records have been found to be independent predictors of intent to reduce clinical work hours and leave current practice, with nearly one in five US physicians intending to reduce clinical work hours in the next year, and roughly one in 50 intending to leave medicine altogether in the next two years to pursue a different career (Sinsky et al., 2017). In addition, burnout has significant economic costs: a recent mathematical model estimated approximately US\$4.6 billion in costs related to physician burnout each year in the United States (S. Han et al., 2019).

2.3.5 Mental health and happiness

In addition to recognizing the substantial burden of mental illness and ill health, the concept of positive mental health has been increasingly recognized and captured through constructs such as wellbeing and flourishing (Collier, 2017; Keyes, 2002, 2005). In approaching mental health from a wellness model, the focus shifts to include the concept of happiness, an approach receiving growing international attention, such as by the United Nations' High-Level Meeting on Wellbeing and Happiness in 2012. This orientation conforms well with the World Health Organization (WHO) original definition of health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (WHO, 2014) as well as subsequent definitions of health that emphasize successful personal adaptation to change (Huber et al., 2011).

The concept of happiness as an indicator or measure of a country's performance has emerged over the last five decades in the field of economics. In 1974, an article by the economist Richard Easterlin discussed the association between income and happiness, finding a positive association within countries whereas no such association among countries (Easterlin, 1974). For the field of economics, embracing measures of subjective wellbeing has required a paradigm shift from the longstanding focus on studying behaviours to also studying people's stated intentions or subjective self-reports (Kahneman & Krueger, 2006). More recently, this paradigm shift has reached more mainstream economics and public discourse. In 2008, French President Nicholas Sarkozy created the "Commission on the Measurement of Economic Performance and Social Progress" led by renowned economists Joseph Stiglitz, Amartya Sen, and Jean Paul Fitoussi to identify the limits of GDP and explore other indicators of social progress (Stiglitz, Sen, & Fitoussi, 2009). Among other recommendations, the report concluded there is a timely need for our measurement system to shift emphasis from economic production to people's wellbeing, with measures of wellbeing being in the context of sustainability (Stiglitz et al., 2009).

The term "happiness" as an indicator of positive mental health can refer both to moods and emotions as well as to more long-term wellbeing and life satisfaction. The Organisation for Economic Co-operation and Development (OECD) defines subjective wellbeing as encompassing three elements: life evaluation ("a reflective assessment on a person's life or some specific aspect of it"), affect (feelings or emotions, usually at a point in time), and eudaimonia (sense of meaning and purpose, or "psychological flourishing") (OECD, 2013). The impact of happiness on society extends further than people's daily emotions and feelings. Happiness has been found to be a predictor of success, with happiness being associated with successful outcomes across life domains (e.g., work, love, health) as well as with behaviours paralleling success (e.g., positive perceptions of self and other, sociability, coping, etc.) (Lyubomirsky, King, & Diener, 2005). In terms of measuring happiness and mental wellbeing, life satisfaction is seen as a more reliable measure of overall wellbeing as it depends more on the continuing circumstances of people's lives (Diener, 2009; Helliwell & Wang, 2014). Therefore, measures of happiness based on life satisfaction are better suited to capture longer-term and international differences in policies and institutions (Helliwell & Barrington-Leigh, 2010).

The relationship between mental health and happiness remains largely unexplored, even though some attention has been drawn to the merits of reconciling the scales used respectively to measure disorders and wellness (Bech, Olsen, Kjoller, & Rasmussen, 2003). Occupational mental health is generally conceptualised from the pathological standpoint, characterised by the presence or absence of mental illness or disorders, rather than the presence of positive mental health and wellbeing. Indeed, in a qualitative study on job-related wellbeing, stress and burnout among healthcare workers in rural Ethiopia, most participants conceptualised wellbeing as absence of stress rather than as a positive state (Selamu et al., 2017).

Authors of the World Happiness Report – an annual report published by the United Nations since 2012 on global happiness, including a ranking of countries' happiness levels – examined the impact of variables, including mental illness, on happiness and its opposite – misery. By their calculations, eliminating depression and anxiety disorders would singlehandedly have the biggest reduction to misery, more than the effects of eliminating poverty, unemployment or physical illness. Similarly, mental health has been shown to explain more of a variance in happiness than income does in Western countries (Andrew Clark, Sarah Flèche, Richard Layard, Nattavudh Powdthavee, & George Ward, 2017, p. 5).

The World Happiness Report has found that levels of happiness are lower in African countries than in other areas of the world. Moreover, South Africa experienced a significant decrease in happiness from 2005-2007 to 2014-2016 (John F. Helliwell, Haifang Huang, & Shun Wang, 2017, p. 2). Within the country, black South Africans have scored consistently lower than white or coloured people in the country on life satisfaction since 1994, when the apartheid era ended and such surveys began (Møller & Roberts, 2017). In addition, belonging to a lower social class in South Africa was associated with an eight-fold increase in the risk of being unhappy (Adesanya, Rojas, Darboe, & Beogo, 2017).

2.3.6 Happiness and the workplace

Similar to the effects of the workplace on mental ill health, employment and workplace quality are among the most important drivers of happiness (Jan-Emmanuel de Neve, 2018). However, it would seem that many people are not deriving significant happiness from work. A study which tracked individuals' wellbeing at random points in time found that paid work is ranked lower than any of the

other 39 activities individuals engage in, with the exception of being sick in bed (Bryson & MacKerron, 2017).

Although stable employment is a key factor in evaluations of life satisfaction, the time spent at work can be among the least enjoyable activities. An analysis of weekend effects on happiness and other emotions in American workers found the prevalence of positive emotions is higher on weekends than weekdays, with the reverse applying to negative emotions (Helliwell & Wang, 2015). There are, however, workplace factors that influence the levels of employees' happiness. For example, workplace trust and workplace social relations are one of the main drivers of the weekend effect in workers, with a positive social quality of the workplace amplifying positive emotions and life satisfaction (Helliwell & Wang, 2015). In addition, the nature of supervisory relationships at work have been found to affect employees' happiness. Employees who think of their supervisor as a partner have higher life satisfaction than those who regard their supervisors as a boss (Helliwell, Norton, Huang, & Wang, 2018).

In an analysis of factors affecting job satisfaction, the order of the twelve domains studied ranked from most to least important are: interpersonal relationships; interesting job; pay; work-life imbalance; difficulty, stress, danger; job security; opportunities for advancement; independence; skills match; usefulness; working hours mismatch; and, working hours (Jan-Emmanuel de Neve, 2018). And, similar to the cost of mental illness to employers, the happiness of employees can affect the bottom line of the employers, including through customer satisfaction, productivity, profit, employee turnover, and accidents (Harter, Schmidt, Asplund, Killham, & Agrawal, 2010; Harter, Schmidt, & Hayes, 2002).

In the World Happiness Report chapter on happiness at work, job factors that were positively associated with wellbeing included work-life balance, autonomy, variety, job security, social capital, and health and safety risks (Jan-Emmanuel De Neve & George Ward, 2017). Another job factor found to have significant impact on life satisfaction is workplace trust (Helliwell & Huang, 2010). Similarly, at a country level, aggregated social trust predicts subjective well-being in the medium-term (Bartolini, Mikucka, & Sarracino, 2017).

Sub-Saharan Africa is the region in the world with the lowest average job satisfaction, with approximately 60% of the working population indicating that they are satisfied with their jobs, on a binary measure of job satisfaction (Jan-Emmanuel de Neve, 2018). In terms of employee engagement, 18% of the working population in Sub-Saharan Africa are actively disengaged, 65% are not engaged, and 17% are engaged (Jan-Emmanuel de Neve, 2018).

2.4 Assembling current evidence on how to promote mental wellbeing at work

2.4.1 Workplace mental health and happiness interventions

Globally, there is an increase in mental health promotion and prevention programs. In 2014, 41% of World Health Organization (WHO) member states reported having at least two functioning mental health promotion and prevention programmes, with a total of 80 programs; in 2017, it increased to 63% with a total of 356 programs (WHO, 2018a). Seven percent of the mental health promotion and prevention programs reported to the WHO in 2017 were workplace-based (WHO, 2018a).

Consistent with the move towards focusing on primary prevention in health more generally, is the shift towards primary prevention of mental disorders in the workplace (Mykletun & Harvey, 2012).

Accompanying the first-time classification of burnout as an “occupational phenomenon” by the WHO in May 2019, the organization announced its plans to develop evidence-based guidelines on mental wellbeing in the workplace (WHO, 2019) – reinforcing the need for action in this area.

However, the research on how to prevent mental ill health and promote mental wellbeing in the workplace is limited. In particular, there is limited evidence from Africa on workplace-based mental health interventions. For instance, the Cochrane review on preventing occupational stress in healthcare workers did not include any studies from Africa (Ruotsalainen, Verbeek, Mariné, & Serra, 2015). There is also limited research on how to promote mental health in the healthcare workplace. In a recent systematic review on suicidal ideation among medical students, the authors note the lack of research on preventive and treatment interventions, and the need for research in this area (Coentre & Góis, 2018).

A systematic meta-review of work-related mental health interventions for anxiety and depression noted a lack of adequate research on the impact of interventions on work-related aspects such as absenteeism, presenteeism and productivity, with existing literature focusing mainly on the impact of

interventions in alleviating mental ill health. Nevertheless it documents moderate-level evidence for primary prevention interventions (enhancing employee control; promoting physical activity); and stronger evidence for cognitive behavioural therapy (CBT)-based stress management, as well as tertiary interventions such as exposure therapy and CBT-based and problem-focused return-to-work programmes (Joyce et al., 2016). Such studies, however, focused only on individual-targeted interventions, which can be challenging to feasibly apply to large workforces. A major research gap remains on workplace-level interventions that aim to improve the happiness and mental health of workforces. Indeed, the Cochrane review (Ruotsalainen et al., 2015) concluded that more randomized controlled trials are needed, with organizational interventions better focused on reduction of specific stressors. In addition, the Global Happiness Policy Report 2018 calls for more research to expand the causal evidence base on work and wellbeing, and specifically the use of randomized controlled trials to evaluate workplace interventions promoting worker well-being (Jan-Emmanuel de Neve, 2018).

The research to date evaluating workplace-based interventions to promote mental health include educational activities, physical activities, coaching, mental health first aid and mindfulness. A Canadian study evaluating an employee wellness program comprising educational content and online physical activity challenges found improvements in mental health metrics in the first year, including reductions in poor sleep quality, high emotional stress, and fatigue, as well as a positive dose-response among those who participated the most (Lowensteyn et al., 2018).

The use of coaching has increased among organizations in the last couple decades, as a means to improve employee learning and effectiveness, enhance performance, and support individual and organizational development (Kim, Egan, & Moon, 2014; Theeboom, Beersma, & Vianen, 2014). Research on the effects of coaching has found positive impacts related to the mental health and happiness of employees. In a randomised controlled trial on the effect of coaching among executives in a public health agency, the coaching program was found to enhance resilience and increase levels of workplace well-being (Grant, Curtayne, & Burton, 2009). In another randomised controlled trial on the effect of coaching in a workplace, employees who participated in the coaching reported significantly improved health, declined psychological distress, less burnout, less need for recovery, and an increased satisfaction with life (Duijts, Kant, van den Brandt, & Swaen, 2008).

Mental Health First Aid is an international program, initially developed in Australia by Betty Kitchener and Anthony Jorm in 2001 (Mental Health Commission of Canada, 2018). Similar to physical first aid, mental health first aid provides training for people to help recognize, respond and guide others who may be developing or experiencing a mental health problem or crisis. It has been found to increase participants' knowledge regarding mental health, decrease negative attitudes, and increase supportive behaviours toward individuals with mental health problems (Hadlaczky, Hökby, Mkrтчian, Carli, & Wasserman, 2014). Similarly, a randomized controlled trial in Sweden found that mental health first aid training improved participants' knowledge and confidence in providing help for someone in need, with the improvements maintained over a two-year period (Svensson & Hansson, 2014). And, among nursing students in Australia, mental health first aid training improved participants' knowledge, confidence in helping, mental health first aid intentions, social distance and stigma (Burns et al., 2017).

There has been growing interest in the practice of mindfulness in multiple domains, including in the workplace. Generally, mindfulness has been shown to have effects on the human functional domains of attention, cognition, emotion, behavior, and physiology, which can then influence workplace outcomes in the areas of performance, relationships, and wellbeing (Good et al., 2016). More specifically, mindfulness has been found to promote job satisfaction and help prevent burnout among employees working in emotionally demanding jobs in interactive service work (Hülshеger, Alberts, Feinholdt, & Lang, 2013).

2.4.2 Workplace mental health interventions for healthcare workers

Although there may be limited implementation of workplace-based mental health promotion programs to date, there is recognition of their need and benefits particularly in healthcare. Through a Delphi consensus, expert panellists prioritized mental health strategies as the most important and feasible of workplace health promotion interventions – over healthy nutrition, physical activity, and smoking cessation interventions – for nurses and midwives, with specific interventions identified including mental health training for managers and supervisors, stress management and resilience training, flexible working practices, free workplace counselling, and regular mental health wellbeing checks (Perry, Nicholls, Duffield, & Gallagher, 2017).

The multitude of factors that affect mental health among healthcare workers demonstrates the variety of factors which could be targeted for mental health promotion interventions. For instance, contributors to mental health effects such as burnout in health professionals have ranged from personal characteristics to work organization variables or a combination of the two, considering factors such as organizational functionality, organizational culture, management and patient support, staff development and work-family balance (Adesanya et al., 2017). In a study on British general practitioners' perceptions of resilience training, participants emphasized that resilience training should focus on both individual *and* organizational factors to reduce stress (Cheshire et al., 2017). Practice-based factors also influence the mental health of healthcare workers. For example, the strengthening of infection control measures in Ecuadorean nurses has been documented to reduce burnout (Colindres et al., 2017).

As in other sectors, mindfulness has also been applied in the healthcare setting as a way to promote mental wellbeing. Its impact on individual-, group- and patient-level outcomes has been studied. Clinician mindfulness has been associated both with more patient-centered communication and more satisfied patients (Beach et al., 2013). In addition to individual-based mindfulness, newer research in the area of team mindfulness shows that mindfulness enhances team functioning by decreasing the degree of interpersonal conflict, reducing the connection between task conflict and relationship conflict, and reducing social undermining behaviours that result from team relationship conflict (Yu & Zellmer-Bruhn, 2017). General practitioners in England identified mindfulness as an activity to include in resilience training (Cheshire et al., 2017).

There are several individual and social barriers to early intervention and support for healthcare workers with mental ill-health, including uncertainty in identifying mental health issues, stigma, discourse around professional competence, social tensions, workload pressures, confidentiality, and lack of timely access to support (Moll, 2014). The multiplicity and complexity of factors hindering access to support highlight the need for a variety of approaches, including from both organizational and individual perspectives. In terms of the delivery of interventions among healthcare workers, lack of time and/or perceived lack of time has been identified as a potential barrier to engagement, with possible solutions being the development of multimodal and flexible approaches (Cheshire et al., 2017).

One example of organizational-level activities to promote mental health in healthcare is the “Magnet hospital” program. In the United States, the “Magnet hospitals” designation recognizes workplace excellence for nursing. The designation has been found to be associated with better patient outcomes (Kutney-Lee et al., 2015; McHugh et al., 2013) and higher rates of patient satisfaction (Smith, 2014; Stimpfel, Sloane, McHugh, & Aiken, 2016) as well as fewer injuries and time-loss amongst staff (Clarke, Sloane, & Aiken, 2002; Drenkard, 2010; Stone & Gershon, 2006), illustrating benefits of positive workplace characteristics for patients as well as employees (McHugh et al., 2013).

2.5 Examining considerations relevant to the evaluation and implementation of workplace-based interventions to promote mental health and happiness

2.5.1 Participatory and arts-based methods in mental health research

Participatory action research and in particular, participatory arts-based methods, are increasingly being used in health research (K. M. Boydell, 2011; K. M. Boydell, Gladstone, Volpe, Allemang, & Stasiulis, 2012; K. M. Boydell et al., 2016; Carless & Douglas, 2009; Lapum, Church, Yau, David, & Ruttonsha, 2012; Lapum, Ruttonsha, Church, Yau, & David, 2012; Mitchell, Dupuis, & Jonas-Simpson, 2011; Rossiter et al., 2008), knowledge translation (Archibald, Caine, & Scott, 2014; Kontos & Poland, 2009; Kukkonen & Cooper, 2017; Parsons & Boydell, 2012; Rieger & Schultz, 2014; Scott, Brett-MacLean, Archibald, & Hartling, 2013) and community settings more broadly (K. Boydell & Belliveau, 2017; Ho, Potash, Ho, Ho, & Chen, 2017; Kelaher et al., 2014; J. B. Spiegel, Breilh, Campana, Marcuse, & Yassi, 2015). For example, arts-based methods have been applied to address the HIV/AIDS epidemic, including seminal works by arts advocacy groups such as ACT UP and Visual AIDS to stimulate public awareness and fight stigma (Morris, 2012). In South Africa, arts-based methods including participatory theatre (Ruthven, 2016) and body-mapping (Jager, Tewson, Ludlow, & Boydell, 2016) have been successfully used in health promotion and education for both HIV/AIDS, and more recently, in the prevention and management of tuberculosis among healthcare workers (Parent, Ehrlich, Baxter, Kannemeyer, & Yassi, 2017). In a Cape Town study, arts-based methods were used to address the issue of stigma for TB and HIV, as well as mental health concerns (Clement et al., 2015).

Arts-based methods have also been used in mental health research, with a particular focus on gaining understanding of lived experiences, promoting awareness, fostering empathy, and de-stigmatizing mental illness. For example, photovoice has been found to be an effective method in mental illness research to gain a deeper understanding of individuals' experiences living with mental illness, with particular benefits towards de-stigmatizing mental illness and designing services to support people living with mental illness (C. S. Han & Oliffe, 2016). Similarly, the use of digital storytelling in mental health research has been found to deepen understanding of the experiences of people living with mental illness, as well as promote relationships among individuals, caregivers, and healthcare workers, both of which can help develop and strengthen support and mental health services (Vecchi, Kenny, Dickson-Swift, & Kidd, 2016). The use of an arts-based approach helped to facilitate dialogue and communication in promoting suicide awareness among a multi-cultural group (Silverman, Smith, & Burns, 2013). Further to the use of arts-based research methods in mental health research, engagement with art has been found to help build resilience (Zarobe, 2017) and promote mental wellbeing (Davies, Knuiman, & Rosenberg, 2016).

Although the use of arts-based methods in health research is growing, research on arts-based methods in the context of healthcare workers' mental health in the workplace is limited. A phenomenological study exploring health professionals' experiences with dramatic arts-based teambuilding activities and creative printmaking found that participation in the arts can be beneficial for the development of interpersonal skills such as teamwork and communication (Acai et al., 2016). Another study evaluating an arts-based workplace intervention among nursing staff in a hospital found that participation in weekly silk painting had a positive impact on general health and mental wellbeing, including reducing stress and fatigue, awaking creativity and increasing a sense of community at work (Karpavičiūtė & Macijauskienė, 2016). Similarly, a Swedish study showed that more frequent cultural activities – movies, theatre performances, concerts, exhibitions – at work was associated with better mental health (Theorell et al., 2013). While another Swedish study found that participation in fine arts – film, art, music and singing – improved perceived physical health, social functioning, and vitality among secretaries, assistants, and middle level administrators working in health services (Bygren et al., 2009).

2.5.2 Theories of organizational change

Theories of organizational change underlie the sustainable introduction of organizational-based workplace health promotion interventions. The field of organizational change theories is extensive with various and evolving theories and models (Batras, Duff, & Smith, 2014). The following section provides a brief discussion of a few theories and models which may prove useful in considering the organizational change component of implementing workplace-based interventions promoting mental health.

Four theories of organizational change introduced by van de Ven and Poole offer a framework to consider different processes of organizational change, and how and why change happens: life cycle, teleological, dialectical, and evolutionary (van de Ven & Poole, 1995). The life cycle theory follows a sequential trajectory and progression similar to that of the human life course: the organization possesses what it needs to develop internally, and moves through a sequential growth process. The teleological theory follows a repetitive sequence of goal formulation, implementation, evaluation, and modification in progressing towards an end purpose or goal. The dialectical theory views the organization as existing within internal and external forces, with change occurring through a balance of power among the internal and external forces. Lastly, the evolutionary theory considers cumulative changes over time similar to biological evolution with processes of variation, selection and retention.

Another consideration relevant to the introduction of organizational-level interventions which are ultimately intended to impact individuals (i.e., an organizational-level intervention to promote employees' mental health), is the relationship between how an organization's structure impacts individuals' readiness for change. Benzer et al. present a framework highlighting four organizational-level concepts that can help individuals' readiness for change: relevance, legitimacy, need for change, and resources (Benzer, Charns, Hamdan, & Afable, 2016). These concepts are activated through communication, coordination, goal alignment, and leadership, such as linking the change to compelling and shared goals, providing resources and developing local capacity to support the change, and promoting access to knowledge and movement of ideas (Benzer et al., 2016).

Within healthcare more specifically, a literature review on organizational culture change in health systems identified six guiding principles for ways to engage in the process of culture change: align

vision and action; make incremental changes within a comprehensive transformation strategy; foster distributed leadership; promote staff engagement; create collaborative relationships; and continuously assess and learn from change (Bitz et al., 2016).

2.5.3 Theories of workplace-based health promotion

Similar to the preceding discussion on organizational change theory, the following section provides a brief prelude on workplace-based health promotion to contextualize the proposed research on workplace-based mental health promotion.

There are different frameworks available to follow for the development of workplace-based interventions. The intervention mapping process is one framework for health education intervention development (Bartholomew, Parcel, & Kok, 1998). LaMontagne et al. present a framework for an integrated approach to workplace mental health interventions. This brings together “harm prevention” addressing workplace organization primary prevention initiatives, “positive mental health promotion” addressing individuals’ resilience in mitigating effects, and illness management through diagnosis, treatment and reintegration (LaMontagne et al., 2014). These three approaches correspond with the traditional domains of public/occupational health, organizational development/psychology, and psychiatry.

Workplace culture can impact the outcomes and success of work-based health promotion activities, particularly in the context of implementation. Beyond the specific programs and activities, an organization’s “culture of health” – fully integrating health into the organizational culture of how people think and act – is crucial for workplace-based health promotion, as is strategic communications (Kent, Goetzel, Roemer, Prasad, & Freundlich, 2016). Elements that contribute to a culture of health include a physically-supportive environment, socially-supportive environment, leadership support, supportive middle management, peer encouragement and team building, and employee involvement and engagement (Kent et al., 2016).

2.5.4 Challenges and limitations of workplace wellness programs

In the United States, 53% of small firms and 82% of large firms offer a health and wellness promotion program in at least one of these areas: smoking cessation; weight management; and behavioral or lifestyle coaching (Kaiser Family Foundation & 2018, 2018). Despite the popularity

and interest in workplace wellness programs, the value and effectiveness of workplace wellness programs have been challenged. A meta-analysis of 18 studies on 21 interventions, found an overall small effect of workplace health promotion programs (Rongen, Robroek, van Lenthe, & Burdorf, 2013). A more recent randomised control trial involving 32,974 employees at 160 worksites of an American retail company found improvements in only two self-reported health outcomes after 18 months, while there were no significant effects on the other 27 self-reported health outcomes and behaviors, 10 clinical markers of health, 38 medical and pharmaceutical spending and utilization measures, and 3 employment outcomes (Song & Baicker, 2019).

There are several challenges and limitations related to the methodology of evaluating workplace wellness programs which may be contributing to the modest or insignificant effects of the programs in research, including the diversity of health concepts and thus targeted outcomes at both the organizational and individual level, the heterogeneity of many employee populations, and the complexity of implementing workplace interventions.

The term workplace wellness program can encompass a broad range of health and health behaviours, such as smoking cessation, physical activity, and healthy eating. Indeed, the randomised control trial at the American retailer comprised eight modules delivered by registered dietitians on topics such as nutrition, physical activity, stress reduction, and prevention (Song & Baicker, 2019). Similar to the variety of health and health behaviours which can be targeted through the workplace wellness programs, is the variety of measures which are used to evaluate the programs including at both the individual and organizational levels (Grawitch, Gottschalk, & Munz, 2006). For example, at the individual level, measures could include self-reported changes in health behaviours. At the organizational level, measures could include measures of work attendance (absenteeism, sick days, etc.), financial savings (health insurance costs, disability costs), worker productivity, and employee turnover, among others. This can be further exacerbated by some organizations' pressures to demonstrate financial return on investment; for example, by reporting employee attendance or turnover in financial measures as opposed to variables related to the individual.

Another challenge with regards to evaluating workplace wellness programs is the heterogeneity of most employee populations. For instance, a meta-analysis of workplace health promotion programs found larger effect sizes in younger populations (Rongen et al., 2013).

A third challenge is the complexity of implementing workplace wellness programs, with a multitude of factors at both the organizational and individual levels which can impact the effectiveness of the intervention. Conceptually, these include the organizational readiness for change including the psychological and behavioural preparation of the employees, the implementation policies and practices, the implementation climate including the employees' perceptions of success, the innovation-values fit including the employees' perceptions of the benefits of the intervention, and the implementation effectiveness (Weiner, Lewis, & Linnan, 2009).

CHAPTER THREE: REALIST REVIEW: HOW CAN WORKPLACE-BASED ORGANIZATIONAL INTERVENTIONS IMPROVE THE MENTAL HEALTH AND WELLBEING OF HEALTHCARE WORKERS?

3.1 Introduction

3.1.1 Rationale for review

Given the significant and increasing burden of mental ill health among healthcare workers outlined in the previous chapter, more research is needed to understand what can be done to improve mental health and wellbeing within the healthcare workplace. In particular, the results of the narrative review outlined in the previous chapter identified the merit in focusing on workplace-based interventions, and specifically in examining what works in what situations. As such a realist review of this specific topic was called for. This review therefore aimed to synthesize the existing research on workplace-based interventions promoting mental health and wellbeing among healthcare workers, to help inform what can be done to help improve mental health in a workforce that is facing a significant burden of mental ill health, as well as to help identify areas for future research in this domain. More specifically for this project, the purpose of the realist review was to garner insights and inform the development, implementation and evaluation of interventions which are a part of the proposed study (chapter four).

3.1.2 Objectives and focus of review

The objective for this review is to synthesize available evidence on organizational-level workplace-based interventions promoting mental health and wellbeing in the healthcare setting, in order to help gain a deeper understanding of interventions studied to date and how they can work effectively. These insights would then help inform the development, implementation and evaluation of interventions as noted above. The question for the review is: *how* can workplace-based interventions improve the mental health and wellbeing of healthcare workers? The headings, content and structure of this review are based on the list of items to be included in realist reviews by (Wong, Greenhalgh, Westhorp, Buckingham, & Pawson, 2013).

The focus of the review is on the evaluation of interventions delivered in the workplace at the organizational level (see “Changes to the review process” below). One reason for choosing the focus on organizational-level interventions was to synthesize the available evidence for what employers can do to help improve the mental health of their employees, as opposed to what other service providers and/or the workers as individuals can do to promote mental health.

The 2015 Cochrane systematic review on preventing occupational stress in healthcare workers appears to be the most similar review to date on the subject (Ruotsalainen et al., 2015). Both the Cochrane review and this realist review include organizational-level interventions, although the Cochrane review also includes cognitive-behavioural and relaxation interventions as noted below. Methodologically, the Cochrane review only includes studies measuring the outcomes of work-related stress and/or burnout, as measured by validated tools. In order to encompass a more holistic definition of mental health, this realist review includes a broader scope of mental health outcomes such as psychosocial work environment and satisfaction. Furthermore, the Cochrane review includes only quantitative studies: randomized controlled trials for individual-level interventions, and controlled before and after studies and interrupted time series for organizational-level interventions. Conversely, this realist review also includes cross-sectional and qualitative study designs. The decision to include the additional study designs, including both quantitative and qualitative designs, was made correspondingly with the realist philosophy between positivism and constructivism which underlies the concept of realist review (Wong et al., 2013).

During the initial literature search for this realist review, a protocol for “a realist review of interventions to tackle doctors’ mental ill-health and its impacts on the clinical workforce and patient care” was found (Carrieri et al., 2018). The similarity between the protocol and this review reinforces the need for both research and evidence synthesis in this area, as well as the suitability of a realist review method for the topic. However, the biggest difference between the Carrieri et al. protocol and this review is the population: the protocol is focused on physicians whereas this review includes all types of healthcare workers including nurses, midwives, doctors and other healthcare professionals.

3.2 Methods

3.2.1 Changes in the review process

The one major change to the review process from the original plan was the selection of only organizational-level workplace interventions. The original plan was to include all workplace-based interventions. After the full-text review, this originally yielded 101 articles (see figure 1: flow diagram). The 101 articles were then grouped according to the three categories of interventions as defined by the Cochrane review: organizational, cognitive-behavioural, and relaxation (Ruotsalainen et al., 2015). At this stage, based on the quantity of articles and the focus of the research team's larger project in the area of organizational-level interventions, the decision was made to select only the organizational-level interventions for this review.

3.2.2 Rationale for using realist synthesis

Mental health in the workplace is a complex area, with multiple factors influencing the mental health of workers. For example, the multilevel determinants of workers' mental health model highlights multiple factors in both the work environment such as workplace context and organisational conditions as well as in the workers' personal environment such as the structures of daily life and agent personality (Marchand et al., 2015). Within the area of work-related factors alone, risk factors for increased rates of common mental health problems include: high job demand, low job control, low workplace social support, effort–reward imbalance, low organisational procedural justice, low organisational relational justice, organisational change, job insecurity, temporary employment status, atypical working hours, bullying and role stress (Harvey et al., 2017). In addition, non-work determinants such as family status and social support networks have also been found to be important predictors of workers' mental health (Beauregard et al., 2011). Compounding the multitude and complexity of factors influencing mental health in the workplace, there are also multiple dimensions of conceptualising mental health, including both from an illness perspective – such as the presence or absence of diagnosed mental disorders, improvement in mental disorders, and levels of stress and burnout measured through validated tools – as well as from a wellness perspective – such as emotional happiness, eudaimonia, life satisfaction, and job satisfaction.

Therefore, due to the complexity and multidimensionality of mental health in the workplace, the realist review method is suitable to explore how workplace-based interventions can work effectively, as the realist framework will help discern what works for whom, in what circumstances, in what respects and how (Pawson, Greenhalgh, Harvey, & Walshe, 2005), rather than definitively assessing the efficacy of an intervention on a discrete outcome. As the realist review method is based on the generative model of causality, it provides an opportunity to consider both the underlying mechanisms and contexts in the interpretation of the outcome. In the case of workplace mental health, this allows an opportunity to consider a variety of approaches to mental health promotion as well as the diversity of healthcare workers and workplaces, which is valuable in interpreting the context and contextual factors for workplaces looking to implement their own mental health promotion interventions. Similarly, the realist review method allows the opportunity to explore the effect of the process of an intervention on the outcome. Indeed, there is a recognized need for a greater focus on the process of organizational interventions, including the *why* and *how* of successful (and unsuccessful) interventions (Nielsen, Taris, & Cox, 2010).

3.2.3 Scoping the literature

The exploratory scoping of the literature surveyed research in the areas of global mental health, mental health and the workplace, mental health and the healthcare workplace, mental wellbeing and happiness, happiness and the workplace, workplace-based mental health interventions, and workplace-based mental health interventions for healthcare workers. This exploratory scoping provided background information on the topic, an overview of the body of literature in this area, emerging and developing topics, a sense of the volume and foci of research in this area, and common topics, methods, and tools used in workplace-based mental health research.

3.2.4 Searching processes

A search of MEDLINE, CINAHL (Cumulative Index to Nursing and Allied Health Literature), and PsycINFO was conducted in November 2018 (see Appendix 1). MEDLINE was selected based on its extensive and premier coverage of health and biomedical research. CINAHL was selected to additionally capture studies related to nursing and allied health professionals. PsycINFO was selected for its command of psychology which is particularly relevant for the subject area of the review: mental health. All three databases were searched for journal articles published since the

inception of the respective databases (i.e., there were no restrictions placed on the dates of coverage).

3.2.5 Selection and appraisal of documents

The database searching (MEDLINE, CINAHL and PsycINFO) initially yielded 1,496 articles. After duplicates were removed, 1,290 articles remained. The titles and abstracts of the 1,290 articles were then screened, primarily looking at the target population (healthcare workers), intervention (workplace-based), and outcome (mental health). (More specific inclusion and exclusion criteria for the full selection and appraisal process is listed below.) Based on the title and abstract review, 1,012 articles were excluded, leaving 278 articles for full-text assessment. Following the full-text review, 177 articles were excluded (see figure 1: flow diagram). The remaining 101 articles were then classified by the category of workplace-based intervention, using the three categories from the Cochrane review: cognitive-behavioural, relaxation, and organizational (Ruotsalainen et al., 2015). Based on the change to the review process as noted above, the articles categorized as cognitive-behavioural and relaxation were excluded (n=55). The categorisation of organizational interventions from the Cochrane review was used as the basis for identifying interventions in this category:

“Organisational interventions that are measures to change resources, the working environment, work tasks or working methods. The intention here is to prevent or decrease stress by ensuring that workers are better equipped to deal with the tasks associated with their jobs.” (Ruotsalainen et al., 2015)

Then, the studies on organizational interventions included in the Cochrane review were added (n=21) – this included all the articles included in the organisational category even if they were not included in the Cochrane review’s meta-analysis. Then, duplicates (n=4) and studies on students and trainees (n=2) were removed. In addition, an article which did not cover the implementation of an intervention was removed. This left the final set of articles to include for the synthesis (n=60). Five of the 60 were articles on the same study(ies) as other article(s), and therefore their analysis was combined to represent one study/intervention. Thus, this review comprises 55 unique studies represented in 60 research articles.

The specific inclusion and exclusion criteria used for the selection of articles is summarized in the following table.

Table 1. Summary of inclusion and exclusion criteria.

Study Characteristic	Inclusion Criteria	Exclusion Criteria
Population	<ul style="list-style-type: none"> Healthcare workers (e.g., physicians, nurses, allied health professionals, etc.) 	<ul style="list-style-type: none"> Medical or other health professional students or trainees (e.g., medical residents) Patients Family caregivers Veterinarians
Intervention	<ul style="list-style-type: none"> To promote mental health, defined broadly as both presence/absence of mental illness such as stress or anxiety, as well as positive concepts of mental health such as quality of life and life and/or job satisfaction 	<ul style="list-style-type: none"> Studies on healthcare workers' perceptions of interventions and/or programs generally (i.e., no specific intervention implemented) Interventions to reduce factors that may impact mental health such as workplace violence or bullying Interventions to reduce substance use Interventions to reduce mental health-related stigma Evaluation of return to work programs Tertiary interventions (e.g., clinical treatment of depression or other mental health condition; return to work programs for employees on sick leave due to depression)
Context	<ul style="list-style-type: none"> Interventions delivered in the workplace at the organizational level 	<ul style="list-style-type: none"> Interventions delivered outside the workplace

Outcome	<ul style="list-style-type: none"> • At least one measure of mental health (illness or wellness) 	<ul style="list-style-type: none"> • Studies with measures of work environment factors only (e.g., communication and collaboration among employees)
Study Design	<ul style="list-style-type: none"> • Longitudinal observational study designs, including retrospective and prospective studies • Experimental study designs, including randomized control trials and cluster randomized control trials • Qualitative study designs • Pilot studies 	<ul style="list-style-type: none"> • Models (theoretical or statistical) on ways to improve mental health
Publication	<ul style="list-style-type: none"> • Published in a peer-reviewed journal • Published since database inception (i.e., no minimum publication date) 	<ul style="list-style-type: none"> • Reviews, study protocols, editorials, letters to the editor, commentaries, theses or dissertations • Grey literature

3.2.6 Data extraction

The information extracted from the articles includes general demographics and characteristics of each study and its participants, a summary of each study using a realist framework, and a summary of the methods of each study. General demographic and characteristic information extracted from the studies were: country where the study took place; type of healthcare worker (nurse, physician, etc.); type of healthcare workplace (hospital, residential care facility, etc.); and, type of specialized care, if applicable (e.g., intensive care unit, emergency medicine, etc.). These characteristics were selected to provide a summary of the locations and participants who have been included in studies to date, as well as to provide a background overview on the contexts for the studies.

The summary of each study using a realist framework comprised a brief description of the context including why and how the intervention occurred; a brief description of the underlying mechanism for how the intervention was intended to work; and, a brief description of the outcome. These were selected to facilitate the analysis and synthesis of the studies using the realist framework of context-mechanism-outcome.

The summary of the methods of each study comprised a brief description of the intervention itself; the type of study design; length of the follow-up period, if applicable; the construct/measure(s) of mental health used in the study; and, whether or not there was an improvement in the construct/measure(s) of mental health. These were selected to provide a summary of the research methods used and to compare the types of interventions studied and methods used. The wide range of mental health outcome constructs/measures used in the selected studies – intentionally included to encompass a broad definition of mental health and wellness – precluded the extraction of quantitative measures of outcomes.

Lastly, any other findings and/or relevant notes that the reviewer thought were significant for the purposes of this realist review were noted, in particular findings and observations related to the realist framework of context-mechanism-outcome.

3.2.7 Analysis and synthesis processes

The analysis and synthesis followed an iterative process. The articles were read and reviewed by the primary reviewer during which time the general demographics and characteristics of each study (as listed above; location of study, type of healthcare workers, type of work environments, etc.) were documented and summarized across the selection of studies (see Document Characteristics below). The three elements of the realist framework (context, mechanism, outcome) as well as a brief description of the intervention were extracted from each of the articles by the primary reviewer in note form. For the context, the impetus for the intervention and/or a brief description of the initial state of the workplace was noted if available in the article (e.g., hospital restructuring, high absenteeism, promising initial evidence, etc.). Contextual factors that were mentioned to have aided, hindered, or otherwise influenced the intervention were also noted. For the mechanism, the underlying strategy, theory and/or functionality of the intervention was noted (e.g., reducing work hours, enhancing work-related skills, etc.).

In order to facilitate summaries and comparisons across studies, the mechanisms were then also categorized into the following types, developed based on the common themes found in the collection of studies: skills and knowledge development, leadership development, communication and team building, stress management, or workload and time management. If the intervention comprised more than one type of mechanism, it was categorized as “mixed.” This was done to facilitate synthesis across the variety of interventions in the selected studies.

A second review of the articles was then done to extract the following information from each study: study design, length of follow-up period (if applicable), and measure(s) of mental health. During the second review, the reviewer also reviewed the information and notes from the first review.

The elements of the realist framework from the articles were then analyzed thematically, with a focus on process-related factors across the studies. The diversity of both mental health constructs and types of interventions precluded the direct comparison or evaluation of interventions amongst one another, therefore the focus was placed on a thematic analysis related to the process of developing and implementing workplace-based interventions to promote mental health among healthcare workers.

3.3 Results

3.3.1 Document flow diagram

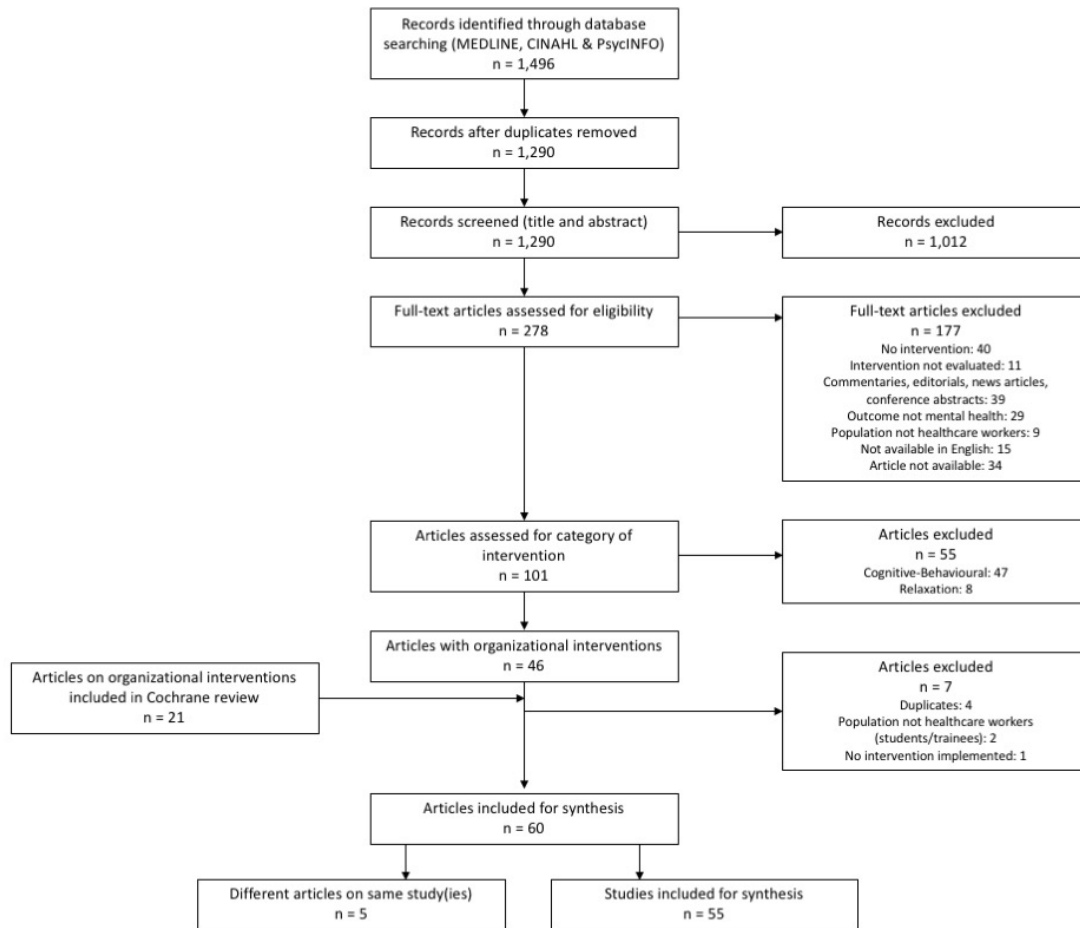


Figure 1. Flow diagram of search and selection process.

3.3.2 Document characteristics

The studies are primarily from Western countries and were published in the past decade. Most of the studies (n=51) were from high-income countries with the remaining four studies from upper middle-income countries, as categorized by the World Bank (“World Bank Country and Lending Groups – World Bank Data Help Desk,” 2019). The continent most represented in the studies was Europe (n=22), followed by North America (n=21), Asia (n=6), and Oceania (n=5). Only one study was from Africa. Half of the studies (n=32) were published from 2010 onwards. The earliest study was published in 1993.

Most of the studies targeted one type of healthcare worker, with the most common being nursing staff. Of the studies targeting one particular type of healthcare worker, nurses and nursing staff was the most common type of healthcare worker (n=25) followed by physicians (n=5). Twenty-one studies included a more than one type of healthcare worker, such as nurses, midwives, physicians, administrative staff, and/or managerial staff.

More than half of the studies (n=32) emphasized the unique characteristics of certain healthcare work environments such as residential care facilities and intensive care units, noting the particular demands and emotionally-charged nature of the work environments, for example. Of the studies explicitly focusing on a particular type of healthcare service, the most common was elder and/or adult residential care (n=11) followed by intensive care (n=6), mental health/psychiatric care (n=5), oncology (n=4), and emergency medicine (n=2).

A variety of designs were used in the included studies. The most common study design was quasi-experimental (n=17) followed by a randomized trial – either a cluster randomised trial or an individual randomised trial (n=15). Other methods used were longitudinal surveys (n=11), mixed methods (n=4), cross-sectional surveys (n=4), and qualitative methods (n=4). Of the four mixed methods studies, two comprised longitudinal surveys and focus groups, one used a retrospective pre/post survey and interviews, and one used longitudinal and qualitative surveys. The four qualitative studies all used interviews, with one of the four also using a collective case study method in addition to interviews.

Among the quasi-experimental studies, randomized trials, longitudinal studies, and the three mixed method studies with a longitudinal component (n=46), the duration of follow-up time ranged from 20 days to 10 years. Eight studies had a follow-up time of less than 6 months, 14 studies had between 6-10 months, and nineteen studies had between 12-24 months. There was one study each with the follow-up times of 3 years, 4 years, 7 years, and 10 years. One study did not indicate the duration of its follow-up time.

There were a variety of constructs of mental health and happiness used in the studies, with most studies (n=41) using more than one construct. The most common construct was burnout (n=27), followed by stress (n=19) and job or work satisfaction (n=14). Other constructs used in the studies

include distress (n=6), depression (n=4), psychosocial work environment (n=3), psychological wellbeing (n=2), anxiety (n=2), psychosomatic symptoms (n=2), affect (n=1), and resilience (n=1), among others.

The types of interventions most commonly used were skills and knowledge development (n=13) followed by communication and team building (n=10), workload and time management (n=9), stress management (n=7), and leadership development (n=3). Thirteen studies used mixed types of interventions (according to this categorization of mechanisms).

Twenty-five studies found an improvement in their measure of mental health. Seventeen found a insignificant or partial improvement, including an improvement on only one dimension of a scale, for example. Three studies found an improvement in the short term but it was not sustained in the long term. Ten studies found no improvement or a decline in their measure of mental health.

3.3.3 Main findings

The following section outlines several themes relevant to a realist framework that emerged from the analysis and synthesis of the articles included in this review.

Stakeholder engagement and support: The importance of and necessity for stakeholder engagement was highlighted repeatedly in multiple studies. For example, in their process evaluation (Uchiyama et al., 2013) found that continuously engaging with key people such as unit leads was necessary for the intervention's successful implementation. Another study highlighted potential issues arising from conflicting levels of support from different levels of the organization. In this case, the study was supported by the hospital administration who compensated the nurses for participation; however, it was not supported by all the unit-level managers who effectively barred participation through how they scheduled their staff (Günüşen & Üstün, 2010). This includes engagement and support across all levels of the organization, from management to frontline workers. In the introduction of a new telemedicine service, Romig et al recognized that positive staff perceptions to the new technology would be key to its successful implementation so they showed the staff the benefits at the outset to help ensure uptake and usage of the technology (Romig, Latif, Gill, Pronovost, & Sapirstein, 2012).

Approaches to developing interventions: Common approaches to identify which workplace factors to target in the interventions included initial engagement with the healthcare workers (e.g., initial baseline study to find context-specific factors affecting mental health), building on promising earlier research (e.g., following a pilot study), and/or based on a theory of mental health in the workplace. Some of the studies explicitly included the theoretical foundation of their intervention, either in combination with local needs or as the sole basis for a particular intervention target. For example, (R Bourbonnais et al., 2006; Renee Bourbonnais, Brisson, & Vezina, 2011) targeted four theory-grounded psychosocial job factors: psychological demands, decision latitude, social support and effort-reward imbalance, while Canadian research on improving civility in the work environment was based on the theoretical model of interpersonal relationships at work (Gilin Oore et al., 2010; MP et al., 2012, 2011).

Managing expectations: A few studies noted challenges and implications related to managing expectations around workplace mental health promotion activities. For example, Uchiyama 2013 noted the lack of improvement in measures of psychosocial work environment could be due to the higher expectations that some employees had based on the issues they were facing in the workplace – for instance, employees facing issues of workload and compensation may not have felt that interventions addressing team meeting scheduling and communication met their expectations for workplace improvements. Ultimately, managing expectations could make the difference between a successful and unsuccessful implementation. For example, Aust et al. identified the mismatch between employees' expectations and program delivery as one of the reasons why the intervention “failed” (the psychosocial work environment at the hospital worsened by their measurement after the intervention) (Aust, Rugulies, Finken, & Jensen, 2010). Conversely, elevated expectations for the interventions could have the opposite effect – inflating the true benefits of the mental health promotion activities based on employees' positive expectations and hope for the change. For example, Bryan et al. found that the nurses' “excitement for change” likely contributed to the observed short-term increase followed by a subsequent decrease in job satisfaction (Bryan, Hitchings, Fox, Kinneman, & Young, 1998).

Complexity of evaluating organizational-level interventions: A theme that emerged from the studies was the complexity of evaluating organizational-level interventions, in particular due to factors external to the study which can impact the outcome. For example, (BURNS, 1998) found no

change in psychological distress among the intervention group, however there were organizational and managerial changes which happened to occur at the same time as the study. The control group increased in psychological distress during that time, suggesting that the intervention was successfully able to mitigate the distress caused by the organizational changes, although purely from the results of the study, this would not necessarily have been apparent.

Process vs. Mechanism: Several studies addressed the challenge of distinguishing between the process of developing, introducing and/or implementing an intervention and its impact on the mental wellbeing of employees, as opposed to the impact of the actual intervention on mental wellbeing. For instance, Bunce et al. also measured process variables and concluded that the process did in fact affect the outcome; indeed, the improvements in occupational stress following an interactive training program regressed to their initial levels one year later, also suggesting the immediate improvements were based on the process of engaging in the training program rather than the skill and knowledge garnered from the program (Bunce & MA, 1996). Two considerations for future intervention development could be derived from this matter of process and mechanism. First, process matters. If the process itself could impact and influence the outcome, then it is important to be intentional and selective with the process. Second, if the process impacts the outcome, this could affect the longevity and subsequent measures of success of an intervention among a workforce.

Sustainability and longevity of interventions: Only two studies evaluated longer-term effects of policy changes: one from California found that new legislation on minimum staffing levels for licensed nurses in hospitals increased job satisfaction (Spetz, 2008), and one from Germany found that a policy limiting hospital physicians' weekly working time led to no improvement in physicians' mental health after ten years (Richter, Kostova, Baur, & Wegner, 2014). Most studies evaluated the effect of a discrete initiative which begs the question of the sustainability and longevity of the effects following the completion of the study. As an exception, (Jeon et al., 2015) noted that a facilitator was employed by the organization to continue the program following the close of the study. Three studies in particular found a short-term improvement following the intervention which was not sustained in the long term (Bryan et al., 1998; Bunce & MA, 1996; Günüşen & Üstün, 2010).

Broad definition of mental health: Although the most commonly-used measure of mental health was burnout (see Document Characteristics above), there was a variety of constructs used in the

studies including stress, work satisfaction, distress, depression, psychosocial work environment, psychological wellbeing, anxiety, psychosomatic symptoms, affect, and resilience. Even among the studies using burnout, many discussed differences in the three dimensions of emotional exhaustion, depersonalization, and personal accomplishment (Lee & Ashforth, 1990). The multitude of constructs both reinforces the multifaceted nature of mental health in the workplace as well as advances the conceptualisation of mental health beyond merely the presence or absence of mental disorders to also include more wholistic measures of wellbeing and happiness.

3.4 Discussion

3.4.1 Summary of findings

The following discussion highlights four themes derived from this realist review of 55 studies represented in 60 articles. The themes are relevant to the development, implementation and evaluation of workplace-based interventions promoting mental health among healthcare workers. The diversity of interventions as well as the diversity of mental health constructs included in this review precludes the explicit recommendation or comparison of specific interventions. As such and in line with the realist synthesis approach, the focus of this discussion is on contextual factors that influenced how the mechanism generated the outcome (Wong et al., 2013).

The underlying individual need, organizational impetus, and/or theoretical basis for why the intervention was developed and implemented were frequently mentioned, highlighting the importance of not only basing the intervention design on an underlying foundation, but also in achieving consistency with its development, design and evaluation. This includes aligning the underlying reason, strategy and/or theory with the structure and content of the intervention itself, as well as with its evaluation including the mental health constructs used in the evaluation – achieving consistency with the needs of the population, the design of the intervention, and its evaluation. Although seemingly intuitive, this can become disconnected in targeting upstream organizational-level factors while looking to affect change in individuals' mental health.

The second theme is the importance of comprehensive engagement of employees across the organization and throughout the duration of the intervention, including throughout the development and implementation processes. Engagement of employees across the organization was

frequently mentioned in the studies; and, conversely, a lack of engagement from employees or a certain group of employees was often cited as a reason why an intervention did not succeed or did not achieve the outcome anticipated. Several studies used participatory approaches in the development and/or implementation of the intervention, although it is difficult to discern from this review the effects of moving to deeper levels of engagement through participatory approaches (i.e., from basic levels of engagement through consultation and communication to more full-fledged participatory approaches). The theme of engagement also highlights the importance of providing employees with the time and capacity to participate, which may involve ensuring management support to allow employees to participate as the lack thereof could hinder the outcome of the intervention. Lastly, meaningful and repeated engagement can also help to manage expectations for the project so as to avoid the potential negative effects of unmet or mismatched expectations.

Third, the complexities of both mental health in the workplace and the implementation and evaluation of workplace-based interventions are essential considerations. There are many factors at the individual, organizational and societal levels that affect mental health in the workplace, making it difficult to select a particular target on which to act while also making it difficult to evaluate the effect of a specific change. This includes broader factors that may enhance, negate or influence the effect or potential effect of an intervention, such as organizational changes that occur at the same time as the intervention. Indeed, several studies mentioned unrelated organizational changes that occurred at the same time as the intervention such as restructuring or layoffs that subsequently diminished or negated the effects of the intervention. The consideration of complexity also includes diversity within groups of workers with different needs, challenges and factors that are contributing to their mental health at any given time and therefore the difficulty in identifying and implementing an intervention that will work for a group of employees. This highlights the importance of process as part of the mechanism for change as it is inextricably linked. This common theme was reflected in the complexity of factors at both the organizational and individual levels that contribute to mental health, as well as the complexity of work environments and their workers.

The fourth theme is the sustainability and longevity of both the intervention and the effect on employees' mental health. For example, the three studies which specifically found a short-term improvement in workers' mental health but no long-term improvement, reflect the idea that a short-term initiative can improve mental health in the short term through an "excitement of change"

effect while resources and attention are focused on the initiative in the short term (Bryan et al., 1998). Or, the implementation of the intervention during a discrete time interval may not provide sufficient exposure for the employees to the intervention. In addition, the improvement may not be sustainable once the intervention ends. Another related consideration is who is responsible for the continued implementation of the intervention. For example, is it the workers' continued responsibility to enact what had been introduced through a group-based training and support intervention offered by the organization.

3.4.2 Strengths, limitations and future research directions

A strength of this review was the broad inclusion criteria for healthcare workers, including nurses, midwives, physicians, social workers, aged care staff, and support staff. With the increasing move towards interdisciplinary and team-based healthcare, it is important to have a diverse set of healthcare workers represented in research, while acknowledging the unique challenges and opportunities presented in each discipline.

A major limitation of the review is the lack of generalisability due to the variety of mental health constructs included. The variety of mental health constructs were intentionally included in the review to encompass a broad spectrum of “mental health” and not solely the absence or presence of a mental illness or condition. However, due to the range of outcomes and measures included in the review, it is difficult to make direct comparisons across studies.

This review highlights the need for research in this area from LMICs, in particular from African countries. With increasing demands for health human resources in LMICs, there is need for evidence on how best to support the mental health of healthcare workers in these countries.

This review also highlights the need for robust definitions and approaches to mental health in the workplace, extending beyond the traditional focus on the absence of negative mental health to more broadly encompass constructs of mental wellbeing and happiness.

3.4.3 Comparison with existing literature

The 2015 Cochrane systematic review on preventing occupational stress in healthcare workers concludes that there is low-quality evidence that changing work schedules reduces stress while other

organizational-level interventions lead to minimal to no changes in stress, although limited evidence adhering to their inclusion criteria was available (Ruotsalainen et al., 2015). Comparatively, this review found mixed evidence of workload and time management-related interventions affecting mental health.

3.4.4 Conclusion and recommendations

The healthcare workforce experiences high rates of mental ill health, which generates significant effects not only for the workers themselves but also on patients. However, there is limited evidence on how to promote mental health and wellbeing in the healthcare workforce. This realist review synthesizes research on organizational-level interventions to promote mental health in the healthcare workforce. The collection of studies included in this review highlight the complexity of factors – at the micro-, meso-, and macro-levels – which influence mental health and the work environment.

Recommendations for practice include approaching mental health promotion in the workplace from a continuous improvement perspective. This is due to the variety of factors influencing mental health in the workplace at any given time and the complexity of evaluating and measuring progress in this area. Recommendations for research include further research on organizational-level interventions to promote mental health. In addition, more research in low- and middle-income countries is needed. Recommendations for both research and practice include the integration and greater use of positive mental health and wellbeing constructs in the context of workers' mental health.

CHAPTER FOUR: PROPOSED STUDY ON THE MENTAL HEALTH AND HAPPINESS OF HEALTH WORKERS IN GAUTENG, SOUTH AFRICA

This chapter presents the plans for a proposed research study. The plans for the study were initiated in January 2018 and developed through the subsequent year. Progress on the study is now awaiting notice of decision for funding from the Canadian Institutes of Health Research (CIHR).

The plans for this research were principally developed over the course of two visits with the Canadian and South African researchers in Johannesburg, in January and May 2018, as well as by email and phone in the intervening period and beyond. The first two-week visit in January 2018 provided an opportunity for initial meetings and discussions among the research stakeholders including from the Gauteng Department of Health, NIOH, University of the Witwatersrand, and UBC. Planning and development activities during the first visit included brainstorming exercises to map the concepts of mental health and happiness as well as the various stakeholders, discussions on possible research methods including sampling and engagement strategies as well as options for survey tools, meeting with the Department's employee health and wellness committee, and developing the project management framework. This led to the development of the first study design on determining the current state of mental health and happiness among the employees of the Gauteng Department of Health, identifying workplace-based factors affecting the mental health and happiness of the workers, and gathering employees' perceptions of mental health and happiness in the workplace. Following the two-week visit in January 2018, the initial research proposal subsequently evolved into the three-phased cluster randomized controlled trial as outlined in this chapter of this thesis. The proposal for the cluster randomized controlled trial was further developed over the subsequent months including during the second one-week visit in May 2018. Planning and development activities during the second visit included meeting with members of the Gauteng Department of Health, NIOH and the University of the Witwatersrand to thoroughly discuss the research methods, survey instruments – both from conceptual and practical standpoints, and working on the ethics submission to revise based on the reviewers' feedback.

4.1 Background and context

4.1.1 Why Gauteng, South Africa

Gauteng is one of nine provinces in South Africa. It includes both the largest city in the country (Johannesburg) and the administrative capital (Pretoria/Tshwane).

As noted previously, the Global Health Research Program led by Drs. Annalee Yassi and Jerry Spiegel at UBC's School of Population and Public Health has longstanding partnerships with health institutions in Gauteng, including the Gauteng Department of Health and the National Institute for Occupational Health (NIOH) based in Johannesburg. The Global Health Research Program at UBC and NIOH are both World Health Organization (WHO) Occupational Health Collaborating Centres.

4.1.2 Life Esidimeni and how study came about

To elaborate briefly on the introductory description, the study was initiated by the Gauteng Department of Health based on their commitment to and focus on mental health following an incident over approximately nine months in 2016 to 2017 involving more than 100 psychiatric patient fatalities (The Economist, 2018). Starting in the fall of 2015, an estimated 2,000 people were scheduled to be moved from a psychiatric care facility to their families, acute psychiatric hospitals or non-governmental organisations (NGOs) (Ornellas & Engelbrecht, 2018), although there was resistance at the time to the move from clinicians and medical practitioners (Janse van Rensburg, 2017) as well as patient advocacy groups and family members (The Economist, 2018). Tragically, many of the selected NGOs were “poorly prepared” and unlicensed facilities, including sites which failed to provide patients with enough food and water (Agence France-Presse, 2017), among other issues of neglect resulting in the deaths of more than 100 people. The tragedy garnered significant public outcry; the national health ombudsman Malegapuru Makgoba released a report in February 2017 and a subsequent arbitration process presided by retired deputy chief justice Dikgang Moseneke found “the rights of mentally ill patients and their families were flagrantly violated and disregarded” (Masweneng, 2018). The Life Esidimeni incident – named after the institution from which the patients were moved prior to the fatalities – prompted critical attention towards mental health issues, including the mental health of workers within the Department of Health. Furthermore,

the July 2018 suicide of a renowned South African cardiologist brought renewed urgency and commitment to mental health of healthcare workers in South Africa (Nyathi, 2018).

The Gauteng Department of Health's institutional commitment to mental health, and more specifically the mental health of their employees, led to the initiation and formation of this project partnership with UBC in late 2017 and early 2018.

4.2 Study design

4.2.1 Overview

The proposed study consists of a preliminary phase followed by three separate and consecutive phases. The phases build on one another so that the subsequent phases are based on the findings and work in the earlier phases.

4.2.2 Conceptual Framework

The concept of mental health applied in this study includes both illness and wellness perspectives, with positive mental health being conceptualized as “happiness” (see chapter two). The intentional integration and focus on the happiness perspective was emphasized by the Gauteng Department of Health at the outset of the study and throughout the planning process.

The workplace-based factors influencing the mental health of healthcare workers are considered using the micro-meso-macro framework, recognizing that individual factors (“micro”); workplace, organizational and employer factors (“meso”); as well as broader health system and societal factors (“macro”) all play a role in the mental health of healthcare workers. In this study, the focus is placed on the “meso” factors: organizational- and employer-level factors that influence the mental health of healthcare workers. This aligns with the fact that the study was initiated by the employer (Gauteng Department of Health), and therefore addresses factors that are in the direct control of the employer and organization.

4.2.3 Research Goals and Objectives

The overarching goal of the research project is to provide evidence-based insight on ways to promote positive mental health of healthcare workers. The specific objectives are to:

1. Determine levels of happiness and mental health among healthcare workers, with particular attention to gender;
2. Identify workplace-based factors and processes that affect happiness and mental health, including psychosocial risks;
3. Implement and evaluate workplace-based interventions to promote happiness and mental health.

4.2.4 Project Partners, Collaborators and Stakeholders

There are a number of partners, collaborators and stakeholders who will be engaged and involved throughout the duration of this project. This section provides an overview of the key stakeholders, their positions relative to the project, and their roles in the project. Their roles and involvement are further elaborated throughout this proposal.

4.2.4.1 Academic and Research Partners

The comprehensive project team brings together broad and diverse skills and experiences, while also promoting engagement with the topic of workplace mental health among the Department of Health and developing capacity in the Department for future research in this area. The project is led by Dr. Siphon Senabe, Chief Director, Human Resources Development & Employee Health and Wellness Program, Gauteng Department of Health. The academic and research project team consists of researchers, clinicians and practitioners from the South African National Institute of Occupational Health, The University of British Columbia, University of the Witwatersrand, and the Directorate of the Gauteng Employee Health and Wellness Program. This group comprises a range of disciplines, including public health, occupational and environmental health, epidemiology, psychiatry, and economics, bringing a diverse range of perspectives to the project.

National Institute of Occupational Health: The National Institute for Occupational Health (NIOH) is South Africa's major centre for occupational health. With the goal to promote healthy conditions in the workplace and improve the health of the South African workforce, NIOH functions as a knowledge institute with teaching and training, services and research in collaboration with global partners. NIOH is one of the 44 World Health Organization (WHO) Collaborating Centres in Occupational Health worldwide, along with the Global Health Research Program at UBC

(see below). Researchers and staff at NIOH who are involved in the project include members in the departments of Epidemiology and Surveillance, Occupational Medicine, and Safety, Health and Environment. NIOH's participation in the project includes: advising on the study design; performing the preliminary secondary data analysis to inform this research; developing the research protocol for local ethics approval; and analyzing quantitative data.

The University of British Columbia (UBC): The Global Health Research Program at UBC, led by Drs. Annalee Yassi and Jerry Spiegel, is also a WHO Collaborating Centre in Occupational Health with longstanding collaborations with partners in South Africa, including with NIOH. This project was initiated through previous collaborations and partnerships between UBC, NIOH and the Gauteng Department of Health.

University of the Witwatersrand: The University of the Witwatersrand is a major research-intensive university in Johannesburg with more than 37,000 students (University of the Witwatersrand, 2019). Within its Faculty of Health Sciences, it offers professional degrees in Medicine, Dentistry, Nursing, Pharmacy, Physiotherapy, and Occupational Therapy. Several of the staff at NIOH have academic affiliations with the University of the Witwatersrand and one of the co-applicants (Dr. Bernard van Rensburg) is on faculty at the University.

Directorate of the Gauteng Employee Health and Wellness Program: The Directorate is a committee of employees within the Gauteng Department of Health who provide leadership, advice and consultation regarding workplace wellness and occupational health and safety.

4.2.4.2 Technical Partners

The Technical Steering Committee consists of representatives from trade unions and civil society groups such as the family committee of Mental Health Care Users. The roles of the technical partners include promoting employee engagement with the project, raising awareness of mental health in the workplace, supporting in stigma reduction of mental health in the workplace, and facilitating implementation of the workplace response framework.

Government Employees Medical Scheme (GEMS): GEMS administers the health insurance for approximately 60% of the employees in the Gauteng Department of Health. GEMS will provide the

secondary data to be analysed in the preliminary phase of the project. GEMS has also expressed interest in and a commitment to the project and to the mental wellbeing of workers more broadly.

Health and Safety Committees: The health and safety committees at each of the facilities selected to participate in the project will be key champions in the successful planning, development and implementation of the project. As peers to the participants in the project and with local knowledge and experience of the facilities, the committee members will have vital expertise and insight for the project.

Facility-Level Management: The leadership at each of the facilities selected to participate in the project – including in the questionnaire, focus group and interventions – will be engaged, and only those facilities with management consent and support will participate in the study. Management support is recognized as a key success factor in the implementation of the project at local facilities.

Trade Unions: The labour unions representing workers in the Gauteng Department of Health will be engaged throughout the project. Workers in the Gauteng Department of Health are represented by several different unions, including unions representing nursing staff, allied health workers, and support staff, among others.

Civil Society Groups: Based on how the study came about following the Life Esidimeni incident, civil society groups such as the family committee of Mental Health Care Users are engaged with the Department of Health's ongoing efforts surrounding mental health including with this project.

4.2.5 Preliminary Phase: Secondary Data Analysis

The preliminary phase entails analysis of secondary data from two main sources: medical aid schemes and the Gauteng Department of Health's annual staff satisfaction survey. The analysis of the secondary data will provide a description of common mental disorders within the workforce as well as job satisfaction among the Department's employees.

4.2.5.1 Medical Insurance Data

The medical aid data will come from two sources: the Government Employees Medical Scheme (GEMS) and the National Medical Aid Schemes. The GEMS data covers approximately 60% of the

Gauteng Department of Health employees while the remaining 40% are covered by the National Medical Aid Schemes. The data will be provided anonymized from the sources; no employee numbers, names or other identifiable characteristics will be provided in the data set. Data points available from the medical aid systems which could be used in this secondary analysis include: employment level, job title, gender, diagnostic codes, prescriptions, and consultation codes.

The analysis of the medical aid data will provide a descriptive summary of mental ill health among Gauteng Department of Health employees. As mental illness will not be measured in the subsequent phases, this will provide an overview of employees' mental health from an illness perspective. Areas of potential bias in the analysis of the medical aid data include possible mis-categorizations of mental illness diagnostic codes due to the medical aid coverage (e.g., if treatment for a particular mental illness is not covered by the employee's insurance, the clinician may mark a different diagnostic code in the system in order to ensure coverage). This has the potential to underestimate the prevalence of mental illness in the workforce.

4.2.5.2 Staff Satisfaction Survey

The Gauteng Department of Health staff satisfaction survey is an annual paper-based survey which is administered by the Department. The categories of questions included in the survey are: teamwork, communication, managerial style, independency, contribution-attitude, supervisory relationship, job and work attitudes, and employee wellness programme and occupational health, as well as demographic questions. Specifically for this study, the analysis of the staff satisfaction survey responses will include exploring workplace factors associated with job satisfaction and dissatisfaction, as well as possible differences among facilities and occupations. The results from the staff satisfaction survey analysis will provide a descriptive summary of job satisfaction among the workforce.

4.2.6 Study Population

The Gauteng Department of Health has approximately 68,771 employees in the following categories: administration (12.9%), nursing (48.3%), engineering (0.1%), support staff (20.5%), allied professionals (8.4%), clinical professionals (9.5%), and management (0.2%) (Gauteng Province, 2017). The Gauteng province is divided into five districts. Two of the five districts within Gauteng will be selected to participate in this project: Johannesburg, including the central head office, and

Tshwane (Pretoria). The two districts have been selected as both have a mixture of urban and rural environments, and the Johannesburg district includes the central head office which represents a significant portion of the administrative staff, in order to capture both office-based and clinic-based employees. Within the two districts, the sites selected to participate will represent a range of facility types: central hospitals, tertiary care hospitals, provincial hospitals, district hospitals, community health care centres, and clinics, as well as the central head office as noted previously.

4.2.7 Phase 1: Mixed Methods Data Collection & Analysis

The first phase will employ a sequential mixed methods design (Creswell & Plano Clark, 2011) to collect a baseline measure of happiness and mental wellbeing among Gauteng Department of Health employees and to identify workplace-based factors and processes that affect happiness and mental health, including the psychosocial work environment. The identification of workplace-based factors and processes that affect happiness and mental health will guide and inform the types of interventions that get developed and implemented in the second phase, for example by making changes to organizational factors that employees describe as affecting their workplace mental health. And, the baseline measures of happiness and mental wellbeing will provide a first measure with which to evaluate the effect of the interventions in the third phase.

The methods used in the first phase will be focus groups followed by a questionnaire.

4.2.7.1 Focus Groups

We will conduct ten focus groups with healthcare workers to gather perceptions of workplace-based factors and processes that affect mental wellbeing, as well as the extent of concerns about happiness and mental wellbeing among healthcare workers. In each of the two districts selected for the study (Johannesburg and Tshwane; see above), five separate focus groups will be held with medical staff, nurses, allied health professionals, administrative staff and support staff respectively.

Each focus group will consist of 8-12 participants, lasting approximately 60 minutes. No direct reports (e.g., manager and subordinate) will be included in the same focus group. As 76% of the Gauteng Department of Health workforce is female (Gauteng Province, 2017), we will ensure proportional representation of females and males in the focus groups. In addition, we will train both male and female facilitators so as to balance potential dynamics of gender relations that may arise

with focus group participants and facilitators of differing genders. Depending on the gender composition of the focus groups, the sessions could be facilitated by a moderator team with both a moderator and assistant moderator (Krueger, 1994), to help balance potential gender dynamics of the focus groups. The focus groups will also occur during work hours so as to reduce potential barriers to participation including childcare and family obligations.

Questions for the focus groups include:

- What do you think contributes to happiness in the workplace?
- What do you think contributes to mental ill health in the workplace?
- What do you think causes unhappiness in the workplace?
- What aspects of the work environment contribute to job satisfaction?
- What aspects of the work environment cause job dissatisfaction?

The focus groups will be recorded and transcribed for analysis. The focus group data will be analyzed by method of constant comparison, starting with open coding followed by axial then selective coding (Onwuegbuzie, Dickinson, Leech, & Zoran, 2009). Constant comparison analysis will be used to determine saturation among the full set of focus groups as well as between focus groups. It will also enable the identification of common workplace-based factors affecting mental wellbeing on which could be acted through the subsequent interventions.

The findings from the focus groups will provide insights to help inform the development of the interventions for the second phase and will help inform which instruments are included in the questionnaire (see below).

4.2.7.2 Questionnaire

The questionnaire component of the first phase is a cross-sectional survey to measure the current state of happiness and mental wellbeing among employees, as well as to identify workplace-based factors and processes that affect the happiness and mental health of workers. The same survey will be used to evaluate the intervention in the third phase, so that the first phase survey results can be compared to the pre- results of the retrospective pre/post survey from the third phase.

The survey instrument will be a compendium of existing validated tools to measure happiness and workplace-based factors affecting mental health. The selection of the instruments will be informed

by the findings from the prior focus groups as well as consultation with both the research and academic partners as well as the technical partners. Options for the instruments include the Cantril Ladder (Gallup, n.d.) as used in the World Happiness Report (*World Happiness Report 2018*, 2018); Brief Inventory of Thriving (Su, Tay, & Diener, 2014); International Positive and Negative Affect Schedule (Thompson, 2007); Personal Well-Being from the Office for National Statistics (Matthew Steel, 2016); South Africa Quality of Life (Møller, 2013); Work-Related Quality of Life (Van Laar, Edwards, & Easton, 2007); Copenhagen Psychosocial Questionnaire (National Research Centre for the Working Environment, 2017); and/or the Psychosocial Safety Climate Scale (PSC-12) (G. B. Hall et al., 2010, p. 12).

Although the questionnaire in this phase of the research project will be a cross-sectional design, the sample size will be based on the calculations for the cluster-randomized design to be used to test the interventions in the subsequent phases (see Phase Three below). This will allow the research team to engage in advance with the same facilities that will participate in the interventions for the second phase, provide the baseline measure with which to pair the facilities by similar results, and allow a more similar comparison of the cross-sectional questionnaire results with the pre- measures from the retrospective pre/post questionnaire results in the third phase.

A sampling frame will be created to derive the numbers of responses needed from each type of facility, employment category and gender in the two participating districts, based on relative percentages of the total sample size. NIOH will create the sampling frame, based on the pre-existing template provided by UBC. The total number of employees in each of the two districts will be obtained from the human resources system known as PERSAL, which is a payroll and salary database, and which will be used to calculate the numbers needed in each category to achieve a target sample of the workforce representative of gender, type of facility, and employment category.

The questionnaire will be pilot tested at the central head office in Johannesburg with senior managers. This will provide an opportunity to measure the average length of time required to complete the survey, as well as provide an opportunity to engage with senior management on the research study.

The questionnaire will be paper-based, and stratified convenience sampling will be used to collect questionnaire responses from a representative sample of employees fulfilling the quotas of the sampling frame. Printed copies of the questionnaire will be hand delivered by ten research assistants to the respective quotas of employees per facility as identified in the sampling frame, including an oversampling of 20% to account for non-responses. The research assistants doing the recruitment for the questionnaire will be external researchers who are not Gauteng Department of Health employees. The research assistants will provide participants with an information sheet as well as two copies of the consent form – one to sign and return, and the other to keep for their own records. The information sheet, consent form and questionnaire will be translated into three of South Africa's official languages which are commonly used in Gauteng: Zulu, Sepedi, and Sesotho, with the support of the Department of Arts and Culture. The translated materials will be back-translated to ensure the cultural and linguistic interpretations of the translations. If participants have any questions about the study, the research assistants will be available on-site at the facilities during the time of survey distribution to answer questions. In addition, the name and contact details of the principal investigator will be available on the information sheet.

After receiving the questionnaire materials from the research assistants, the participants will take the information sheet, consent forms, and paper-based questionnaire to complete at a time and place of their choosing, including the option to complete the questionnaire away from the work environment if they so choose. Sealed boxes will be left in suitable locations at each of the facilities (e.g., in staff lunch rooms, break rooms, etc.) where participants can return the signed consent forms and questionnaires. Participants can retain the information sheet as well as a blank copy of the consent form for their ongoing reference. Research assistants will return at a later date to pick up the sealed boxes containing signed consent forms and questionnaires, and bring them to NIOH for data entry.

Promotional activities will be designed to invite participation in general as opposed to directly recruiting individuals to participate, so as to remove any possible coercion and/or perceived coercion for employees to participate. Materials to encourage employee participation in and support of the study include promotional posters displayed in the facilities which are selected to participate in the study. Other possible actions and activities to encourage survey responses include: supplying tea and coffee in an area where employees can come to complete the survey (staff room, lunch room, etc.); meeting with groups of staff to explain the study and why it is being done (e.g., small

“town hall” gatherings at the facilities selected to participate); distributing small tokens of appreciation for participants such as pens; and having senior leaders publicly complete the survey as an example.

As mentioned above, management and trade unions will be engaged to support the study in accordance with the tripartite nature of occupational health. However, they will not be involved in the individual recruitment of participants, but rather will provide general support and promotion of the study. This will help ensure that there is no coercion, nor perceived coercion, for employees to participate in the study. The people collecting the data (external research assistants) will be separate from the people who are generally promoting and supporting the research study among the workforce (trade union representatives, management, and employee health and wellness practitioners) so as to avoid any coercion nor perceived coercion.

The facilities selected to participate in the study will provide approval once the ethics application is approved, and therefore the study team will request provisional ethics approval pending the individual facilities’ approvals. Following the University of the Witwatersrand’s and the Gauteng Department of Health’s ethics approvals, the study team will contact the heads of each facility to gain approval to conduct the study at each of the designated sites.

There will be a referral plan for questionnaire respondents and focus group participants who indicate they may be at risk for mental disorders and/or who may require mental health support services.

Immediately after the initial set of surveys are completed, the distributions of age, gender, race and foreign nationals among the respondents will be summarized to ensure the demographic characteristics are representative of the workforce within the respective occupational groups and locations. Further targeted sampling will be done if the existing respondents are not adequately representative of the workforce.

Analysis of the first phase survey data will include descriptive and regression analyses. Simple descriptive analysis will be done to summarize the results of the scales, such as frequency distribution and mean of the Cantril scale (measure from the *World Happiness Report*). Simple linear

regression will be performed to evaluate the relationship between the measures of happiness and mental wellbeing (e.g., Cantril scale) and the major demographic characteristics: gender, race, nationality, employment level, and occupation, respectively. Multivariate regression will be performed to analyse the relationship between multiple demographic variables, as well as between the scales.

4.2.8 Phase 2: Prepare and implement workplace interventions

The focus of the second phase is to prepare and implement workplace interventions promoting happiness and mental wellbeing among healthcare workers as part of a cluster randomized controlled trial and building on the findings from the first phase. Based on the conceptual framework for the study, the interventions will be targeted at the “meso” level; therefore, targeting employer- and organizational-level activities and processes to promote workers’ mental wellbeing, as opposed to targeting individual-level activities such as cognitive-behavioural or relaxation interventions.

4.2.8.1 Intervention Design and Development

The design and development of the interventions will be informed by the findings and results from the questionnaire and focus groups in the first phase. In addition, the interventions will be informed by the realist review synthesis (see above) to draw from existing evidence of organizational-based mental health promotion among healthcare workers.

The questionnaire, focus group, and realist review synthesis will be first reviewed in a workshop initiating the second phase, with knowledge user stakeholders including local facilities’ health and safety committee members, management, worker representatives, and union representatives from both the provincial and intervention site levels, as well as the research and academic partners. The focus of the initiation workshop will be the consideration of types of organizational-level interventions to improve happiness and mental wellbeing as well as the processes for implementing the interventions. For example, the processes could include the use of arts-based methods, on the premise that collective creation enhances a sense of social inclusion and wellbeing (All-Party Parliamentary Group on Arts, Health and Wellbeing (APPGAHW), 2017; K.M. Boydell, C. Cheng, B.M. Gladstone, S. Nadin, & E. Stasiulis, 2017). The initial workshop engagement with the

participating facilities will also enable deeper consideration of the local contexts in which the interventions will take place.

At each of the participating facilities, the selection and specific details of the interventions will be determined through participatory action research methods (Leykum, Pugh, Lanham, Harmon, & McDaniel, 2009; Reason, 1998). This will be done by applying a change-oriented Delphi method (Kezar & Maxey, 2016) with the knowledge users, including the local health and safety committee members. As outlined above, interventions will focus on organizational factors, such as modifications to working conditions, resources and/or practices, in alignment with the definition of organizational-level interventions from the Cochrane review on preventing occupational stress in healthcare workers (Ruotsalainen et al., 2015), as opposed to individual-level factors such as cognitive-behavioural or relaxation-based interventions.

The interventions will be funded by the Gauteng Department of Health as an expression of sustainability and to help ensure the employer maintains a sense of “ownership” of the intervention activities. In other words, the employer rather than the research grant will cover the indirect costs of the intervention such as wages and employee time to participate, as well as the direct costs such as materials required to implement the interventions.

4.2.8.2 Cluster Randomized Trial

The workplace-based interventions will be evaluated through a cluster randomized trial (see phase three). The unit of randomisation will be at the site or facility level as the interventions will be delivered at the organisational level and therefore all employees at a participating facility would be exposed to the intervention. In other words, as the interventions will be delivered throughout each workplace, individual employees cannot be randomised. Again, the focus on organizational-level interventions is in accordance with the conceptual model of this study and its focus on “meso”-level factors. Pairs of worksites, matched according to facility type, size and results from the first phase, will be randomly assigned to intervention or control after the completion of the first phase.

4.2.8.3 Sample Size

The sample size calculation will be based on the primary outcome measures as determined following the focus groups and consultations in the first phase. The primary outcome measure’s detectable

difference will be based on the instrument developer's defined meaningful change on the scale. The sample size will have a power of 80% of obtaining a significant difference ($p < 0.05$ on a two-sided test) and there will be oversampling of 20% to account for survey non-responses.

In order to ensure proportional representation of genders in the cluster randomized trial, we will calculate the percentage of males and females who enroll to participate in the interventions at the outset to determine whether it is representative of the Gauteng Department of Health workforce, which is 76% female (Gauteng Province, 2017). If needed, further targeted recruitment will be done to ensure proportional representation of genders. In addition to proportional representation among the participants, gender relations will be considered for the delivery of group-based intervention activities. For example, by ensuring there are both male and female facilitators in the delivery of the intervention activities. And, the interventions will occur in the workplace and participation will be during work time, so as to avoid any potential conflicts with personal and/or family commitments for participants, such as child care or other familial obligations.

4.2.8.4 Control Group

Control sites matched to participate in the cluster randomized trial will receive no intervention of any kind. As mentioned above, the comparison sites will be selected based on similar facility type, size and results from the phase one survey. No restrictions will be placed on otherwise "business-as-usual" activities for the control sites.

4.2.9 Phase 3: Intervention Evaluation

The third and final phase of the research project will be comprised of evaluating the interventions implemented in the second phase. It will follow the UK Medical Research Council principles for evaluating complex interventions, notably the relationship between context, implementation and mechanisms of impact (Moore et al., 2015). This also aligns with the realist framework as applied in the realist review synthesis, to ascertain what works in what context, using what mechanism, to achieve what outcome (Wong et al., 2013).

Following the 12-month intervention implemented in the second phase, a retrospective pre/post questionnaire will be administered to the participants. This will use the same questionnaire as used in

the first phase to be able to compare the changes over the longer time period, including comparing the retrospective pre- results to the phase one survey results.

4.2.9.1 Outcome Measures

The outcome measures will be the measures of happiness and mental wellbeing as determined in the first phase. The outcomes will be measured at the individual level. As mentioned above, the questionnaire will use the same instruments as selected in the first phase. Therefore, the outcome measures of the cluster randomized trial will comprise existing validated tools to measure happiness and workplace-based factors affecting mental health, with options including the Cantril Ladder (Gallup, n.d.) as used in the World Happiness Report (*World Happiness Report 2018*, 2018); Brief Inventory of Thriving (Su et al., 2014); International Positive and Negative Affect Schedule (Thompson, 2007); Personal Well-Being from the Office for National Statistics (Matthew Steel, 2016); South Africa Quality of Life (Møller, 2013); Work-Related Quality of Life (Van Laar et al., 2007); Copenhagen Psychosocial Questionnaire (National Research Centre for the Working Environment, 2017); and/or the Psychosocial Safety Climate Scale (PSC-12) (G. B. Hall et al., 2010, p. 12).

4.2.9.2 Analysis

Analysis of the data from the cluster randomized controlled trial will include linear regression to determine the effect of the intervention on employees' happiness and mental wellbeing. Multilevel regression will be used to assess the influence of the individual facilities as well as demographic factors (e.g., gender, age, occupation) as well as the intervention on the employees' happiness and mental wellbeing, to further determine the effect of the intervention itself on the outcomes as opposed to other inherent factors.

4.2.9.3 Reporting

The results from the cluster randomized trial will be reported using the Consolidated Standards of Reporting Trials (CONSORT) guidelines (M. K. Campbell, Elbourne, & Altman, 2004).

4.2.10 Knowledge Translation

The third phase will also transition the research project into sustainable and ongoing operations for the Gauteng Department of Health through knowledge translation activities. This will include creating a new module on happiness and mental health for the Occupational Health and Safety Information System – a system previously developed through the same research partnership – as well as leveraging the findings from the research project to introduce workplace-based activities and initiatives to promote mental wellbeing among the workforce on an ongoing basis. The third phase will also include research knowledge dissemination, including research publications and presentations, as well as submitting to the Cochrane review on occupational stress in healthcare workers.

The Occupational Health and Safety Information System (OHASIS) was previously developed by the research partners for healthcare workplaces in both Canada and South Africa (Alamgir, Cvitkovich, & Yu, 2007; Gilligan & Alamgir, 2008; J. Spiegel et al., 2009; J. M. Spiegel et al., 2012). The web-based platform allows health and safety professionals to enter and track occupational health indicators such as HIV, tuberculosis, injuries and workplace hazards. It has been operational throughout South Africa in selected services, including in Gauteng province. The addition of a new happiness and mental health module will facilitate ongoing monitoring and evaluation of initiatives and activities promoting mental wellbeing.

The Gauteng Department of Health is committed to rolling out workplace-based interventions to promote mental wellbeing across the control sites and then across the whole province. Therefore, the study team will work with knowledge user partners to identify interventions for future and ongoing implementation in the workplace.

CHAPTER FIVE: DISCUSSION AND CONCLUSIONS

5.1 Responding to mental health and happiness needs of healthcare workers

Mental health poses a significant and increasing burden in countries around the world (Vigo et al., 2016). In response to the increasing burden of mental health, there is growing awareness and political will surrounding mental health (Votruba & Thornicroft, 2016). In addition, as shown in this thesis, there is a shift to also approach mental health from a wellness model, including the concept of happiness – an approach receiving growing international attention and which conforms well with the WHO’s holistic definition of health. However, investment in global mental health remains limited (Gilbert et al., 2015) and low- and middle-income countries are under-represented in mental health research (Angermeyer & Schomerus, 2017; Barbui et al., 2017; Patel & Kim, 2007). Within workplaces specifically, mental illness generates significant impacts – on individuals, organizations and economies. The healthcare workplace in particular experiences high rates of mental ill health due to a variety of workplace conditions within the field (British Medical Association, 2019; Canadian Medical Association, 2018; Hannan et al., 2018; Qiao et al., 2016; Shanafelt et al., 2012, 2015) and the impact of which extends to affect the delivery of healthcare and patients (Fahrenkopf et al., 2008; Nantsupawat et al., 2016; Panagioti et al., 2018; Spence Laschinger & Leiter, 2006; Tawfik et al., 2018; Vahey et al., 2004). Given the significant burden of mental ill health, there is a recognized need for research on how to promote happiness and mental health in the healthcare workplace, as outlined in this thesis. More specifically, the realist review in chapter three synthesizes evidence on workplace-based interventions at the organizational level promoting mental health and wellbeing among healthcare workers and explores the practical challenges of *how* these interventions work effectively in multidimensional and diverse healthcare contexts – important considerations as healthcare organizations seek ways to help promote the mental health of workers.

In addition and in response to the recognized need for more research on promoting mental health and happiness in the healthcare workplace, particularly in LMICs, the proposed research project outlined above in chapter four focuses on the mental health and happiness of healthcare workers in Gauteng, South Africa. The project is built on a decade-long partnership with education and health institutions in South Africa and Canada, as well as partnerships with multiple other stakeholders, including representatives from labour, civil society, government and academia. The province of Gauteng has more than 68,000 healthcare workers in a variety of workplaces including hospitals,

clinics and administrative offices. This particular study was initiated by the Gauteng Department of Health based on their commitment to mental health following the Life Esidimeni incident in 2016 to 2017.

The process of developing this thesis to contribute to work of an ongoing international and multidisciplinary team also provided an opportunity to reflect on how to develop an international partnership across university, government and community partners. This is discussed next.

5.2 Challenges of global health work

The Canadian Coalition for Global Health Research (CCGHR) developed six principles for global health research: authentic partnering; inclusion; shared benefits; commitment to the future; responsiveness to causes of inequities; and humility. The following discussion is framed around the CCGHR's six principles for global health research.

Authentic partnering: This research project came as a result of a more than a decade-long partnership between the South African and Canadian institutions. Key features of this international partnership include mutual benefit and learning, recognition of the social determination of health across micro, meso and macro levels, and a focus on developing a multi-scalar community of practice with researchers and practitioners from both countries (Yassi et al., 2016). By building on a longstanding partnership, this research project was able to expand on existing relationships while also introducing new relationships and partnerships for the multidisciplinary composition of this particular project. For instance, this project brought together researchers from the disciplines of public health, occupational health, psychiatry, epidemiology, and economics. An important and related consideration throughout the research project was that of capacity building, particularly for the South African partners.

A challenge related to authentic partnering is the logistical challenge of undertaking research with such a large and international group. For example, the time zone difference alone can be difficult to navigate communications. Compounding the physical distance between members of the research team is the large number of members of the research team which can be difficult to solicit, collect and integrate input from all in a reasonable timeline. Technology and communication platforms for long-distance calling and instant messaging certainly help facilitate international collaboration, but

large and diverse teams can be difficult to manage meaningful and active engagement in the same city let alone from opposite sides of the world. A potential mitigation of this challenge is acknowledging the differing times of active participation in the group and project – certain members may be actively involved at different stages throughout the project and the levels of engagement may change throughout the process.

Inclusion: The composition and governance of the research project aims to take an inclusive approach. The large research team includes a diverse set of individuals and backgrounds. In addition, the project governance was set up with an advisory committee comprised of members from civil society and labour to help engage a broader diversity of perspectives. An inclusive approach not only helps to bring diverse perspectives which enhance the scope and quality of the project, but is also crucial to ensure a successful adoption and implementation of the project.

However, an inclusive approach also introduces timeline and logistical challenges to a project of this magnitude. For example, it is challenging to maintain active and meaningful engagement from all members of the team and advisory groups throughout the project. This can create time delays in the progression of the project as well as resource considerations for the planning and implementation of the project. In addition is the challenge of tailoring the communication, scope and materials to the various stakeholder groups. For instance, the differing interests, needs and approaches of a diverse team may require introducing additional aspects to the scope of the project.

In addition to the inclusive approach of the project team and governance, the focus of this thesis and the planned intervention study is highly inclusive, in particular across gender. The planned study applies a four construct framework in consideration of gender: roles; identity; relations; and institutionalized gender (Tannenbaum, Greaves, & Graham, 2016). Gender roles will be considered throughout analysis and interpretation. For example, the real and/or perceived role of a woman or a man being the primary caregiver in the home and the mental health burden this may pose with demands of home and work life. In addition, gender roles will be considered in data collection: qualitative data collection will occur in the workplace during work hours, and quantitative data collection can occur at the time and place of participants' choosing so as not to interfere with family or personal commitments such as child care. Gender identity will be captured in the questionnaire, which will ask respondents to self-identify with non-binary options provided. As people with

different gender identities experience different burdens and types of mental health concerns – e.g., transgender and gender non-conforming individuals experience higher rates of mental ill health, and women and men experience different types of mental ill health – gender identity will be a key factor in analyzing and interpreting findings. As such, quantitative data will be disaggregated by gender. Gender relations will be considered throughout data collection; for example, we will have a diversity of genders represented as focus group facilitators and survey administrators to mitigate any potential gender-based dynamics during data collection in a diverse workplace. Lastly, institutionalized gender means it will be important to remain aware through analysis and interpretation of how gendered power imbalances may manifest in perspectives and experiences of participants.

Shared benefits: By nature, the various stakeholders involved in the project have differing interests and therefore outcomes for the project. For example, members of a research team may be looking to publish academically whereas a healthcare organization is focused on increasing staff engagement and satisfaction among employees. It is important to actively manage the sharing of benefits across the partners. For example, this could be represented by inviting all partners to participate as co-authors on the academic publications that emerge, if they choose to do so. It is also important to be transparent about team members' respective motivations and/or benefits for participating in the research project, for example, whether it be to gain experience in a certain field, complete degree requirements, and/or publish academically. Or, for practitioners and government officials involved, to be able to demonstrate moving forward on developing and operationalizing evidence-based healthy policies.

Commitment to the future: This project commits to the future through capacity building, considering the sustainability of the interventions, and considering the experience of the frontline workers and how they experience and benefit from the project. By engaging students and trainees in both South Africa and Canada, this project can help build capacity in the next generation of mental health researchers and practitioners. In addition, the Department of Health is committed to operationally funding the interventions, for example, through covering the time/wages of employees participating in the interventions. This provides an opportunity for potential long-term adoption of the interventions beyond the research project. The operational investment engages the employer directly in the implementation of interventions thereby making it easier for them to integrate it

operationally going forward. Lastly, is the consideration of the frontline workers' experience and power to engage with mental health promotion beyond the duration of the research project. The frontline workers who agree to participate in the project may find benefit in the intervention activities; however, they may lose access to these activities when the project closes, if management so chooses. In committing to the future, the project team should be aware of this potential issue and perhaps address ways to help mitigate it. For instance, this could involve sharing a report showing the benefits of the workplace initiatives to potentially help equip frontline workers to advocate for the integration of these interventions in the future.

A major challenge in pursuing commitments to the future is the limited timeline available for implementing the cluster randomised controlled trial (i.e., exposure to the potentially beneficial interventions) and the discrete funding interval. In order to plan, implement, evaluate, and publish the research on the interventions within the limited funding time frame, the length of time employees are exposed to the activities may be limited as is the capacity of the research project team to provide resources and information that may help ensure longer-term institutional sustainability.

Responsiveness to causes of inequities: The legacy of apartheid in South Africa is embedded throughout the country's social, political and economic realities, and is therefore also a part of structures, dynamics and issues related to this project and its topic of mental health and happiness. Indeed, black South Africans have scored consistently lower than white or coloured people in the country on life satisfaction since 1994 when apartheid ended (Møller & Roberts, 2017). In addition to the systemic inequities that may relate directly to the topic of mental health and happiness in South Africa, it also requires an awareness of its impact on the structure and dynamics of the research team and international partnership for the project. More specifically, it highlights the importance of continuously being aware of and responding to potential inequities and/or perceived inequities of Canadians' involvement with work in South Africa. This includes how participation, processes and decision-making throughout the project may be perpetuating and/or perceived to be perpetuating inequities. In order to help navigate these potential challenges, it is important to remain transparent as to why the different partners are involved and their respective roles in the process and in decision-making. It is also important to cultivate and foster meaningful collaboration including ensuring there is space for everyone to contribute in a meaningful capacity.

Humility: In working within a global health research project as well as within a multidisciplinary team, it is important to adopt and maintain a learning stance throughout the process. This includes a self-awareness of how personal beliefs and assumptions may be influencing our thoughts and decisions as they relate to the project and teamwork. To help navigate this process, active reflection can help us to understand why certain approaches are being adopted and/or why decisions are being made. Similarly, for the dynamics of teamwork, it is important to remain aware and reflective of how we are reacting to others' suggestions and to how the process develops through teamwork. In practice, it can be helpful to consider replacing judgement with curiosity. For example, if a colleague makes a seemingly unexpected suggestion or the project takes a seemingly unexpected direction, seeking to understand – rather than immediately assigning our own thoughts and judgements – can help orient ourselves to remain open and reflective.

5.3 Directions for future research

In line with the recognized need for more research on how to promote the mental health of healthcare workers, the proposed study outlined in this thesis responds specifically to a local need in Gauteng province, South Africa to examine the mental health and happiness of healthcare workers in the province as well as to develop, implement and evaluate interventions to promote mental health and happiness among the workforce. This proposed study provides an example of the type of research needed in this area, in order to help respond to the significant issue of mental ill health among healthcare workers and its impacts on the workers themselves as well as on patients, communities and healthcare systems. In particular, more research on mental health from low- and middle-income countries is needed (Barbui et al., 2017), as well as more research on organizational-level changes that can be done to improve healthcare workers' mental wellbeing (Jan-Emmanuel de Neve, 2018; Ruotsalainen et al., 2015).

The proposed project's research objectives are to measure happiness and mental health among healthcare workers, identify workplace factors and processes that affect mental health, and implement and evaluate workplace interventions to promote mental health. The study consists of a preliminary phase followed by three separate and consecutive phases. The phases build on one another so that the subsequent phases are based on the findings and work in the earlier phases. The preliminary phase entails analysis of secondary data from two main sources: medical aid schemes and

the Department's staff satisfaction survey. This will provide a description of common mental disorders as well as job satisfaction within the workforce.

The first phase will employ a mixed-methods design to collect a baseline measure of happiness and mental health and to identify workplace-based factors and processes that affect happiness and mental health. This will include a questionnaire and focus groups. Based on the findings from the first phase, the second phase will involve designing and implementing workplace-based interventions to promote mental health. This will be structured as a matched-pairs cluster randomized controlled trial to evaluate the interventions in the third phase. The third and final phase will consist of evaluating the interventions after 12 months. The third phase will include a sustainability plan to help transition the research project into ongoing operations as well as knowledge dissemination activities.

In addition to the proposed research study on the mental health and happiness of healthcare workers in Gauteng, South Africa, the realist review highlights directions for future research in the area of mental health and happiness of healthcare workers. The review similarly supports the recognized need for more mental health research in low- and middle-income countries, for studies evaluating longer-term effects of workplace mental health promotions, as well as the opportunity for better integrating use of positive mental health and wellbeing constructs such as happiness in the context of workers' mental health.

By embedding this thesis in the work of WHO collaborating centres, and the International Commission on Occupational Health's Scientific Committee on Healthcare Workers, it is hoped that this thesis will offer some valuable insight that may be applicable in diverse settings.

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APPENDIX

Appendix 1. Search strategy for realist review (chapter three).

The following search terms were used in MEDLINE, CINAHL (Cumulative Index to Nursing and Allied Health Literature), and PsycINFO in November 2018.

MEDLINE search strategy

1. exp health personnel/
2. (health* adj (provider* or professional* or worker* or staff*)).tw.
3. (physician* or nurs*).tw.
4. 1 or 2 or 3
5. occupational stress/ or burnout, professional/
6. mental health/ or resilience, psychological/ or exp mental disorders/
7. "Quality of Life"/ or Personal Satisfaction/
8. (mental health or life satisfaction or burnout or happiness).tw.
9. 5 or 6 or 7 or 8
10. Workplace/
11. (workplace* or employer*).tw.
12. 10 or 11
13. (interven* or program* or implement* or activit* or participat* or effective* or evaluat*).m_titl.
14. pc.fs.
15. 13 or 14
16. 4 and 9 and 12 and 15

CINAHL search strategy

1. (MH "Health Personnel+")
2. AB health* n1 (provider* or professional* or worker* or staff*)
3. AB (physician* or nurs*)
4. S1 OR S2 OR S3
5. (MH "Stress, Occupational+") OR (MH "Burnout, Professional+")
6. (MH "Mental Disorders+") OR (MH "Mental Disorders, Chronic")
7. "resilience"
8. (MH "Adaptation, Psychological+")
9. (MH "Quality of Life+") OR (MH "Quality of Working Life")
10. (MH "Personal Satisfaction+")
11. AB (mental health or life satisfaction or burnout or happiness)
12. S5 OR S6 OR S7 OR S8 OR S9 OR S10 OR S11
13. (MH "Work Environment+")
14. AB (workplace* or employer*)
15. S13 OR S14
16. TI (interven* or program* or implement* or activit* or participat* or effective* or evaluat*)
17. S4 AND S12 AND S15 AND S16

PsycINFO search strategy

1. MA health personnel
2. AB health* n1 (provider* or professional* or worker* or staff*)
3. AB physician* or nurs*
4. S1 OR S2 OR S3
5. AB stress, occupational OR AB burnout, professional
6. AB mental disorders or mental health or mental illness
7. AB resilience
8. AB adaptation, psychological
9. AB (quality of life or well being or well-being or health-related quality of life) OR AB quality of working life
10. AB personal satisfaction
11. AB life satisfaction or happiness or well being
12. AB workplace
13. AB employer
14. S5 OR S6 OR S7 OR S8 OR S9 OR S10 OR S11
15. (S12 OR S13)
16. TI (interven* or program* or implement* or activit* or participat* or effective* or evaluat*)
17. (S4 AND S14 AND S15 AND S16)