Hidden Death and Social Suffering: A Critical Investigation of Suicide, Death Surveillance, and Implications for Addressing a Complex Health Burden in Nepal

by

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A Dissertation Presented in Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy

Approved March 2017 by the
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ARIZONA STATE UNIVERSITY

May 2017

ABSTRACT

Suicide is one of the fastest-growing and least-understood causes of death, particularly in low and middle income countries (LMIC). In low-income settings, where the technical capacity for death surveillance is limited, suicides may constitute a significant portion of early deaths, but disappear as they are filtered through reporting systems shaped by social, cultural, and political institutions. These deaths become unknown and unaddressed. This dissertation illuminates how suicide is perceived, contested, experienced, and interpreted in institutions ranging from the local (i.e., family, community) to the professional (i.e., medical, law enforcement) in Nepal, a country purported to have one of the highest suicide rates in the world. Drawing on a critical medical anthropology approach, I bridge public health and anthropological perspectives to better situate the problem of suicide within a greater social-political context. I argue that these complex, contestable deaths, become falsely homogenized, or lost. During 18 months of fieldwork in Nepal, qualitative, data tracing, and psychological autopsy methodologies were conducted. Findings are shared through three lenses: (1) health policy and world systems; (2) epidemiology and (3) socio-cultural. The first investigates how actors representing familial, legal, and medical institutions perceive, contest, and negotiate suicide documentation, ultimately failing to accurately capture a leading cause of death. Using epidemiologic perspectives, surveillance data from medical and legal agencies are analyzed and pragmatic approaches to better detect and prevent suicidal death in the Nepali context are recommended. The third lens provides perceived explanatory models for suicide. These narratives offer important insights into the material, social, and cultural factors that shape suicidal acts in Nepal. Findings are triangulated to inform policy, prevention, and intervention approaches to reduce suicidal behavior and improve health system capabilities to monitor violent deaths. These approaches go beyond typical psychological investigations of suicide by situating self-inflicted death within broader familial, social, and political contexts. Findings contribute to cultural anthropological theories related to suicide and knowledge production, while informing public health solutions. Looking from the margins towards centers of power, this dissertation explicates how varying institutional numbers can obfuscate and invalidate suffering experienced at local levels.

ACKNOWLEDGMENTS

This dissertation is dedicated to all those affected by the 2015 earthquakes in Nepal. May love and light shine on you forever.

This work would not have been possible without the kind and generous support of many friends, colleagues and families in Nepal. Uden Dai, this project started because of your belief in a better world. Thank you for your friendship and inspiration. I’m so proud to be your sister. To the Magar family, thank you for housing me, feeding me, and teaching me so much. Renuka Didi, without your love and support, I never would have used a public bus, or had the courage to find independence in Kathmandu. Thank you for your constant smiles, dancing, wisdom and generosity. To Seema Bahini, thank you for your courage, your unwavering commitment, and your strength during our fieldwork. It is an enormous privilege to work alongside you, and I cannot wait for all that lies ahead in your bright future. Finally, to the countless other individuals, families, and organizations in Nepal that contributed to this project, and to my own personal development, I am forever grateful for your support.

Thank you to my family, for loving and supporting me while I lived on the other side of the world. Thanks Mom, for always answering your phone and for reading countless drafts of my dissertation chapters. Thank you to my sister, Jenny, for always figuring out how to make me smile. And thank you to my incredible husband, Will, for traveling around the world to accompany me on adventures, for skyping with me every day, and for being my rock as I navigated uncertainties, fears, successes, and everything in between. I love you so much.

Thank you to my dissertation committee for your mentorship and support. A special thank you to Dr. Brandon Kohrt for expanding my world, family, and research to include Nepal. I am forever grateful for your generosity and inspiring work. Thank you to Dr. Wutich, for your constant thoughtful mentorship, for pushing me to be a better scholar, teacher, and mentor, and for your fearless leadership. I also deeply appreciate the undergraduate research apprentices that contributed to this project, it was a pleasure to have the opportunity to engage with you young women. Your curiosity and boundless energy has been one of the most valuable and fun components of my doctoral program.

The project's implementation and subsequent impact was generously supported by Transcultural Psychosocial Organization – Nepal. A special thank you to Nagendra Luitel and Suraj Koirala for their continued support and dedication to mental health research and psychosocial service provision in Nepal. Additionally, thank you to Nobel College and their kind staff for their support and advisement. This research was supported by multiple awards including the US Fulbright Student Research Program, the National Science Foundation Cultural Anthropology Doctoral Dissertation Research Improvement Grant [Award 1459811], and multiple research and writing grants from Arizona State University's Graduate College and the School of Human Evolution and Social Change.

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CHAPTER 1

INTRODUCTION

Suicide is one of the most prevalent and least-understood causes of death, particularly in low and middle income countries. In 1998 and 2008, the Nepal Maternal Morbidity Survey reported that suicide is the leading single cause of death among women of reproductive age. However, Nepal's health system fails to report suicide-indicators or support any prevention programs. The objective of the dissertation is to apply a critical medical anthropological lens to current institutional discourse on suicide in Nepal, revealing how constructions of personhood and death are shaped by and constituent of powerful political, moral, and gendered structures. Data are constructed and endorsed, rejected, or lost at junctures between family-community, medical-legal, and national-international levels. The study contributes to various disciplines by expanding theories related to culture and suicide, knowledge production, and public health as it relates to mental health and suicide. Looking from the margins towards centers of power, these findings explicate how institutional information proceeds from community to international levels, ultimately obfuscating the scale and drivers of suicide, a leading cause of death worldwide.

Eighteen months of fieldwork was conducted in Nepal. The dissertation will answer the following key questions: **(1) What are the gaps in suicide detection and reporting within community, legal, and health institutions and subsequent effects on the prioritization and response to self-harm events? (2) What are common patterns, risk factors, and intervention opportunities for suicide in Nepal? (3) What are the socio-**

cultural and structural factors that shape suicidal acts in Nepal? I pull from both anthropological and public health perspectives to uncover cultural understandings of what suicide means, phenomena that might contribute to suicidal behavior, and how institutions impinge on prioritization and perceptions of suicide as a health problem.

To answer these questions, I used qualitative, epidemiologic, and a novel modified psychological autopsy methodology over 18-months of fieldwork. The study was conducted in two field sites, one to access large institutional bodies that design and implement health and surveillance programs (Kathmandu) and a second in a rural western district to examine informal community reporting mechanisms (Jumla). I examined the construction of dominant narratives of suicide in existing police cases, informal health record data, and community accounts. Over 200 semi-structured interviews were conducted with informants ranging from local (community members), to national (government ministry personnel), to global (officials from WHO, UNICEF, etc). A subset of these interviews elicited drawn death surveillance networks and were analyzed using social network analysis and textual analysis to explicate how institutional structures, cultural perspectives on suicide, and perceived criminality of self-harm influence the type and quality of suicide statistics (Chapter 3). Participant observation was conducted in government health centers and police posts at various levels within each field site to contextualize the clinical, legal, and bureaucratic processes for suicide reporting. A census of all existing suicide data from the previous two years (n=302) was extracted in all formal institutions (police records, health records, and administrative data). I followed 39 suicide cases in depth, performing mixed-methods psychological autopsies with close

informants to the deceased (Chapters 4 and 5). This procedure gained rich informal community accounts that do not surface in official data systems. The data was triangulated with police reports, health records, and multiple informants where possible. All textual data were analyzed using discourse and content analysis to develop novel theories for better understanding both suicidal deaths in South Asia and the power structures that validate or invalidate their importance. The dissertation concludes with a summary, interpretation, recommendations, and future research directions (Chapter 6). Findings contribute not only to anthropological and public health literature, but they also advance understandings of suicide and data capturing systems so that effective strategies and programs may begin to prevent tragic deaths.

CHAPTER 2

BACKGROUND

Perspectives on the Performativity of Health Data, Documents, and Bureaucracy

In the past few decades, health information has become essential and valuable as health system funding and ‘success’ are dependent on certain statistics (AbouZahr and Boerma 2005, Erikson 2012). Health statistics are inextricably linked to their social milieu, however, they are often perceived and interpreted as objective and accurate despite differences in their production and use (AbouZahr and Boerma 2005, Lampland 2010). The recent profusion of numbers in the conceptualization and measurement of health perpetuates power structures, shapes health futures, and determines governmental decision making surrounding issues of not only health, but economic, security, and other developmental aspects of a state (Lampland and Star 2009, Lampland 2010, Erikson 2012, Hull 2012). The sociological and anthropological literature provides a unique perspective, lending a nuanced understanding of the complex mechanisms by which information is used in the production and distribution of power and subsequent well-being.

Foucault’s notion of ‘biopower’ describes a government’s ability to regulate its population by applying its political power on all aspects of human life (Foucault and Ewald 2003). Foucault offered examples of such control citing several demographic indicators and their change over time (such as birth rate, fertility, etc) as trends that reflect a government’s authoritative influence over its people. Mark Nichter notes that Foucault’s ‘governmentality’ exercises power through information regulation by justifying that certain institutions, procedures, analyses, and programs be enacted. He emphasizes the interconnection between knowledge and power, and the ability for a government to produce and share its ‘expert knowledge’ as a mechanism to control its population. This ‘expert knowledge,’ reinforced by powerful multilateral organizations, decides what is measured, what is surveilled, and what is calculated (Foucault M, Rabinow P, Rose NS, 2003). The outputs of such information shape perceptions of a country’s development, the types of problems prioritized, and subsequently its ‘need’ and ability to care for its people. These outputs have important implications on the sort of aid offered (or restricted) from a government. Through this process important constructs may be deleted from a country’s health landscape, particularly if they are hard to capture, define, or address. One of the most important of these indicators is death, both its occurrence and its cause. The first portion of this chapter will focus on assembling literature that underscores the processes, pressures, and challenges states and other institutions face in defining, collecting, and reporting health data. Specifically, it will examine the complexity of mortality data particularly in low income countries. I will then shift to examining how suicide is an important type of sensitive death that has been historically defined and explained through a western, biomedical, lens. Finally, I will situate this issue within the case of Nepal, a low-income country purported to have one of the world’s highest suicide rates, but no reliable vital registration system and little health system response. I offer a brief historical overview, a summary of its health system, and review of relevant mental health research to help contextualize suicide mortality within its socio-political and cultural landscape.

Challenges to Collecting and Interpreting Health Statistics

Metrics are used to constitute policies, indicators, and standards that ultimately determine the health and development status of a country (Justice 1989, World Health

Organization 2015). Recent calls, particularly from the field of anthropology, have urged for these metrics to be critically examined in relation to power structures and particular development agendas (Nichter 1985, Nichter 2008, Erikson 2012, Adams 2016). For example, in the mid 1990's, infant mortality was a gold standard measurement used to judge a country's 'progress' in health and development. Millard argued that infant mortality rates obscured the burden of early life mortality in developing countries and ultimately reflected the state of industrialized countries, overestimating the progress of 'development' within a region. He rallied for child mortality to be used instead, claiming that extending the years of deaths calculated better represented rural populations (Millard 1985). It was also argued that tuberculosis rates should be used as a proxy for malnutrition levels instead of commonly used anthropometric measures, which may be inaccurate or misleading (Nichter 1985, VanItallie, Yang et al. 1990, Nichter 1994). Past debates highlight the importance of considering what a metric does and does not index when interpreting particular statistics to assess a government's health development progress. Indicators may be selected or calculated in ways that are politically charged and reflect misleading success (Adams 2016). These strategies, outlined in the content below, may leave many deaths and disease burdens invisible.

Epidemiologic variables and measurement instruments often contain unexamined assumptions; thus limiting our ability to accurately capture meaningful health trends (Trostle 1987, Trostle and Sommerfeld 1996). Certainly, quantitative information has revealed important inequities, improved understanding, and informed effective solutions to health issues around the world. However, the pursuit and pressure of health systems to produce acontextual quantitative measures can also have negative effects, such as the deepening of inequity and reifying of particular power structures (Erikson 2012). Kleinman call such measures a ‘category fallacy,’ and uses psychiatric categories and diagnoses as an example of the problems associated with using western concepts to categorize and problematize behaviors of different cultures (Kleinman 1977). Current public health institutional practice risks a ‘category fallacy’ (Kleinman 2008) for vital health statistics. The heterogeneity of what defines ‘cause of death’ for different groups and institutions gets falsely homogenized and aggregated at higher levels of health and state institutions. These institutions drive and reflect family, community, and individual behavior. Data are constructed and endorsed, or rejected (or lost), at subsequent levels from family/community to medical/legal to national, and international. The higher level categorizations of data then frame the experiences at lower levels including community, family, and individual. This perspective is consistent with Singer and Baer’s critical medical anthropology approach, where investigators must expand our scope of health to include the biomedical institutions and political powers that control health systems (Baer et al. 1990). In doing so, it is possible to achieve deeper insights into health and illness than are presently provided by reductionist public health epidemiology. The paradigms scientists and policy makers use to identify what belongs, and what does not belong, affect how disease importance and subsequent interventions are enacted (Trostle 1987, Kleinman, Das et al. 1997, Trostle 2005). Bureaucratically derived categories determine patterns of deaths in populations and mirror political motivations (Trostle and Sommerfeld 1996, Trostle 2005). Death certificates function as a record of state priorities reflecting and perpetuating social worth and status (Trostle 2005). Not only are vital records crafted to reflect nation-state priorities, the capacity of countries to collect and report appropriately to international standards varies tremendously (World Health Organization 1999, Mahapatra, Shibuya et al. 2007, World Health Organization 2014). Research is needed to disentangle how the state (and influencing international bodies such as the WHO) produce health data and its subsequent effects on perceived burdens of morbidity and mortality.

Currently, the WHO recommends the collection of over 3,500 health indicators in order to make adequate conclusions about the necessary financial and political steps to take to address the biggest burdens (Murray 2007, World Health Organization 2015). These numbers are the critical markers used to measure not only health outcomes, but also to determine if certain financial investments in particular health and development programs were a productive investment. Health statistics then, are a new and valuable commodity that Erikson believes to be unfairly ‘sold’ to poor countries by rich suppliers, like the WHO and its key influential countries. Most of these ‘indicators’ are produced and distributed by foreigners on assignments that rarely require them to interact, speak the language, or listen to the local communities they are reporting on. She argues that this social, cultural, and bureaucratic distance between foreign contractors and communities is a key point of consideration when determining the social meanings of health statistics. Knowledge collected by the powerful about the less powerful creates accumulated knowledge that ultimately perpetuates inequity and disparities in who ‘holds’ and who ‘validates’ such valuable information (Millard 1985, Nichter 1985).

History and context are crucial components necessary for understanding how scientific objectivity is constructed (Daston and Galison 2007). Global health development benchmarks have shifted from indicators such as infant mortality to profitability indexes. Development agencies are shifting goal outputs from improved human health to improving strategic investments in health (Erikson 2012). This is apparent when considering the kinds of numbers needed in health decision making. Institutions seek statistics that will 'prove' the utility of the money invested, regardless if such indicators truly reflect what is happening on the ground. Erikson uses her field work in Sierra Leone and Germany to demonstrate such phenomena. She documents how the birth records of infants that die soon after delivery systematically 'disappear' in order to keep a hospital's maternal record impressive. Death data in this case is not produced to reflect maternal burden, rather it is used to maintain the facility's business, funding and reputation. Health systems dependent on foreign aid are pressured to prove donated funds are leading to improved health. Statistics may be pieced together from disparate sources, imitating a functioning surveillance system in order to provide evidence for evaluative reports required by international agencies and to justify investments in health programming (Nichter 2008). Liam Clegg similarly documents numbers as a powerful resource in the arena of global economic governance, used by states as a means to bolster authority and manufacture autonomy (Adams, Novotny et al. 2008). Clegg uses a case study of the US requiring enhanced monitoring strategies on the World Bank in the 1990's in order to exert more control over the institution's supported programs. Similarly, Porter explores the use of statistics in insane asylums. He argues that the high cure rates claimed by the US (likely due to discharging patients as ‘cured’ before they had fully recovered) are ‘funny numbers,’ produced to allude to the success of psychiatric institutions. US asylums also failed to document new incoming patients near death in order to maintain impressive quality standards (Porter 2012). He also acknowledges, alongside many other scholars mentioned in this chapter, the role numbers play in neoliberalism. Numbers, and the standards they accompany, are tools of decentralization based on indirect forms of power (such as a government or industry), making private enterprise a model for public agencies (Desrosières 2002). Good numbers, Porter explains, bring wealth and justify existing procedures and programs. These ‘good numbers’ are constructed by far-removed bureaucratic centers, ignoring, as Erikson emphasizes, the inherent superiority of local knowledge (Harper 1998, Hull 2008, Kickbusch and Berger 2011, Erikson 2012). The emerging reverence for such numbers supports and encourages an ‘ethic of thin prescription,’ a means for judging a person or institution by a finite collection of numeric indicators (Kickbusch and Berger 2011). Despite the manipulation, reduction of information, and broad generalization, thin prescriptions are presented as ‘hard objective fact.’ This highlights the ability for numbers to create and assign categories that subsequently determine who receives (or who is denied) resources and what such resources look like. In these cases, numbers become mechanisms for neoliberal governance, describing landscapes of health and suffering far removed from their subjects’ realities (Lampland and Star 2009, Lampland 2010). It is where, as Erikson says, “data do the work for humans, anchoring and legitimizing claims without context” (Erikson 2012). Health statistics become powerful objects for health bureaucrats. These statistics allow health to be counted, categorized, and priced in order to determine ‘appropriate’ need and investment. Just as important, these numbers allow agencies to calculate the ‘risk’ of investing in particular settings. Such practices leave resource-poor countries vulnerable to the actuarial accounting of global powers.

Several examples of anthropological work has surfaced where researchers, alongside the communities in which they work, strive to achieve more accurate quantitative representations of morbidity and mortality in order to expose structure violence and advocate for more resources and improved systems to detect and respond to the needs of populations. Harper (2006) has argued for the inclusion of ethnography as a methodology for understanding the effects of public policy on health and data production. Using evidence of the data chain tuberculosis statistics follow, Harper documented a qualitative transformation of data as it returned from Geneva to Nepal, leading to the systematic exclusion of some cases of tuberculosis. Disease testing methods and official case definitions left many individuals (often the most poor) without ‘official’ diagnoses, despite having active TB, and no avenue for treatment. Such data interpretation along its trajectory, produced by external bodies, narrow case definition, and limited testing methodologies, perpetuates power inequities and subsequent health problems among the most sick (Harper 2006).

In a similar study exploring cultural validity in mortality inquiry in Brazil, Nations found that a community based surveillance system produced much more accurate and detailed infant mortality data compared to that of official health statistics (Nations and Amaral 1991, Sousa and Nations 2011). These findings have important implications for the perceived scale of infant death and the urgency with which public health programming is needed. She suggests that culturally-grounded and informed health information systems are necessary for accurate data capturing. In the cases described above, anthropological insight has exposed the influences of multinational organizations, global interests, and hegemonic health systems on the shaping not only of health data, but how health is perceived and experienced at multiple levels.

How Political and Social Factors Shape the Collection and Interpretation of Statistics

Health statistics are invaluable for understanding and addressing human health problems. Local, national and global health institutions and governments depend on them to allocate resources, create helpful policy, and maximize quality of life. In the past few decades, health metrics have become incredibly sophisticated through institutions such as the Institute of Health Metrics and Evaluation, among many others. These advancements have particular potential to help nations where there is little technical capacity. As integral as these metrics are, the powerful institutions that are tasked with quantifying incredibly complex phenomena are most often rooted in high-income, powerful nations. Susan Erikson recently asserted that the production, use, and travel of health statistics, particularly in low and middle income countries (LMICs), are driven by political, corporate, and financial influence on established biomedical care models that subsequently shape the perceptions, experiences, and priorities of disease. Governments and world systems create dynamics of power, oppression and inequity that produce social environments that shape human suffering. Understanding how data production and performativity reifies existing power dynamics and political priorities is essential for identifying health system deficiencies and biases. Data performativity, according to Erikson, is the product of bureaucratic institutions, international political bodies, media representations and official state discourse that produces, substantiates, and creates categories health problems through indicator selection, data reporting, and subsequent decision making (Kleinman, Das et al. 1997, Erikson 2012). Erikson postulates that health statistics are produced and performed by institutions and power structures within and outside of the home country. This shifts how data is collected, reported, interpreted, and understood to support the interests of dominant institutions (Erikson 2012). Statistics, to Erikson, afford accountability, providing those that hold such quantitative information the authority to exert pressures and determine the priorities of communities, countries, and our global population. Therefore, the issues given the most attention are heavily influenced by what indicators are captured, how, and who is deeming what is necessary to ensure ‘quality’.

Beyond health, anthropologists have explored how documentation has been used, manipulated, and performed in order to exert influence over populations to maximize economic conditions and power for selected groups. Matthew Hull argues that documents are more than instruments to be used by the organizations that produce them (Hull 2012). They are reflections and manifestations of bureaucratic rules, ideologies, knowledge and practice. Documentation may serve as mechanisms for coordination and control, for their capacity to construct identity, determine categories, and define organizations and institutions. He rallies for anthropologists to further commit their perspectives and efforts to better understand such documentation and materialized information. Hull studied the use of physical paper documents in the Middle East, exploring their effects on bureaucratic rule, distribution of power, and lived experience in urban Pakistan. He reveals how rapid technological enhancements in governmental operations required the transfer of paper property registries and tax documents to electronic forms often caused some property forms to be eliminated, retracting land from many farmers. Electronic databases have the power to, "reconfigure the information at will" (Bowker and Star 1999)and subsequently reconfigure power dynamics that may liberate or oppress targeted individuals (Hull 2003, Hull 2008, Hull 2012). The production and use of documents is a 'tactic of power and authority,' not simply a method by which information is shared. Documents, therefore, are tools used to construct fixed and shared meaning as well as mechanisms for defining, segregating, and bridging organizations and institutions (Harper 1998). Moreover, what is left undocumented by bureaucracies is another form of control where ambiguity and the absence of information creates more power within the government (Ticktin 2006, Mathews 2008). Andrew Matthews explores the consistent lack of documentation of firewood cutting and deforestation in Mexico. The practice of concealment, Matthews argues, is not reflective of the Mexican forestry institutional inadequacy, rather it is a product of alliances between the state and politicians interested in bringing private industry to indigenously owned forests (Mathews 2008).

Thus far, this chapter has discussed the power implications associated with *why* certain health indicators are documented, *how health statistics* are calculated, and *the practice of documenting or failing to do so.* Next, we turn to exploring how the determination of what documents are deemed ‘valid’ and which are nullified is another strategy for producing and using data for control. Those that are poor and lack services are often unable to maneuver necessary documentation procedures, further perpetuating their circumstance and blocking access to services needed to improve their condition (Gupta 1995, Gupta 2012). Therefore, the role of bureaucratic documenting in generating and sustaining inequality cannot be ignored (Gupta, 2012). Akhil Gupta investigates the perpetuation of poverty and structural violence in India despite six decades of development efforts throughout the country. Important links between embedded corruption, governmentality, and inscription (in the form of written records) are argued to be the mechanisms by which the poor experience structural violence inflicted by the state. One must look at everyday practices within bureaucratic operations in order to understand how structural violence is enacted and, as Gupta argues, the writing, dissemination, and circulation of formalized information (both narrative and statistical) is the prime modality of engaging the state and, therefore, exerting power.

Beyond their ability to assign power and control, documents are used construct individual identities and assign particular categories to persons, places, and things. It is the product of material forms and documentation (such as legislation, disease codes, census reports) that brings into existence ideas, expectations and classifications of particular persons and things (Mathews 2008). For example, in Haiti, individuals are targeted as ‘victims of political violence’ in need of resources by international aid organizations through the production of ‘trauma portfolios’ (James 2004). In another case, Reed and Rhodes reveal how ‘insane’ individuals are produced and placed in trajectories towards either rehabilitation or punishment through the completion of intake documents (Reed 2006). Thus, as documents can be mediators that ‘transform, translate, distort and modify the meaning or the elements they are supposed to carry (Nichter 1985), health documents can similarly be used to create meaning in different ways. Additionally, health indicators that are not documented can wield similar powers to health institutions and create meaning about invisible health afflictions at multiple levels (institutional, community, and individual).

This dissertation will explore the narratives behind numbers, and the infrastructure and documents built to produce them. Through this approach, we can better understand how knowledge is constrained, built, and preserved. Studying information systems importantly reveals aspects of communication, power dynamics, justice, and change (Nichter 1985, Rose 1991) and Lampland calls for a ‘sociotechnical’ understanding of standards, quantification and formalization. Marilyn Strathern explores what she deems ‘audit cultures’ that pervade our private and public institutions, increasing the demand for accountability, transparency, and evidence for success (Strathern 2000, Strathern 2000). Social accountability marks efforts to use transparency as a conduit for knowledge and an instrument for control. Therefore, scholars must strive to understand how we interact with the network of numbers, standards, categories, and their implications in order to translate what information is captured, manipulated, and missing so that policies and programs may have the greatest effect on those that need it most.

Adams's edited volume is the most recent anthropological contribution to the study of the productivity and performativity of health metrics (Adams 2016). Issues with the universal validity and broad application of metrics associated with new powerful and popular indicators, such as disability adjusted life years, are highlighted. As argued previously, these metrics are not value-free, despite marketing by international agencies. As contributors illuminate, the procedures conducted to produce the numbers that make up mortality ratios and safe deliveries are fraught with the limits of human capacity, error, and competing responsibilities of health workers. As international funders try to rigorously measure the success of the health programs they are supporting while also 'accounting' for each dollar invested, opportunities for rich qualitative insights to capture less obvious and more nuanced knowledge about health outcomes are missed or under-valued. Many of the case studies explored in Adams's volume are related to popular global health problems, such as maternal health, HIV, and malaria. However, mental health, one of the most complex health burdens to measure cross culturally, is barely explored. Moreover, violent deaths, those that are moralized, politicized, criminalized, and sensitized, are also ignored. Exploring how number attributed to suicide are manufactured, interpreted, valued, and enacted upon will greatly enhance this literature. If, as Sen argues, health indicators are a better representation of development than economic indicators (Gupta 1995, Gupta 2012), it is imperative to continue exploring how quantifications of health are produced and used in order to best improve the well-being of populations.

Suicide Metrics and Burden Estimates in LMIC

Recording death in general is difficult as about 80% of deaths occur outside the health facility in LMIC (World Health Organization 2014). Moreover, of the 140 LMIC that report to the WHO, 78 do not have a complete vital registration system. In general, suicides are estimated to be underreported anywhere between 30 to 200%. An Indian study estimated at least 25% to 36% of suicide deaths are unreported (Patel, Ramasundarahettige et al. 2012).

Because of the limitations of death surveillance, compounded with the propensity to under-report sensitive deaths like suicide, selected samples are likely more accurate than national statistics. Regional variations in reporting further complicates these numbers and their validity. The state of Kerala, for instance, is well-known for its impressive economy, education quality, and some of the best development indicators in the country. However, despite its success, it is also known for having the highest suicide rate (Halliburton 1998, Chua 2009, Munster 2015). Comparatively, one of the poorest states has the lowest estimated rate. These seemingly paradoxical differences may reflect the ability of the state's institutions to accurately collect and report accurate numbers, rather than an actual difference in rates.

In the last decade, large global health institutions have focused on developing robust systems to quantify the burden of disease around the world. The ability to produce numbers that can inform improved programs and policies is invaluable. However, quantifying suicide deaths continues to prove complicated, despite emerging sophisticated systems to calculate mortality rates (Desjarlais 1996). Nepal serves as an excellent example of existing discrepancies in suicide numbers. It is also well known for its prioritization of maternal health (the backbone of its health system is comprised of female community health volunteers). For the year 2012, the WHO reports Nepal’s national suicide rate to be 24.9 per 100,000, while the Global Burden of Disease estimated the national rate to be only 6.21 per 100,000 (Institute for Health Metrics and Evaluation , World Health Organization 2014). Nepal’s Ministry of Health and Population do not report suicide deaths, but the police did report a 2012 mortality rate of 14.48 per 100,000 (Pradhan, Poudel et al. 2010, Jordans, Kaufman et al. 2014, Hagaman, Maharjan et al. 2016). Relying on Global Burden of disease estimates alone grossly underestimates the burden. The WHO, however, might over-estimate the burden. Moreover, these estimates, as isolated numbers, provide little insight about variation by region, gender, or age. Therefore, conclusions about what this potentially high mortality means and how to react at a programmatic or policy level is difficult. Metrics, therefore, complicate our understandings of how much of a problem suicide is. In a development milieu, where statistics and numbers are becoming more important than ever in planning and decision making, the variation in suicide findings may perpetuate notions of indifference and that nothing can be done. From a public health and epidemiological perspective, which estimates should be used? Those from revered multilateral agencies? Or a country’s police department? Or health department? If one report says Nepal has one of the highest burdens in the world, while others directly refute that, how can communities best approach the problem? Without timely and accurate tracking, funding gaps for mental health and suicide go unrecognized, and potential improvements in resource allocation and program development may not be implemented.

Finally, the institutions and individuals charged with classifying, recording, and analyzing suicide related events varies across health systems and countries. For example, in the United States, the National Violent Death Reporting System aggregates data about suicide deaths from various sources including death certificates, coroner reports, police reports, and secondary sources (such as hospital data) into one central database (Powell, Barber et al. 2006, Parks, Johnson et al. 2014). This ‘gold standard’ approach is complex and requires robust technical capacity. Low income settings are unable to implement such surveillance strategies. For suicide data, LMIC typically rely on vital records or police data. Thus, the type of information recorded for a suicide death may be quite different. In India, the national census bureau records the major causes of suicide, with the most common in 1992 calculated to be ‘living with a dreadful disease’ followed by quarrel with in-laws (Desjarlais, Eisenberg et al. 1995, Chua 2009). In Nepal, suicide deaths are identified, collected, and reported by the police and aggregated with only the sex and geographic location as additional variables (Jordans, Kaufman et al. 2014). Low-income settings thus risk homogenizing complex health burdens. In addition, death statistics are filtered through institutions that have important implications on how this information is framed, prioritized, and interpreted by both development health institutions and the general population. Anthropological insights have the potential to reveal how these filters shape public health development priorities and practices as well as lay interpretations and meaning attributed to suicidal deaths. This dissertation will use suicide data in Nepal to illustrate institutional, cultural, and political influences on mortality data.

Situating suicide in anthropological and public health landscapes

Existing Theories Surrounding Suicide Etiology

In 1897, Emile Durkheim placed suicide at the forefront of sociological literature, situating the phenomenon as a seminal indicator of social well-being (Durkheim 1897). Although to be interpreted with caution, over the past half a century, suicide numbers have continued to rise around the world (Bertolote, Fleischmann et al. 2006, World Health Organization 2011). Despite sustained interest and research about suicide in psychiatric and other biomedical fields (Mihaly 1965, Burghart 1996), Durkheim's seminal works remains one of only a few sociological theories related to suicidal behavior. Recent academic calls for more qualitative social investigations have begun to develop evidence base to fill this gap (Hjelmeland and Knizek 2010, Kral, Links et al. 2012, Hjelmeland and Knizek 2016). Given recent speculations that risk factors for suicide vary across context and culture (Vijayakumar and Rajkumar 1999), ethnographic insight is well suited to inform deeper understandings of the act's social, individual, and community level complexities. This chapter will review the limited anthropological work dedicated to exploring suicide from a close cultural perspective.

Anthropological perspectives emphasize that 'culture' in suicide inquiry is not a monolithic entity. It is imperative to consider the socio-structural contexts within and around suicidal behavior to gain a more comprehensive understanding of its meaning. Anthropology, therefore can contribute a critical perspective by discerning and deconstructing the ways in which definitions and understandings of suicide have been created, defined, and communicated in disparate cultural contexts, as well as at a global level. The discourse used in suicide narratives, documentation, and quantifiable indicators, has profound influence on how the suicide burden is perceived, and subsequently prioritized (or not prioritized). Recently, a few scholars have problematized official suicide categories and stereotypes derived and perpetuated by state mortality documentation. They argue that these actions perpetuate the narrow interpretation of suicide as an 'act of self-destruction' (Minois 2001, Chua 2012, Staples and Widger 2012, Widger 2012). This limited perspective ignores potentially important broader meanings that may further our understanding of suicide acts and, ultimately, our ability to better identify and intervene to prevent unnecessary mortality.

Towards the middle of the 20th century, suicide emerged in the anthropological literature with Malinowski, Firth, Bohannan, and Wilson, where these anthropologists explored discursive slippage in suicidal definitions, highlighting the unclear distinctions between homicide, suicide, risk taking, and martyrdom in terms of violence and its etiologies (Bohannan 1960, Wilson 1960, Firth 1961). Firth argues that the drivers and contexts surrounding suicides are socially determined and can only be understood in the context of concurrent social acts of the deceased's community (Firth 1961). Malinowski argues that, opposed to Durkheim's claim that suicide is a measure of social integration and moral regulation (Durkheim 1897), the event should be viewed as a 'social institution in its own right' where suicidal behavior may be a demonstration, and a form of communication for protest (Malinowski 2013). In a collaboration with other anthropologists conducting fieldwork in Africa, Paul Bohannan investigated to what extent Africans killed themselves and one another for the same reasons and in the same situations as Europeans and Americans. Bohannan, unsatisfied with the pervasive Dukheimian thought, commented that the dearth of accurate records (particularly in poorer countries) precludes our ability to accept or refute existing broader suicidal theories (i.e. Durkheim). Bohannan attempted to revise Durkheim's four original categories of suicide (anomic, fatalistic, altruistic, and egoistic) into three distinctive social contexts: (1) jural (when social norms are broken), (2) domestic relations (such as conflict), and (3) status-linked (often a result of public shame). Bohannan compared the African homicide/suicide data with exiting patterns within western contexts. He noted that African suicides were largely similar to those found elsewhere and suicide mortality ranked relatively low in rate compared to western setttings. A similarity across all categories was that suicide was rarely considered honorable or justified. Despite Bohannan's efforts, subscription to his categories in subsequent literature has not occurred and Durkheim's 'collective representations' of suicide due to the extent of social integration have largely remained.

While gender was largely ignored by Durkheim (except to claim that divorced women died by suicide more than married women), a few anthropologists have investigated gender differences in lethal self-harm (Counts 1980, Counts 1987, Littlewood and Lipsedge 1987, Strathern 1995, Canetto 2008). These ethnographers report that the majority of female suicides (in Papua New Guinea) were revenge-induced, used as protests in order to call guilt towards those that were responsible for their suffering (Counts 1980, Strathern 1995). Counts documents that the family of women that died by suicide sought revenge (over domestic disputes and violence or public shame), emphasizing the drivers of gendered social inequality and the use of suicide as an ‘expression of power by otherwise powerless people’ (Counts 1980). Firth shares narratives of women drowning themselves, often as a form of non-suicidal self-harm, in order to express their plight and influence others to recognize and respond to their suffering (Firth 1961). Although female suicides do not generally outnumber male counts around the world, similar accounts of gender inequity-induced suicides among women in Nepal and China (discussed later) exist today.

Michael Kral challenges previously narrow investigations into suicide and uses anthropological insight to develop important multidimensional perspectives in suicide research. He calls for research to consider three elements in future work: (1) how deeply embedded is suicide in the cultural system of ideas, (2) who is more vulnerable to the internalization of suicidal ideas, and (3) is suicide really a individualistic phenomenon (Kral 1998). Kral argues that suicide is a product of a collection of ideas and cultural context. Like many other scholars described here, Kral rallies for suicidologists to consider implicit schemas and archetypes of experience, motivation, and action in order to better understand suicide and the culture surrounding self-inflicted death.

Qualitatively, focus has reemerged around the close relational and structural contexts and conditions driving and brining meaning to suicidal behaviors. In order to raise suicide within anthropological inquiry, *Culture, Medicine, and Psychiatry* released a special issue in 2012 focused on reinvigorating ethnographic explorations of suicidal behavior. Following an international workshop bringing together several scholars in 2008, the issue aims to ‘go beyond the sociological and psychological approaches that define the field of ‘suicidology’ and engage with the topic from an informant’s perspective. This approach promises to cast new light on the phenomenon while unlocking new cross-cultural frameworks to bolster our global understanding (Staples and Widger 2012). The special issue titled, ‘Situating Suicide as an Anthropological Problem: Ethnographic Approaches to Understanding Self-Harm and Self-Inflicted Death’ (Staples and Widger 2012) aimed to unravel previously neglected topic within the anthropological literature. Many of the authors and their work relating to suicide are discussed below.

Isak Niehaus, a contributor to the CMP special issues, explores suicide among the Bushbuckridge communities in South Africa, concentrating on how gender might help further understanding of self-inflicted deaths (Niehaus 2012). Niehaus, collecting suicide narratives similar to Wilson’s approach described above, asserts that there may be distinguishing theoretical frames within male and female suicides resulting from different constructions of personhood. Male suicides, he posits, are driven by individual components of the self and may therefore explain why a man’s attachment to the family unit is less predictive of suicidal behavior. Drivers included financial failure, sexual failure, relationship failure (particularly in the case of wives cheating on or leaving their husbands), stigma, and illness. For Niehaus’s informants, a man’s own reputation was perceived as paramount and, when threatened, often propagated to suicide. For example, he describes the story of man named Patrick that was financially successful and married a young woman of a lower caste. They divorced and Patrick fell into extreme depression. He visited his former wife’s home during an attempt to reunite and found her new partner was only a taxi driver. He killed himself in his car. Like Patrick, many men killed themselves in private. Contrastingly, causes for female suicides are a product of relational components of the self, resulting from oppressive power dynamics, often surfacing as a form of protest. Female suicides took place in public spaces using ‘expressive violence’(Marx, Plaut et al. 1999, Tierney 2010), where their families and communities would recognize their death and the meaning it was intended to impart (often perpetual subordination and oppression). The author insists that, “not a single adult woman committed suicide because she had been consistently unemployed, suffered from illness or insanity, or had been guilty of a shameful stigmatizing act.” (Niehaus 2012). The author situates Bordieux’s ‘masculine domination’ as a framework to understand the gender differences in the South African suicide narratives. For women, in addition to the physical violence they might endure from male abuse, they also suffer symbolic violence, internalize their own subordination and use suicide as a form of escape constructed ‘as an act of protest against violent patriarchy’. For males, their suicides are most often products of loss of autonomy and authority due to their own faults. Niehaus’s rich insight can help situate emerging gender differences surfacing in Nepal (discussed later).

Widger investigates how folk and state stories of suicide in Sri Lanka help to shape and reconstitute larger constructions of class, gender, and power (Widger 2012). He emphasizes the utility of suicide for individuals as a means for social action and explores the consequences of such acts on those perceived to be ‘responsible’ for the death. These disputes over the causes of suicide subsequently shape or create broader ideas about class and gender in Sri Lankan society. Widger believes that by examining the popular stories and perceptions of known suicides within a particular community, we can gain insight into how self-harm is locally understood and, more broadly, how societies create the world around them and experience emotions in a more general sense. In another article, Widger explores varying interpretations of suicide data and subsequent implications for how risk factors and social drivers for self-harm are understood. He reviews four different ‘readings’ of suicide data including: (1) social readings, (2) methodological readings, and (3) cultural readings and (4) a composite of the aforementioned three. Social readings closely align with Durkheim’s popular theories of suicide drivers, however, Widger argues that this perspective cannot explain why suicide rates have dramatically declined in some regions, despite unchanged social conditions. Epidemiological perspectives promote methodological interpretations of suicide trends through contextualizing what means is available and acceptable within a particular community at a particular time. While useful and accurate, Widger believes this perspective is limiting as it over simplifies causes of self-inflicted death and ignores complex social and cultural conditions. The cultural reading is helpful due to its consideration of context and history, however due to its static nature, the perspective still limits our ability to gain a comprehensive perspective of suicide phenomena. Therefore, Widger proposes the composite reading as a new way to think about suicide cross culturally that considers affinity for suicide in conditions of ‘moral change’. This perspective embraces notions that different social groups and classes hold different believes about suicidal behavior and these can shift over time.

In Japan, recent rises in group internet suicides have prompted anthropological investigations to better understand the troubling phenomena. Ozawa-de Silva documented shared deaths to result from a need for social connectedness and a fear of social rejection and isolation (Ozawa-de Silva 2008, Human Rights Watch 2009). She argues that these needs are amplified in the Japanese context, where conceptions of 'selfhood' are deeply connected to the perceptions and experiences of others. Her ethnographic work points to anthropology's ability to use subjectivity to analyze individual suffering providing a more nuanced understanding of the roles of agency, social structure, and context in suicide deaths in Japan. She questions the presence of individual choice in the distinctive internet suicide deaths and notes the need to question local conceptions of meaning, loss of meaning, self-hood, and social engagement if we are to better understand self-inflicted death in Japan. Mary Picone challenges the 'standardized' cultural perspective that overwhelmingly documents suicide in Japan as a monolithic respectable and honorable event (Picone 2012). She disagrees with Ozawa-de Silva's interpretation of suicide as a non-religious phenomenon and calls for a deeper investigation of the role of popular religion within the growing number of self-inflicted deaths. As Chua remarks, the social categories deemed relevant to the study of suicide include age and gender and religion in particular does not persist as a distinguishing characteristic. A reexamination may be helpful for deeper insight into suicide across disparate cultural contexts.

Challenges of Collecting and Interpreting Data on Suicide in Different Societies

Wilson, a collaborator of Bohannan's, was an early anthropological investigator exploring suicide amongst the Joluo of Kenya. He found that suicidal behavior was often a mechanism for revenge and individual suicide threats were a component of daily life (Wilson 1960). Rather than relying on the statistics of the Kenyan government, Wilson collected his own suicide surveillance data and narratives over two years of field work, finding many more female deaths than male. He describes the numerical discrepancies as a product of the government only reporting, ‘those (suicides) that were suspected of having been cases of murder that were made to look like suicide (1960, pg. 193). Suicides, in particular, among the Joluo are seen as needing immediate attention and are not formally reported as it will slow the pending rituals. Moreover, suicidal deaths are thought to bring harmful events to the community and are therefore, ‘kept as quiet as possible and dealt with immediately by the clan elders and clan medicine men’ (Wilson 1960). Police are often the only institution tasked with collecting suicide data and, due to the nature of their purpose and role, attention is placed on determining the extent to which a possible homicide occurred, rather than confirming a suicide and investigating drivers and significant similarities among those dying by intentional self-harm. While both issues are deeply important, the institutional focus limits and biases the historic literature within the field, leaving a paucity of rich ethnographic insight into the phenomenon. Subsequently, following a Dukheimian perspective, a nation’s suicide statistics also reveal important insights into its social structure and condition related to capability, power dynamics, and priorities established by those with the most power.

Despite the aforementioned important formative investigations, gaps in the literature remain where there is deep need for further considerations of how macro, meso, and micro level forces reify existing stereotypes, constitute particular suicidal behaviors, and vary based on time and place. It is imperative then, to explore how mortality data is produced and used in order to properly adapt effective prevention and intervention strategies. Recent work has begun to address the multilevel influences on vital data and contextualizing the socio-politico-economic factors intimately affecting how, from the ground up, suffering related to suicide is experienced and perceived and the subsequent effects these constructions have on epidemiologic information.

Chua explores how histories of public health intervention and state labeling practices in South India enforce ‘archetypal’ vignettes based on commonly accepted and reported demographic patterns of suicide (Chua 2012). She demonstrates how families and communities use these archetypes to ‘make sense’ of suicide deaths. Driven by the state and reified by the media, popular social constructions of self-harm reduce suicidal acts to one discrete ‘social ill.’ Over-simplified constructions of what ‘causes’ suicide and who engages in suicidal behavior increases the social acceptance of such deaths. Chua argues that the state’s labels used to classify suicidal behavior serve to perpetuate social inequality. An example describes the believed murder of a servant’s son. Because the death fit several of the state’s archetypes for suicide, the boy’s mother was unable to negotiate the system to find perceived justice for the death. State institutions therefore, manage, interpret and determine the fate of the deceased and their families, perpetuating inequitable power dynamics. She suggests that these archetypes are related and reflected in the suicide data, constituting patterns of gender, method, and site of deaths. Chua’s investigations of mental health and suicide in Kerala, India’s ‘suicide capital’, offer deep insight into how the phenomenon extends beyond the typical problem of mental illness and implicates broader political, economic, and social developments in the region. Suicide, to Chua’s informants, reflects collective, not individual, struggles and is deeply rooted in the community’s social and institutional milieu (Wildavsky 1972, Chua 2009, Chua 2012). Her work argues that suicide is an avenue towards gaining understanding the complex social effects of development and global change.

Finding data on suicide in Palestine remarkably similar to that found in Western countries, Dabbagh uses ethnography to uncover stories ‘behind the statistics’ of suicide in Palestine, revealing distinct differences between individual case narratives and epidemiologic reports (Dabbagh 2012). While some historic suicide literature made claims about the accuracy of suicide due to its rarity (Chaplin 1961), recent findings emphasize the dramatic underreporting of suicide deaths and questionable data quality (O'Carroll 1989, Kelly and Mann 1996, Khan 2005, Razzouk, Sharan et al. 2010). Dabbagh’s work is another example of how anthropological inquiry into mortality numbers can reveal important complexities in the epidemiology and motivating factors that contribute to suicidal behavior. More work, however, is needed to connect such research to public health programs that can ultimately inform suicide prevention and intervention programs in LMIC.

Since the 2012 call, several books have been published that bring cultural perspectives into suicide research. In an effort to add to the literature related to intentionality and suicide, Broz and Munster’s edited volume collects ethnographic accounts to address moral and political agencies performed in suicidal acts (Broz and Münster 2015). While psychiatrists attempt to measure the scale of an individual’s intentionality (the extent to which the individual wanted to die) in a suicide attempt, the authors build arguments that larger notions of power, personhood, and relationality contribute to suicide intention. These constructs further affect how suicide is understood and interpreted following a death, allowing suicide to communicate and enact power within societies. Two other volumes explore suicide and culture (Colucci and Lester 2012, Honkasalo and Tuominen 2014), echoing previous claims that culture has largely been missing from the field of suicidology. Colucci et al (2012) reiterate the arguments made previously: if western definitions, risk factors, and theories surrounding suicide dominate prevention, treatment, and research program frameworks, suicide as a health issue cannot properly be addressed. Culture is inextricably linked to suicide, creating important variations across disparate cultural contexts. Hjelmeland’s contribution outlines evidence supporting cultural differences in suicide risk factors and treatment efficacy, arguing that environmental and sociocultural factors must be considered when implementing and interpreting biomedical suicide research. Other chapters explore variations in suicide rates and motives at national and sub-cultural levels (Lester), a cross-cultural comparison of suicide attitudes in India, Australia, and Italy (Colucci), and strategies for cross-cultural research. Honkasalo and contributing authors take a much more historical and theoretical perspective, exploring notions of free will and moral agency setting ranging from ancient Greece to late 20th century Finland. All of these recent works emphasize anthropology’s responsibility to contribute to the suicide dialogue, as the field has important contributions that may greatly enhance current efforts in prevention and intervention.

While it is clear that the previous anthropological literature has allowed for unique perspectives on how suicide can be understood individually, socially, politically, and economically, there remains a paucity of investigations that test the rigidity and generalizability of such claims. Ethnographic investigations have challenged western archetypes of suicide and rallied for deeper analyses of existing data. Bridging this work into other disciplines will greatly enhance existing theories related to suicidal behavior and will be well-suited to help inform the development of systems to collect information related to violent death and strategies to reduce its burden.

The Historical and Socio-Cultural Context of Health Systems in Nepal

Brief History and Context

Nepal rests between two major world powers: China and India. Situated among the Himalayas, Nepal contains eight of the largest peaks in the world (including the highest point on earth) and is home to almost 28 million people (Nepal Central Bureau of Statistics 2012). Recent emergence from a decade long civil war is evidenced by its high poverty rates and inequity. In addition to historic instability, Nepal's rugged mountainous terrain hinders development efforts to areas far from Kathmandu (the country's capital, most populous city, and largest economic center) leaving the most rural regions lagging far behind in infrastructural, technological, and health services.

Unlike its neighbors including India, Sri Lanka, and Bangladesh, Nepal was never colonized and, until 1951, its borders were closed to foreign health systems, tourism, and global trade. Preceding the opening of the borders and establishment of an international airport, the 'Kingdom of Nepal' was ruled by the Rana regime. This era was largely marked by religious persecution, economic exploitation, and eventual political instability. Towards the end of the 1950's, amidst persistent tension between the king and the government, the *Panchayat* system, a multiparty democracy, resulted in vast reforms throughout the country, with particular marginalization occurring in the neglected, and difficult to reach, rural regions. One of the administrative reform reordered Nepal into 75 administrative districts and14 zones. Although current transformations are occurring at a local sub-district level, this districting is still in place today.

The '*panchaytocracy'* (Gellner 2007) intended to include more diverse community based participation in the form of administrative councils (comprised of farmers and even youth at the smaller village level). However, the system ultimately allowed little voice to the councils, thwarting them from participating in the state's broader political decisions (Goldsmith, Pellmar et al. 2002). In 1955, Nepal joined the United Nations and welcomed its first international flights, opening its borders to tourists, entrepreneurs, and global development aid. Soon after, Christian missions arrived and established allopathic health clinics. International health aid quickly changed the landscape of health and health infrastructure. The US, WHO, and India were the first to give monetary assistance to health related activities. The rural health program (Nepal's primary health strategy) had two major donors (WHO and USAID) looking to 'test' the feasibility of vertical project integration in order to meet their global priories (Ji, Kleinman et al. 2001). Incentivized by state interests in containing China's power, the first development package to reach Nepal came from both India and the US to provide economic assistance during the cold war (Desjarlais, Eisenberg et al. 1995). Development projects contributed to agriculture, education, health care and infrastructure influenced by the complex interactions of local, national, and international geopolitics. Judith Justice's *Policies, Plans, and People* outlines how Nepal's unique history and foreign engagement have heavily shaped health policy and programming and, ultimately, how Nepalis experience health and suffering. She reveals the complexity of coordinating development projects with the complex bureaucratic system of government (Justice, 1986) and the effects policies and popular jargon at the international level had on human health. Largely, policies were too fast, too frequent, not evidence-based nor tested for feasibility in the context of Nepal, and failed to recognize the fragile systems and limited resources of the Nepali government. Program planning and implementation throughout the sixties and seventies was often spearheaded by those in Geneva, or Washington, or Kathmandu, and generally failed to reflect the needs and resources of rural Nepal. This is arguably still the case today (Citrin 2010). Ultimately, foreign assistance programs failed to create sustainable development in Nepal. Justice claims the aid efforts throughout these decades further crippled Nepal's collective spirit and left them economically dependent on foreign agencies.

In 1985, Nepal entered agreements with the World Bank and the International Monetary Fund's structural adjustment program (SAP) (Khadka 1991). Like other SAPs, Nepal's resources and implementation frameworks were restricted and inequality worsened. Not long after the introduction of SAPs, Nepal's poverty and inequity were growing, education progress stalled, and the rural areas suffered most (Whelpton 2005). Amidst Nepal's changing development landscape, public protests began, rallying for removal of the panchayat system. A new interim government was formed leading to a new constitution. The majority of the Nepali people (including over 90 ethnic groups and dialects) remained unrepresented in a government mainly controlled by the high caste elite. With worsening disparities, new political parties formed and other Maoist parties strengthened in efforts to remedy the state's oppressive conditions.

Frustrated political parties submitted demands to the government of Nepal outlining necessary steps to address the needs of the Nepali people. If the government did not respond, the Maoists threatened to initiate an armed uprising against the state. In 1996, the Communist Part of Nepal-Maoist (CPN-M) launched the People's War to overthrow the high caste rule and establish a republic based on socialist principles. The Maoists raided police posts and infiltrated rural villages. The government retaliated with violent attacks. Between 2001 and 2003 Nepal had the highest number of disappearances in the world (Ozawa-De Silva 2010, Citrin 2013). In 2005, the government declared a state of emergency and dismissed parliament. In 2006, a Comprehensive Peace Agreement was reached between the government and the Maoists, officially ending the war. In 2008, after the Maoist-led elected government abolished the monarchy (2006), new health policies were instituted declaring free health services to all Nepali people. However, the former Maoist prime minister withdrew the CPN-M from the government, all previous policies and projects were dropped. After a long and difficult process, the elected Constitution Assembly failed to complete a constitution, and was re-elected. In September, 2015 a new constitution was signed, but it remains heavily contested by many, particularly those identifying with Madhesi and other indigenous ethnic groups.

Today, Nepal is among the poorest and least developed countries in the world, with about one-quarter of its population living below the poverty line (Central Intelligence Agency 2013). Agriculture and tourism feed the majority of the economy and over 80% of the population lives in rural regions (Mann, Apter et al. 2005). Farming provides a livelihood for three-fourths of the population and more than 30% of the GDP. Adult literacy is about 56.5% with stark inequity between men (71%) and women (46%). A sever lack of skilled labor and perpetual political instability remain an obstacle for foreign investment, precluding important opportunities for the country to independently develop.

Nepal’s Health and Health System

Nepal’s ministry of health (established in 1956) is comprised of health posts at the district, zonal, and national levels. While infectious diseases were a large focus through the 1960s, the signing of Alma Ata marked a priority on preventative primary care (Ji, Kleinman et al. 2001). The ‘formal’ health system was implemented following foreign assistance and directives of the US government. The Ayurvedic system, a 3,000 year old medical system originating in India, is integrated within Nepal’s current health infrastructure and Ministry of Health. Many local healers exist (including jharfuknes, jhankris, and dhamis that exorcise evil spirits, Buddhist lamas, among others). Additionally, formally trained Tibetan medical practitioners are also commonly sought for medical care. Patients may access multiple forms of healing simultaneously (Ji, Kleinman et al. 2001).

Nepal’s current health care system is structured so that one health directorate is assigned to each of the five development regions. There are 14 administrative zones, split into 75 districts (*jilla*), each headed by a chief district officer (CDO). Districts are then divided into village district committees (VDCs), and typically between 9 and 16 wards exist within each VDC. Recently, in population dense areas, multiple VDCs have combined into a Municipality. The Ministry of Health and Population (MoHP) oversees the national health care system's divisions and centers. Figure 1, found in Nepal's 2071-2072 Annual Report, describes the organizational structure and capacity of the system.

Despite the end of the People's War and renewed efforts to construct a well-functioning health infrastructure, legacies of vertical programs, poverty, and violence have perpetuated disease and health inequity. While malaria and HIV rates remain relatively low, tuberculosis and maternal mortality persist as heavy burdens (Mann, Apter et al. 2005). Life expectancy is low, nearing 68 years in 2011 and is documented to be much lower in remote rural regions. While access to safe drinking water has improved (estimates state nearly 90% of the population has improved water availability), sanitation facilities are lacking (65% of the population is in need of access), increasing the likelihood of exposure to vector borne disease (James 2004, Mann, Apter et al. 2005). Nepal lacks a sufficient workforce to address its burden of disease. The WHO reports that there are 2 physicians per 10,000 in Nepal, and most of the clinical workforce resides in Kathmandu (James 2004). Although Nepal has several training institutions for educating new clinicians, nearly half leave the country following graduation (Porter 1996). Compared to neighboring countries, Nepal ranks amongst the lowest in doctors per capita (James 2004). The limited access to care, particularly in rural regions, perpetuates disparities in health, economy, and education (Gasser 1986, Comaroff and Comaroff 1999).

Figure 2.1 Organizational Structure of Nepal's Department of Health Services

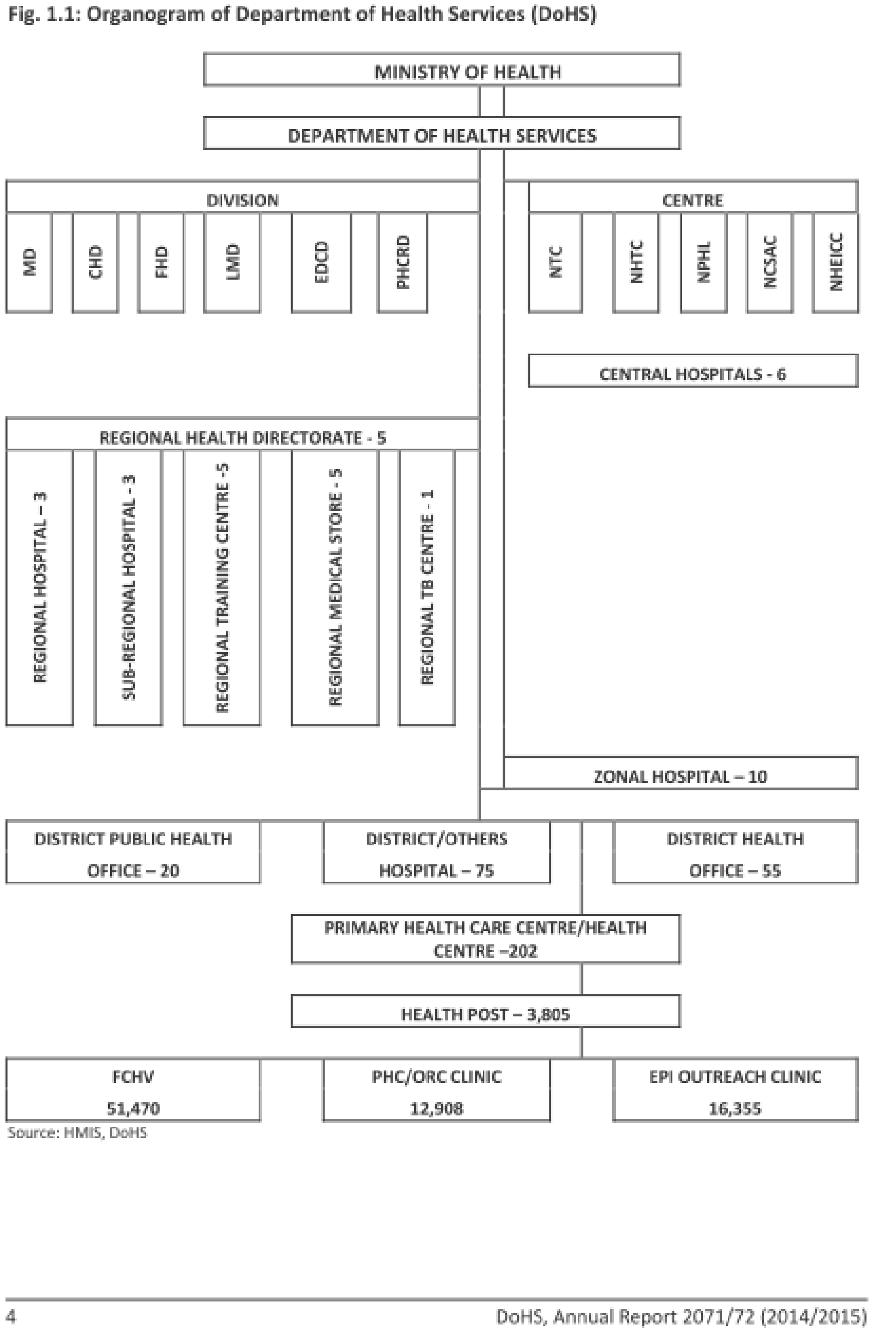

Fig. 1.1: Organogram of Department of Health Services (DoHS)

Source: HMIS, DoHS

4 DoHS, Annual Report 2071/72 (2014/2015)

Globally, there is a dangerous paucity of mental health workers (Sen, Germain et al. 1994, Sen 1999, Patel, Saraceno et al. 2006) and this disparity is glaringly evident in Nepal. The total number of human resources working in mental health facilities (public and private) is 0.59 per 100,000 (Gilson, Hanson et al. 2011). There are 0.13 psychiatrists and 0.27 mental health nurses per 100,000 Nepalis. Of the few trained mental health conditions that do exist, many work within the government or private health centers and the great majority work in Kathmandu (Gilson, Hanson et al. 2011). To address the dearth of skilled mental health practitioners, task shifting models are being adapted with local NGOs to provide lay counseling training to individuals so that services can be decentralized and accessed by those in remote areas (Chua 2009, World Health Organization 2011, Picone 2012). Such programs are beginning to be implemented in Nepal (Jordans, Luitel et al. 2013, Jordans, Kohrt et al. 2015, Jordans In Press).

Mental Health and Suicide in Nepal

Globally, country-level information on mental health systems has recently become available, however many nations are still developing infrastructure to fill gaps and inconsistencies (Jacob, Sharan et al. 2007). In Nepal, less than one percent of health expenditures are spent on mental health (Jacob, Sharan et al. 2007). Nepal officially has mental health policy and legislation, however little evidence has supported its application and effectiveness (Jacob, Sharan et al. 2007, Semrau, Evans-Lacko et al. 2015). Mental health surveillance and reporting is rudimentary and uncomprehensive. The WHO mental health report in Nepal stated that all mental health conditions are reported under one broad category (World Health Organization 2006). Increased emphasis on mental health, monitoring, and available resources is necessary in order to properly assess and respond to the mental health burden in Nepal (Jacob, Sharan et al. 2007).

Nepal’s formal mental health system is comprised mainly of psychiatrists staffed in the country’s 18 outpatient mental health facilities or three day treatment facilities (Gilson, Hanson et al. 2011). There is one mental hospital available in Kathmandu and the vast majority of the psychiatric facilities (over 80%) exist within the capital, creating great disparities in access to care for rural residents that make up the vast majority of the population (Gilson, Hanson et al. 2011). Additionally, less than two percent (two weeks) of medical student curriculum is dedicated to mental health training and continuing education for primary care physicians does not exist (Mazzarella 2006). Despite the paucity of clinically trained mental health professionals, individuals and their families often concurrently seek help with traditional healers that are more accessible (Mazzarella 2006, Kohrt and Harper 2008). Psycho-social support is found in faith healers, informal social networks, and shamanistic healing practices (Nichter 1994, Foucault and Ewald 2003, Nichter 2008). However, recent health development programs have increased stigma against those that use traditional healers and against those in need of mental health care (Burghart 1996, Strathern 2000, Strathern 2000, Desrosières 2002, Kohrt and Harper 2008). Initiated by the devastating effects of the civil war, there are efforts to address problems related to trauma and mental distress in Nepal (these have since increased following the 2015 earthquakes). The relationship between psychiatric labels and local experiences of distress are essential to properly diagnose and tailor treatment to individuals without perpetuating stigma (Mihaly 1965, Kohrt, Kunz et al. 2005, Kohrt and Harper 2008, Kohrt, Speckman et al. 2009, Vijayakumar, Jeyaseelan et al. 2013). Kohrt et al explored the relation between mind-body terms and experiences of mental distress (Kohrt and Harper 2008). Although limited given Nepal's considerable diversity, these terms and concepts are integral for understanding how mental distress is conceptualized.

In order to effectively develop programs and interventions to address mental distress and minimize stigma that may hinder care seeking, a deep understanding of context and conceptualizations of the mind and body is needed (Wildavsky 1972, Gellner 2007, Kohrt and Harper 2008, Human Rights Watch 2009). Five important components of the mind-body system in Nepal, as defined by Kohrt (2008) are the *man (*heart-mind), *dimaag* (brain-mind)*, jiu* (physical body), *saato* (spirit), and *ijjat* (social status). The *man* brings and processes feeling, desire, memory, and thought to the inner self (Khadka 1991, Citrin 2010). The size of the man is unique and may differ as a result of how engaged an individual is with their society (Whelpton 2005). Previous ethnography found that madness may occur when the brain cannot control the heart-mind (Whelpton 2005). Importantly, there is no documented tie between social stigma and function of the *man* (the *dimaag* is responsible for maintaining social status and is affected by social stigma) (Kohrt and Harper 2008). The *man's* size and functioning may vary across individuals, but the *dimaag* has minimal variation. It represents the socialized and logical decision making processes and controls behavior and thinking. For example, if someone suffers from alcoholism or drug abuse, it is perceived as a *dimaag* problem (Kohrt and Harper 2008). Psychosis is expressed as the malfunctioning of one's *dimaag*. Conditions related to the brain-mind are heavily stigmatized and may hinder one's ability to marry. This stigma can spread to the sufferer's family. The physical body (*jiu)* is the vessel for pain, disease and injury. Problems within the body are not usually stigmatized. The *jiu's* functioning directly affects the *saato* (spirit), the element that provides energy and vitality to an individual. A strong *saato* prevents invasive forces from entering the body. Problems within the spirit are typically treated with traditional healers. Kohrt (2008) documented that witnessing a suicide might cause the spirit to leave the body. Loss of the *saato* leaves one vulnerable to physical illness. A poorly functioning *dimaag* may make one more likely to lose their saato. Problems of the spirit are not stigmatized and might influence individuals to describe psychological issues in relation to the *saato* instead of the *man* (Kohrt and Harper 2008). Finally, the fifth element, the *ijjat*, represents an individual's social status and gives one the ability to filter their behaviors. A stained *ijjat* may cause social anxiety, embarrassment, and shame. Mental illness, or simply seeking treatment from a psychiatrist, may damage personal and family *ijjat (Kohrt and Harper 2008)*. Figure 2 is an illustration from Kohrt and Harper (2008) visualizing mind-body elements and avenues for care-seeking in relation to the dysfunction of any particular component. Despite detailed reporting of mind-body relations in Nepal, there have been no specific explorations investigating how suicide is constructed within the five elements of the self. The next section will summarize existing literature related to suicide in Nepal and highlight areas for further investigation.

Figure 2.2 Pathways of help-seeking for psychological distress.

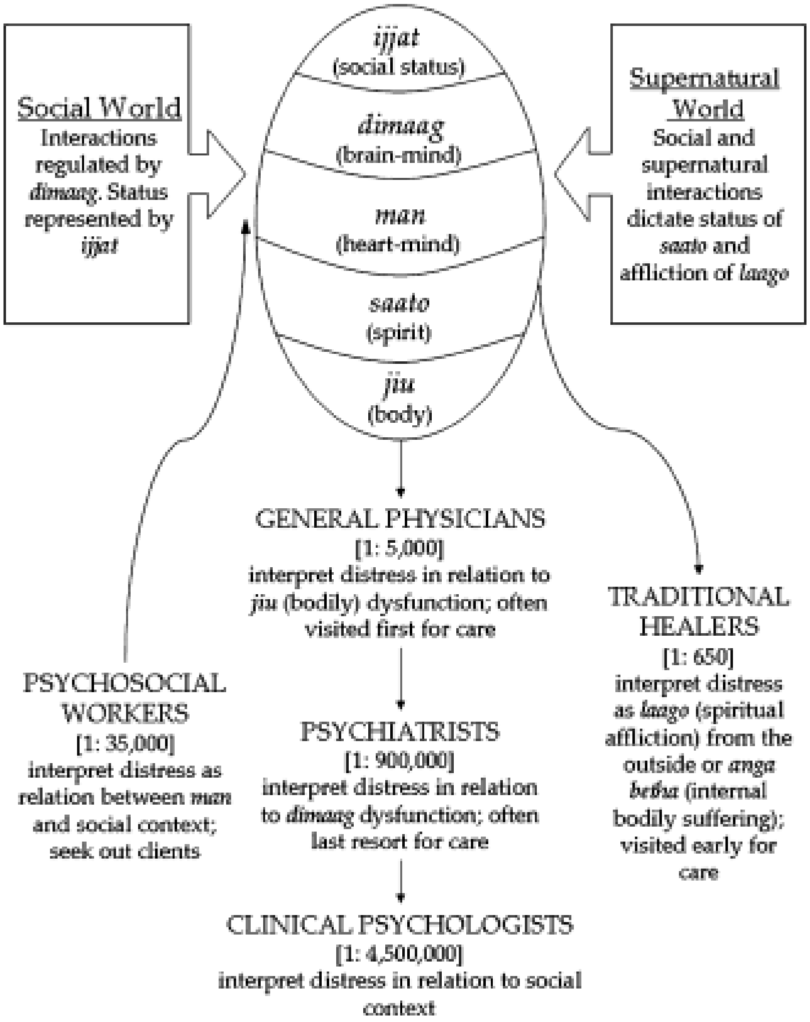

Fig. 2 Navigating diagnoses: pathways of help-seeking for psychological distress. Numbers in brackets represent the ratio of practitioners to population, for example, there are 5000 people per physician in Nepal. Direction of arrows represents pathway of care, for example, sufferers seek out traditional healers and physicians, whereas psychosocial workers seek out clients

Suicide in Nepal

The Sanskrit derived term, *aatmahatya*, is most often used to describe suicidal behavior in Nepal. It literally translates to *aatma* meaning ‘soul’ or ‘universal self’ and *hatya* meaning ‘killing’. Other Southeast Asian countries (Afghanistan and India) use similar terms. In the case of Palestine, depending on the motives for the suicide, a term is selected in order to imply the act's moral implications. For example, *al-intihar* (to slaughter one's self) and *ash-shahadeh* (martyrdom) are two possible types of suicide (Dabbagh 2012). In Sri Lanka, it is more common to use the most common method used for suicide, *waha bonnava* (drinking poison) (Widger 2012). To date, no studies have explored suicidal terms or its related ethnopsychology in Nepal. However, a limited number of studies over the past decade have examined the epidemiology of suicide in the country. One seminal report in particular speculated that suicide is the leading cause of death amongst women of reproductive age (15 – 45 years) in both 1998 and 2008. Nepal's Maternal Morbidity and Mortality Study (MMM) used a prospective surveillance system to identify all deaths to women of reproductive age (15 – 49 years) over the period of one year in three districts in 1998 and eight districts in 2008. A verbal autopsy was conducted with relatives, friends, and neighbors following each death to determine context and cause. Findings indicated that suicide killed more women than any other complication, accounting for 10% of all female deaths in 1998 and rising to 16% in 2008 (rates of 22 per 100,000 in 1998 and 28 per 100,000 in 2008 respectively). Compared to the suicide rate amongst women in the United States, 5.5 per 100,000, the recent Nepal findings are strikingly high (World Health Organization 2011). No studies have investigated male suicide deaths using this approach. To further investigate the burden of suicide in Nepal, a subsequent secondary analysis of disparate suicide data sources was conducted. Sources included national police data (2003 – 2010), Tribhuvan University Teaching Hospital's paper registries from its Burn Unit (no other hospital departments document or report suicides as they not recorded in patient discharge sheets and thus not entered in the hospital’s electronic database), and the End Violence Against Women Baseline Survey (2010). Where possible, data were examined for socio-demographic characteristics and attributed causes.

The expanded review found suicides to be highest in younger women (under 24 years) and older men (after 35 years) (Pradhan, Poudel et al. 2011). While marriage is considered a protective factor worldwide, the limited data form Nepal suggests no such relationship (84.1% of suicide decedents were married). Hanging followed by poisoning were the most common methods for both sexes. The majority of the population in Nepal reports to practice Hinduism, so it is unsurprising that the majority of suicide cases were Hindu. However, when stratifying by religion, Christians and Kirants had the highest proportion of their deaths resulting from suicide (31% vs. 36%). Caste did not seem to be a discriminating factor. Most female suicides deaths (44%) in the MMM 2008 study were reported to be literate but had no education. There is no education data for males. However, the End Violence Against Women (EVAW) Baseline Study (2010) reported evidence to the contrary, revealing that the highest percentage of suicides among education groups was within those who attained the school-leaving certificate (SLC) (Pradhan, Poudel et al. 2010). Illiterate respondents were the second highest represented group. Therefore, links between education and suicide are still unclear in the Nepali context.

Following interviews with individuals close to the suicide decedents, suggested causes for female suicide included intimate partner violence, lack of economic agency, and poor marital conditions. Husbands were noted as the “predominant contributor” to female suicides (35% of cases) in verbal autopsies conducted for the MMM 2008 study, with unhappy marriages mentioned in 24% of suicide cases (Pradhan, Poudel et al. 2010). Previous findings suggest that a husband's alcohol consumption, which often leads to domestic violence, makes women more vulnerable to mental health disorders (Kohrt, Speckman et al. 2009). Although other forms of "conflict related trauma," such as rape and displacement, have shown reductions in recent years, the incidence of domestic violence continues to grow (Dhakal 2008). These reported drivers, however, fail to account for higher rates among men, and other causes applicable to both genders as well as within and between-country variation (Benson and Shakya 2008, Dhakal 2008, Pradhan, Poudel et al. 2011). Contrastingly, in another maternal death surveillance study conducted in western Nepal, the leading cause of death among women of reproductive age was chronic diseases, accounting for 34.4% of deaths, followed by poisoning, snake bites and suicide, all collapsed into a single category (20.1% of deaths). Maternal mortality, an issue prioritized by health development agencies, accounted for 7 percent of deaths (Pyakurel, Sharma et al. 2015). The authors of this study highlight the importance of considering women's health beyond maternal and child health, particularly given high incidence of suicide and other pressing issues.

Other suicide studies in Nepal are predominantly retrospective investigations of patients presenting to medical emergency rooms (Lama, Duke et al. 2015). One such study in Pokhara found that 92% of women arriving for attempted suicide ingested pesticides (Subba, Binu et al. 2009). A 2010 study in the Manipal Teaching Hospital (also in Pokhara) tracked cases suicidal cases over the course of one year. Sixty-five cases presented where the majority were female. The authors speculated that increasing stress in the family and economic constraints may drive suicidal behavior and called for further government and NGO investigations (Kar, Timsinha et al. 2010). In 2004, the Department of Psychiatry at Nepal Medical College conducted a similar investigation finding that the most common poison used was organophosphorous compounds, more females presented with suicide attempts compared to males, and depression, post-schizophrenic depression and clear psychosocial stress were important causes of suicide cases (Chakrabarti and Devkota 2004). The verbal autopsy investigations in the 2008 MMM study however, reported that depression was rarely reported. These contrasting results may suggest a general lack of awareness about depression and, alongside the stigma and social consequences of suicide and mental illness, preclude women from reporting experiences of mental distress. Given the speculated high suicide rate amongst women, Nepal profiles for suicide may not fit neatly within a Durkhiemian framework. Instead, theories proposed by Chua and Counts (described above) may better inform how to frame suicidal investigations.

Much work is needed to better understand the suicide burden in Nepal. Unfortunately, sufficient capacity and coordination is not yet in place to establish an efficient, reliable, and robust violent death surveillance system. Nepal does not currently report suicides or violent deaths to the World Health Organization (WHO). To date, India, Sri Lanka and the Maldives are the only countries in South Asia to report such figures to the WHO (Khan 2002, Khan 2005). The data that is captured through police reports and hospital records are speculated to be incomplete and heavily under/misreported (Pradhan, et al. 2011). Suicide is often reported as illegal in Nepal, precluding accurate reporting to government officials (Bertolote, et al. 2005; Dieserud, et al. 2001). However, suicide is not explicitly cited as illegal in the country's legal code (Nepal National Government 1963). Generally, mortality data are independently collected passively by police officers, health care facilities, and administrative institutions at the local level. There is currently no technical capacity to link or aggregate disparate data in a systematic process (Benson and Shakya 2008). Health data are aggregated from the local health post, to the district office, then reported to Kathmandu where they are converted into electronic records. Police data are aggregated at the district level and sent to the zonal and central levels. Police suicide data is annually reported in the crime statistics handbook produced by the Central Bureau of Statistics (Nepal Central Bureau of Statistics 2013). Preliminary research speculates that many suicide deaths are not reported to the police, are misclassified in health centers under non-suicidal means, or hidden within the family due to stigma and illegality (Pradhan, et al. 2011; Regmi, et al. 2004; Suvedi, et al. 2009). If the death does not occur within a formal healthcare facility or is not reported to the police, cause-of-death records are not produced. Ethnographic research has yet to consider the impact of socio-cultural-political context on national suicide surveillance system attributes, including its flexibility, data quality, acceptability, and representativeness. Previous reports have pointed to various gaps within the country's death reporting stating that, "there is a dearth of systematic, reliable, and nationally representative data on suicide" and its validity is closely influenced by financial resources and the socio-cultural context (Pradhan, et al. 2010). There is a paucity of evidence documenting *why* such disparate reporting exists and *what* influences the reported categories of suicide risk. A cultural anthropological perspective is well suited to answer such questions.

Southeast Asia accounts for 60 percent of the world's suicides (approximately 60 million are affected by suicide each year), equating to about 300,000 suicide related deaths annually (Beautrais, 2006). Although the region holds the majority of suicidal deaths, it has received far less attention, research, and funding compared to its higher resourced counterparts (Hendin 2008, Vijayakumar, Pirkis et al. 2008, World Health Organization 2008). Many LMICs do not have a reliable and thorough surveillance and mortality categorization system in place (Bertolote, Fleischmann et al. 2006, World Health Organization 2008) and cultural attitudes toward suicide and fear about prosecution may lead friends and family members of an individual who completed suicide to misrepresent the cause of death (Fulton, Scheffler et al. 2011). This is the case in Nepal, where violent death reporting is fragmented between the police force and the health system, leaving data illuminating an leading cause of death and disability incomplete (Khan 2002, Khan 2005).

The Suicide Prevention International working group (comprised of renowned suicide researchers) compiled a report focused on reviewing and planning to address suicide in Asia. The committee recognized countries' understandable reluctance to compile and report accurate suicide statistics as the event is complicated by religious, cultural, and legal traditions, often brings stigma and shame, and may generate speculations of poor governance. Nepal was not included in this report (although neighboring India, Pakistan, China and Sri Lanka were), however, insights may be garnered by considering the limitations and practices of suicide reporting from the region. Although some studies have found a link between mental health conditions and suicide in Asia, this link is thought to be weaker in the region than in other parts of the world. A Chinese psychological autopsy study found that 30% of individuals who died from suicide had high depressive symptom scores (Phillips, Yang et al. 2002), much lower compared to higher income countries where it 90% of those that die by suicide have a mental illness. Findings from India suggest that risk factors for suicide include middle age, family history of psychiatric disorders, current psychiatric illness, communication of suicidal ideas, major physical illness, family and marital conflicts, financial problems, and school failure (Vijayakumar and Rajkumar 1999, Vijayakumar, John et al. 2005, Vijayakumar, Pirkis et al. 2008). Studies conducted in both India and Pakistan found a higher incidence of suicide among married compared to single or divorced women (Khan 2002). Associated factors include early marriage and motherhood, lack of marital choice, infertility or absence of male offspring, and economic dependence. Suicidal risk factors included a baseline diagnosis of mental health disorders, hunger in previous three months, current family debt, young age at marriage, and experience of violence and physical illness (Vijayakumar and Rajkumar 1999, Vijayakumar, John et al. 2005, Vijayakumar, Nagaraj et al. 2005, Patel, Ramasundarahettige et al. 2012). Kar et al found that, in India, childhood trauma was noted in around 40% of suicide attempters and is a considerable risk factor for adolescent suicides (Kar 2010). It is expected that this is the case in Nepal as well, where violence and trauma amongst younger populations is a pressing issue (Mihaly 1965, Foucault and Ewald 2003, Casper and Moore 2009, Fleischmann and Saxena 2013).

The isolated studies described above are not sufficient to effectively design and implement suicide reduction programs in Nepal. A robust violent death surveillance system is essential for timely identification and response to the growing burden (World Health Organization 1999, London and Bailie 2001, Steenkamp, Frazier et al. 2006, Burrows and Laflamme 2007, Nsubuga, Nwanyanwu et al. 2010). Many limitations exist in the implementation of an accurate system. In the case of Malaysia, systematic misclassification of medically certified suicides as 'violent death from undetermined cause' is speculated to be the driver of the country's dramatically reduced suicide rates (Maniam, 1995). Moreover, non-reporting and under-reporting have been attributed to religious, cultural, and legal elements (Khan, 2005). In India, it is speculated that only 25% of all deaths are registered and only a fraction of those are medically certified (Bhat, 1991; Ruzicka, 1998). Particularly in Asia, where epidemiological studies suggest that rural suicides are much more common than urban, the majority of suicide deaths may not be captured at all due to lack of infrastructure supporting comprehensive surveillance, suicide's illegality and subsequent shameful consequences, and the police acting as the primary source of reporting. It is notable that in Asia one of the most common methods for suicide is poisoning (often with pesticide), further complicating accurate death reports as it is difficult to distinguish intention from accident (Beautrais 2006, Hendin 2008, World Health Organization 2008).

While some countries (including India and China) have demonstrated exciting progress in suicide prevention efforts (Cheng, Fu et al. 2013, Fleischmann and Saxena 2013, Vijayakumar, Jeyaseelan et al. 2013), limited resources, unique cultural and socio-economic factors, and low prioritization hinder the development of national suicide prevention programs and urgently needed health system capacity in LMIC (Pigg 1998, Hendin 2008, Sharan, Gallo et al. 2009). Recent suicide reports are helpful to begin strategy building and target research efforts; however Nepal has largely been neglected from such studies. Future efforts investigating cultural and institutional contexts surrounding suicide and suicide reporting in Nepal will be well-suited to further understanding of a leading cause of death.

Derivation of Research Questions

Policies and programs designed to address disease and injury must use timely, accurate, and valid information about health an d accompanying risk factors in order to build effective solutions (Scott 1998, Murray, Lopez et al. 2004, AbouZahr 2005, Murray 2007, Maurer 2012). Over the past three decades, as a response to increasing investment by multinational organizations in health and development projects around the world, a proliferation of health indicators has emerged (Murray, Lopez et al. 2004, Murray 2007). Despite growing expectations for technical improvements in data collection, developing countries continue to lag behind and often struggle to collect robust vital statistics, often the most important information for policy-making. Meeting the disjuncture of increased expectations and accountability despite reduced technical capacity is the complex construction of state power through the production, manipulation, and sharing of data and documents (Comaroff and Comaroff 1992, Lampland and Star 2009, Lampland 2010, Erikson 2012). Suicide remains a leading cause of death around the world, and its burden reflects deep distress at the individual, community and national level. However, despite its public health importance, it is one of the poorest quality health indicators worldwide. Therefore, this dissertation seeks to bridge anthropological and public health disciplines to explore the production, utility, and application of suicide information from three perspectives: (1) health policy and world systems, (2) epidemiologic, and (3) cultural.

This dissertation asks the following research questions related to each of the three perspectives above:

1. HEALTH POLICY AND WORLD SYSTEMS: What are the gaps in suicide detection and reporting within community, legal, and health institutions and subsequent effects on the prioritization and response to self-harm events?
2. EPIDEMIOLOGY: Using multiple data sources, what are common patterns, risk factors, and intervention opportunities for suicide in varying populations?
3. CULTURE: What are the socio-cultural and structural factors that shape suicidal acts in Nepal and what are the impacts on families and communities?

Chapter 3 answers question 1, Chapter 4 answers question 2, and Chapter 5 answers question 3. Exploring data ‘transactions,’ bureaucratic categorization of deaths an attributed causes, and how communities interpret and bring their own meaning to suicidal deaths allows us to ‘study up’ the issue of suicide. This approach offers opportunities to reveal both the socio-cultural processes by which health statistics get produced and the discourses used at varying levels of social authority and power shape how death is endorsed and understood. It can also help us uncover the complex suffering that numbers seem to hide.

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CHAPTER 3

SUICIDE SURVEILLANCE AND HEALTH SYSTEMS IN NEPAL: A QUALITATIVE AND SOCIAL NETWORK ANALYSIS

*Note: This chapter was published in the International Journal of Mental Health Systems. All co-authors granted permission to use the article within this dissertation. The article has the following citation:

Hagaman, A. K., Maharjan, U., & Kohrt, B. A. (2016). Suicide surveillance and health systems in Nepal: a qualitative and social network analysis. *International journal of mental health systems*, *10*(1), 46. doi: 10.1186s/13033-016-0073-7.

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Abstract

Background: Despite increasing recognition of the high burden of suicide deaths in low- and middle-income countries, there is wide variability in the type and quality of data collected and reported for suspected suicide deaths. Suicide data are filtered through reporting systems shaped by social, cultural, legal, and medical institutions. Lack of systematic reporting may underestimate public health needs or contribute to misallocation of resources to groups most at risk.

Methods: The goal of this study was to explore how institutional structures, cultural perspectives on suicide, and perceived criminality of self-harm influence the type and quality of suicide statistics, using Nepal as an example because of its purported high rate of suicide in public health literature. Official documentation and reporting networks drawn by police, policy makers, and health officials were analyzed. Thirty-six stakeholders involved in various levels of the death reporting systems in Nepal participated in in-depth interviews and an innovative drawn surveillance system elicitation task.

Results: Content analysis and social network analysis revealed large variation across the participants perceived networks, where some networks were linear pathways dominated by a single institution (police or community) with few nodes involved in data transmission, while others were complex and communicative. Network analysis of perceived pathways demonstrated that police institutions controlled the majority of suicide information collection and reporting, whereas health and community institutions were only peripherally involved. Both health workers and policy makers reported that legal codes criminalizing suicide impaired documentation, reporting, and care provision. However, legal professionals and law review revealed that attempting suicide is not a crime punishable by incarceration. Another limitation of current reporting was the lack of attention to male suicide.

Conclusions: Establishment and implementation of national suicide prevention strategies will not be possible without reliable statistics and comprehensive standardized reporting practices. The case of Nepal points to the need for collaborative reporting and accountability shared between law enforcement, administrative, and health sectors. Awareness of legal codes among health workers, in particular dispelling myths of suicide’s illegality, is crucial to improve mental health services and reporting practices.

KEY WORDS: Suicide, vital surveillance, health systems, suicide detection, Nepal, developing countries, law enforcement, policy

Background

Suicide is one of the fastest-growing and least-understood causes of death, particularly in low and middle-income countries [LMIC] [1, 2]. Globally, suicide accounts for one million deaths per year, with the majority of the burden in LMIC [2]. The World Health Organization (WHO) Action Plan calls for a reduction of suicide mortality by 10% globally [3]. This initiative and other efforts to reduce mortality and morbidity associated with suicidal behavior require quantitative evidence to reliabily document the severity of the problem, the major risk groups involved, and the impact of prevention efforts. This practice—public health surveillance—has been defined as “the systematic, ongoing collection, management, analysis, and interpretation of data followed by the dissemination of these data to public health programs to stimulate public health action," (page 3) [4]. Suicide and suicidal behavior, however, are notably challenging to reliably track in surveillance systems. The difficulty in documenting suicide has contributed to the lack of initiation and sustaining of suicide prevention programs globally [5]. Worldwide, violent death reporting systems require significant improvement to provide reliable data to design and implement programs [6, 7]. LMIC in particular lack the capacity to accurately track such deaths [8]. High-income countries also struggle to accurately and timely capture violent deaths [9-13]. Violent death surveillance systems are often complex, requiring the coordination of health, legal, and administrative systems, as well as the cooperation of families and informants [14, 15]. Mental health systems are emerging in LMIC and this is an ideal time to examine suicide surveilance and its incorporation into mental health system strengthening and other development strategies [16-18].

State-generated official estimates of suicide are largely under-representative due to misclassification, stigma, and little technical capacity [19-22]. Suicide data are filtered through reporting systems shaped by social, cultural, legal, and medical institutions. Bureaucratic documentation serves many roles including categorical derivations of disease and cause of death [23-27], exertion of global economic governance [28], power distribution [29-31], and validation of personhood [32, 33]. Macro-level (e.g. multi-national agencies, often deployed as development organizations such as USAID, UNICEF, etc) institutional labeling practices (e.g. cause of death, disease classification, birth/death counting) frame the experiences at lower social levels, including community, family, and individual [8, 26, 34].

Nepal represents an important example for the challenges of suicide surveillance. Recently, the suicide rate among women 18-45 years old in Nepal was found to be 28/100,000, and suicide is the leading cause of death in this demographic group, accounting for 16% of mortality [35]. Compared to the female suicide rate in the US (5.5/100,000), the speculated burden is incredibly high. The only two reports to investigate suicide deaths found that risk is higher in younger women (10-24 years) and older men (over 35 years). Precipitants were postulated to include lack of education, being married, poverty, gender-based violence, and belief in *karma*; however, these findings are limited to a small sample of women so that little is known about male suicides [36].

Despite growing recognition of the high burden of suicide deaths in LMIC [2] and an alarming level of suicide among Nepali women specifically [35], Nepal's Ministry of Health does not systematically collect nor report on suicides [36-38]. In 2011, Pradhan (2011) described the incongruent reporting between health and law enforcement data systems within Nepal's institutions responsible for capturing information related to death. Given that women's suicides in Nepal are perceived as a public health crisis, the lack of systematic documentation processes to characterize the prevalence and risk factors is striking and of urgent concern to public health and international agencies. According Pradhan and colleagues (2011), suicide is illegal, and the legal system is charged with capturing, confirming, and reporting all such deaths. Nepali police report some suicide deaths, however a follow up study found large institutional differences in reporting practices. For instance, in 2010, police records officially report far more suicide deaths (3,990 suicide deaths) than the Ministry of Health (6 reported deaths) [39]. Additionally, they reported many more male suicides than female, which contrasts with community based findings of high rates among women. As there is not yet a comprehensive vital registration system in Nepal, national level suicide data are not systematically collected and no suicide mortality data are reported by the World Health Organization [40, 41]. However, in 2014, the WHO has modeled a 2012 predicted suicide rate for Nepal, ranking it 7th in the world at 24.9 per 100,000, the 3rd highest for women (20 per 100,000), and 17th for men (30.1 per 100,000) [42].

To date, despite one report of a remarkably high suicide burden in Nepal, no such studies have investigated state-generated data nor the role central level governance systems play in the detection and reporting of suicide deaths and attempts. Suicide deaths are unique in that they are documented both as a legal and health issue. Communication across agencies is essential to better address a poorly understood leading cause of death worldwide. This study extends social network methods through a qualitative lens in an effort to provide critical insights into the system level actors charged with detecting and reporting such deaths. Such an approach can uncover ways in which institutions impinge on prioritization and perceptions of suicide as a health problem through dominance, discrimination, power, and control [43].

The current study seeks to better understand barriers to suicide reporting in Nepal and challenges in the data chain linking self-inflicted deaths to Ministry of Health and Population documentation and ultimately to international reporting for global institutions such as the World Health Organization. Following the model of similar studies which have incorporated anthropological methods to investigate health system documentation and reporting [44-48], we conducted in-depth interviews with stakeholders, predominantly based in Kathmandu, involved in various levels of the death reporting systems in Nepal to explore the perceptions, practices, and politicizaiton of suicide reporting. Pictoral depictions of surveillance pathways were also elicited to gain a more textured understanding of how reporting frameworks were believed to function across varying istitutions (legal, health, development, and community). This study seeks to analyze networks drawn by police, policy, and health officials in order to better understand vital surveillance in Nepal and investigate how institutional networks affect how suicide deaths might be (un)documented and (un)reported within varying institutions. This study offers a novel approach to understanding health and information systems in a resource poor setting, where infrastructure and documentation are limited.

Methods

Setting

Nepal is a low-income, post-conflict, South Asian country with a population of 27 million people; it is also a country disproportionately impacted by suicide compared to high-income countries and LMIC in other world regions [1]. 80 percent of Nepal's population resides in rural areas often is characterized by poor access to physical health care, limited mental health services, and high rates of poverty and illiteracy [49]. Maternal and child health outcomes are poor (Suvedi, et al. 2009), and women often lack agency in Nepal's patriarchal society and are often victims of domestic violence [50]. In addition to chronic socioeconomic and health problems, the country suffered a decade-long civil war from 1996-2006, halting health system development and further straining relationships between communities and police officers. The country's capital, Kathmandu, was chosen as the study site as it houses the central-level government facilities and international organizations responsible for health and legal system development and management. Nepal's health system is still developing and remains dependent on foreign development aid and private investment [51].

Sampling and Methodological Framework

Ethnographic field work was conducted in Kathmandu, Nepal. Ethnographic fieldwork consisted of participant observation in health, development and legal institutions as well as key informant interviews [52]. Health system and legal professionals were recruited through purposive sampling in order to elicit popular constructions of how the current death surveillance system functions, where perceived gaps may exist and potential strategies to improve the coverage, accuracy, and functionality of the system. The sampling procedure sought to maximize variation across institutions involved in fatal events (police force, government health system, Ministry of Health and Population, clinical caregivers) and institutional levels. The sample was sufficient to stratify by institution [53]. Levels were stratified into three categories according to Singer and Baer's critical medical anthropology and world systems framework: (1) the macro (multilateral agencies that enact power across global systems), (2) the meso (large national bodies that oversee country priorities and polices and may communicate with macro bodies), and (3) the micro (organizations operating between country and community levels) [54, 55]. For the purpose of this analysis, macro-level agencies were labeled as ‘development agencies,’ per the common development and assistance agenda such institutions employ.

Semi-structured interviews

Thirty-six semi-structured interviews were conducted across law and health system levels including multilateral organizations (WHO, World Bank, Institute of Migration), foreign aid agencies (DfID; USAID), government ministries (Ministry of Health and Population, Ministry of Home Affairs), healthcare institutions (government hospitals, academic hospitals), legal and law enforcement institutions (district police, national police academy), and nongovernmental organizations (mental health and psychosocial organizations, advocacy organizations) (Table 1). Interviews elicited perceptions of the existing surveillance system, communication across and within institutions, how suicide cases are handled and documented, existing challenges hindering optimal system functioning, and specific suggestions for system improvement. State-generated data (including the Nepal National Police and Ministry of Health annual reports) were also reviewed to assess definitions, morbidity, and mortality indicators related to suicide.

Interviews lasted between one and two hours and were conducted in either Nepali or English at the preference of the respondent. The first author conducted all interviews and was accompanied by a Nepali research assistant fluent in English. The research assistant was trained in interview and translation protocol as well as ethics. All interviews were transcribed into English, systematically coded, and analyzed in MaxQDA 11. A codebook was developed to identify common themes and coded all textual data as outlined by Bernard [56]. Thematic analysis was employed to identify typical and atypical examples of each theme [52]. Data validation was conducted by having team members scrutinize themes, their descriptions, and exemplars. Nepali colleagues were consulted to verify our interpretation of the data. Text analysis of the accompanying interviews provided context, descriptions, and elaborations surrounding the current system in Nepal and perspectives on challenges and improvements across sectors.

Descriptive Social Network Analysis

Social network analysis can be used to not only show the ties among actors in a system, but also the impact that relationships among actors can have on decision-making, flow of information and the overall structure of a society [57-60]. Only recently has social network analysis been employed to better understand the supply, demand, flows, and social dynamics of information within health systems [61]. Particularly in developing contexts, such as Nepal, it is important to understand how increasingly complex information is being collected, assessed and shared. Social network analyses within health systems can offer unique insight into where information might be shared, lost, or biased.

For network analysis, two research questions were explored: (1) What institutions ‘create’ and ‘control’ data transfer and communication of suicide deaths? and (2) how do perceived death surveillance networks vary across institutional informants?

To gain a better understanding of the formal and informal health surveillance system, a sub-sample of key informants (n=23) were asked to hand draw, to the best of their knowledge, how deaths due to suicide were differentiated and documented . They were asked to include data pathways and repositories so that comparisons could be made between the ‘official’ death surveillance system with how it is understood and followed by those implementing it. Finally, subjects were asked to note the communication pathways suicide data traveled through, from initial informant interviews (discussion with family/surrounding community) to the ‘final’ resting point of data. This process provided insights into perceptions of formal data collection processes across institutions, as well as perceived opportunities and challenges amongst communication and data sharing pathways.

A codebook was created to indicate the institution (police, health, or community) and the level at which the institution worked (macro, meso, micro). Informant-generated pictorial data were coded for actors included in the informant’s network and noted for which institutions were responsible for nodes of data collection and transfer. All codes were translated into a numeric ID that was consistent across all networks. An edge list was then created to indicate each directed ‘tie’ within the informant’s perceived network. The resulting edge list was uploaded into R Studio Version 0.98.1062 as an array of 23 matrixes, each representing the digitized version of the hand-drawn network. Each matrix contained 13 by 13 possible institutional ties. Multiple ties were possible. Networks were descriptively assessed for presence/absence of institutions and centrality of actors as conceptualized and measured by Freeman [58, 62]. To determine the extent to which each institution was involved in the ‘control’ of suicide-related data, betweenness was calculated for each institutional category within each network and then averaged across informants. In social network analysis, betweenness is a commonly used measure that indicates how much a node is located on the path between other actors [58]. Nodes serving as a ‘bridge’ or ‘connector’ between many other actors were considered to ‘control’ information and communication within the network.

Ethics Approval and Consent to Participate

All aspects of the study received approval by Arizona State University’s Institutional Review Board (STUDY00000945) and the Nepal Health Research Council (NHRC Reg.No 290/2014), the government body responsible for authorization of health research in Nepal. Participants provided written consent for participation in the study and the publication of the findings. The research was conducted in collaboration with Transcultural Psychosocial Organization (TPO) Nepal, a research-oriented nongovernmental organization in Kathmandu.

Results

Overview of reporting and documentation process

According to the Nepal Ministry of Health and Population, health data are aggregated from the local health post, to the district health office, and then sent monthly to the Health Management Information Section (HMIS) in Kathmandu where they are converted into electronic records. Paralleling this system, is an administrative pathway. All births and deaths are to be reported to the local ward office, village development committee (VDC) or municipality office, depending on proximity. To confirm the death, a staff member comes to the home of the deceased where the reporter must collect at least seven individuals that personally knew the decedent. The death is then certified in front of the seven witness and reported back to the VDC office. These reports are aggregated monthly and sent upwards to the District Administrative Office, and, eventually, the Central Bureau of Statistics. From here, many developing countries report all births, deaths, and other important health indicators to the World Health Organization; however, Nepal is not currently able to enact this reporting pathway because a formal vital surveillance system does not exist. The reporting pathways for a suicide death are outlined in Figure 1.

Based on the interviews with police, members of the health system, government workers, and other stakeholders, we extracted information on stakeholder roles, the legal requirements for that stakeholder group, the group's definition for suicide (if any), and what actually occurs when documenting and reporting suicides (see Figure 2; Table 2). Barriers to reporting practices are also discussed and summarized in Figure 3.

Institutional Roles and Procedures

Role of Police in confirming suicide events

The Nepal Police, who are under governmental body of the Ministry of Home Affairs, are tasked with determining suicide death and reporting them [63]. Per the *Muluki Ain* (Nepal's General Code outlining all civil and criminal law), there is no provision criminalizing, defining, nor punishing suicide. It does make reference to the procedural investigation of all homicides and suspicious suicides. Although suicide is not illegal, suicides were consistently reported as a 'criminal' and 'legal issue' by the majority of health informants, and the confirmation, investigation, and communication with the family and victims is mainly conducted through the police, with little input from clinicians. District and national police officers depicted the informational chain as originating with a family or community report of a death and the initiation of formal procedures to collect evidence (both physical and verbal) and, complete several reports (an initial brief inspection report detailing the day, time, location, and individuals involved, a subsequent longer report (12 point investigation), a request for a post-mortem report from a certified hospital, and a full report with complete case details (27 point inspection) that can only be completed after the case is closed. Reports are transcribed at the district office, and the 12 and 27 point reports are sent via post or email to the Zonal Police Office, the National Police Headquarters in Kathmandu, and the District Court through the Attorney General (see Figure 5 for governing units of Nepal). Districts may vary in documentation sharing processes, whereby some are hand-written and hand delivered and others must travel through the post. Local reports are often collected over phone/radio from a remote ward and then input by a clerk at the District Headquarters.

A police officer explained, “We put the investigation reports in our register. We have a very big register and we keep all the data in that book. It’s all on paper. That’s the major problem here. I was scared, when you asked me about suicide. I thought, ‘Oh my god, now I have to ask somebody to count everything.’” Although one district office stated that all the records were input into computers, they always handwrote a report, citing the mistrust of easily manipulated electronic records and unreliable and inadequate electricity that limits use of computers. Reports remain in the District Police office for two years in a folder, after which the case is officially closed and reports stored in sacks on top of filing cabinets. Every police officer interviewed stated that the police captured "all unnatural deaths," even in remote rural areas. If a family did not want to report a suicide, the neighbors would notify the police because it was "the law."

A suicide case and all subsequent reports require signatures (or finger prints if illiterate) of five witnesses, although police investigators stated that three is sometimes sufficient. These are usually the family and neighbors of the deceased. The process is exhausting and time consuming, for both the family and the officers, and often results in unanswered sections of police reports, particularly the history of the decedent's death. A high-ranking police official noted that a big challenge with the documentation process was that local police officers fail to properly investigate suicides:

> The local officers are not serious when collecting the data for a suicide case. There is no training at all on how to respond to suicide. Because we don't have training, because in most of the suicide cases we don't know the reason, the officers don't write it. Our police in the field, many are not doing it [because], it is so easy to [instead] write that they 'could not find the motivation for suicide.' The form is very good, but they fill it out very badly. They don't bother to know the reason behind the suicide. Even when I ask them, they say, 'Oh, there is no suicide note, so how do I know why she did it?"

Some officers went on to discuss the lack of training in the force regarding how to deal with sensitive cases like suicide. There is "no proper training to handle the suicide case. That would be helpful. Our police officers should get counseling training, how to make the witnesses more comfortable. But it requires time and patience, and that is hard."

These issues result in incomplete case reports and a limited picture of suicides within particular districts, particularly in rural areas.

Finally, officers pointed to one of the biggest challenges with confirming a suicide or determining the intent, as many families tried to hide, mask, or blame others for a death. One high-ranking police official explained the complications with families, particularly in the case of female suicides.

> There is always a dispute in case of suicide in women. If there is a girl, or domestic helper, or daughter-in-law, and she committed suicide, then there will be an issues. Like, maybe she was raped and murdered, maybe the in-laws killed her or hanged her. These issues are raised normally amongst the families involved, and it is very, very-very difficult to differentiate, and sometimes there will be very, very-very huge pressure so that sometimes we have to arrest in-laws. We don't have choice.

The officer then explained the case of a domestic helper who died by suicide. Immediately, activists surrounded the police station and gave massive pressure, "so we had to arrest the house-owners for suspected murder, even though it was a suicide." The pressure exerted by the public had clear influence on the way police cases were handled in urban areas.

Medical-legal Cases: The Minimal Role of the Health Sector

The health system's role in suicide-related cases was reported to be three-fold: (1) *clinical care* for live cases following an attempt; (2) *clinical examination* of the dead body for post-mortem; and (3) *data collection and reporting* related to suicidal behaviors.

The latter is the responsibility of Nepal's Health Management and Information Section (HMIS) under the Ministry of Health and Population (See Table 3 for existing HMIS indicators related to suicide).

We interviewed several top-ranking officials within HMIS to better understand how suicide information was, or was not, collected, prioritized, and distributed. Currently, HMIS does not systematically report suicide deaths. When asked if such an indicator was important, a high-ranking health official replied:

> I have been here [HMIS] for 15 months, and no one has asked about suicide; no one has asked why there is no data, so I do not know. This is the first time I have heard about this, and I have worked in health for 3 years. I remember, I presented this [suicide] report in several forums in health planning meetings, but after the discussion, nobody was asking or willing to know; there was no interest or recommendation to capture suicide data in the system. Among 10 causes of death, we know it is number one for women, but the other nine are where everyone is concentrating on, like calcium deficiency. Maybe I will explore it, but no one is willing to do this research or finding the cause.

When prompted to describe the health system's role in data collection related to suicide deaths, most informants initially touted that it was the police system's responsibility to collect such data. The term 'medical-legal' was used constantly in our conversations to emphasize that, although this was a death, it was one that 'belonged' to the police, not the physician. Doctors specifically discussed how complicated it was to 'record' such deaths, and that they were legally not allowed to make such a call. Suicides often only appeared in the health system if they were brought in for a post-mortem, however, only a few health centers (Government District Hospitals and some Primary Health Centers) are qualified to conduct such exams. Oftentimes, young physicians staffing rural primary health centers are charged with conducting all the post-mortems for the police, and rarely are they specifically trained in how to identify suicidality. Moreover, clinicians insisted that it was not ‘legal’ for them to mark the ‘cause of death’ as suicide, as that was the responsibility of the police. Rather, they were simply charged with identifying the manner of death (e.g. cardiac failure, asphyxiation). In fact, informants that were tasked with post-mortems in their early career cited that the great majority of all deaths they assessed were suicides. Some clinicians that performed autopsies agreed that they could not speculate on the intention related to the death, as they only “saw the dead body in the exam room.” However, others mentioned that it was often easy to tell if the wounds were self-inflicted or not, but they had no power to make such a declaration. Despite physicians having the ability to discuss circumstances with family members for more information, this communication platform was rarely pursued.

Because the autopsy reports were ‘medico-legal’ documents, they ‘belonged to the police’ and were not included in the HMIS report. When asked if the informant believed these should be integrated into HMIS, all unanimously agreed ‘yes’ but then cited complications of implementing such a rule. Doctors, more than any other group of informants, declared that there was no reporting system for suicide cases. A psychiatrist laughed and stated, “In Nepal, there is no reporting system. Suicide cases are only reported if it goes to the police. Maybe that happens in the big hospitals, but it’s rare in the community." He went on to describe why it is so difficult to integrate private institution data into HMIS:

> In Kathmandu, urban hospitals are supposed to report the cause of death, but the majority of healthcare is not provided by the government hospital. So, the private hospitals are not advised to accurately report to the government. Most of the hospitals don't have internal recording systems and don't have way to report it either. Our clinic [is] supposed to report every 3 months, but there is no check and balance. Even now there is no proper medical record which includes the name, cause of illness, treatment, and advice given to the patient. We don't keep medical records, so when it comes time to report, I have nothing to go off of. So I just report what I remember. An HMIS mechanism should exist, but it doesn't, not in the private clinics.

While HMIS does have ICD codes within their system for suicide deaths, the HMIS does not systematically collect or report self-harm or suicide data within their system. This is despite their ability to do so because all suicides must legally have a post-mortem, and all post-mortem procedures have to take place in a government medical institution. However, clinicians and health officials we interviewed did not know ICD codes existed for such deaths, highlighting a gap in the 'official' system whereby the infrastructure may exist, but individuals filling out paperwork are unaware. While the purpose of the study was to document death surveillance, interviewees also emphasized the complete lack of documentation within the health information system relating to suicide *attempts*.

Most health informants reported that no suicide death recording system existed at all within the health system. One multilateral health organization official stated, “You see, HIV has a specific program, a funded surveillance system that is completely separate from most of our reporting. So all the HIV cases and deaths, they get reported. But suicide, mental health, there’s no division [departments], no funding for that, so none of those deaths are captured systematically.” Often, clinicians highlighted the haphazard documentation of any patient cases, citing that the data were never utilized by anyone anyway, so there was no value in detailed documentation. For instance, post-mortem reports are kept both in police records and in the hospital records, but not one clinician noted ever aggregated the information or used the death data to inform their own work. The post-mortem reports were often cited as being conducted “for the police,” indicating their value within the health system was negligible. One physician at a large government hospital noted, “The recording of [suicide] cases, it’s not so strictly regulated. I think in Nepal, we do a lot of things, but we do not record it or do any analysis of it [...] Record keeping is the poorest thing that we do. Definitely”.

Moreover, doctors admitted that all cases are certainly not brought into the health system, so HMIS cannot possibly capture the true burden. Even bringing in dead bodies for a post-mortem is challenging, as the burden for transport and related costs are borne by the family. One physician commented that when he worked in a rural district, many cases were not ever brought in because it might take days and thousands of rupees to move the body. Families could neither afford the fees nor the time, as the bodies should be burned as fast as possible. At the community level, Female Community Health

Volunteers (FCHVs) are tasked with tracking all births and deaths within their catchment areas. However, a leader at a large INGO stated that FCHVs miss such events all the time, as they are preoccupied with maternal health related issues. FCHVs are incentivized to report and bring births into the health system, however, death reporting is not compensated. Moreover, the FCHVs are often focused more on women and children than men, so their documentation would likely miss any male suicide events entirely.

A former official within the Ministry of Health and Population explained that the health system's relative neglect of mental health to date may stem from the practice of the Joint Annual Review (JAR). This high-level meeting consists of macro level organizations (including WHO, World Bank, DfID, USAID, etc.) and Nepal's Ministry of Health discussing the progress and future priorities of Nepal's health sector performance. When prompted to discuss whether mental health is discussed at these meetings, a retired government health official replied, "(*laughing*) Always. It's the same story. It [mental health] should be integrated. But the health ministers, they should be serious about it, no? It is always discussed but never acted on. The ministers come and they only look for their own area, 'What can I do in my area?'" Political influences were believed to heavily affect the ministry's priorities, leaving localities with historically little funding from development agencies, undeveloped indicators, and no immediate perceived need in ministers' districts without a spot on the upcoming health agenda. Finally, despite interviewing several government and international development informants, no one could describe how data get to the WHO or why suicides might not get reported, besides the fact that HMIS was not responsible for reporting such deaths.

Despite suicide recording, and health information recording in general, not being a high priority for the health respondents, some units did informally document suicide cases. In one patient record book, nurses indicated with a red ‘S’ if a case was suspected to be a suicide. The nurse explained, “No. We never mark a case as suicide. Not on the death certificate or in our reports. That’s the police’s job. We do sometimes indicate in our patient log a red ‘S’ if we suspect a suicide. But this information stays with us. We do not send it anywhere.”

One of the most notable findings was the persistent misconception among health workers that suicide was illegal and a punishable offense. It was often commented that cases were not reported because of the legal consequences. One psychiatrist commented, “In Nepal suicide is a criminal offense, so lots of the cases they don’t get reported because of the stigma in the family and community, you know? They won’t want to get the police involved.” Additionally, health staff and other administrative personnel were hesitant to document many details because of the legal sensitivity. A nurse explained that, “we cannot write down suicide in any of the documents. Only the police can do that. We can write poison case, if that is what the doctor wrote, but we never mention the intent.” Another physician that conducted post-mortems mentioned that, “Many of the junior doctors, we are nervous to write suicide. It is illegal so we might be called to court, what if we are wrong? We let the police do that.” Lack of documentation and reporting was often attributed to this belief. This was in stark contrast to the actual legal code, the *Muluki Ain*, which contains no reference to suicide as a punishable offense.

Role of the Community and Administration Sector

Informants noted wide variation in the completeness, accuracy, and capability of the ‘surveillance system’ in Nepal, highlighting many needs and challenges for documenting a complicated cause of death. Deaths are recorded at the community level through Village Development Committee offices (VDCs) or Municipality Offices. VDCs issue birth and death certificates. When interviewing VDC Secretaries (government appointed positions), both of whom had been in their position for well over a decade, the informants had never issued a cause of death as suicide. One VDC secretary explained why this was the case: “The family reports the cause of death directly to us. If it is anything other than a ‘natural’ death, we must inform the police and they will need to issue the death forms. That takes time…it’s a big hassle. So if the family just says it was a natural death, even if the individual was in their 20’s, the process is very fast and easy.” Often death certificates are not sought after; in fact, most often only in cases where property and wealth transfer legally require a death certificate of the previous owner are such forms filled out. In Nepal, property is generally held by the males in the family, so female deaths are nearly never reported to the VDC.

The VDCs are charged with reporting up to the Ministry of Federal Affairs and Local Development (MoFALD), a government division that is independent from the health and legal sectors of the country. A high-level multilateral organization official emphasized that there are no platforms for information sharing among VDCs, local health posts, and local police offices, so information becomes fragmented and perhaps duplicated at the higher ministry levels. Multilateral organization officials also pointed to the varying priorities of the ministries and donor agencies as one reason death surveillance has not yet been prioritized: “Right now we are focused on documenting all births for maternal health indicators and vaccine coverage, things like that. There is funding there for that. So those are the priorities.” Often, high-level agencies were cited as controlling what information was prioritized and therefore recorded well. Without funding and checks and balances for deaths, and considering the complicated coordination needed among several different ministries, the pragmatics of accurately capturing something like suicides seemed impossible.

While police informants were confident that all deaths were investigated by their personnel without exception, community members interviewed insisted that suicide deaths would rarely be reported to the police for the following reasons: (1) it increased the time before death rituals could be initiated, (2) if reported to the police, the family might be suspected of murder, and (3) extra cost placed on family. One psychosocial worker explained, “These types of deaths (suicides), they do not get reported to the police. They are brought to the community, and they decide if it is suspicious of murder. Only in that case would the police be called. Otherwise, it is handled internally. The police, they complicate matters. They delay the funeral. It stays in the community”.

A Nepali multilateral-organization development worker discussed common mistrust of the police, stating that she would not believe what they report as they might be easily bribed: “Suicide is also, especially when it comes to domestic workers, women, suicide is such an excuse. It is clearly a murder or an abusive situation [...] and the police do not always properly investigate [...] I mean, there are cases that I do not trust the

Nepal police, I don’t trust that all these cases are suicides.” A high-ranking police official mentioned that she knew of a doctor being bribed: “There was a case where they bribed 80,000 USD. The post-mortem report said suicide, but the dead body touched the ground, so the father-in-law, wife, and son were blamed for the woman’s death. Three people were blamed for murder by the community. It was a big issue. But at the end it was the post-mortem report that was official, where they bribed the doctor to say suicide.”

Social Network Findings

To explore perceived reporting frameworks and subsequent variation across informants, each pictorial network was coded and digitized. Examples of informant networks can be found in Figure 4. Nodes were coded to indicate institutional type (see Figure 4). Most networks were linear, where information exchange passed in one direction, with few instances of reciprocal exchange between institutions. Networks ranged from two to seven institutions involved in information exchange related to suicide deaths. Large variation exists among the perceived networks. Some were simple and involved few actors, while others were very complex identifying many actors communicating across many institutions (Figure 4). For example, a network drawn by a local psychosocial worker contained only two nodes, both at the community level, whereas the mean was over 5, with some networks containing 10 nodes.

Informants that worked at a macro level (WHO, DfID, etc.) had generally larger and more complex networks compared to those working at the community level. For example, a psychiatrist working at a large government hospital drew a network where only police were involved in the data collection and suicide declaration process (Figure 4). Despite denoting what the system was supposed to look like, many informants mentioned that the system was dysfunctional and disconnected. One multilateral organization official mentioned, “Everything is problematic here in the system. Our systems are not strong, forms are not completed per the WHO or UN recommendations, and the suicide deaths in particular are not well captured in the system. The police are the only officials mandated to document and declare suicides.”

To determine which institutions ‘controlled’ the data most (either through data generation, classification, and data ‘ownership’) indegree was assessed by counting the number of times a respondent indicated that a particular node received information from another node. Table 4 summarizes indegree by institution. Police had the majority of incoming data, suggesting that they ‘own’ and transform most of the suicide information into ‘fact’. However, whereas international macro-level institutions are ideally the final recipients of data, only four incoming ties were reported. Furthermore, the macro-level institutions identified for such ties were the Central Bureau of Statistics – a Nepali based institution that only receives data from the national police headquarters. No informants reported in their pathways that information would travel up to the World Health Organization, the global institution ultimately responsible for identifying health priorities and rallying for resources.

Health bodies were also involved in much of the incoming information, but as indicated in concurrent interviews, although a body may come into a hospital, doctors are not allowed to declare suicides, nor is ‘suicide’ ever indicated on a death certificate. Only police have the ‘legal power’ to declare such deaths. One nurse even noted that many health professionals were nervous and scared to be involved in declaring suicidal cases – even if there was robust physical evidence to support such a cause of death – because it was not their ‘professional position’. The community, logically, has the majority of outgoing ties, suggesting that the source of data remains at the community level, which is ultimately responsible for initiating information sharing and official data collection.

Incoming and outgoing ties to each institution indicates how ‘central’ a particular node is to the network (i.e. controlling information transfer). These results are depicted in Table 4. Police had the highest average betweenness measures compared to other institutions. This indicates that the police are capable of ‘controlling’ the most information, as it has to pass through them more than any other node type. Individuals were extracted from their ‘community’ category to demonstrate that once individuals provide the original ‘data’, information does not route through them again and therefore, they have the lowest ‘control’.

Finally, in international ‘gold standard’ surveillance networks (World Health Organization, 1999), macro level institutions like the WHO are considered the ‘terminal’ point of data deposits (e.g., countries report their national data to the WHO, which then assesses global health trends). However, no informants indicated that information arrived at the ‘macro’ WHO headquarters within Nepal. After being probed, no informants could describe the mechanism by which WHO received country-based suicide data, why the WHO did not use the police data related to suicide, or what was required of the health system for WHO to begin reporting Nepal’s suicide rates. The highest level ‘terminal’ position informants mentioned was the Central Bureau of Statistics, an agency that collects data from the police headquarters and other government ministries.

Discussion

Reliable and accurate suicide surveillance is crucial to design, implement, and evaluate suicide prevention strategies, with the aim of meeting targets such as WHO's 10% reduction in national suicide rates [3]. This study sought to better understand how suicide knowledge and information, specifically suicidal data, pass between and among institutions in Nepal. The key findings were:

1. A discrepancy between perceived criminality of suicide and actual legal codes;
2. The dominant role of police in collecting information, reporting suicide, and interacting with families affected by suicide;
3. A lack of systematic nationally standardized approaches within the health system for documentation and reporting of suicide, including limited communication channels between HMIS and global reporting (e.g., through WHO) of suicide statistics; and
4. Limited engagement of families in reporting suicide because of fear of legal entanglements anticipated with reporting suicide, anticipated stigma for families of suicide victims, and greater time and financial burden compared to reporting natural deaths.

Overall, there was large variation across the participant perceived networks, whereby some networks were linear pathways dominated by a single institution (police or community) with few nodes involved in data transmission, while others were complex and communicative. Such disagreement suggests disconnection amongst institutions.

Yazdizadeh et al [64] found similar disconnectedness and disagreement in knowledge networks in Iran. In Nepal in particular, the health system is known to be fragmented and dominated by vertical programs [65-67]. Despite recent recognition that improved surveillance systems in developing nations are crucial to improving human health [8, 68], little progress has been made [69]. Even in the United States, the National Violent Death Reporting System is only implemented in 18 states, indicating the difficulty of achieving robust information sharing processes [14]. Some lower income countries like India have official death registration systems, but they still face many challenges due to inefficient civil registration systems, variable standards for death certification, and under-reporting of deaths [70-72].

The findings show that some informants perceive the suicide reporting pathways to bypass formal institutions altogether. In these cases, it may be that community based surveillance systems will perform more accurately than relying on currently fractured systems. Cwik and colleagues successfully implemented such a system alongside the White Mountain Apache tribe using locally appointed counselors to visit families, conduct an extended verbal-autopsy, and report to the public health agency [73, 74].

In Nepal, one attempt has been made to pilot a robust health demographic surveillance system, but several challenges were encountered in order to maintain its sustainability including garnering political support and approval, geographic challenges, lack of household addresses, and very low death registration [75]. These challenges are reflected in this current study, where few deaths are officially reported. Additionally, cause of death is reported by the family with no requirement for a medical certificate.

Families may be unaware or unwilling to report accurate causes due to lack of medical services, education, difficult administrative processes, and stigma.

Because only certain statistics (births, HIV/TB prevalence) in Nepal are reported to multi-lateral institutional bodies that hold the majority of health development funding, suicide and non-disease-specific deaths disappear from the global picture. This may further perpetuate the focus on current diseases that receive the bulk of international aid dollars (HIV, TB), as they are the most closely tracked and reported of all global health indicators. A recent study found that, although development assistance from international agencies has remained high, it did not align with recipient disease burdens [76]. HIV and maternal and child health remain the two most funded public health problems; however, mental health and health infrastructure lag far behind, particularly as mental health will soon be the leading cause of Disability Adjust Life Years (DALYs) worldwide [77-79]. Nepal's health programs have historically targeted women and children, shaping funding patterns and program development to prefer gendered, female-based initiatives [80-82]. Better integrating suicide and other violent deaths into surveillance frameworks that are currently well established and funded within HIV and TB pathways may be one mechanism for increasing funding and success. However, the lack of alignment between disease burden, income, and funding reveals the need for improvement in resource allocation.

Importantly, social network analysis provides an important tool for exploring poorly understood and growing health systems, particularly in developing countries where documentation and monitoring is fragmented and infrequent [61]. Anthropologists have much to add to this discussion. Hull [83] argues that anthropologists have overlooked the role of bureaucratic documents, pointing to their mediative role in relationships and experiences of justice. Health statistics, particularly mortality data, produce ‘category fallacies,’ which result in the systematic misclassification of diseases and causes of death [26, 27, 45, 46, 84, 85]. When anthropologists situate official state generated data within the larger political milieu, prevalent health conditions may be overshadowed by priorities to prove ‘success’ or ‘need’ for the state to maintain funding [44, 46, 86]. Health system development in particular has been couched as imperialistic and neglectful of social and structural drivers [87, 88]. These studies, therefore, use a critical interpretive approach to understanding of death in ways ‘traditional’ numbers cannot [27, 89].

By exploring state-generated suicide statistics in a rapidly developing context (Nepal), the study expands upon, Erikson’s (2012) assertion that the production, use, and travel of health statistics are driven by geo-political-financial influences that shape perceptions, experiences, categories, and priorities of health [90-94]. The current study demonstrates the complexity of death registration, and how particularly sensitive causes of death, like suicide, might be neglected from the health system and subsequent program planning all together. Nepal and other low income, high burden, countries may benefit from sparking collaboration between health, legal and administrative institutions at the community level. Increased communication about causes of death and subsequent program planning may initiate more confidence in documentation. Finally, demonstrating to local data recorders the utility of the data they create may improve the current documentation practices. Programs that can successfully use data to shape and improve outcomes may also inspire better and more connected data documentation and information sharing at the source of data creation, the community.

One final issue was the gendering of investigation, documentation, and reporting practices. Because of the popularization of the 2009 Maternal Morbidity and Mortality Survey that identified suicide as the leading single cause of death among women of reproductive age, as well as subsequent qualitative reviews emphasizing this issue [36], most health workers, policy makers, and other stakeholders reported attending primarly to suicide consideration when investigating women's deaths. Agencies prioritized identifying and reporting female deaths, but often neglected to include men in such health program-planning. Ultimately, this framed female suicides as a health problem, but not male suicide mortality.This demonstrates how public health reports and subsequent media attention can drive incomplete and inadequate investigation and reporting practices. Prioritizing the development of a representative death registration system can help to provide timely and accurate information on causes of death so that development agencies do not rely only on verticle monitoring programs for specific diseases and poluations.

Limitations

The current study reveals important disagremeents and misunderstandings of how the vital surveillance system *should* and *does* work in Nepal and offers important steps forward in order to begin to address systemic issues in the current operation of information sharing, both within Nepal and in the context of global development.

Improved health information systems will further enhance the success of subsequent health improvement programs.

While the current study is novel and explores an under-studied topic, some limitations do exist. Informants often included both what they thought the system *should* be and how the system functioned in reality. This created inherent variation and ambiguity that is difficult to account for. Additionally, fewer police officials were engaged in the current research compared to health professionals. Similarly, the results presented in this article are only those from Kathmandu. Limited variability in the study sample forces us to interpret the results with caution. Finally, the analysis of the current project is highly descriptive and qualitative, and, as is typical of qualitative research, findings aimed at generalizability would need to follow a quantitative paradigm.

Recommendations

WHO's guidance on *Preventing Suicide* calls for formation of national strategies [2] in order to meet the targets for suicide risk reduction in the WHO Action Plan [3]. Findings from the current study suggest the following recommendations for Nepal and other LMIC settings:

1. *Raise awareness among health workers and international public health researchers and policy makers about medico-legal issues regarding suicide.* Health workers, law enforcement, and international development organizations should be versed in national legal codes related to suicide, as legal codes will affect reporting and documentation. A recent systematic review of 192 countries found that 25 countries have legal provisions

making suicide illegal, and an additional 20 countries follow Islamic/Sharia law in which suicide attempts result in jail sentences [95]. Nepal was not among the countries in which suicide attempts are criminalized. We similarly found that that suicidal behavior is not illegal in Nepal, a conclusion reached based on a review of the *Muluki Ain* legal code and interviews with multiple lawyers and police officers. This finding conflicts with many publications and reports written on suicide in Nepal stating that it is a punishable crime [35, 36, 39]. For example, one recent review of suicide in South Asia claimed that suicide was illegal in all South Asian countries except Sri Lanka [39]. However, legal review of South Asian policies revealed that suicide is illegal in Sri Lanka, Bangladesh, Pakistan, and, until recently, India [95]. Misinformation in peer-reviewed literature is problematic in that it propagates false information and perpetuates stigma-inducing rumors. Misinformation about suicide's legal nature by public health researchers reinforces barriers to appropriate reporting and mental health services. Through the education of government officials, particularly police, forensic doctors, and other officials involved in suicide death documentation and communication with families, myths and subsequent stigma may be dispelled. Additionally, the education of media professionals about the legal status of suicidal behavior can also enhance community awareness of both suicide prevention resources and non-stigmatizing information related to suicides.

2. *Collaborative, multi-sectoral approaches, especially partnerships between law enforcement and the health system are needed for reliable and accurate surveillance, and ultimately for effective suicide prevention.* The WHO *Preventing Suicide* report calls for

multi-sectoral partnerships and the findings from Nepal illustrate the shortcomings when such partnerships are not in place. The lack of coordination and communication between law enforcement and health systems has led to potentially inaccurate estimations of suicide prevalence and has impeded collaborative prevention efforts. Lack of partnership between these groups also likely contributes to multilateral organizations, such as the WHO, not receiving representative statistics across reporting stakeholders. Collaborative teams that involve law enforcement, legal representation, mental and physical health, and other social services is now the rule for appropriate responses to gender-based violence (GBV). For example, persons affected by GBV can receive services in "one-stop" centers that integrate all of these sectors. Similar approaches could facilitate improved reporting of suicidal behaviors, as well as help assure that affected persons can receive care to prevent future behaviors and risks in family members. Collaboration can also support shared accountability, rather than approaches to shift to only health care involvement. By keeping law enforcement engaged this can address issues, such as the suspected high co-occurrence of suicidal behavior among victims of GBV. There is increasing precedent for effective law enforcement-mental health collaborations in LMIC, such as the Crisis Intervention Team (CIT) model which has been successful in Liberia [96], which is also a setting in which police have been the default party involved for attempted suicides.

3. *Suicide registries should be established which allow direct entry of information from various health, law enforcement, and social service sectors.* Exclusive ownership and accountability for reporting that falls only into the purview of one sector may

underestimate certain types of self-injury and certain risk groups. A recent systematic review of suicide data and policies in South Asia points out the lack of collaborative registries that would address this shortcoming [39]. In Nepal, we found that suicide data are ‘owned’ by the police force, reinforcing the misperception that it is illegal and categorizing it as a legal issue, rather than a health issue. Such a practice removes an important cause of mortality from the health decision-making, and ultimately from competing for what little resources do exist to address health issues in poor settings. Identifying and resolving principal contradictions among bureaucratic institutions, biomedicine, and culturally congruent understandings of mortality is essential to uncovering the cultural propagation of mortality data. Exploring data ‘transactions’ and bureaucratic categorization allows us to ‘study up’ the issue of suicide, offering opportunities to reveal both the socio-cultural processes by which health statistics get produced and how the discourses used at varying levels of social authority and power shape how death is endorsed and understood [97]. The anthropological community has highlighted concerns related to the governance, oversight, and the impact of high profile public health efforts on state health care systems [98].

4. *Anti-stigma efforts are needed to reduce discrimination of persons with self-harm behavior and among groups at risk for self-harm.* The WHO *Preventing Suicide* report also highlights the need for stigma prevention to improve surveillance, as well as to encourage care-seeking and other preventative measures. In Nepal, prior research has shown that mental health is highly stigmatized through local concepts of “brain-mind”

problems (Nepali: *dimaag ko samasya*) [99, 100]. Suicide, similarly, is seen as a brain-mind problem [101]. Campaigns are needed to raise awareness about the causes of suicide, and to combine reporting and seeking services. Raising awareness that suicide is not a crime will also hopefully contribute to reducing stigma. Stigma against suicidal behavior is also prevalent in healthcare settings, as evidenced by these findings in Nepal, as well as through other studies in LMIC [102]. There is a range of models for reducing mental health stigma settings, including reducing stigma associated with self-harm behaviors [103], and these endeavors need to be expanded to develop an evidence base for suicide stigma reduction in LMIC.

5. *Community-based detection and reporting should be explored as a complement to institutional surveillance practices.* In Brazil, Nations and colleagues found that community-based surveillance systems produced much more accurate and detailed infant mortality data compared to that of official health statistics [45, 104]. Community-based solutions for detection of public health threats have been successful in Nepal for tuberculosis [105] and for maternal mortality [65]. Pyakurel et al (2014) specifically called for better detection of suicide cases in Nepal, providing some preliminary evidence that Female Community Health Volunteers (FCHVs) are an ideal candidate for monitoring and reporting deaths. As many suicide deaths remain unreported within the community, using FCHVs as a strategy may improve the lack of police reporting as well as issues related to stigma. Researchers have pointed to the importance of using community informed detection tools for early identification and referral for mental health

issues [106]. Training FCHVs in the implementation of such tools alongside a formal collaborative reporting strategy with health and police institutions may drastically improve suicide reporting.

Conclusion

Death surveillance, and suicide surveillance in particular, remains a fragmented, poorly understood, and disconnected process in Nepal. Results indicate an urgent need for better communication of data systems and their frameworks among those involved in their functioning, particularly health institutions as they remain key stakeholders in the communication and prioritization of health issues. As multi-lateral agencies (UN, WHO, etc.) grow their investment in Nepal, the country is rapidly experiencing health system growth and data systems are the crux of decision making and resource allocation. Further research exploring communication pathways, effectiveness, and the quality of health systems and information systems in resource-poor settings is necessary for a better understanding of what policies and programs are urgently needed to better capture, and ultimately address, hidden health burdens around the world.

AVAILABILITY OF DATA AND SUPPORTING MATERIALS

Qualitative coding queries and code book information may be requested from the first author. Institutional suicide surveillance and reporting data are not available from the authors. For this information, researchers are encouraged to directly contact law enforcement and health institutions in Nepal.

FUNDING

This research was supported by the U.S. National Science Foundation Doctoral Dissertation Improvement Grant #1459811 to AKH. In addition, BAK was supported by the National Institute of Mental Health (K01 MH104310).

COMPETING INTERESTS

None.

AUTHOR’S CONTRIBUTIONS

AKH carried out the study conception and design, led data collection, conducted the analysis and drafted the manuscript. UM participated in data collection, assisted with analysis, and contributed to the manuscript. BAK revised the manuscript critically and supervised the project. All authors read and approved the final manuscript.

ACKNOWLEDGEMENTS

The authors are deeply grateful for the valuable advice and mentorship of Transcultural Psychosocial Organization (TPO) Nepal, particularly Mr. Nagendra Luitel and Mr. Nawaraj Upadhaya. We are also gracious for the assistance of Nobel College and its faculty, particularly Dr. Shyam Lohani, and other Nepali collaborators including Ms. Seema Khadka and Dr.Namrata Pradhan.

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Tables and Figures

Table 3.1 Semi-Structured Interview Participant Characteristics

Subject	Category	Facility	Occupation	Gender	Age
1	Administrative	Government Ministry	Statistician	Male	40-49
2	Administrative	Government Ministry	Surveillance Director	Male	40-49
3	Administrative	Multi-lateral organization	Program researcher	Female	30-39
4	Administrative	Multi-lateral organization	Department director	Female	40-49
5	Administrative	Multi-lateral organization	Program Coordinator	Female	>50
6	Administrative	Multi-lateral organization	Development Officer	Male	30-39
7	Administrative	Multi-lateral organization	Technical Advisor	Male	30-39
8	Administrative	Multi-lateral organization	Technical Advisor	Male	30-39
9	Administrative	NGO	Researcher	Male	30-39
10	Administrative	NGO	Researcher	Male	30-39
11	Administrative	Village Development Office	Data clerk	Female	40-49
12	Health	Academic hospital	Psychiatrist	Male	40-49
13	Health	District Health Office	District Health Officer	Male	>50
14	Health	Government Ministry	Statistician	Male	40-49
15	Health	Government Ministry	Director	Male	40-49
16	Health	Government Ministry	Information Management	Male	40-49
17	Health	Government Ministry	Epidemiologist	Male	>50
18	Health	Government Ministry	Retired Official	Male	>50
19	Health	Multilateral organization	Psychosocial Lead	Male	30-39
20	Health	National Hospital	Head Nurse	Female	>50
21	Health	National Hospital	Psychologist/Professor	Female	40-49
22	Health	National Hospital	Psychiatrist Resident	Male	30-39
23	Health	National Hospital	Psychiatrist	Male	40-49
24	Health	National Hospital	Professor and Psychiatrist	Male	>50
25	Health	National Hospital	Psychiatric Resident	Male	30-39
26	Health	NGO	Psychologist	Female	30-39
27	Health	NGO	Program Manager	Female	30-39
28	Health	NGO	Psychological Counselor	Female	30-39
29	Health	NGO	Psychosocial worker	Male	40-49
30	Health	NGO	Researcher	Male	40-49
31	Health	Private Hospital	Director	Male	40-49
32	Legal	Lawyer	Lawyer	Male	20-29
33	Legal	Police	Division Director	Female	30-39
34	Legal	Police	High-ranking official	Female	40-49
35	Legal	Police	High-ranking official	Male	40-49
36	Legal	Police	Police Officer	Male	40-49

Table 3.2 Documentation procedures, policies, and practices as reported by stakeholders

Stakeholder Group	Roles with group	Legal requirements related to suicide	Policy providing guidelines	Definition of suicide	Reported Experience
Nepal Police (Ministry of Home Affairs)	• Local police intake individual report and relay to DPO • District police investigate/request PM/compile reports • Zonal/District Attorney/Central HQ keep reports • Court System 'confirms' suicidal death	• Investigation reports • Letters to request PM, witness signatures • Police Report needed to obtain a Death Certificate	• Section 187: Draft Penal Code (abatement of suicide) • Country Code (Muluki Ain): Procedural Investigation for homicides and unclear suicides	• No explicit definition in the Penal Code nor the Muluki Ain	• Individuals do not report suicides to police. • Homicides misreported as suicides • Bribed to not record • Paper forms, information lost or incorrectly relayed between levels • Reports not properly completed • Difficult for district offices to pay hospital for needed forms • Not trained in suicide first aid or interview sensitivity
Health system (Ministry of Health and Population)	• ER/PHC MBBS: Post Mortem report (sometimes appear in court) • ATTEMPTS: • ER Nurse (maintain census book, standard vital sign checks, ask patient (pt) status. • Physician: treat and stabilize attempt case • Psychiatrist: See all 'accident cases'; talk to family/pt; prescribe medication, counseling not typically performed • FCHV: monitor births and deaths (mostly female), report to HP • Health post: standard monthly reporting (has poisonings), monitor FCHVs. • DHO: aggregate data from HPs	• DEATH • PM Report • Confirm death with ECG • ATTEMPTS: • Central Hospital: Psychiatrists indicate in census book and pt log attempts with an ICD • • Hospital cannot give Death Certificate	• HMIS forms • Government Institutions can only perform post-mortems (PM) • PM clinician must appear to court if called • Inexperienced doctors encouraged to not speculate on underlying cause of death	• ICD codes (X60, X68, X70, X78) • PM report requires immediate cause of death, not the mode.	• Suicides do not present to the health sector • Suicides misreported as accidents or homicides as suicides • Suicides/attempts are not recorded in HMIS (forms do not have proper code or forms unavailable) • Dead on arrival cases are not reported in hospital data • HPs do not report on time/properly • FCHVs do not actively report deaths, mostly births • ER attempts often do not get to psychiatric care
VDC or Municipality (Ministry of Federal Affairs and Local Development)	• Issue death certificates: if suicide, require police investigation and doctor's report	• Issue Death Certificates • Must help report suicide or homicide to police • Sends reports to LDO	• Civil Registration Act: of1976	• Document of Police Confirmation of death • Document from Physician confirming death (ECG)	• Individuals never report a death to VDC as suicide • Only some deaths are registered (property, assets required)
Other government institutions	• Central Bureau of Statistics: charged with collecting and reporting data from Police, MOHP, and other ministries. • Dept of Home Affairs: Police report aggregation and reporting • Ministry of Federal Affairs and Local Development: census, birth, deaths reporting			• See above	

Table 3.3 Suicide-related and unidentified intent indicators in Nepal's Health Management and Information System

ICD-10 Code*	Disease description
X60	Intentional self-poisoning by exposure to non-opioid analgesics, antipyretics and antirheumatics
X68	Intentional self-poisoning by and exposure to pesticides
X70	Intentional self-harm by hanging, strangulation and suffocation
X78	Intentional self-harm by sharp object
T60	Toxic effect of pesticides
T62	Toxic effect of other noxious substances eaten as food
T65	Toxic effect of other and unspecified substances

*Burn and other detailed injuries not included. All self harm indicators are included.

Table 3.4 Extent of 'control' across intuitional category.

	Police	Health	Community	Development	
Indegree, N(%)	46 (40)	36 (31)	30 (26)	4 (4)	
Outdegree, N(%)	37 (32)	33 (28)	45 (39)	0	
	Police	**Health**	**Community**	**Individual**	**Macro**
Betweenness, range (average)	0 – 4 (1.11)	0 – 3 (0.63)	0 – 3 (0.41)	0	0
Terminal position, N	18	4	1	0	1

Figure 3.1 Reporting pathways through governmental health, police, and administrative systems

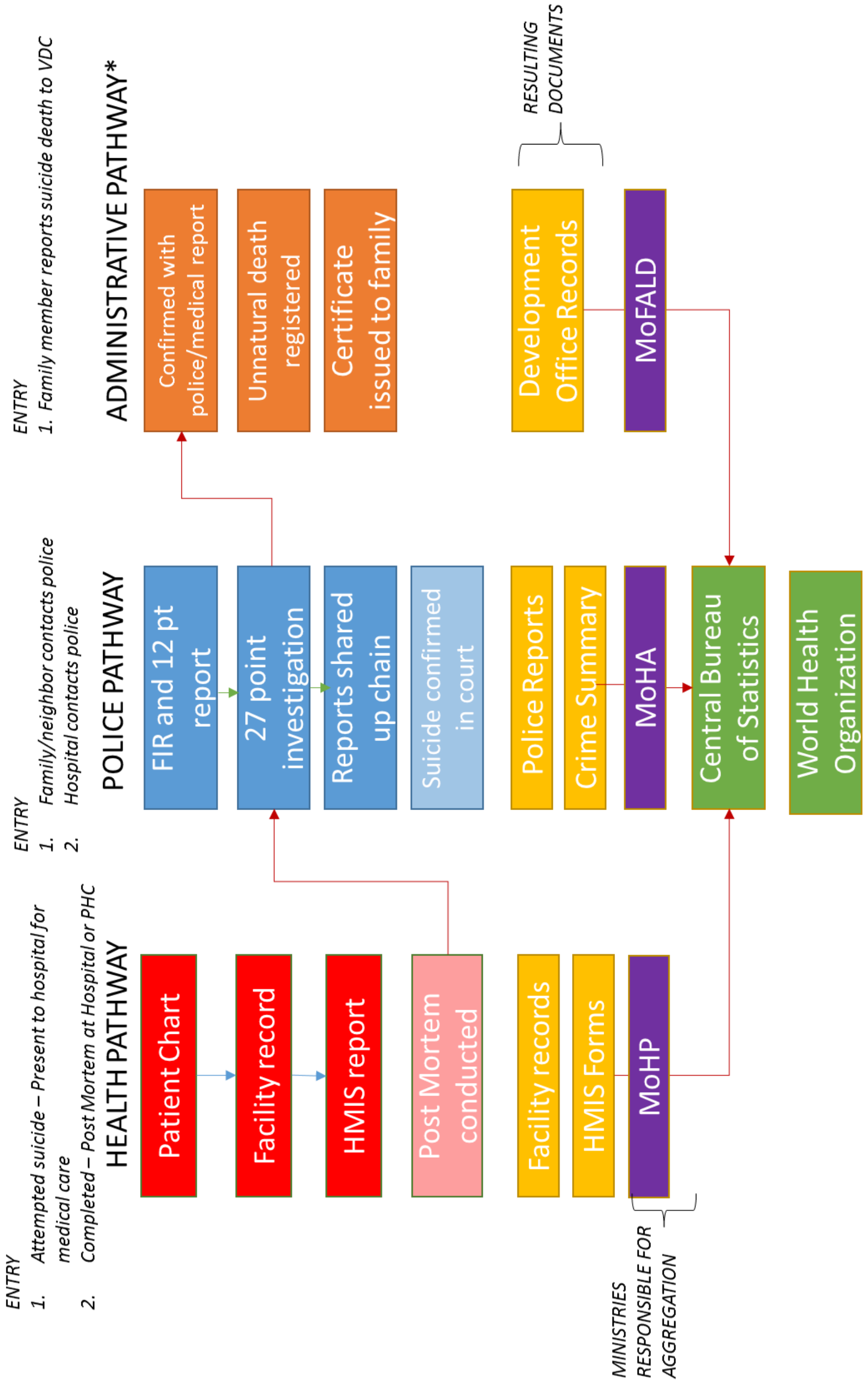


Figure 3.2 Summary of barriers to reporting pathways for suicide deaths

Health

- Patients do not present to healht facilities
- Missing history of suicidality in patient charts
- Human error in paper-based reporting
- Suicide not included in local reporting forms
- Postmortems are incomplete, suicide intentionality not mentioned
- Data are not reported to WHO
- Information is not shared across ministries

Police

- Deaths unreported or mis-reported to police authorities
- Suicide is perceived as illegal
- Police reports are incomplete
- Human error in handwritten paper-based data transfers
- Information is not shared across ministries

Administrative

- No incentives to report deaths
- Only natural deaths are recorded
- Specific cause of death not mentioned in any documentation
- Deaths are not comprehensively reported to central data repository
- Information is not shared across ministries

Figure 3. Digitized hand-drawn surveillance network samples from five informants

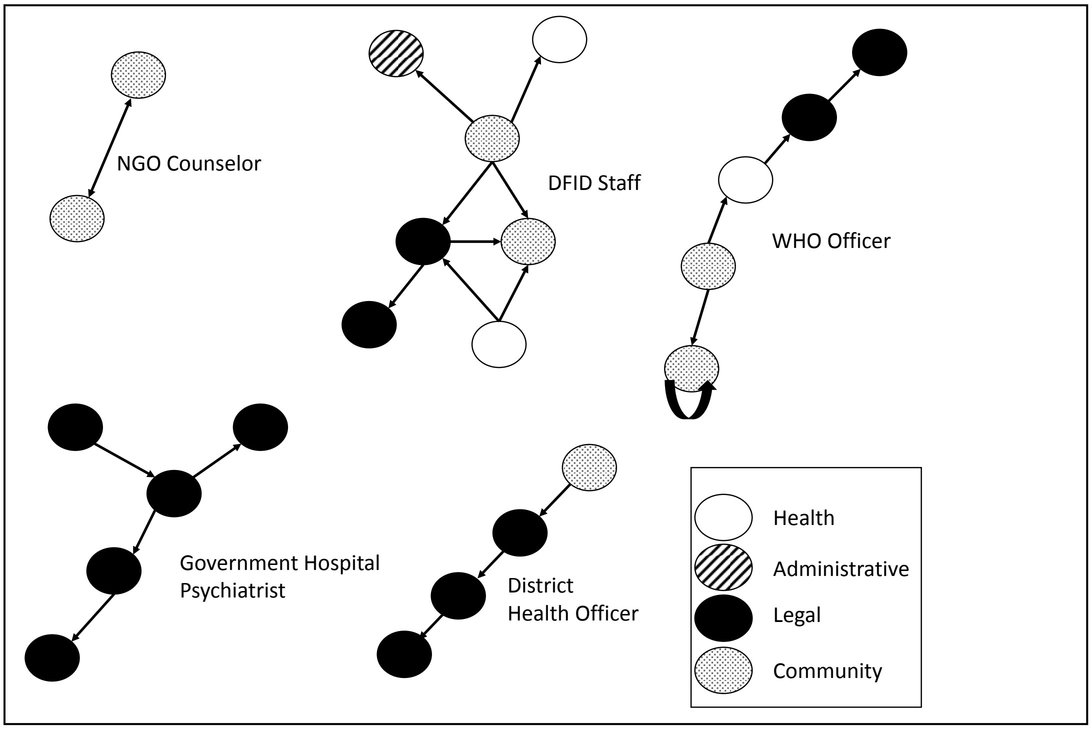
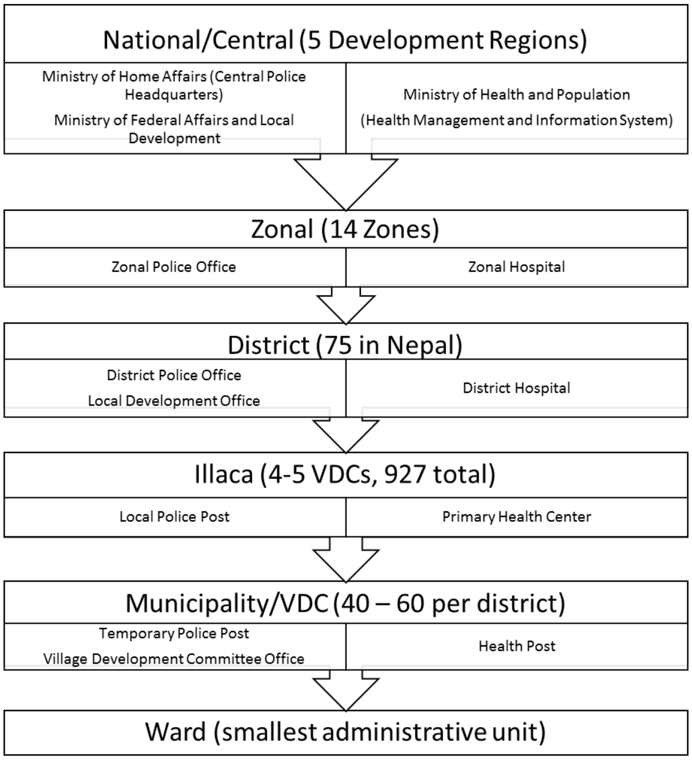


Figure 3.4 Governing Units of Nepal with Corresponding Police, Administrative, and Health Institutions



CHAPTER 4

SUICIDE IN NEPAL: A MODIFIED PSYCHOLOGICAL AUTOPSY INVESTIGATION FROM RANDOMLY SELECTED POLICE CASES BETWEEN 2013 – 2015.

Abstract

Background: Yearly, 600,000 people complete suicide in low- and middle-income countries, accounting for 75% of the world's burden of suicide mortality. The highest regional rates are in south and east Asia. Nepal has one of the highest suicide rates in the world; however, few investigations exploring patterns surrounding both male and female suicides exist. Psychological autopsies, which utilize proxy informants to provide information about the deceased, can shed light on suicide related factors and events. *Methods:* Randomly sampled from 302 police case reports over 24 months, psychological autopsies were conducted for 39 completed suicide cases in one urban and one rural region of Nepal. *Results:* In the total police sample (n=302), 57% of deaths were male. Over 40% of deaths were 25 years or younger, including 65% of rural and 51% of female suicide deaths. We estimate the crude urban and rural suicide rates to be 16.1 and 22.8 per 100,000 respectively. Within our psychological autopsy sample, 38.5% met criteria for depression and only 23.1% informants believed that the deceased had thoughts of self-harm or suicide before death. Important warning signs include recent geographic migration, alcohol abuse, and family history of suicide. *Conclusions:* Suicide prevention strategies in Nepal should account for the lack of awareness about suicide risk among family members and early age of suicide completion, especially in rural and female

populations. Given the low rates of ideation disclosure to friends and family, educating the general public about other signs of suicide may help prevention efforts in Nepal.

Acknowledgements:

The authors are deeply grateful for the valuable advice and mentorship of Transcultural Psychosocial Organization (TPO) Nepal, particularly Mr. Nandaraj Acharya, Mr. Safar Bikram Adhikari, Mr. Nagendra Luitel, and Mr. Suraj Koirala. We are also gracious for the assistance of Jumla District and Kathmandu District police officers as well as Action Works Nepal staff and community leaders.

Financial Support:

AH was supported by US Fulbright Student Research Program and the National Science Foundation Cultural Anthropology Doctoral Dissertation Research Improvement Grant [Award 1459811]. BAK was supported by the U.S. National Institute of Mental Health [K01MH104310].

Ethical Standards:

The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008.

Introduction

Suicide accounts for over 800,000 deaths per year, killing more than war and natural disasters combined (World Health Organization, 2014). Low and middle income countries (LMIC) hold more than 75 percent of the global suicide burden, but only a fraction of the research exploring risk factors and prevention strategies (Bertolote et al., 2006, Bertolote et al., 2005, World Health Organization, 2014). LMIC in South-East Asia hold the largest proportion of the world's suicides (39.1%) as well as the highest regional rates (17.7 per 100,000) (World Health Organization, 2014). In Asia in particular, characteristics of people that die by suicide are distinctly different to other regions where the male to female ratio for suicide deaths is much closer to one (in high income countries, this ratio is 3.5), there are lower proportions of mental disorders, differing methods, and more rural suicides (World Health Organization, 2014, Phillips, 2010, Iemmi et al., 2016, Knipe et al., 2015). Common risk factors for suicides in low-income settings include existing mental illness, history of suicide attempt, low socio-economic position, poverty, and other socio-cultural characteristics (Knipe et al., 2015, Iemmi et al., 2016, World Health Organization, 2008, Vijayakumar et al., 2008, Vijayakumar et al., 2005b, Vijayakumar et al., 2011, Vijayakumar et al., 2005a, Bertolote et al., 2005). Despite general recognition that common risk factors for suicide exist across cultures, suicide remains complex and difficult to predict. Moreover, although links between culture and suicide have been established, measures used to assess culture have been overly simplistic and are often reduced to geographic origin or nationality. Due to the historic emphasis of the role of mental illness in suicide, recent academic calls have specifically emphasized the need for broader investigations research in suicide studies (Kral et al., 2012, Hjelmeland and Knizek, 2010). Inquiries examining the personal lives of those that have died, their social circumstances, culture, and their interactions with broader social and political structures may be of crucial importance to better understand suicidality.

The psychological autopsy (PA) method is well suited to explore suicide from multiple dimensions. This approach will be beneficial in order to untangle disparate suicide rate estimations and severe under-reporting that is common in LMIC. Nepal is a useful example of how mismatches in suicide rate estimates confuse health and policy makers, stunting an appropriate response to a potentially large burden of death (Hagaman et al., 2016a). For the year 2012, the World Health Organization estimated Nepal to have an overall age-standardized suicide rate of 24.9, ranking it the 8th highest rate in the world. The country's estimated female suicide rate ranks 3rd highest (20.0) and male rates rank the 17th highest (30.1) (World Health Organization, 2014). However, the Global Burden of Disease estimates Nepal to only have an overall suicide rate of 6.21 and 5.07 and 7.43 for females and males respectively (Institute for Health Metrics and Evaluation). Community-based reports have purported that suicide is the leading killer among women of reproductive age (Suvedi et al., 2009, Pradhan et al., 2011). Police estimates are lower than both community and global estimates, but they do indicate a steady increase in suicide over the last decade (Pradhan et al., 2011). To further complicate existing evidence, most of the suicide research in Nepal explores only female suicides or suicides that present to a health institution, leaving gaps in understanding what drives male suicides, suicides of those in younger and older age groups, and those that do not present to health facilities (Hagaman et al., 2016a).

This study sought to fill these gaps by exploring both male and female suicides of any age through a mixed-methods modified psychological autopsy approach adapted for cross-cultural research. We detail our method, MPAC (Mixed-methods psychological autopsy for cross-cultural research) below. To date, no studies have been published using this method in Nepal. Moreover, globally, most suicide data for low-income countries is limited to WHO cross national studies that include prevalence and characteristics associated with ideation and attempts (Borges et al., 2010, Nock et al., 2009, Fleischmann et al., 2005). Therefore, LMIC data lack information related to suicide completers. The PA method is a resource intensive and rich source of data for people that have died by suicide. Although other larger PA case-control studies have made population-level generalizations, the following study presents rich findings on a case-series of suicides in both urban and rural Nepal, reporting on common precipitants and variations across geography and gender. We discuss the findings in the context of Nepal's broader health system and propose prevention activities suitable for LMIC. Finally, we critically engage with the strengths and limitations of such studies in low-income settings and discuss important future research to shed more light on an often ignored public health topic.

Methods

This particular study was situated within a larger study aimed at understanding the cultural, institutional, and social factors contributing to suicide and implications for public health practice in Nepal (Hagaman et al., 2016a). The authors conducted a mixed-methods PA case-series study using the MPAC method derived by the authors. This method allows the informants, typically relatives, to share detailed accounts of suicide circumstances including perceived warning signs, contributing factors, help-seeking phenomenon, and the various impacts on the family and surrounding community

(Shneidman, 2004). The findings presented here are the quantitative results with a focus on the events and circumstances that preceded the suicide death and its variation across our sub-samples.

Informant identification and selection

A census of all deaths reported to the police in the previous two years was collected as a part of the larger surveillance study. After obtaining official permission from police personnel at the national, district, and neighborhood levels, the authors worked alongside data managers at each police station to aggregate and extract relevant information from each case identified as a suicide through the hand-written documents related police investigation. This approach has been used in other PA studies (Kizza et al., 2012a, Kizza et al., 2012b, Hjelmeland and Knizek, 2016). In the rural field site, the district police office houses all investigation records related to suicide cases. In Kathmandu, due to its high population, 14 police offices serve different sectors of the municipality. For feasibility, the authors randomly selected half of police offices for data extraction. Following case-gathering, a list of all suicide cases in each geographic location was created and stratified based on gender. From a total of 302 suicide cases, the authors randomly selected cases to contact, ensuring an equal amount of male and female decedents were represented. To ensure geographic representation for Kathmandu-based suicides, we conducted the above procedure for each police station, randomly contacting individuals until we reached at least two participant cases per geographic region. Identifying information for the individual that reported the case was used to contact the family. The authors worked with local community leaders and our local psychosocial organization partner to identify the bereaved family, inform them about our study, and invite participation. Case reporters were individuals related to the deceased that provided information to the police surrounding the investigation.

Inclusion criteria required that the suicide occurred between 6 months and two years prior, participants be 18 years or older, knew the decedent well (a family member or close friend that interacted with the decedent on a regular basis), and were comfortable discussing the events surrounding the suicide. If the informant preferred, they suggested another family member that the study team should contact to request study participation. Nineteen of the 39 interviews included multiple family informants in order to triangulate information.

Following informed consent, the survey protocol was conducted in-person by the lead author and one research assistant (RA) and audio recorded. RAs were highly skilled Nepali researchers fluent in both Nepali and English that worked for TPO-Nepal, a Nepali psychosocial non-governmental organization. They were trained by the study team in project aims and methods, interviewing and active listening techniques, procedures for maintaining confidentiality, identifying distress and initiating referral pathways, and other ethical aspects of the study. Additionally, regular meetings were used to review the aforementioned concepts as well as to discuss findings. All interviews were conducted in Nepali.

Instruments and Procedures:

Data were collected between December 2015 and March 2016 in one rural district (Jumla) and one urban district (Kathmandu) in Nepal. These districts were selected in order to maximize variation based on geographic locations, particularly as previous studies have suggested varying patterns. Additionally, the study team wanted to ensure that psycho-social support services were accessible to research participants. Both study sights had available counseling and psychosocial care. The questionnaire combining structured close-ended questions and psychometric instruments. The qualitative methods and findings are discussed elsewhere. The structured closed ended section followed the 16 themes Shneidman (1993) outlined in the original psychological autopsy method (Shneidman, 1994) and also used questions and techniques successfully used by Appleby et al (Appleby et al., 1999). The lead author has previously used this method in a US-based ethnically Nepali Bhutanese refugee population experiencing high suicide rates (Hagaman et al., 2016b). To assess previous histories of depression, we used the Nepali Patient Health Questionnaire (PHQ-9), a widely-used instrument around the world that has been locally validated and proven to perform well in our target population: locally validated cutoff ≥ 10: sensitivity=0.94, specificity=0.80, positive predictive value=0.42, negative predictive value=0.99, positive likelihood ratio=4.62, and negative likelihood ratio=0.07 (Kohrt et al., 2016). We also asked informants if the deceased experienced any mental illness (prompted with local terms for depression, schizophrenia, anxiety, and trauma) or if they were ever treated for one. If respondents responded yes, we asked if it was present within three months of the death. Abuse was assessed by asking if the deceased was ever beaten (Nepali: *pitnu*) by any individual. Abuse was coded as present if it occurred within three months of the death. Closed-ended questions also explored demographics of both the informant and decedent, significant and traumatic life events including abuse, migration and domestic movement, social support, personal, family and social history of mental illness and suicide, and details surrounding the suicide.

Analytic Methods

Simple descriptive analyses were conducted for quantitative data stratifying by both gender and geographic location to explore significant differences in demographic and suicide-related characteristics. All quantitative data were double-entered into Excel. Data entry errors were corrected through crosschecking for consistency using Excel Compare v3.0.2. We used SPSS V20.0 for statistical analyses. Associations were evaluated for statistical significance at 0.05 using two-tailed tests for continuous variables and chi-square tests for categorical variables. To calculate PHQ-9 scores, individual item scores and the percentage in which the respondent was unable to answer were reported. Mean scores were calculated only for the total reported items. The mean score was then multiplied by 9 to account for responsiveness.

Results

Police sample findings:

Within the entire police sample, the majority of deaths were male (57%). Over 40% of decedents were 25 years or younger. Female deaths and rural deaths were significantly younger. See Figure 1 for patterns across age groups, gender, and region. The most common method was hanging (62.9%) followed by poison (30.8%). Method did not differ significantly by gender or site (Kathmandu vs. Jumla), although several more men chose hanging and more women chose poisons comparatively. Based on the 2011 census (Nepal Central Bureau of Statistics, 2012), we estimate the urban site to have an overall annual crude rate of 16.1 per 100,000 (ranging from 14.2 to 20.1 per 100,000 depending on administrative area) and the rural site to have an overall annual crude rate of 22.8 per 100,000 (ranging from 0 to 120.1 per 100,000 depending on administrative area). Rates are for all ages. In the rural site, rates were highest in administrative areas with a police station, indicating possible under-reporting due to a range of factors (distance, stigma, etc).

MPAC sub-sample findings:

The majority of respondents were a male primary relative (due to expectations that a senior male family member interacts with police). Respondent religion and caste always matched that of the deceased. The average time between the suicide event and the interview was 18 months with 10 cases occurring between 6-12 months, 10 cases between 12-18 months, and 19 occurring between 18-24 months. Table 1 outlines the variations in case responses across study sites. There was no significant variation in our consented sample compared to the police sample as a whole. There were also no differences in decedent characteristics between those who consented and those who refused participation. Refusal (n=43) was most often due to the respondent living outside of the district so that a face-to-face interview could not be conducted or discomfort discussing the topic.

Our sample's characteristics are outlined in Table 2, where women were significantly younger than men, more likely to be a student, and more likely to be cited as having a mental disorder. Deceased female were significantly younger than males. Decedents were mostly married (66.7%), of Brahman or Chhetri caste (59%), Hindu (87.2%), and had no regular income (71.8%). The majority did not pass the SLC exam (53.8%), the qualifying exam to advance on to higher education (10^{th} grade completion in the United States' educational system). Most informants stated that the physical health of the deceased was poor (61.1%). About one-third of the male decedents were migrant workers at some point in their lives.

When stratified by geographical region (Jumla vs. Kathmandu), Jumla decedents were younger (although not significantly), more likely to be of a lower caste (35%, p=0.011), to not own their own home, and more likely to be a student. No other significant differences were found for socio-demographic characteristics.

Suicide characteristics: Across the total sample, the majority of cases died by hanging (64.1%), followed by poisoning (28.2%). Choice of method did not vary across gender. Most deaths occurred within the decedent's own home (76.9%). A small portion of the men, but no women, died by suicide in a public place (14.3%). About half of the male decedents were reported to have consumed alcohol on the day of the suicide (52.4%). Very few women were reported to have consumed alcohol (16.7%). More than 60% of female decedents were reported to have endured abuse by their husband or a family member within three months of the time of suicide. No men were reported to have been abused around the time of the suicide. Few of the cases had a reported previous suicide attempt (10.3%), but several men (42.9%) were reported to have communicated their intent to die at least once to a friend or family member. Many of the cases (48.7%) had relocated to a new residence within a year of their suicide. About one-third of the men (33.3%) had a participated in migrant labor. More than half of the decedents had lost a family member or close friend to suicide (61.5%). All suicide characteristics stratified by gender and geography can be found in Table 2.

Mental Illness and PHQ-9 Results

For female cases, 22.2% were reported to have had a mental illness at the time of their death (three cases were reported to have had depression and one case schizophrenia). No male cases were reported to have had a mental illness. Three of the four female cases had sought professional care (one a biomedically trained physician, one a psychiatrist in Kathmandu, and one both a physician and a traditional healer). PHQ-9 results indicated that 15 cases (38.5%) met the criteria for depression (PHQ-9 ≥10). Items with the highest average scores included item 1 (feeling unhappy or not enjoying activities), item 2 (feeling frustrated or despairing), item 4 (feeling tired and lacking energy) and item 5 (blaming themselves) (Table 3). The lowest average score was on item 9 for ‘suicidal ideation’: only 23.1% of informants reported that the suicide completer had expressed feeling of hurting themselves, dying, or doing suicide.

Discussion

Using an in-depth case review of police records and MPAC with a random subset of cases, we found that the greatest burden of suicide is below the age 26, accounting for 40% of suicide police reports. The burden among youth was greatest in rural areas where

2 of out 3 suicides occurred before age 26. Similarly, half of all female suicide completions were among girls under 26 years of age. Compared to suicide distributions in the US, only about 15.1% of all suicide deaths, and 14.1% of female suicide deaths, occur under 26 years (CDC, 2005). The psychological autopsies revealed risk factors including geographic movement, histories of migrant labor, and family history of suicidal behavior. According to informants' knowledge, one out five female suicide completers had a mental illness and none of the male suicide completers did. Based on PHQ-9 scores, two out of five suicide completers would have met criteria for depression. One of the most surprising findings was that less than one-quarter of informants reported knowledge of thoughts of self-harm, death, or suicide among the completers prior to their suicidal deaths.

Overall, our findings indicate that the Nepali suicide profile is similar to other patterns found in India and China. While the majority of individuals used hanging, one-third of the suicide deaths in our Nepal sample were due to poison. This highly lethal method is also common in low-income settings due to accessibility and little regulation (Gunnell et al., 2007a). In our sample, when compared to estimated populations in Kathmandu, higher castes (Brahman/Chhetri) were over-represented (Nepal Central Bureau of Statistics, 2012). In Nepal, caste is often associated with social capital where high-caste individuals are more likely to be educated, employed, and economically productive (Cameron, 1998). This might indicate important differences in suicide patterns marked by geography and development. Literature from India indicates that in highly developed areas where individuals have high education and wealth, but low opportunity, suicide rates are highest (Halliburton, 1998). Chua (2014) argues that rapid development in south India fostered aspirations that, despite improvements in education and social progress, did not return futures of success. This conflict is theorized to justify and propel suicidal behaviors, as aspirations are impossible to attain (Chua, 2014). Other studies in low-income settings also found that those with higher education had higher rates of depression, suggesting that when high academic achievement does not result in economic prosperity, mental health suffers (Wagenaar et al., 2012, Eggerman and Panter-Brick, 2010). This may also be the case in urban Kathmandu, although we do not see similar patterns with education. In fact, across sites, only one-quarter of decedents achieved high-school level education. In Jumla, low-caste individuals were over-represented, suggesting that in severely low-resourced rural areas, the development expectation theory may not hold.

The majority of suicides in our sample cited stressors of poverty and unemployment. In other low-income countries, stressful life events such as crop failure, debt, and loss of control were connected to suicidal behavior (Munster, 2015, Bhise and Behere, 2016, Hjelmeland and Knizek, 2016, Meltzer et al., 2011, Chavez-Hernandez and Macias-Garcia, 2016). These works help to contextualize suicide in a broader socio-political milieu, emphasizing how social conditions and expectations may be important contributors to suicide and should be considered alongside physical and mental health status (Vijayakumar, 2016).

In high-income countries, marriage and having children is a protective factor for both men and women (Qin et al., 2003). In our findings, the majority were married with children, indicating such risk factors do not hold across cultures and countries. In Nepal, marriage and family bring additional social problems. Men must provide for their families, while women endure pressure to have sons, often live in settings with difficult expectations and pressure from extended household members, and endure abuse (Paudel, 2007, Bradley et al., 2002). Interestingly, we found that many more men were married than women. Additionally, many female cases had reports of physical abuse within three months of the suicide, but no men. Other studies from LMIC found that suicide attempts were significantly associated with domestic violence (Devries et al., 2011) and, contrasting to US evidence, marriage was a risk factor for completed suicide (Mohanty et al., 2007, Patel et al., 2012). In fact, in India, a mortality study found reduced risk of suicide in divorced, widowed, or separated women. Other factors in our sample, such as alcohol consumption, communicated suicidal intent, and family history of suicide seem to be universal risk factors (Kolves et al., 2006, Vijayakumar et al., 2011, Pompili et al., 2016). However, in our findings, suicide attempts were rarely mentioned. This may be an indication of how lethal the methods are so that surviving attempts are quite rare.

Geographic migration was another interesting pattern that emerged in our results. For men, returning from a migrant labor job overseas or moving for school or work caused a majority of the migration. For women, following patrilocal tradition, movement into the husband’s house following marriage was most often the reason, however, some women moved for school or left their husband due to domestic arguments. Nepal is a highly collective society and individuals typically live in multigenerational households. Often male migration meant moving from a large household to a single room, resulting in isolation. A PA study in northern India found that nearly 60% of suicides were migrants from other countries, the second highest proportion coming from Kathmandu (Chavan et al., 2008). Little other research exists exploring the association form such movements on suicidal behavior. The authors recommend further investigation into this topic, particularly in low-income settings as it may be a viable screening item in both clinical and community settings.

Much of the PA literature focuses on findings related to mental disorders. We found few descriptions of mental disorders, particularly among men. However, it was often cited that the deceased individual was ‘impulsive,’ ‘aggressive,’ and had difficulties controlling their emotions, indicating emotional dysregulation. Aggressiveness and impulsivity have consistently been associated with increased risk of suicidal behavior (Conner et al., 2003, Chachamovich et al., 2012, Rajappa et al., 2012). Lower levels of mental illness have been found amongst individuals that died by suicide in China (Yang et al., 2005, Phillips et al., 2002, Ji et al., 2001) and also India. This may also be a result of general low mental health literacy in Nepal. Most individuals in our study were poor and economic stressors were commonly mentioned. Only 15% of our informants mentioned that economic concerns were not present. Previous evidence in Nepal indicated that caste was significantly associated with higher depression and anxiety scores, with the majority of caste-differences in depression mediated by socioeconomic deprivation (Kohrt et al., 2009, Kohrt and Worthman, 2009). We found no distinct patterns related to caste (although our study is not a population generalizable sample). Larger reviews have found that social position and poverty seemed to contribute to suicide at the individual level, but differences at the country level are difficult to decipher (Iemmi et al., 2016, Knipe et al., 2015, Milner et al., 2013).

Few individuals in our sample had sought care for any kind of mental disorder. Particularly in settings where mental health care is inadequate, pairing community-based strategies for prevention with simple clinical screening may be most effective (Fleischmann et al., 2016, Fleischmann et al., 2008, Zalsman et al., 2016, Mann et al., 2005). Integrating police, health professionals, and community health workers in crisis response teams has shown early efficacy in LMIC (Kohrt et al., 2015), along with strategies for integrating mental health into primary care (Lund et al., 2016), and controlling access to means (Vijayakumar et al., 2013, Gunnell et al., 2007b, Goldney, 2005).

In Nepal, a recent study found suicide disclosure to family/friends and help-seeking to be very low, suggesting that active clinical screening maybe a useful strategy for prevention (Jordans, In Press). Compared to depression, a more sensitive marker of risk in Nepal may include having a family member or close friend that recently engaged in suicidal behavior. Based on our findings, screening and detection in clinical settings could address the following risk factors: (1) If a family/social history of suicide is endorsed, the individual should automatically receive suicide prevention support. (2) If an individual has two of the following: recent geographic movement, extensive alcohol use, or symptoms of depression, the individual should receive suicide prevention support. Because individuals seem to be unlikely to disclose suicidal ideation to family members, asking the aforementioned questions during clinical and community health encounters would be vital for detection and risk assessment of an individual’s propensity for suicidal behavior. Individuals with a suicide risk factors could benefit from a Nepali cultural adaptation of dialectical behavior therapy based on evidence-based treatment for suicide risk reduction (Ramaiya, 2017).

Limitations

General limitations of the psychological autopsy method have been previously documented (Pouliot and De Leo, 2006). For example, due to the sensitive content and reliance on verbal interviewing methods, respondent bias may have influenced informant responses due to guilt or shame. Due to reliance on a proxy informant and, in some cases, a prolonged time period between the death and the interview, informants may have had a lack of detailed knowledge about events preceding the suicide. Informants were unable to provide responses to each PHQ-9 item. Although our results have generalizability to the police sample from which they were randomly sampled, their generalizability to the population as a whole should be undertaken with caution. There may be biases between the types of deaths that become categorized as suicide within police records versus deaths that are documented differently based on health systems reporting practices and socio-political-economic factors that impact family’s disclosure preferences (Hagaman et al., 2016a). Finally, it is likely that stigmatized and sensitive factors, such as alcohol consumption and previous suicide attempts, are largely under-reported in our community sample. Crude rate estimates in areas where absolute suicide numbers are less than 20 maybe unstable and should be interpreted with caution. Additionally, suicides are also underestimated as they are commonly misclassified or unreported (Phillips and Ruth, 1993, Patel et al., 2012, Rockett et al., 2011). Despite these limitations, the psychological autopsy method remains a robust strategy to piece together a complex array of events, conditions, and contexts that may have influenced suicidal behavior (Conner et al., 2012, Cavanagh et al., 2003).

Conclusion

Suicide remains a leading cause of death around the world, with urgent needs for prevention and intervention in LMIC. This study sheds new light on the issue of suicide in Nepal, pointing to potential important warning signs such as migrant labor, recent geographic movement, and family history of suicide. The findings reveal that male suicides are also a major public health issue, despite their neglect in public health and development discourse and literature in Nepal. The findings reinforce the absolute necessity for prevention programs to work with young people, especially to prevent suicide in rural areas and among girls. The study results in indicators that can be screened at both the clinical and community-level, and future research can explore its application and efficacy. Developing communication pathways by which persons with suicidal ideation can disclose to family, friends, or health workers will be indispensable to prevent this from being a silent public health crisis. Community-level interventions such as poison safes, policy to limit available pesticides and poisons, and decreasing stigma while increasing awareness of warning signs and potential resources for those with thoughts of suicide show great promise in Nepal, and other similar LMIC settings.

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Tables and Figures

Table 4.1 Police suicide death data characteristics and sampling frame

	Total (n=302)			Kathmandu		Jumla	
Characteristic	**Total n (%)**	**Female**	**Male**	**Total (n=271)**	**Consented[1] (n=19)**	**Total (n=31)**	**Consented[2] (n=20)**
Gender		130 (43.0)	172 (57.0)		χ^2=0.30 p=0.59		χ^2=0.53 p=0.47
Female	130 (43.0)			116 (42.8)	7 (36.8)	14 (45.2)	10 (50)
Male	172 (57.0)			155 (57.2)	12 (63.2)	17 (54.8)	10 (50)
Age Category[3]					χ^2=0.51 p=0.97		χ^2=4.13 p=0.25
<= 25	123 (40.7)	66 (50.8)	57 (33.1)	102 (37.6)	8 (42.1)	21 (67.7)	13 (65.0)
(26 – 44)	117 (38.7)	45 (34.6)	72 (41.9)	112 (41.3)	8 (42.1)	5 (16.1)	2 (10.0)
(44 – 64)	39 (12.9)	11 (8.5)	28 (16.3)	36 (13.3)	2 (10.5)	3 (9.7)	3 (15.0)
>= 65	20 (6.6)	7 (5.4)	13 (7.6)	18 (6.6)	1 (5.3)	2 (6.5)	2 (10.0)
Caste					χ^2=2.24 p=0.52		χ^2=2.64 p=0.27
Brahman/Chhetri	127 (42.1)	47 (36.2)	80 (46.5)	107 (39.5)	9 (47.4)	20 (64.5)	11 (55.0)
Janajati	126 (41.7)	58 (46.0)	68 (39.5)	123 (45.4)	8 (4.2)	3 (9.7)	2 (10.0)
Dalit	22 (7.3)	12 (9.2)	10 (5.8)	15 (5.5)	2 (10.5)	8 (25.8)	7 (35.0)
Mixed/Unknown	27 (8.9)	13 (10.0)	14 (8.1)	26 (9.6)	-	-	-
Method					χ^2=3.56 p=0.17		χ^2=1.20 p=0.55
Hanging	190 (62.9)	75 (57.7)	115 (66.9)	171 (63.1)	12 (63.2)	19 (61.3)	12 (60.0)
Poison	93 (30.8)	48 (36.9)	45 (26.2)	83 (30.6)	4 (21.1)	10 (32.3)	6 (30.0)
Other/Undetermined	19 (6.3)	7 (5.4)	12 (7.0)	17 (6.3)	3 (15.8)	2 (6.5)	2 (10.0)

[1] Chi-squared tests were used to evaluate if there were group differences in Kathmandu between police suicide cases that participated in the psychological autopsies (n=19) versus police suicide cases that did not participate (n=252).

[2] Chi-squared tests were used to evaluate if there were group differences in Jumla between police suicide cases that participated in the psychological autopsies (n=20) versus police suicide cases that did not participate (n=11).

[3] A total of 3 cases were missing for age in the police data.

Table 4.2 Sociodemographic characteristics of randomly selected suicide cases in past 24 months

Characteristic	**Total (n=39)**	**Female (n=18)**	**Male (n=21)**	**Gender differences, χ^2 (*p*-value)**	**KTM (n=19)**	**Jumla (n=20)**	**Region differences, χ^2 (p-value)**
Age	32.9 (SD: 17.55) (min:14, max: 79)	26.6 (SD: 13.0) (min:14, max: 58)	38.3 (SD: 19.4) (min:14, max: 79)	t=-2.17* *p*=0.034	34.5 (SD: 15.05) (min:21, max: 79)	31.4 (SD: 19.9) (min:14, max: 78)	t=0.56 *p*=0.58
<= 25	21 (53.8)	12 (66.7)	9 (42.9)		8 (42.1)	13 (65.0)	
(26 – 44)	10 (25.6)	4 (22.2)	6 (28.6)		8 (42.1)	2 (10.0)	
(45 – 64)	5 (12.8)	2 (11.1)	3 (14.3)		2 (10.5)	3 (15.0)	
>= 65	3 (7.7)	0	3 (14.3)		1 (5.3)	2 (10.0)	
Marital Status				χ^2=4.23			χ^2=3.91
Married	26 (66.7)	9 (50.0)	17 (81.0)	*p*=0.12	14 (73.7)	12 (60.0)	*p*=0.14
Single	9 (23.1)	6 (33.3)	3 (14.3)		2 (10.5)	7 (35.0)	
Divorced/Widowed	4 (10.3)	3 (16.7)	1 (4.8)		3 (15.8)	1 (5.0)	
Caste/Ethnicity				χ^2=1.36			χ^2=9.02
Brahman /Chhetri	23 (59)	9 (50)	14 (66.7)	*p*=0.51	11 (57.9)	12 (60.0)	*p*=**0.01**
Dalit	8 (20.5)	5 (27.8)	3 (14.3)		1 (5.3)	7 (35.0)	
Janajati	8 (20.5)	4 (22.2)	4 (19)		7 (36.8)	1 (5.0)	
Religion				χ^2=0.58			χ^2=0.43
Hindu	34 (87.2)	15 (83.3)	19 (90.5)	*p*=0.75	16 (84.2)	18 (90.0)	*p*=0.81
Buddhist	3 (7.7)	2 (11.1)	1 (4.8)		2 (10.3)	1 (5.0)	
Other	2 (5.1)	1 (5.6)	1 (4.8)		1(5.3)	1 (5.0)	
Occupation				χ^2=5.80			χ^2=9.68
Student	11 (28.2)	8 (44.4)	3 (14.3)	*p*=0.06	1 (5.3)	10 (50.0)	*p*=**0.01**
Laborer[1]	23 (59.0)	7 (38.9)	16 (28.6)		15 (78.9)	8 (40.0)	
Office	5 (12.8)	3 (16.7)	2 (9.5)		3 (15.8)	2 (10.0)	
Household Income				χ^2=0.59			χ^2=1.37
No Regular Income	28 (71.8)	14 (77.8)	14 (66.7)	*p*=0.44	12 (63.2)	16 (80.0)	*p*=0.24
Reliable Income	11 (28.2)	4 (22.2)	7 (33.3)		7 (36.8)	4 (20.0)	
Migrant Labor	7 (17.9)	0 (0.0)	7 (33.3)	χ^2=7.31 *p*=**0.007**	4 (21.1)	3 (15.0)	χ^2=0.24 *p*=0.62
Mud House	20 (51.3)	8 (44.4)	12 (57.1)	χ^2=0.63 *p*=0.43	8 (42.1)	12 (60.0)	χ^2=1.25 *p*=0.26
House Ownership				χ^2=0.30			χ^2=10.37
Family[2]	16 (41)	8 (57.1)	8 (38.1)	*p*=0.86	3 (15.8)	13 (65.0)	*p*=**0.006**
Own	17 (43.6)	7 (38.9)	10 (47.6)		11 (57.9)	6 (30.0)	
Rent	6 (15.4)	3 (21.4)	3 (14.3)		5 (26.3)	1 (5.0)	
Education				χ^2=1.20			χ^2=0.26

None	7 (17.9)	2 (11.1)	5 (23.8)	*p*=0.55	3 (15.8)	4 (20.0)	*p*=0.88
Below SLC completion[3]	21 (53.8)	11 (61.1)	10 (47.6)		10 (52.6)	11 (55.0)	
SLC or above	11 (28.2)	5 (27.8)	6 (28.6)		6 (31.6)	5 (25.0)	
Children				χ^2=2.89			χ^2=3.55
No children	14 (35.9)	9 (50.0)	5 (23.8)	*p*=0.09	4 (21.1)	10 (50.0)	*p*=0.06
At least one child	25 (64.1)	9 (50.0)	16 (76.2)		15 (78.9)	10 (50.0)	
Perceived Health[4]				χ^2=0.29	8 (42.1)	14 (70.0)	χ^2=2.68
Good	14 (38.9)	7 (43.8)	7 (35)	*p*=0.59	9 (47.4)	5 (25.0)	*p*=0.10
Poor	22 (61.1)	9 (56.3)	13 (65)		3 (15.7)	2 (10.0)	
Mental health condition[5]	4 (10.3)	4 (26.7)	0	χ^2=5.47 *p*=**0.02**	2 (10.5)	2 (10.0)	χ^2=0.004 *p*=0.95
Suicide Method				χ^2=0.56			χ^2=0.44
Hanging	25 (64.1)	11 (61.1)	14 (66.7)	*p*=0.76	12 (63.2)	13 (65.0)	*p*=0.80
Poisoning[6]	11 (28.2)	6 (33.3)	5 (23.8)		6 (31.6)	5 (25.0)	
Other[7]	3 (7.7)	1 (5.6)	2 (9.5)		1 (5.3)	2(10.0)	
Location of Suicide				χ^2=1.58			χ^2=3.78
Home	32 (82.1)	16 (88.9)	16 (76.2)	*p*=0.45	16 (84.2)	16 (80.0)	*p*=0.15
Public place/outside	5 (12.8)	1 (5.6)	4 (19.0)		1 (5.2)	4 (20.0)	
Other	2 (5.1)	1 (5.6)	1 (4.8)		2 (10.5)	0	
Previous Suicide Attempt	4 (10.3)	1 (5.6)	3 (14.3)	χ^2=0.80 *p*=0.37	3 (15.8)	1 (5.0)	χ^2=1.23 *p*=0.27
Social contact history of suicide[8]	24 (61.5)	10 (55.6)	14 (66.7)	χ^2=0.51 *p*=0.48	14 (73.7)	10 (50.0)	χ^2=2.31 *p*=0.13
Consumed two or more alcoholic drinks daily	15 (38.5)	2 (11.1)	13 (61.9)	χ^2=10.57 ***p*<0.001**	9 (47.4)	6 (30.0)	χ^2=1.24 *p*=0.27
Communication about death and suicide[9]	14 (35.9)	5 (27.8)	9 (42.9)	χ^2=0.96 *p*=0.33	6 (31.6)	8 (40.0)	χ^2=0.30 *p*=0.58
Recent migration or other geographic movement	19 (48.7)	8 (44.4)	11 (52.4)	χ^2=0.24 *p*=0.62	9 (47.4)	10 (50.0)	χ^2=0.03 *p*=0.87
Reported physical abuse within 3 months of suicide	12 (30.8)	11 (61.1)	1 (4.8)	χ^2=14.45 *p*<**0.001**	7 (36.8)	5 (25.0)	χ^2=0.64 *p*=0.42
Impulsive behavior	14 (35.9)	5 (27.8)	9 (42.8)	χ^2=0.96 *p*=0.33	8 (42.1)	6 (30.0)	χ^2=0.62 *p*=0.43
Physical disease at time of death	7 (17.9)	0	7 (33.3)	χ^2=7.31 *p*=0.07	5 (26.3)	2 (10.0)	χ^2=1.76 *p*=0.18
Experienced physical abuse as adult	12 (30.8)	11 (61.1)	1 (4.8)	χ^2=14.45 ***p*<0.001**	7 (36.8)	5 (25.0)	χ^2=0.64 *p*=0.42

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[*] For continuous variables, such as age, a t-test was performed.

[1] Laborer included individuals that did housework, agricultural work, or other labor work (hitting stones, factory work, etc)
[2] Living in a parent's, family member's, or in-law's house.
[3] SLC (School Leaving Certificate) indicates the individual achieved the equivalent to a 10th grade education and qualified to move on to higher education.
[4] Assessed by asking, "In general, was his/her health at the time of the death/suicide excellent, very good, good, fair, or poor". Responses were dichotomized into good and poor (fair or poor).
[5] Do you think the individual suffered from any of the following conditions: depression, schizophrenia, ptsd, anxiety, other (local Nepali terms and constructs were used).
[6] Includes rat poisoning, pesticide, and inorganic poisoning
[7] Other includes drowning and burning
[8] An immediate family member or close friend of the deceased had attempted or completed suicide before the deceased's death.
[9] Directly or indirectly stated to family or friends intent or wish to die

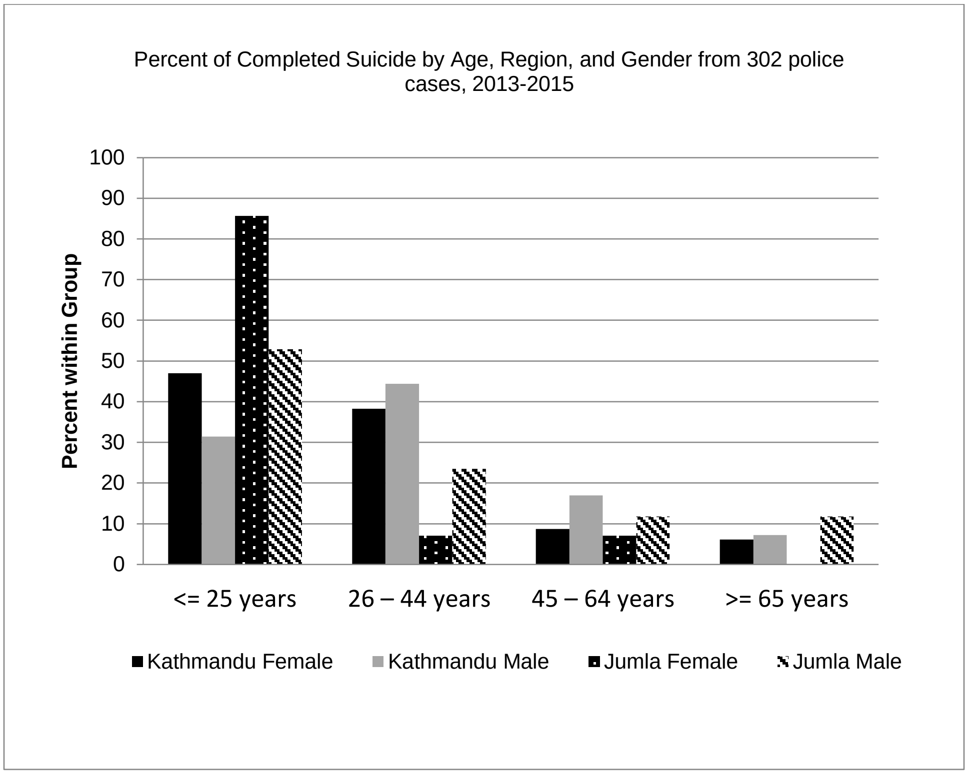
Table 4.3 PHQ-9* Depression inventory results as reported by proxy informant.

	Item	Unable to answer	Mean Score (SD)	Endorsement of 1 or greater on item[1] n(%)
1	During the two weeks before their death, compared to other people, how much did they feel that you are not able to be happy or do not enjoy doing work/activities?	4 (10.3)	1.29 (1.18)	23 (59.0)
2	How much did they feel frustrated, despairing, or incapable of doing anything?	4 (10.3)	1.17 (1.10)	22 (56.4)
3	How much did they have problems with their sleep, such as not being able to sleep properly and peacefully, or feeling sleepier than before?	14 (35.9)	0.84 (1.11)	11 (28.2)
4	How much did they feel tired and lacking energy?	8 (20.5)	1.13 (1.23)	16 (41.0)
5	How much had they lost their appetite or experienced increased appetite?	7 (17.9)	0.81 (1.03)	14 (35.9)
6	How much did they blame themselves for something or felt that they had let you and your family down? (For example, because of them, they and their family lost respect in society.)	6 (15.4)	1.12 (1.22)	18 (46.2)
7	How much did they have difficulty being able to focus or concentrate? (For example, reading newspaper, cleaning rice, cooking, cutting grass, or working.)	6 (15.4)	0.89 (1.11)	15 (38.5)
8	How much had people commented that they had been talking very softly, walking slowly, moving around needlessly, or acting restless?	4 (10.3)	0.94 (1.19)	16 (41.0)
9	How much did they have the feeling of hurting themselves, dying, or doing suicide? (For example, cutting their hands, taking poison, jumping from somewhere, hitting their head against the wall.)	5 (12.8)	0.50 (0.93)	9 (23.1)
	Average Imputed Mean PHQ9 Total		8.85	
	Informants meeting criteria for depression		15 (38.5%)	

*PHQ-9 Chronbach's Alpha score = 0.88

[1] Denominator included the total sample (n=39)

Figure 4.1 Percent of completed suicide by age, region, and gender.



CHAPTER 5

SUICIDE IN NEPAL: QUALITATIVE FINDINGS FROM A MODIFIED CASE-SERIES PSYCHOLOGICAL AUTOPSY INVESTIGATION OF SUICIDE DEATHS

Abstract

The World Health Organization ranks Nepal as the 7th highest suicide burden in the world, but there is a paucity of evidence exploring the role of gender in completed suicides in the country. This study examines 39 modified psychological autopsies (PA) of suicide deaths in both urban and rural Nepal. The modified PA approach allowed for rich narratives detailing events leading to the suicide, characteristics, and perceived drivers of each suicide. Our analysis uncovers both commonalities and differences across gender and geographic location. Findings reveal several complex and important patterns across suicide cases: (1) *Significant life stressors* such as poverty, violence, migrant labor, and family disputes often resulted in isolation and contributed in complex ways to suicide deaths. (2) *Family histories* of suicidal behavior emerged in more than half of the cases, with the majority involving an immediate family member. (3) *Gender differences* were clear. Female suicides were often attributed to hopeless situations such as spousal abuse and described as products of social stigma. In contrast, male suicides were most commonly associated with drinking and resulted from internalized stigma, such as financial failure or an inability to provide for their family. (4) *Justifications for suicide* were attributions to ‘fate’ and personality characteristics such as ‘stubbornness’ and ‘egoism’. (5) *Political injustices* precluded some families from disputing the death as suicide and also had implications for the condemnation or justification of particular

suicides. Findings illustrate the importance of qualitative components to the PA method, inductive warning signs, and strategies to integrate screening and prevention into community-based programs and models-of-care.

Introduction

Globally, suicide kills more than war, natural disaster, and homicides, accounting for more than 800,000 annual deaths [1]. In low and middle income countries (LMIC) however, the burden is obfuscated by incomplete or non-existent vital surveillance systems [2, 3]. Not one of the World Health Organization (WHO) South-East Asia Region LMIC countries, an area estimated to account for 39% of all global suicides, has a comprehensive vital registration system [4, 5]. Nepal in particular has a complicated and unclear purported suicide burden [6]. Although most of the evidence-base related to suicide relies on psychometric indicators, LMIC scholars have argued that socio-political, environmental, and cultural factors may be just as important in the identification and prevention of suicide [7, 8]. Studies from China have noted distinct differences from common western suicide risk-profiles where the male to female ratio is much smaller, mental disorders are less prevalent, and rural geography and impulsivity is more common [9-12].

Anthropological scholarship has recently shed meaningful light on the complex phenomenon of suicide. In particular, scholars argue that suicide is inherently a social act, one that is inextricable from the local sociocultural and political milieu [13-15]. Studies from low-income settings reveal how interpersonal conflict [16, 17], female disempowerment [18-21], family and cultural histories of suicidal behavior [17], and political injustices [22-25] can deeply influence suicidality in the context of rapid global development [26, 27]. These works have emphasized the social meaning of suicide, where such acts are performative and serve to demonstrate notions such as power, social position, revenge, or abandonment (Suicide and agency book. Despite this emerging literature, a paucity of work linking cultural perspectives and practices surrounding suicidal death to viable prevention and intervention programs remains. This study aims to bridge some of this gap.

Nested in between India and China, Nepal serves as a unique setting to study the intersection of culture and suicide. According to the WHO, Nepal ranks 3rd highest in the world for female suicide mortality and 8th highest for combined sexes. However, Nepal currently does not have an official vital registration system and the Ministry of Health and Population does not reliably report on any suicide-related indicators. As a result, little is known about the exploring biopsychosocial, sociocultural, and environmental factors related to suicidal behavior in a highly burdened setting are urgently needed. Past research on suicide in Nepal indicates that suicide precipitants include lack of education, being married, poverty, and gender-based violence. However, these findings are limited to a sample of women or to clinical-care settings so that little is known about male suicides as well as those that fail to emerge in the health system [24]. This underscores the importance of further research on perceived drivers and meanings of suicidal deaths in Nepal.

Methods

This research was situated within a larger study aimed at understanding the cultural, institutional, and social factors contributing to suicide and implications for public health practice in Nepal [28]. Our goal was to provide rich narrative reconstructions of suicide events, told by family members or loved ones of the deceased, to further contextualize the circumstances of suicide. We used a novel mixed-method Psychological Autopsy for Cross-Cultural research (a method our study team terms MPAC). We used a case series approach to MPAC [29-34], which allows the informants (typically relatives) to share detailed accounts of suicide circumstances including perceived warning signs, contributing factors, help-seeking phenomenon, and the various impacts on the family and surrounding community [35, 36]. The analyses presented here focus on events and circumstances that preceded the suicide death.

Informant identification and selection

A census of all deaths reported to the police in the previous two years were collected as a part of a larger study. After obtaining permission from police personnel, we worked alongside data managers at each police station to aggregate and extract relevant information from identified suicide case. This approach has been used in other PA studies [37-39]. Following case-gathering, we created a list of all suicide cases in each geographic location and stratified it by gender. From a total of 302 suicide cases, we randomly selected cases to contact, ensuring an equal amount of male and female decedents were represented. Identifying information for the individual that reported the case was used to contact the family. The authors worked with local community leaders and our local psychosocial organization partner to identify the bereaved family, inform them about our study, and invite their participation.

Case reporters were individuals that provided information to the police surrounding the suicide investigation. All case reporters were related to the deceased individual. Inclusion criteria for this study required that the suicide occurred between 6 months and two years prior, participants must be 18 years or older, knew the decedent well (a family member or close friend that interacted with the decedent on a regular basis), and were comfortable discussing the events surrounding the suicide. If the informant preferred, they suggested another family member that the study team should contact to request participation in the study. To the extent possible, we interviewed more than one family member (19 cases total) in order to triangulate narratives with multiple informants.

Following informed consent, the survey protocol was conducted in-person by the lead author and one Nepali research assistant. These assistants worked for TPO-Nepal, a Nepali psychosocial non-governmental organization. They were trained by the study team in project aims and methods, interviewing and active listening techniques, procedures for maintaining confidentiality, identifying need and initiating referral pathways, and other ethical aspects of the study. All interviews were conducted in Nepali, audio-recorded, and transcribed into English by the second author who received intensive training in transcription procedures and qualitative analysis. One of the two interviewers served as a note-taker, documenting notable aspects related to tone, emotion, and body-language. All linguistic and culturally significant Nepali words and phrases were preserved, particularly when English translation cannot adequately portray the appropriate meaning.

Instruments and Procedures:

Data were collected between December 2015 and March 2016 in one rural district (Jumla) and one urban district (Kathmandu) in Nepal so that variation based on geographic region could be maximized. Our MPAC approach follows the recommendations outlined by Kral et al (2012) and others, where mixed-methods are better suited to capture the complexity of suicide compared to quantitative approaches alone [29, 39, 40]. In order to obtain rich narratives and detailed histories, the author's constructed a detailed qualitative component for psychological autopsy questionnaire (the quantitative section is discussed elsewhere). We expanded upon the typical PA content outlined by Shneidman and Appleby [41, 42] to further explore locally salient contextual factors and to explore varying lay theories related to suicide in Nepal. The qualitative portion elicited detailed narratives surrounding the circumstances of the death, perceived causes, notable warning signs and suicidal communication, help-seeking behaviors, geographic movement, social networks, potential prevention strategies, and family coping and needs following the death.

Analytic Methods

Qualitative textual data were analyzed in MaxQDA 12.0. A codebook was developed through an iterative process, where the research team consulted local psychological experts and staff members throughout. Deductive codes included survey elicited areas such as alcohol use, stigma, and economic stress. Inductive codes were lifted from the data, including areas such as *ijjat* (social status), perceived shame, and relevant personality characteristics, such as *ghamandi* (egotistical). The first and second authors coded all interviews after establishing high inter-rater reliability (Kappa >= 0.70). If a particular code did not have high inter-rater reliability, the code definition was revisited, revised, and recoded until agreement was high. Coded data were analyzed using techniques from content analysis [43], marking frequent and infrequently endorsed themes, common warning signs, perceived causes, and identified coping strategies and needed resources for prevention and family members. After identifying all the risk factors, the presence or absence of each factor was calculated for each suicide case and reported as proportions. Interpretation of the data was checked and confirmed with all study members, authors, and the partner psychosocial NGO staff in both field sites to ensure conclusions appropriately reflected local perceptions.

Ethical Considerations

This project was approved by the Institutional Review Board of [University Institution] and the Nepal National Health Research Council. Additional permissions were granted by the National Nepal Police Headquarters and all relevant lower units. Researchers sought informed consent in Nepali from each participant before the interview. The participants were asked if they would like to read the consent form, or if they preferred the interviewer to read it to them. Participants were aware that they could refuse to answer any questions and stop the interview at any time. Literate participants provided written consent. Verbal consent was obtained when the respondent was illiterate. Participants received no compensation for their participation. As a part of the larger study's procedures, the study team and partner organization had a robust referral system established for survey participants endorsing distress. In these cases, participants were offered counseling and follow-up care.

Results

Suicide case sociodemographic characteristics are summarized in Table 1 and informant characteristics in Table 2.

The religion and caste/ethnicity of the deceased matched that of the informant. As males are often the public gatekeepers for the family, the majority of informants were a primary relative (husband, father, brother, or son) of the deceased. Additionally, about 77% of the informants either lived with the deceased or met with them multiple times a week. To illustrate dominant suicide narratives and the tendency for suicide causes to be rooted in social issues, Maya and Min's stories are summarized in Figure 1.

Several major themes emerged from textual analysis, providing rich contextualization to each suicide death. In this section, we detail four broad themes that (1) had significant perceived effects on the suicide events and (2) provide important insights that can inform suicide prevention and intervention programming. Several major themes emerged from textual analysis, providing rich contextualization to each suicide death. In this section, we detail four broad themes had significant perceived effects on the suicide events and provide important insights that can inform suicide prevention and intervention programming. The themes are: *significant life stressors*, *family histories* of suicidal behavior, *gendered drivers* of suicide, and *justifications for suicidal acts*. We also highlight bureaucratic challenges and political injustices that affected how suicides were processed by families. See Figure 2 for an illustrative summary of the themes and Table 3 for a summary of risk factors experienced for each case.

Significant Life Stressors: Interpersonal conflict, migrant labor, and movement following patrilocal obligations were common precursors to suicidal behavior. These events are further compounded with poverty and pressure to uphold familial and social obligations. We highlight two particularly relevant stressful events below.

Migration and other geographic movement: Recent household shifting inductively emerged as an important warning sign across many cases. For women, often moving away from a maternal household preceded the suicide. For men, migrant labor or moving for school were two important events that occurred briefly before death. After returning home, men struggled to find work, or properly reintegrate with their family, experiencing haunting notions of failure, shame, and often turned to drugs and alcohol to cope.
Our informant explained her sister's frequent movements leading up to her suicide:

> "After her divorce, she lived with our grandparents. Then she shifted to our brother's house in the east. She came to Kathmandu to study, she insisted on it, but she really struggled to get high marks. She lived with me and my husband.

> We wanted her to stay, but she demanded on living alone and rented a room. She had such an ego, she was so stubborn. I think she was scared of what other's would think after her divorce. She freed herself from his torture, but she still had torture in her mind. Our mom stayed with her for 10 days in that single room, but soon after she left, my sister killed herself. I should have known…because she wanted to be alone so much."

In Jumla, many of the young cases investigated involved early 'love marriages' (marriages that were not initiated or arranged by the family). In this case, the young woman was about 17 when she married and was still in school. Her in-laws explained that, "she had only been in our home for three days. She would go back to her *maiti* (maternal home). She was there for three months after their marriage. When she came to live here, she was really quiet. She didn't do anything. Didn't talk to anyone. She went back to her *maiti* again and killed herself there." For men, geographic movement was often resultant of migrant labor, a treasured and sought after economic option for many families. The uncle of a young man in Kathmandu described his nephew's failed attempt to work in Malaysia:

> "The economic condition of the family was so bad. They had to take out huge loans to get the sons into migrant labor positions abroad. But when the deceased got there, he found his job was much worse…he had to carry huge heavy things. He was already very thin when he went there. Ahhhh, the money that was invested on him was not returned but at least he was able to come home. But he did not bring any money back with him. None. Just after he returned to

> Kathmandu, his wife left him. He could never accept it. After he was home for 2 months, he did suicide."

Young men were also sent away to study, in hopes of attaining high marks and getting a good job. The aunt of a 22-year old boy described his school failure:

> "His father sent him to Kathmandu hoping to could receive a better education. After he got there, he made bad friends. He became mischievous. They drank and did drugs. Nobody could control him, we thought Kathmandu turned him bad. His *aatmaa (*soul*)* turned weak. We spent a lot of money on that school, but we had to bring him back to Jumla. Soon after he returned here, he got in trouble with the police. The day before his court date, he did suicide."

Although movement was not described to explicitly contribute to the suicide, its occurrence was consistent, common, and close to the time of the suicide, emerging in about half of the interviews. Moreover, moving away from the individual's *afno ghar* (own house) and own family was often discussed as something dangerous and stressful to the deceased.

Interpersonal Conflict: Individuals were often defined by their relationships with others. Negative conflict was particularly salient and figured prominently in perceptions of suicide causality. Varying aspects of abuse were described in 43.6% of the cases. For men, abuse came from an employer, drunken fights, or working conditions. For women, abuse resulted from many different sources including a husband, in-laws or paternal family, romantic partners, or her general community. Male abuse was almost exclusively described as physical, “He went to work in Malaysia. He was promised a lot of money and our father pulled a lot of strings to get him his papers. He was tortured there. He said he worked in a factory that was unbearably hot. He was beaten so bad that blood accumulated in his heart.” (Brother, 415, Kathmandu). This man that died returned home from an abusive migrant labor job, cheated from his employer, abused, and ashamed. Abuse was not described to be a particular motivator for suicide, but it did contribute to overall shame, damaging the *ijjat* (social status) and often lead to desperation to escape social judgement and subsequent family shame. Female narratives contained many variations of abusive circumstances that ranged depending on marital status and age. Younger women often faced social shame is they engaged in a sanctioned love relationship. One young girl died of suicide at 19. Her mother described that she had wanted to marry a neighbor’s son, but the boy’s mother had publically decried the relationship, yelling that she would kill herself if her son married her. Mother explained that her daughter could not endure the personal shame, and subsequent family, shame from this woman, despite her attempts to sway her that it did not matter.

A few narratives mentioned emotional or physical abuse from in-laws, however, much more common was spousal physical abuse from the husband. Domestic abuse was often described as something common and usually only affected the wife, not the children. A friend and neighbor of a woman that died by suicide described, “She told us (her neighbors) that her husband didn’t let her live happily, eat happily…that he tortured her, he beat her every day. After she drank the poison and she was in the hospital she told us that she couldn’t take his abuse, so it’s better to choose death. She didn’t tell the police that. Only her neighbors" (PA 420, Jumla, 28). In another case in Kathmandu, the deceased brother described her marital problems:

> "My sister had only one tension, she struggled so much in life for one person (her husband), and she had so much *dukha* (sadness). It was an arranged marriage. There was a big gap in finances between her parents' her in-laws. She had to sell tea on the roadside. Her husband made good money, but he forced her to struggle alone, isolated. He was ashamed to have her as a wife, so he started drinking alcohol and tortured her. He told her he wanted to marry a better woman. He took her son away from her, she was so sad and so isolated and always beaten…what could we do? If someone is in that situation, there is nothing else they can do. She had no hope, it was best for her to choose to die" (PA 412, Kathmandu, 35).

Chronic family disputes outside the immediate marriage were also cited as contributing to the choice of suicide. Often, in younger male suicides, fights, frustrations and arguments with parents were said to cause their anger that resulted in suicide. Disputes resulted from arguments over money, poor performance in school, or prohibited love relationships. In two female cases, the in-laws blamed her personality and poor decisions for the suicide.

Family histories of suicidal behavior:

Suicide narratives did not commonly endorse previous suicide attempts among the deceased (only 13% of the cases). In only one case was the attempt mentioned as a performative threat meant to attract attention from family members. In the other four, attempts were followed with some family-based preventative measures (e.g. never leaving an individual alone). In the majority of cases, repeated suicides within the family or close social network were described (61.5%). Multiple family suicides were often within one or two generations, occurring among members of the same household. The aunt and uncle of a 16 year old girl had assumed guardianship over her and her sister after their mother died by hanging. Her uncle explained, “We assumed that she might had thought that her mother also died by hanging so why should she live. Just after her mom died, she tried to kill herself. We took her to the hospital, and she took medicine for depression. The doctor told us not to scold her… we didn’t do anything to her, we loved her so much. But she tried again and died.” (Uncle, Jumla, 432). Multiple family suicides were perceived to be ‘fated’ or learned, and rarely linked to mental disorders. The case studies in Figure 1 elaborate two more examples of the contagion pattern.

Gendered Drivers of Suicide

Shame and social status (laaj and *ijjat):* Shame (*laaj*) played a complex and gendered role in the explanations for suicide deaths. It was typically discussed indirectly and implied. For women, shame was often inflicted by the community and attributed to a ‘mistake’ made by the deceased. For example, as described above, several women were described as being involved in a forbidden love relationship. Situations like this usually damaged the ‘*ijjat*’ (social status) of the woman in the community, devaluing her worth and purity. Fear of social stigma and shame was offered as an explanation for the suicide.

For men, however, shame was sourced internally. Such personal shame was described as feeling like a failure because of financial failure or an inability to succeed economically. Issues, also described above, may have been failed migrant labor attempts or an inability to find a wife. Compared to older decedents, younger individuals were more often described as being stressed about finances. This sort of failure in males often led to alcohol abuse, perpetuating the feelings of shame and damage of one's *ijjat,* particularly amongst Brahmin men where social standing and purity were highly regarded.

Alcohol: A common factor involved in both male and female suicides was alcohol consumption and its sequelae, including financial loss, increased stress, shame, violence, and disability. Nearly half of the deceased men were reported to have alcohol problems that greatly contributed to their suicide. The uncle of a deceased Jumli man explained his death:

> "He drank every day. He would go to work in the morning and then drink in the bazaar. He didn't drink in front of us, but sometimes he would fall down and we would get called to carry him home. When he was drunk, he beat his wife and children. He used to shout at us too. Eventually, to avoid the violence, his wife and kids slept in a neighbor's house. There was so much tension in the evenings, but come morning, it would be fine. That day he died, he was drunk as usual, and tried to beat his family, so they went to the neighbor's house. He went inside his house, closed the door, and did suicide. We didn't know anything. Was it because he was crazy or

> was it because of the alcohol. All the neighbors say that if he hadn't drunk alcohol, he wouldn't have done suicide. They said it was his *bhaagya* (fate)." (Male deceased, Uncle, Jumla)

In many male cases, the deceased was drunk at the time of death and accounted for the ability to perform suicide, something that a sober man was not able to do. Alcohol was commonly blamed for negative family relationships, poverty, and abusive behavior: "When he didn't drink, he was like a God. But after drinking, he would shout, he would fight, he would beat his family" (Male deceased, Brother, Kathmandu). Alcohol then, deflected blame on the individual explicitly. Not only was alcohol endorsed as a precursor to suicidal behavior of the one drinking, but it was also blamed for causing the suicide of another family member. In three female cases, the husband's alcohol consumption was reported to be a main cause of her suicide. While the amount consumed was often unknown, Jumla informants in particular explained that men spent any available cash on alcohol, causing domestic fights, perpetuating poverty, and sustaining a sense of hopelessness for the whole family. The wife of a deceased Jumli emotionally explained, "There was no limit for him. Here it is not measure in ml, it is measured in gallon, however much he can drink, is how much he will buy. Sometimes he spent 1000 rupees, sometimes 2000, 3000. However much he had, he would spend. He wasted all our money." Several young men (five less than 30 years) were described as being addicted to alcohol, something that perpetuated their emotional despair.

Justifications for suicidal acts*:* Family members were unable to explain *why* the suicide happened, and many were surprised when they discovered the deceased's body (a common reaction was fainting or not remembering any events from the day of death). Particularly if there was no identifiable preceding event (such as a family fight or a break up), families were unable to rationalize suicidal behavior. In these cases, suicidal actions were commonly described according to Nepali concepts of *bhaagya* (fate) – something that no individual could prevent. Common idioms used to describe fate's role in suicide is outlined in Table 4. Personality types and specific characteristics frequently emerged in explanations and descriptions of the deceased (also shown in Table 4). Inflexible personality types (including overwhelming pride, stubbornness, and uncontrollable or impulsive anger) became typical descriptors and often ways of justifying suicidal behavior. A sister explains, "if she (deceased) could have controlled herself (*niyentran garne)*, her death would not have happened." Finally, in two cases, informants believed the death to be a homicide (all cases had police investigations confirming the death as suicide). Families, however, were unable to formally contest the conclusion, citing that it was too time consuming and costly to pursue a formal murder accusation. Other suicide deaths were attributed to underlying chronic abuse, and informants expressed distress about labeling it '*aatmahatya'* (suicide), considering '*hatya'* (murder) to be more fitting.

Discussion

This study revealed several complex and important patterns across suicide cases. Family histories of suicidal behavior emerged in more than half of the cases, with the majority involving an immediate family member. Female suicides were often attributed to hopeless situations such as spousal abuse or stigma due to failed relationships. In contrast, male suicides were commonly associated with drinking, an action driven by failures to meet social expectations, such as financial failure or an inability to provide for their family. Significant life stressors such as poverty, violence, migrant labor, and family disputes often resulted in isolation and contributed in complex ways to suicide deaths. Inductive data revealed potentially important warning signs that may better inform screening and prevention efforts. These included recent geographic movement, alcohol use in the home, and family histories of suicide.

Our findings that, for women in particular, a sense of hopelessness and despair related to domestic violence and social shame seemed to leave no other perceived option except suicide has been similarly documented in India [44, 45] and is in line with the previous suicide research in Nepal [46]. In Uganda, female suicides were framed as a response to a family-based stressor that was mediated by a lack of social support and immediate availability of means [38]. Other studies from Asia have shown that female suicides are less planned and are a response to an acute stressor [33]. While other literature has indicated that female suicides were driven by a desire for revenge [21, 47, 48], the 19 cases we studied did indicate women using suicide as a performative action. However, this was the case for several of the male cases in our sample. The female narratives can be more broadly situated with issues related to strict social expectations, particularly of immediate family members, amidst rapid development, social shame, and isolation from the family unit. Feelings of burdensomeness on one’s family (in the case of Nepal, this is often due to acquired shame or decreased social status) has been found to be an integral component of suicidality [49]. The family conflict that women faced, combined with their lack of agency, was perceived to be a fatal combination. Similar findings regarding female suicide and aspects of moral judgements from society have emerged from Sri Lanka and elsewhere [19, 47, 50].

The geographic movement patterns and stresses related to migrant labor that we uncovered for male suicides have not been discussed much in the literature, but may serve as an important indicator deserving further exploration. A study from India found that a large proportion of male suicides were migrant workers, many Nepalis [32]. As a high period of vulnerability, migration factors has played an important role in veteran, refugee, and other migrant suicides [51-53], and may also be the case particularly for populations that have large amounts of migrant labor, such as Nepal. In our results, returned migrant workers had a difficult time reintegrating, often facing conflict with their spouse or experiencing shame due to failure to make money abroad.

Informants regularly discussed that most of the deceased were unable to control their emotions, often letting anger and impulsive responses overwhelm their actions. Descriptions of deceased's patterns of anger and inability to control one's emotions is supported by previous literature theorizing that suicide is anger turned inwards [20, 54, 55]. Emotion dysregulation and a lack of effective coping strategies has also been linked to an increased risk in suicidal behavior [56]. Recent suicide theories assert that acquiring the capability to inflict lethal self-harm, often gained by engaging in risky behavior, is one important component for severe suicidality [49, 57]. Demonstrations of anger, risky behaviors (such as alcohol consumption), and experiences of fear and abuse that emerged through our study may fill this criterion and be important factors to consider in treatment. Studies from other low-income settings have found similar patterns of risky behavior [37, 38, 58, 59]. In our sample, suicides were overwhelmingly stated as unplanned, even when there was a previous attempt or discussion of death. This might suggest that, in Nepal, suicides are perceived as singular events that are not connected to previous behavior or actions. This might further support notions that impulsivity was seen to be more closely connected to suicidality than previous attempts or mental illness. Such findings can help inform the adaptation of education and prevention programs.

Some suicides, particularly females or in cases where a rational explanation could not be determined, were seen as fate or destiny. This limited the deceased's personal agency in the action. Similar patterns have been found in explanations for suicide in Russia [60]and Haiti [61]. In Sri Lanka, fate was also used to relieve notions of agency among suicide attempt survivors in order to preserve their karma and social status [60]. In cases where multiple suicides happened within one family, fate was also used as an explanation. While the suicide literature has evidence of genetic and social contagion components [62], this study found few such endorsements.

Notably, it was rare that decedents disclosed to their family their thoughts of suicide. In fact, only 23% mentioned that their loved one had shared their suicide ideation. In many other low-income settings, suicide ideation disclosure is rare, often due to fear and stigma [61, 63].

Finally, the bureaucratic processes and categorization of suicide adds complexity to both perceived causes of suicide, as well as the ability to dispute the legal declaration of a suicide death. Drivers of suicide were often believed to be caused by a spouse or family member (eg. abusive husbands drive women to escape through self-killing). Informants often saw these deaths as a product of other illegal activity that abetted the suicide. This obfuscates the categorization of death, blurring lines between murder and self-inflicted death. Indeed, to assuage distraught families, the Nepali government is seeking to implement a new law to make persecution possible in such situations. Additionally, some families wished to dispute the declaration of a suicide, but lacked the resources, time, and agency to fight police conclusions. This underscores the difficulty of (1) untangling risk factors in situations of severe social distress, female disempowerment, and abuse and (2) helping families and social networks of the deceased process their grief and find justice. More work is needed to further disentangle the legal complexities of sensitive and violent deaths, particularly in low-income and inequitable settings.

Limitations

Despite gaining crucial insight into suicide in Nepal, this study has limitations. The retrospective psychological autopsy method and necessary use of a proxy informant may bias results due to memory loss and the shame and stigma around suicide deaths and other aspects discussed (domestic violence, abuse, alcohol consumption, etc). As is typical in qualitative research, our results cannot be generalized beyond our sample population.

Applications

Although other larger PA case-control studies have been able to make population-level generalizations, our richer qualitative data, elicited from our MPAC method, have the potential to inform a host of prevention activities that the aforementioned studies cannot. PA case-series studies in Asia have demonstrated important patterns in suicides that are helpful in informing prevention efforts such as associations between planning and gender, the role of acute stress, and the limited role of mental illness [30-34]. This study has several implications for prevention and intervention in both the Nepali context and low-income settings. *Identification of at-risk persons:* Screening patients for aforementioned warning signs such as recent geographic migration and family history may be beneficial, particular for clinicians and community members as they remain external to the family unit and may increase disclosure. Screening in primary care in LMIC has demonstrated feasibility and has the potential to reduce suicide deaths [64, 65]. Clinical screening, paired with community education and surveillance, is currently one of the most successful prevention strategies [66, 67]. Implementing regular surveillance and reporting of suicidal behavior in multiple settings can help provide timely knowledge in the absence of a systematic vital registration system. *Risk-reduction strategies:* Prevention strategies that engage the media and community in safe reporting are crucially important, particularly because of the family and social contagion patterns that emerged in our study [68-70]. Furthermore, because of the low frequency of help-seeking expressed by family member, particularly to clinical settings, community-based prevention strategies may be critically important. Such approaches have some demonstrated success elsewhere [71-77]. Regarding emotion regulation and enabling individuals to better negotiate relationships and conflict, dialectical behavior therapy (DBT) has recently been culturally adapted for use in Nepal and has shown high feasibility and acceptability [78]. Research exploring the effectiveness of low-cost approaches for suicide prevention in LMIC should be prioritized in future suicide related explorations.

Conclusion

As suicides continue to increase around the world, research prioritizing areas where incidence is highest is urgently needed. Given that Asia holds the largest burden, disentangling the complex cultural, psychosocial, political, and economic factors is vitally important. This study revealed several potential warning signs, including geographic migration, family history of suicide, and alcohol use, that can quickly be screened for in both clinical and community settings. Suicide prevention programming may be most effective if it targets groups strategically to account for disparate drivers based on gender, geography, and age. Stigma reduction and empowerment efforts are needed in order to improve both female and male psychosocial well-being and have the potential to serve as a tertiary prevention strategy.

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Tables and Figures

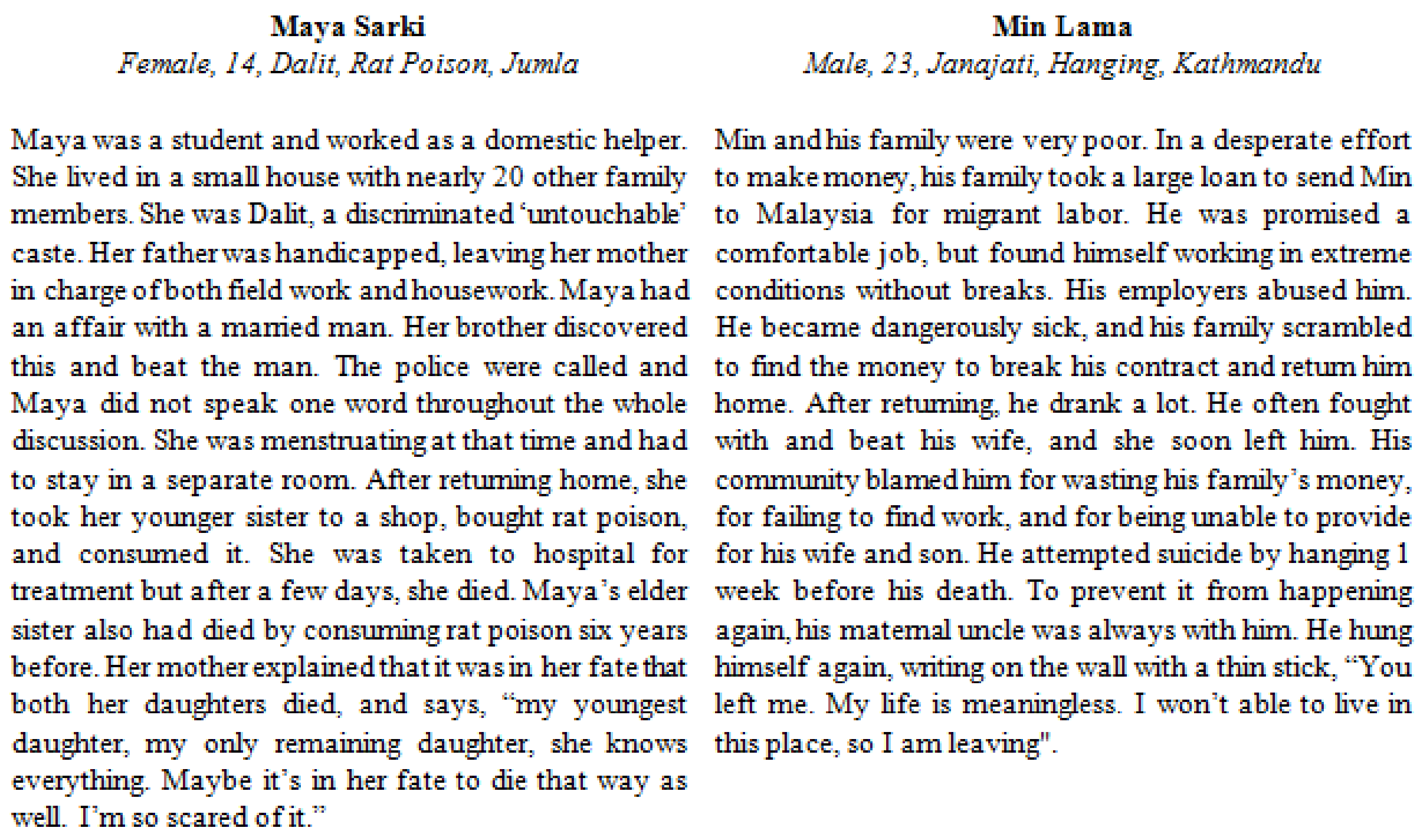
Table 5.1 Case sociodemographic characteristics.

	Suicide Cases		
Characteristic	**Total (n=39)**	**Female (n=18)**	**Male (n=21)**
Age	33.1	26.8	38.6
Marital Status			
Married	26 (66.7)	9 (50)	17 (81.0)
Single	9 (23.1)	6 (33.3)	3 (14.3)
Divorced/Separated	2 (5.1)	2 (11.1)	0
Widower	2 (5.1)	1 (5.6)	1 (4.8)
Caste/Ethnicity			
Brahmin/Chhetri	23 (59)	9 (50)	14 (66.7)
Dalit	8 (20.5)	5 (27.8)	3 (14.3)
Janajati	8 (20.5)	4 (22.2)	4 (19)
Religion			
Hindu	34 (87.2)	15 (83.3)	19 (90.5)
Buddhist	3 (7.7)	2 (11.1)	1 (4.8)
Other	2 (5.1)	1 (5.6)	1 (4.8)
District			
Jumla	20 (51.3)	10 (55.6)	11 (53.4)
Kathmandu	19 (48.7)	8 (44.4)	8 (38.1)

Table 5.2 Informant characteristics

	Informants	
	Female (n=11)	**Male (n=28)**
District		
Jumla	9	11
Kathmandu	2	17
Relationship		
Spouse	2	0
Parent	3	4
Sibling	2	12
Uncle/Aunt	2	9
Close Friend	2	3
Age Group		
18 – 35	3	8
36-50	3	9
51-65	5	11
Contact Frequency		
Lived With	10	8
Multiple times week	1	11
Multiple times month	0	9

Figure 5.1 Two Suicide Case Studies



Maya Sarki

Female, 14, Dalit, Rat Poison, Jumla

Maya was a student and worked as a domestic helper. She lived in a small house with nearly 20 other family members. She was Dalit, a discriminated 'untouchable' caste. Her father was handicapped, leaving her mother in charge of both field work and housework. Maya had an affair with a married man. Her brother discovered this and beat the man. The police were called and Maya did not speak one word throughout the whole discussion. She was menstruating at that time and had to stay in a separate room. After returning home, she took her younger sister to a shop, bought rat poison, and consumed it. She was taken to hospital for treatment but after a few days, she died. Maya's elder sister also had died by consuming rat poison six years before. Her mother explained that it was in her fate that both her daughters died, and says, "my youngest daughter, my only remaining daughter, she knows everything. Maybe it's in her fate to die that way as well. I'm so scared of it."

Min Lama

Male, 23, Janajati, Hanging, Kathmandu

Min and his family were very poor. In a desperate effort to make money, his family took a large loan to send Min to Malaysia for migrant labor. He was promised a comfortable job, but found himself working in extreme conditions without breaks. His employers abused him. He became dangerously sick, and his family scrambled to find the money to break his contract and return him home. After returning, he drank a lot. He often fought with and beat his wife, and she soon left him. His community blamed him for wasting his family's money, for failing to find work, and for being unable to provide for his wife and son. He attempted suicide by hanging 1 week before his death. To prevent it from happening again, his maternal uncle was always with him. He hung himself again, writing on the wall with a thin stick, "You left me. My life is meaningless. I won't able to live in this place, so I am leaving".

Figure 5.2 Inductive Qualitative Findings

<table>
<tr><th>Women (n=18)</th><th>Men (n=21)</th></tr>
<tr><td>Abuse and neglect</td><td>Alcohol</td></tr>
<tr><td>Social Shame</td><td>Personal Shame</td></tr>
<tr><td>Impulsivity</td><td>Financial Stress</td></tr>
<tr><td colspan="2">Recent migration or other geographic movement</td></tr>
<tr><td colspan="2">Interpersonal Conflict</td></tr>
<tr><td colspan="2">Burdensomeness and hopelessness</td></tr>
<tr><td colspan="2">Family/Social history of suicide</td></tr>
</table>

Table 5.3 Summary of endorsed risk factors across gender.

Risk Factor	**Total (n=39) (%)**	**Female (n=18) (%)**	**Male (n=21) (%)**	**p-value[1]**
Low or no education received	28 (71.8)	13 (72.2)	15 (71.4)	0.956
Family or social history of suicide	24 (61.5)	9 (50.0)	15 (71.4)	0.163
Poverty or financial stress	21 (53.8)	9 (50.0)	12 (57.1)	0.656
Recent Geographic movement	19 (48.7)	8 (44.4)	11 (52.4)	0.621
Unemployed	18 (46.1)	9 (50.0)	9 (42.8)	0.656
Any abuse	17 (43.6)	11 (61.1)	6 (28.6)	0.041
Impulsive behavior	14 (35.9)	5 (27.8)	9 (42.8)	0.328
Physical abuse before death	12 (30.8)	11 (61.1)	1 (4.8)	<0.001
Not always enough food	12 (30.8)	6 (33.3)	6 (28.6)	0.748
Outstanding loans	12 (30.8)	2 (11.1)	10 (47.6)	0.028
Drinking around the time of death	11 (28.2)	1 (5.5)	10 (47.6)	0.004
Experienced significant social shame	11 (28.2)	7 (38.9)	4 (19.1)	0.170
Communicated suicidal intent	10 (25.6)	3 (16.6)	7 (33.3)	0.235
History of migrant labor	7 (17.9)	0	7 (33.3)	0.007
Physical disease or disability	7 (17.9)	1 (5.6)	6 (28.6)	0.062
Substance abuse	6 (15.4)	1 (5.5)	5 (23.8)	0.115
Previous suicide attempt	5 (12.8)	2 (11.1)	3 (14.3)	0.768
Mental illness reported by informant	4 (10.3)	4 (22.2)	0	0.023
Experienced abuse as a child	0	0	0	-

[1] Chi-squared tests were used to evaluate if there were group differences between men and women.

Table 5.4 Personality and fatality terms used to describe the deceased.

Personality Characteristics		Descriptions of Fate	
Nepali	**English Translation**	**Nepali Devanagari**	**English Translation**
घमण्डी Ghamandi	Proud, egotistical	भाग्यमा जति लिएर आएको छ, त्यति नै हुन्छ Bhaagyama jati liyera ayeko chha, teti nai hunchha	They will have only as much as their fate gives them, no more.
छिटो रीस उठ्यो Chhito ris uthyo	Becoming angry fast, unable to control emotions	भाग्यमा लेखेको कुरा बदल्न सकिदैन Bhaagyama lekheko kura badalna sakidaina	One cannot change what was written in their fate
जिद्दी Jiddi	Stubborn	भाग्य मै त्यति लेखेको रहेछ, Bhaagya ma teti nai lekheko rahechha	It was written in fate.
मुर्ख Murkha	Foolish	त्यस्तै भाग्य लिएर जन्मेको रहेछ, Testai bhaagya liyera janmeko rahechha	They were born with such fate
जड्याहा / रक्स्याहा Jadyaaha/raksyahaa	Drunkard		
रीसाहा; कडा रीस risaaha; kadaa ris	Bad tempered		
आफ्नो भविष्य अन्धकार देख्यो afno bhabisya andhakaar dekhyo	Pessimistic (seeing future as dark)		
आवेगशील Aabegsheel	Impulsive		

CHAPTER 6

CONCLUSION

Summary of Findings

This dissertation sought to answer the following research questions: (1) What are the gaps in suicide detection and reporting within community, legal, and health institutions and subsequent effects on the prioritization and response to self-harm events? (2) Using multiple data sources, what are common patterns, risk factors, and intervention opportunities for suicide in varying populations?, and (3) What are the socio-cultural and structural factors that shape suicidal acts in Nepal and what are the impacts on families and communities? Key findings are outlined below.

Chapter 3: Results indicated that there is a lack of systematic nationally standardized approaches within the health system for documenting and reporting suicide. Policy gaps and barriers to collecting suicide related data are highlighted and situated within a broader political and development context. Discrepancies between perceived criminality of suicide and actual legal policies greatly affected doctors’ engagement in death certification. Development officers and clinicians disagreed on what institutions should be tasked with suicide prevention, citing that the lack of data and social nature of suicide as reasons to not prioritize suicide as a health issue. Finally, the dominant role of the police in collecting information, reporting suicide, and interacting with families affected by suicide prevented families in reporting suicide because of fear of legal entanglements, stigma, and expected financial burden. Specific recommendations for mental health information system improvements within all institutions are outlined.

Chapter 4: Results point to potential important warning signs for suicide in the Nepali context such as migrant labor, recent geographic movement, and family history of suicide. Accounting for more deaths compared to women, male suicides are also a major public health issue, despite their neglect in public health and development discourse and literature in Nepal. The findings reinforce the necessity for prevention programs to target young people. Indicators that can be screened at both the clinical and community-level, as well as prevention solutions particularly salient to the research population are suggested. Developing communication pathways by which persons with suicidal ideation can disclose to family, friends, or health workers is one particularly important strategy to explore in future programs and research.

Chapter 5: Family accounts of suicide deaths, causal mechanisms, and care-seeking behaviors were elicited. Findings illuminated several perceived precursors to suicide including shifting households, previous exposure to suicide events, personality characteristics, domestic pressures and expectations, and the role of fate. Case studies and common themes provide needed nuance to Nepal's typical suicide 'numbers'. Suicide explanations were often gendered, attributing suicide causes to be self-agentive for women but not for men. However, interpersonal conflict and notions of shame were perceived to be associated with all suicides. Qualitative, community-informed findings are translated into suicide prevention recommendations for public health and clinical professionals.

Recommendations

Each chapter includes specific recommendations based on its particular findings. Broad recommendations are summarized below for three main areas: (1) policy, (2) clinical, and (3) population and community. These implications have the potential to reach beyond Nepal, and may be applicable to many low-income settings.

Policy recommendations

1. *Invest in death surveillance, ICD coding, and cause of death training to ensure proper use of suicide-related indicators in clinical registries and death reporting.* Calls for the WHO and other agencies to improve coordination and implementation efforts towards comprehensive and accurate death surveillance systems have existed for over a decade (Sibai, 2004, Rockett, 2015). In Nepal, death surveillance is particularly complicated because several ministries are involved in data collection, system implementation and enforcement, and reporting. Moreover, as is common in other low-income settings, medical training involves very limited curriculum in death certification and, at the time of this dissertation, only one individual in the Ministry of Health and Population was comprehensively trained in ICD coding. Improving death surveillance and human capacity at multiple levels of the health, legal, and administrative systems will greatly enhance the country's ability to respond to leading causes of death.

2. *Clarify legal policy related to suicide and increase awareness about medico-legal issues.* Given frequent incorrect reporting on the illegality of suicide in Nepal and the impact on stigma, reporting, and well-being of those associated with suicidal behavior, it is important to ensure the legal implications of suicide are properly reported. In India, the criminalization of suicide caused clinicians to deny care for fear of legal entanglements and families to misreport suicide attempts or deaths as accidents to avoid police investigations (Vijaykumar, 2007, Patel et al., 2012). Alongside improving care-seeking, reducing stigma associated with suicide can also improve surveillance (World Health Organization, 2014).

3. *Establish suicide registries to quickly collect information within various health and law enforcement sectors.* Given Nepal's limited death surveillance capacity, creating simple registries within district police offices and district-level hospitals can greatly enhance the data that is available. Improved data can lead to enhanced capabilities to identify and respond to suicidal behavior at the population level.

4. *Community-based detection and reporting should be explored as a complement to institutional surveillance practices.* Community-driven surveillance for suicide has proven to be effective in (a) better suicide-related data that can be used to inform prevention efforts and (b) reduced suicide incidence (Cwik et al., 2011, Cwik et al., 2014, Wexler et al., 2015). This evidence from low-resourced western

settings holds great promise for LMIC communities with limited formal health infrastructure. Further research exploring the feasibility and efficacy of this strategy in settings such as Nepal holds great potential in reducing suicide incidence.

Clinical recommendations

1. *Incorporate inductive warning signs into clinical screening algorithms*. Based on this study's findings, screening and detection in clinical settings could include questions related to family/social history of suicidal behavior, recent geographic movement, extensive alcohol use, domestic abuse, and symptoms of depression. Findings from this study and very recent results from another mental health study in Nepal suggest that individuals are unlikely to disclose suicidal ideation to family members (Jordans et al., 2015, Kohrt et al., 2016, Jordans, In Press). Therefore, clinical and community health encounters may be important strategies for detection and assessment of suicidal risk.
2. *Train clinicians on suicide prevention education strategies before patients are released* from care. Often, suicide attempts enter and leave the health system through the emergency room, but physicians posted to these departments had no formal training to help patients or their families prevent future attempts. Training clinicians in suicide screening and prevention is one of very few evidenced-based strategies to reduce suicidal behavior (Mann et al., 2005b). Thus, such efforts may be effective in contexts such as Nepal.

3. *Create communication pathways between clinicians and police officers posted to health facilities.* Collaboration between these institutions is essential. Our findings show that police officers perform more comprehensive investigations into the preceding events and perceived causes of suicides compared to clinicians. Moreover, clinicians reported being fearful of legal repercussions of their involvement with suicide death reporting. Creating mechanisms for police and clinical staff to work together in responding to suicide cases has the potential to improve support, documentation, and response to such events (Kohrt et al., 2015).

Population and community level suicide prevention

1. *Anti-stigma efforts are needed to reduce discrimination of persons with self-harm behavior and among groups at risk for self-harm.* Our findings suggested low disclosure to families, indicating fear and stigma about repercussions of sharing such information. Other studies have highlighted the role of stigma in suicide (Osafo et al., 2015, Ross and Goldner, 2009, Sudak et al., 2008). A range of strategies have been identified to reduce stigma associated with suicide and mental illness (Heijnders and Van Der Meij, 2006, Rüsch et al., 2005, Sartorius, 2007), and these endeavors need to be expanded to develop an evidence base for suicide stigma reduction in LMIC.
2. *Means reduction initiatives have great potential for prevention in LMIC.* Pesticide is the most common means of suicide in LMIC (Gunnell et al., 2007a, World Health Organization, 2014). This study found poison ingestion to be the second

most common means, preceded by hanging. Sri Lanka had great improvements in reduced suicide mortality by creating policies to regulate poisons available (Gunnell et al., 2007b). In India, pesticide safes significantly reduced suicide incidence (Mohanraj et al., 2014, Vijayakumar et al., 2013). Exploring the acceptability and efficacy of such strategies in LMIC at both policy and community levels will significantly add to the dearth of suicide prevention evidence-base.

3. *Test suicide prevention programs in LMIC.* As previously stated, there is a paucity of high quality evaluations of mental health promotion and suicide prevention strategies. Those found to have significant success were means restriction, primary care clinician training, and improving access to mental health care (Mann et al., 2005a, van der Feltz-Cornelis et al., 2011, Katz et al., 2013, Goldney, 2005, Fleischmann et al., 2016, Calear et al., 2016, Bagley et al., 2010). Other strategies such as Brief Intervention and Contact and school-based programs also show some success, although the rigor of evaluation is questionable (Fleischmann et al., 2008, Wasserman et al., 2015, van der Feltz-Cornelis et al., 2011). Given the current dearth of evidence-base, and almost non-existant evidence base in LMIC, rigorously exploring the above strategies will greatly inform much needed efforts in prevention. Additionally, training media professionals and investing in suicide hotlines are other population level strategies that can reduce stigma and improve care-seeking in various settings for low cost (Rhee et al., 2005, Gould et al., 2007, World Health Organization, 2000, Stack,

2000, Gould et al., 2003). Continuing to build the evidence base for prevention strategies, particularly in LMIC where the majority of the suicide burden exists, is essential so that communities and collaborative organizations and governments can better address a leading cause of death.

Conclusion

This dissertation sought to engage multiple stakeholders intimately involved in processes related to suicide. The findings contribute to the public health evidence for suicide in low income settings, building specific recommendations for screening, prevention, and intervention. They also contribute to the dearth of evidence in LMIC settings on mental health systems and the political and cultural challenges to vital surveillance. Arthur Klienman states that anthropologists (and other investigators for that matter) have a responsibility to dialogue with other fields in the implementation of appropriate intervention programs. In particular, this research aimed to prioritize and privilege familial perspectives, as their experiences, communities, and narratives rarely make it to the high level policy and planning discussions that too often decide the resources that are, or are not, afforded to individuals affected by suicide. To do this, we employed a novel MPAC method (Mixed-methods psychological autopsies for cross-cultural research). Using this approach, the research listened to what the suicides themselves had to say to varying audiences: mothers, fathers, siblings, police officers, doctors, lawyers, policy makers, and foreign development officers. In this way, the findings do not speak to a singular discipline. Rather, they suggest ways in which varying institutions can pragmatically improve suicide prevention and response, both within itself and alongside other agents. This dissertation identified several points for prevention and intervention for suicidal behavior, provided a more comprehensive picture of suicidal burden in both urban and rural contexts, and detailed family narratives that indicate social suffering beyond the individual engaging in suicidal acts. This work reveals socio, political, and cultural nuance of suicide and its sequelae that numbers alone cannot. Through sharing various suicide narratives and highlighting how data can either speak for or silence them, this research hopes to push the global suicide research agenda forward and demonstrate how findings form one field (anthropological, public health, policy) can be applied and appropriately used by another.

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