Vulnerable social groups in postconflict settings: a mixed methods policy analysis and epidemiology study of caste and psychological morbidity in Nepal

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Designing and implementing psychosocial intervention programmes in post conflict settings requires a breadth of knowledge of the context, circumstances, and needs of vulnerable social groups. However, mixed methods research focusing on which groups are vulnerable, and their specific psychosocial needs, is rarely conducted. This study uses historical policy discourse analysis to identify the origins of contemporary social categories related to vulnerability in Nepal, specifically caste. The policy analysis is employed to interpret cross-sectional epidemiological findings from a sample of 316 adults. Analyses test the relationship between caste and psychological morbidity, assessed with the General Health Questionnaire (GHQ-12), including potential mediators. Low caste (Dalit/Nepali) groups were found to have a 53,3 percent prevalence of psychological morbidity compared with 28,2 percent prevalence among other caste and ethnic groups (odds ratio 2,91, 95% confidence interval 1,71–4,96). Income and stressful life events partially mediate the relationship between caste and psychological morbidity. These findings are interpreted in relation to themes from the policy analysis including restrictions in social interactions, access to resources, social control and punishment, social mobility and gender relations. The study concludes with recommendations for addressing the needs of vulnerable social groups in post conflict settings.

Keywords: policy analysis, mixed methods, caste, Nepal

Introduction
One of the major challenges facing psychosocial interventions in settings of political violence is addressing the needs of vulnerable populations. Conflict and other forms of political violence do not affect all persons equally. Therefore, psychosocial programmes typically target vulnerable groups. This is exemplified by the focus on groups such as children and women. Interventionists often also consider ethnic minorities as vulnerable populations. For example, action sheets 2.1, 4.1, 5.3, 7.1, and 10.1 of the *Inter-Agency Standing Committee (IASC) Guidelines* reference addressing vulnerability associated with ethnicity (IASC, 2007). The goals of the analyses presented here are to develop recommendations to address the mental health and psychosocial needs of marginalised groups affected by the Maoist People's War in Nepal. This study draws upon a mixed methods approach, employing policy analysis and epidemiology. This study is the first to combine policy analysis and epidemiology to examine caste in Nepal.

There are three challenges to working with vulnerable social groups in postconflict settings:

1. *How are social groups categorised and by whom?* When designing interventions in post conflict settings, the classification of individuals into different *'vulnerable'* groups based on religion, ethnicity, region and other affiliations is rarely straight-forward. Social categories are highly political and often in flux (Anderson, 1991). The categorisation used by people in power may be very different from the social grouping described by those marginalised from political power (Kleinman, 1995). For example, in Nepal, while government bureaucrats may refer to a certain community as Hindu, the group may self-identify as Buddhist or animist, or vice versa (Whelpton, 2005). Moreover, group categorisation is related more to social constructs than genetic differences (Braun, Fausto-Sterling, Fullwiley, Hammonds, Nelson, Quivers, Reverby & Shields, 2007; Brown and Armelagos, 2001; Hacking, 1999),

2. *What relationship do social group categories have with psychosocial vulnerability?* Vulnerable social groups often bear a greater burden of psychosocial problems (Desjarlais, Eisenberg, Good & Klein-man, 1995). However, ethnic minorities do not universally have poorer psychosocial wellbeing or mental health compared with dominant social groups. For example, in the United States, African Americans have a lower prevalence of depression than European Americans (Williams, Gonzalez, Neighbors, Nesse, Abelson, Sweetman & Jackson, 2007). Mexican Americans with schizophrenia have a lower relapse rate than European Americans (Karno, Jenkins, de la Selva, Santana, Telles, Lopez & Mintz, 1987; Lopez, Hipke, Polo, Jenkins, Karno & Vaughn, 2004). This does not only apply to categorisation of ethnic groups.

Among aid organizations, it has been common to prioritise psychosocial services for child soldiers. However, in some psychosocial functioning arenas, child soldiers may not have greater deficits than children never associated with armed groups (Kohrt, Jordans, Tol, Speckman, Maharjan, Worthman & Komproe, 2008).

3. *What are the underlying processes that make a certain social group more vulnerable to psycho-social problems?* Another challenge in working with vulnerable groups is deter-mining the underlying risk factors. Group membership is rarely the causal factor for mental health and psychosocial problems. More typically, it is the differ-ential exposure to risk factors associated with group membership. Being part of a specific group may predispose members to certain experiences and forms of deprivation and/or exclusion in politics, education, financial transactions, legal proceedings, and access to health-care (Ahmed, Mohammed & Williams, 2007). This has important implications for intervention because the goal of psychosocial programming would not necessarily be to change group member-ship but rather to promote economic, educational, and healthcare equity across groups.

Because of these challenges, it is argued in this paper that interventionists need to address these three issues when considering psychosocial care for vulnerable groups in post conflict settings. First, the social cat-egorisation process of groups needs to be explored rather than taking standard classi-fications at face value. This is because group divisions are more likely to reflect labels of those in power. Qualitative re-search approaches are well suited for this

endeavour. Second, epidemiological studies are necessary to demonstrate an association of membership in a vulnerable group with poorer mental health and psychosocial wellbeing. Programmes should not rely upon assumptions that psychosocial problems are inherent in marginalised groups. Third, the underlying factors that explains the association of group membership and psychosocial problems needs to be assessed. Identification of the underlying factors will lead to prioritisation of the most effective targets for intervention.

To address these three challenges, this study is an exploration of *caste*, a category central to religious identity, life trajectories, and socio/economic/political relations in South Asia. Scholars, politicians, interventionists, and social scientists have viewed caste as an axis of vulnerability and marginalisation (Bob, 2007; Kisan, 2005; Kohrt, Kunz, Baldwin, Koirala, Sharma & Napal, 2009).

Policy analysis of vulnerable groups
There is a tremendous array of qualitative approaches from which to select methods. An approach that has received less attention is policy analysis, a form of critical discourse analysis (Wodak & Meyer, 2001; Yanow, 2000). Discourse analysis draws upon produced materials such as literature, religious texts, artwork, and historical artefacts. This elucidates historical processes for which living key informants are not available. This is particularly useful to identify the historical origins of current social problems. Policy discourse analysis examines texts related to governance and public practices (Yanow, 2000). Topics of study include political documents such as constitutions, declarations and ordinances.

Policy analysis provides a historical perspective. Policy analysis allows access to a different body of knowledge than that provided by research participants. Typically, researchers work with the displaced, the traumatised and the marginalised – all groups disenfranchised from positions of power. Therefore, the research does not reveal the processes and actions of those in positions of power whose behaviours and policies perpetuate the marginalisation of others. However, policy development does reflect these processes. In addition, policies contribute to the marginalisation of certain populations, which then makes them vulnerable to exploitation by armed groups. Finally, policy analysis is important to consider for psychosocial practitioners because policies themselves can be powerful sites of intervention. Interventionists increasingly focus on promoting psychosocial programs that contribute to sustainable changes. Investing in policy change can influence long term social processes that will reduce the vulnerability of marginalised groups. Using policy analysis, major themes related to marginalisation, which can then be tested using epidemiological models, are indentified.

Epidemiological analyses of vulnerable groups
There are a range of analytical approaches to assess the relationship of vulnerable groups with psychological morbidity and other mental health and psychosocial outcomes. *Figure 1* illustrates three different types of associations. Standard crude associations (A) simply test whether there is an association between group membership and psychological morbidity. This is done through standard statistical tests using t-tests, chi-square, and ANOVAs (in cross-sectional studies, t-test typically are used to compare the means of two samples assumption normal distribution of values; chi-square tests are used to compare proportions of categorical values across groups;
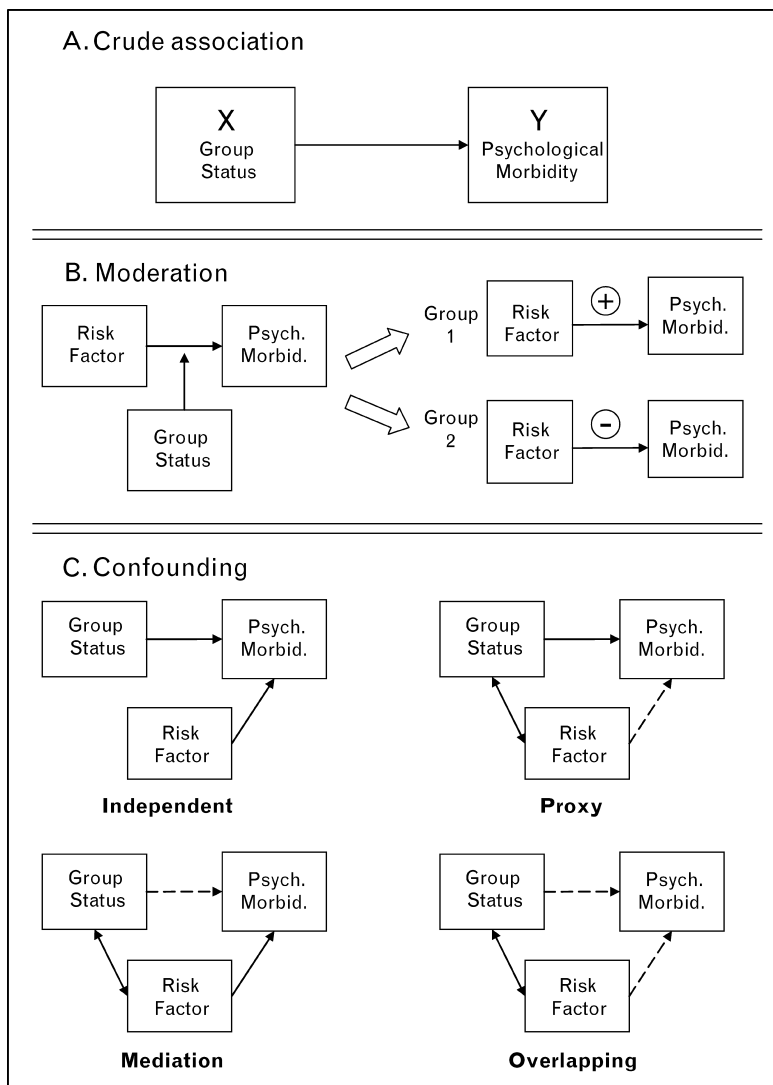
Figure 1: Associations of vulnerable group status with psychological morbidity and risk factors. **A.** *Simple crude association of group status (X) predicting psychological morbidity level (Y).* **B.** *Moderation, tested through interactions, in which group status leads to different types of associations between risk factors and psychological morbidity, e.g. among Group 1, the risk factors is positively associated with psychological morbidity, whereas among Group 2, the risk factors is inversely associated with psychological morbidity.* **C.** *Types of counfounding: Independent relationships in which group status and other risk factor are not associated; Proxy in which group status explains the relationship between a risk factor and psychological morbidity; Mediation in which the risk factor explains the relationship group status and psychological morbidity; Overlapping in which the risk factor and group status are associated and both partially predict the association with psychological morbidity. Note: Solid lines represent crude relationship that remain significant with risk factors and group status included in the model. Dashed lines represent crude associations that are reduced in significance when both risk factors and group status are included in the model. (Frazier, Tix & Barron, 2004; Kleinbaum, Kupper & Morgenstern, 1982; Kraemer et al., 2001)).*

and ANOVAs typically are used to compare means across more than two groups). These crude tests do not tell us why or how a certain vulnerable group may have greater psychological morbidity. *Moderation* (B), also known as effect modification, refers to the phenomenon whereby a variable changes the strength or direction of association of two other variables. For example, in Nepal, gender changes the association of social support on anxiety (Kohrt & Worthman, 2009). Among men, higher social support is associated with lower anxiety levels. In contrast, among women, there is no association of social support and anxiety. Similarly, one could hypothesise that education, social support, or household income may have different effects on psychological morbidity within different castes. Income may be associated with psychological morbidity among low caste persons whereas education level may be more important to psychological morbidity among high castes.

Confounding models (C) assess which factors may underlie the associations between other variables. Confounding models can assess independent, proxy, mediation, and overlapping relationships (Kraemer, Stice, Kazdin, Offord & Kupfer, 2001). For example, myriad researchers have tested how the relationship of membership in vulnerable groups relates to risk factors such as less access to economic or health resources. *Independent* relationships are models in which there is no association between group membership and the risk factors. For example, being female is often a risk factor of psychological morbidity. However, ethnicity does not cause an individuals' gender. Therefore, ethnicity and gender are independent variables. *Proxy* and *mediation* represent reciprocal models. For true mediation, a membership in a vulnerable social group causes the risk factor, which then leads to poorer psychological outcomes. For example, a mediating risk factor would be caste based discrimination because being a member of a specific group directly leads to experiences of discrimination. A proxy, in contrast, would be a risk factor that indicates group membership but, in and of itself, is not causative. For example, wearing of a sacred thread in Nepal indicates caste membership, but the adornment itself does not cause psychological morbidity, rather it is proxy for caste membership. In reality, many variables may represent *overlapping* phenomenon. For example, group membership may be associated with economic status. However, group membership may not be the sole determinant of economic status; therefore, the group membership and economic status overlap in their contribution to psychological morbidity but also have independent predictive power as well.

Ultimately, cross-sectional data does not lend itself to total elucidation of whether a specific risk factor is a proxy, a mediator, or an overlapping contributor to psychological morbidity because causality models require following variable changes over time. That said, using statistical approaches for moderation and confounding help to identify targets for intervention related to vulnerable groups. While it is not possible for an intervention to change a person's caste or ethnicity, interventions can change factors associated with caste such as access to resources, healthcare, or participation in political processes.

Methods

Setting

This study takes place in Nepal in the context of the People's War. This conflict between the Communist Party of Nepal (Maoists) and government security forces began in 1996. Maoists described the war as

an agrarian revolution for the rights of poor communities, women and ethnic minorities. In 11 years of combat, more than 13 000 people have been killed, with the majority of these deaths perpetrated by government security forces (Informal Sector Service Center (INSEC), 2008). Maoists and the government of Nepal signed peace accords in 2006, with the Maoists incorporated into the government.

Policy Analysis
There were four goals of the policy analysis:

- to explore the concept of caste and *Dalitness* in Nepal;
- to examine the historical development of the caste categories;
- to identify themes related to risk factors in policy documents; and
- to identify protective factors in policies.

The policy analysis began by selection of documents for review, first focusing on secondary literature on caste in Nepal. From secondary sources, original documents were identified for review, followed by a search for revisions or additions to these documents. The main documents were the *Manusmriti* (compiled 200 B.C.E.−300 A.D.), Lichivi era proclamations (200 B.C.E.−879 A.D.), documents of Jayasthiti Malla (1360−95), the *Muluki Ain* (1854, revised 1953, 1963, 1992), the *Constitution of Nepal* (1950, rewrites 1959, 1962, 1990, 2007), and the Communist Party of Nepal (Maoists) *40 Point Demand* (1996).

Content analysis revealed risk factor themes. Themes had to meet two criteria; first that the exposures or policies differed by caste group, and second that factors associated with poor mental health in other global mental health literature. Protective policies were those targeting overturning prior policies

contributing to increased vulnerability. The author was the single coder for these documents and followed grounded theory, with the modification of attention to themes that researchers have documented as risks in other settings.

Epidemiology
Design and Sample
This study took place in Jumla, a district in mountainous regions of northwestern Nepal. The Jumla population of 69.226 persons includes 9,5% *Brahman*, 63,1% *Chhetri* and 17,8% *Dalit* (HMG-CBS, 2003). Ethnicity/caste was assessed through self-identification. Respondents classified themselves according to four groups used in government censuses (HMG-CBS, 2003): *Brahman* and *Chhetri* ('upper' castes), *Dalit* ('lower' caste), and *Janajati* (ethnic minorities). These groups are accepted identification categories throughout Nepal including the study region. Research assistants cross checked self-reported ethnicity with last name, which indicates caste/ethnicity in Nepal. In the study, *Dalit* often self reported their caste as 'Nepali', another indicator of low caste, rather than referring to themselves as 'Dalit'. Therefore, the caste label is presented in this paper here after as Dalit/Nepali, to reflect both the broader categorisation and the preferred self-identification.

This was a cross sectional study with random sampling of one adult per household. The sample was recruited for a psychiatric epidemiology study of depression and somatisation from February through August 2000 (Kohrt, Kunz, Baldwin, Koirala, Sharma & Nepal, 2005). The sampling design used nth households with census data on age and sex distribution. Houses in each *Village Development Committee* (VDC) Ward (9 wards per VDC) were numbered. Then the nth house was selected for interview recruitment.

Odd numbered houses were for women and even for men. Within each household, the research assistants had an age breakdown of whom to sample, so that recruitment matched the VDC age distribution.

It is important to note that this study was conducted prior to mass Maoist violence in the area, which began in late 2001. Prior to the study, there had been no major attacks by Maoists in the study area. Thus, these findings are important because they provide a glimpse of psychosocial wellbeing in rural Nepal prior to widespread exposure of the population to traumatic conflict related events. Moreover, therefore, the relationship of caste and psychosocial wellbeing is a closer approximation of pre war context. Studies conducted after exposure to war and other traumas may temporarily shift, mask, or exacerbate longstanding group difference in mental health (Kohrt, 2009).

All participants were 18 years of age or older. Many participants could neither read nor write. Therefore, research assistants read consent forms to all participants. They recorded consent with a signature for literate, or a thumbprint for illiterate participants. The Department of Psychiatry at Tribhuvan University Teaching Hospital/Institute of Medicine in Kathmandu provided consultation prior to and during the assessment and gave final approval for the study. The main exposure variable was caste and the outcome variable was psychological morbidity.

Measures
General Health Questionnaire, 12-item version (GHQ-12) The GHQ-12 is an instrument designed for screening of general psychiatric morbidity (Goldberg, Kay & Thompson, 1976a; Goldberg, Rickels, Downing & Hesbacher, 1976b). The GHQ-12 contains 12 items assessing wellbeing over the past few

weeks. Items assess mood, sleep, concentration and other features of wellbeing. Items are scored 0–3 with a total score ranging from 0 to 36, with higher scores indicating worse conditions. The GHQ-12 has been validated for use in Nepal (Koirala, Regmi, Sharma, Khalid & Nepal, 1999). Based on prior studies in Nepal, a cut-off of six or greater on the GHQ-12 was selected for categorisation of psychological morbidity. Cronbach's alpha for the GHQ-12 in this population was 0,85 (Cronbach's alpha is a measure of the internal consistency reliability of an instrument; it refers to how well a set of items measures a single, unidimensional latent construct).

Stressful Life Events Rating Scale for Cross Cultural Research (SLERS) Individuals reported the frequency (number of times an event occurred in the past 12 months) of stressful life events (SLEs) with the SLERS (Zheng & Lin, 1994). This instrument comprises nine subscales. Six of these were selected for inclusion in these analyses because they reflected themes identified in the policy analysis:

(i) *Social relations* theme: interpersonal SLEs (seven items, $\alpha = 0.50$, e.g. disgraced in public, criticised by others, ignored by others, misunderstood or berated by others);

(ii) *access to resources* theme: financial SLEs (nine items, $\alpha = 0.33$, lost property, took a mortgage, lost livestock, crop shortage, financial punishment for minor law violation);

(iii) *social mobility* theme: work-related SLEs (five items, $\alpha = 0.56$, e.g. cannot find work, fired from work, dissatisfied with occupation, forced to take a lower status job);

(iv) *social control and punishment*: legal and political SLEs (seven items, $\alpha = 0.34$, e.g. legal punishment, involved in

lawsuit, went to jail, took part in political activities, lost job from political affiliation);

(v) *gender and family relations*: intimate relationship SLEs (eight items, α = 0.58, e.g. forced marriage, fighting with spouse, wife ran away from husband and in-laws to return to live with her own parents, extramarital affair), and family SLEs (nine items, α = 0.31, e.g. child not allowed to enrol in school, child cannot find work, child eloped).

Greater frequency of stressful life events (SLEs) as assessed by the SLERS is associated significantly with locally defined psychosomatic complaints in Nepal (Kohrt et al., 2005).

Social support was assessed with nine questions assessing if support was available in the following areas: care when sick, shopping, providing basic necessities, lending money or other financial assistance, fixing broken equipment and maintenance (e.g. kitchenware, ploughs, radio), domestic chores and work, getting advice, preparing and cooking food and child care. Summed items provide a score of zero to nine, with nine indicating support available in all of the areas. Internal reliability, as assessed by Cronbach's alpha, was 0,87.

Demographics assessed included self-reports of gender, age, education, monthly household income (recorded in Nepali rupiyaa; at the time of the study US\$1 = 70 rupiyaa) and number of livestock (e.g. water buffalo, cows and goats).

Analysis
The analytic goals were:

(i) to quantify the relationship of caste and psychological morbidity as measured with the GHQ-12; and

(ii) to evaluate the possible roles of other variables as moderators or mediators of the relationship between caste and psychological morbidity.

Because of the limited sample size, analyses used caste as dichotomous variable: Dalit/Nepali vs. all other groups. This assesses the vulnerability of Dalit/Nepalis against all other groups. Odds ratios with 95% confidence intervals assess the strength and statistical significance of association for caste with other categorical variables. Simple linear regression assesses the strength and statistical significance of association for covariates (including caste) and psychological morbidity. Standardised scores were used for all comparative analyses in t-tests, univariate models, and multiple mediator models.

Kleinbaum and colleagues' (Kleinbaum et al., 1982) framework for assessing effect modification was followed in accord with current approaches to interactions (Frazier et al., 2004; Holmbeck, 1997; Kraemer et al., 2001). Non-significant interactions (p>0.05) were considered as failure to support a moderator role of caste status.

A regression based approach to mediation analysis with bootstrap estimation of indirect effects was executed with Preacher and Hayes' *indirect* macro for SPSS, which calculates bootstrap estimates of indirect effect for models with one or more mediators (Preacher and Hayes, 2008, see http://www.comm.ohio-state.edu/ahayes/macros.htm for macro). For a full description of the multiple mediator analysis used here, see (Kohrt et al., 2009). Because of the limitation of the *indirect* macro, confounds (age and gender) only could control Y, and not for the entire model. Because education did not associate with psychological morbidity in the caste model, an additional multiple

mediator model in which education replaces caste evaluates mediating variables underlying the relationship. All statistical analyses were performed in SPSS v.16.0 (SPSS Inc., 2007).

Policy Analysis Findings

Concept of caste and Dalit-ness

Nepal's population comprises more than 60 ethnic and caste groups; current categorisations comprise high caste groups (*Brahman* and *Chhetri*), low caste groups (*Dalit*), and other ethnic groups (*Janajati*), (Bista & Nepal. Dept. of Publicity., 1967; Whelpton, 2005). *Figure 2* displays a breakdown of current caste and ethnic divisions commonly used in Nepal. Low caste (Dalit) groups are included in the Nepali-speaking ethnic groups, Newari-speaking ethnic groups, and Madhesi groups. The English term '*caste*' derives from the Portuguese term '*casta*' referring to purity, birth, and difference, and was apparently use to explain the social stratification in India (Kisan, 2005). The Hindu caste system is hierarchical with those at the bottom of the caste system referred to as low caste, untouchable, or Dalit.

Throughout the 20th century there was a growing social movement for the rights of untouchable groups (Bob, 2007). Many of these groups use the term '*Dalit*' to refer to untouchable groups. *Dalit* comes from the Sanskrit word *dal* which means '*to shatter, to break into pieces and to step on,*' thus, Dalit literally means '*shattered; over-burned, suppressed; squeezed; stepped-upon; kneaded; ground-down; shamed by being required to bow to someone else's feet; or silenced through suppression,*' (Kisan, 2005). The term was popularized by the Dalit leader Dr. B. R. Ambedkar when India was struggling for independence from the United Kingdom (Bob, 2007).

There is widespread evidence throughout the 1990s of discrimination against Dalits: exclusion from public places such as hotels, cremation sites, temples and monasteries; restrictions in the use of public facilities, particularly water taps; exclusion from renting places to live or work; not being given retail positions; inability to secure loans for livestock; and punishment for inter-caste marriage (INSEC, 1993).

Historical development

Table 1 provides a brief overview of the major developments in the history of caste relations and major documents. The origin of the caste system is attributed to Indo-Aryans pastoralists who subjugated the local populations through the *varna* classification system

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Major ethnic and caste divisions in nepal			

I. Parbatiyas/ Caste-Hindus (Nepali-speaking) [40.3%]
• High caste [30%]
    • Brahman 13%
    • Chhetri 17%
• Low caste (Dalit) 10%
	II. Newars (Newari-speaking) [5.6%]
	• High caste 5%
	• Low caste 1%
		III. Hill 'Tribes' (Tibeto-Burman language) [20.9%]
		• Magars 7%
		•Tamangs 6%
		• Rai & Lumbu 5%
		• Gurung 2%
		• Bhotiya (Tibetan) 1%
		•Thami 1%
			IV. Madhesi (Indian dialects) [32%]
			• High caste 11%
			• Low caste 4%
			• Tarai 'tribes' 9%
			• Muslim 3%

Figure 2: Major ethnic and caste divisions in Nepal. Adapted from Whelpton, 2005, Table I.1, pp. 9-10. Percentages within boxes are percentage of total population.

Table 1. Caste relation policies and practices by period

Period	Caste relations and policies
2000 B.C.E.	Pastoralist ancestors of Indo-Aryans migrate from regions near Persia through western Nepal into Sindhu valley of modern day Pakistan subjugating local populations and developing the caste system.
1000 B.C.E.	*Rig Veda* Hindu religious text – three privileged Indo-Aryan classes (priests, jurors and businessmen, and farmers) and one slave class composed of the indigenous groups.
200 B.C.E. – 300. A.D.	*Manusmriti* laws established by sage Manu with expanded restrictions on the lower castes. Punishment was based on caste status (e.g. execution for low caste accused of adultery contrasted with banishment for high caste) and inter-caste marriage was prohibited. '*Untouchability*' codified.
200 B.C.E. – 879	Licchavi age in Nepal – Indo-Aryans migrate from Sindhu valley and modern day northern India into Kathmandu valley bringing with them the Hindu caste system. Low caste dwellings restricted to outside town centres. Punishments for infractions of caste regulations result in the lowering of one's caste position.
1360–1395	Reign of Jayasthiti Malla in Kathmandu. Newar community divided into four categories and 64 castes. Rights, duties, and punishments further differentiated by caste.
1721–1774	Prithvi Narayan Shah unifies Nepal as a Hindu kingdom and brings country under Hindu law/custom. Establishes caste councils to monitor castes, expansion of punishment by caste demotion policy.
1854	Prime Minister Jang Bahadur Rana's government creates *Muluki Ain* with the Hindu caste system becoming the civil code throughout Nepal. Punishment based on caste, marriage restrictions across caste with resulting punishments, demotions, and expulsion. Rana leaders immune to caste violations. Caste changeable by the king.
1950	First *Constitution of Nepal 1950*. Article 10: Education and other provisions for low caste. Article 14: State cannot discriminate based on caste. Article 19: No forced labor by caste. Concept of '*Untouchability*', however, is not removed from practice. Constitutional Council fails to pass legislation to outlaw discrimination of by untouchability.

'Let no man, who regards his duty religious and civil, hold any intercourse with them; let their transactions be confined to themselves; and their marriages only between equals. Let food be given to them in potsherds, but not by the hands of the giver; and let them not walk by night in cities or towns,' (Manusmriti, 1796).

The *Manusmriti* codified a fifth *varna*, 'untouchables', who were relegated to demeaning and severely restricted feeding customs, type of clothing, places of settlement, wearing of jewellery, owning of household goods and access to education (Kisan, 2005). During this period, Hindu Indo-Aryans migrated into Nepal bringing with them caste based stratification (Kisan, 2005; Whelpton, 2005). In 1769, Prithvi Narayan Shah violently unified Nepal and enforced the caste system throughout the country (Kisan, 2005). In 1854, the Rana Prime Minister Jang Bahadur Rana created the *Muluki Ain*, the most comprehensive legal document for caste based social control in Nepal (Höfer, 2004).

In 1950, the first *Constitution of Nepal* established multi-party democracy in Nepal. Article 10 of the constitution established education and other provisions for low castes. However, no clauses are included for violation of constitutional mandates against caste discrimination. In 1953, the king amended the *Muluki Ain*, maintaining acceptance of untouchability practices.

In 1962, King Mahendra seized control of the government, ending democracy. His new 1962 constitution declared Nepal a Hindu country operating according to Hindu law. The constitution allowed caste discrimination and untouchability practices in the name of tradition and religious ritual practice (Kisan, 2005).

Risk factor themes

Table 2 outlines the major risk factor themes identified through the policy analysis. These include:

(1) social relations and interactions;
(2) access to resources;
(3) social mobility and status;
(4) punishment and social control; and
(5) gender and family relations.

Protective legislation

It was not until the 1990 Constitution of Nepal that caste based discrimination was explicitly banned (Kisan, 2005).

'No person shall, on the basis of caste, be discriminated against as untouchable, be denied access to any public place, or be deprived of the use of public utilities. Any contravention of this provision shall be punishable by law,' (Constitution of Nepal, 1990).

In 1996, the Maoists issued the *40 Point Demand*, which called for an end to racial discrimination and the elimination of untouchability and discrimination against so-called "backward" groups (in the Demand's terminology). Numerous Dalit organisations supported or affiliated with the Maoists and endorse armed struggle, while other said equality should only approached through peaceful means (Kisan, 2005). The continued abuse of Dalit combined with Maoist rhetoric for Dalit equality led to the recruitment of large numbers of Dalit into Maoist forces (Lawoti, 2003).

The Interim Constitution of Nepal (2007), written following the signing of peace accords between Maoists and the Nepal government, included the first use of the word '*Dalit*' in a Nepali constitution. *Article 13* outlawed discrimination against women, *Dalit* and ethnic minorities. Moreover, the Article provided

Table 2 Risk factor themes identified through policy analysis

Themes	Examples	Epidemiological measures
Social relations and interactions	Beginning with *Rig Veda* and *Manusmriti*, low castes restricted in social interactions with higher castes such as eating customs (with whom to eat, not sharing food and water with other castes), not touching individuals outside one's caste, not allowed to use the same paths and roads, and not allowed in the same dwellings. Dalits not allowed in most religious sites and not allowed to participates in festivals with other castes; restrictions still present in 1992 *Muluki Ain*.	Social support scale Interpersonal SLEs
Access to resources	Different standards applied according to one's caste for land tenure, inheritance starting with 1854 *Muluki Ain*. Low castes forced to live outside town centres and restricted in any business that could be practiced with other castes. Wealth of low castes originally limited to only owning dogs and asses in *Manusmriti*; more recently limitations for Dalits to take out loans for purchase of livestock.	Income Livestock Land Financial SLEs
Social mobility and status	Inability to change one's social and economic position limited by caste. Historical occupational restrictions of low castes to only cleaning streets and toilets and performing funeral rites, as well as physical labour. Legacy of low castes being enslaved and held in bonded labour. Employment in civil service, participation in politics, and other higher status positions restricted by *Muluki Ain* and other policies. Major restrictions on education as vehicle of social mobility. Education to low castes banned until 1950 *Constitution*.	Education Work SLEs
Punishment and social control	Punishment unequal by caste, greater severity for lower caste. Punishments for infractions of caste regulations result in the lowering of one's caste position. Policies included use of violent punishments for lower castes. Punishment for violation of caste-based practices present through 1992 *Muluki Ain*.	Political/legal SLEs

Table 2 (continued)

Themes	Examples	Epidemiological measures
Gender and family relations	Marriage across castes results in lowering of one's caste and expulsion from one's village—with punishment greater for the lower caste person in the infraction; described in 1854 *Muluki Ain*. Different standards applied according to one's caste for adoption and other treatment of minors and marriage, sexual relations and transmission of impurity through childbirth.	*Intimate partner SLEs* *Family SLEs*

Abbreviations: SLEs (stressful life events).

for making special provisions to support these groups. *Article 14* is the *Right against Untouchability and Racial Discrimination*, which states that a discrimination act is punishable by law:

'[*Persons may not be*] *deprived of the use of public services, conveniences or utilities, or be denied access to any public place, or public religious places, or be denied to perform any religious act… [And] no exclusions in sale or purchase of goods, to disseminate ideas based on caste superiority or hatred; or to encourage caste discrimination in any form,*' (Interim Constitution, 2007).

Any infraction of this article was punishable by law. *Article 21* calls for the proportional inclusive principles for Dalit. *Article 33* calls for the state to decentralise to address problems of caste. *Article 35* institutes reservations for Dalit and other groups '*with regard to education, health, housing, food sovereignty and employment.*' *Article 65* calls for the proportional representation of Dalit in the formation of the *Constituent Assembly*, which would draft the next constitution of Nepal.

Epidemiology findings

Based on the main themes identified in the policy analysis, the epidemiological analyses included five categories of variables: *social relations* (social support and interpersonal SLEs), *access to resources* (household income, livestock, farmland, and financial SLEs), *social mobility* (education and work-related SLEs), *social control and punishment* (legal and political SLEs), and *gender and family relations* (intimate relationship SLEs and family SLEs).

Table 3 presents sample demographics. Dalit/Nepali participants had a greater burden of psychological morbidity compared with other groups (see Table 4). The mean total GHQ-12 score was greater for the Dalit/Nepali group when assessing continuous outcomes. Using a cut off score of 6 or greater to indicate psychological morbidity on the GHQ-12, Dalit/Nepali participants (53.3%) were more likely than other groups (28.2%) to have psychological morbidity (OR 2,91, 95% CI 1,71 – 4,96).

Univariate interaction models tested for each of the variables separately (social support, interpersonal SLEs, household income, etc.). However, none of the interaction terms were significant (p>0,5 for all models). Thus, there was not support for the effect modification model of caste on psychological morbidity.

With regard to the multiple mediator models, the total effect of Dalit/Nepali caste on GHQ-12 score was 0,64 (95% CI 0,40– 0,89) adjusting for age and gender (see Table 5). Adjusting for age, gender and potential mediators (SLEs, income and education), the direct effect of Dalit/Nepali caste on GHQ-12 score was 0,43 (95% CI 0,17–0,70). The total indirect effect of the mediators (the sum of the specific indirect effects for the mediators) was 0,21 (95% CI 0,04–0,40) on total GHQ-12 score. Financial SLEs and household income were the only two variables with significant specific indirect effects. Having no education did not have a significant specific indirect effect. These results indicate that income and financial SLEs partially mediate the effect of Dalit/Nepali caste on psychological.

Figure 3 illustrates this graphically. The crude association of caste status (Dalit/Nepali vs. all other groups) is illustrated through Part A of the figure with the *c* path representing the strength of the association. Part B of the figure represents the multiple mediation model. The *c'* path in Part B is less than the *c* path in Part A demonstrating that the other factors (M_{1-11}) explained a significant

Table 3 Sample demographics by caste (N=316)

	Total sample (N=316)		Other groups (n=241)		Dalit/Nepali (n=75)		Group comparison	
	Mean	SD	Mean	SD	Mean	SD	t-test	p-value
Demographics								
Age (years)	34,91	12,55	33,53	11,79	39,32	13,92	−3,25	0,002
Social relations								
Social support	7,36	2,33	7,60	2,02	6,59	3,02	2,73	0,008
Interpersonal SLEs	0,17	0,26	0,16	0,26	0,19	0,25	−0,85	0,39
Access to resources								
Household income (Rs/month)	2360,74	3688,61	2710,22	3959,69	1237,73	2321,52	3,98	<0,001
Livestock (no. of animals)	6,23	6,31	7,00	6,71	3,73	3,90	5,24	<0,001
Farmland (no. of *muri*)	21,47	28,49	24,95	31,30	10,27	10,46	6,25	<0,001
Financial SLEs	0,29	0,31	0,26	0,29	0,39	0,35	−3,11	0,002
Social mobility								
Education	4,33	4,52	5,26	4,61	1,32	2,47	9,58	<0,001
Work related SLEs	0,22	0,38	0,19	0,29	0,31	0,59	−1,81	0,07
Social control and punishment								
Legal and political SLEs	0,17	0,27	0,15	0,27	0,23	0,25	−2,41	0,02
Gender and family relations								
Intimate relationship SLEs	0,16	0,25	0,14	0,20	0,20	0,36	−1,45	0,15
Family SLEs	0,35	0,37	0,30	0,31	0,51	0,47	−3,55	0,001

All group comparisons employ standardized/centralized values of the variables. Group comparison T-test evaluates Dalit/Nepali vs. Other Groups. Other groups include Brahman and Chhetri castes and Janajati ethnic groups. Abbreviations: SD (standard deviation), SLEs (stressful life events), Rs. (rupiyaa).

Table 4. Psychological morbidity (GHQ-12) by caste (N=316)

	GHQ-12 continuous outcomes			GHQ-12 categorical outcomes		
	Mean total score (95% CI)	t-statistic[1]	p-value	No. (%) above cutoff[2]	OR (95% CI)[3]	p-value
Other groups[4] (n=241)	3,91 (3,48–4,33)	4,80	<,001	68 (28,2)	1,00 [Ref.]	<0,001
Dalit/Nepali (n=75)	6,05 (5,26–6,85)			40 (53,3)	2,91 (1,71–4,96)	
Total sample (N=316)	4,42 (4,03–4,81)			108 (34,2)		

[1] Independent t-tests were used to compare continuous scale mean scores between Dalit/Nepali castes and other groups.
[2] A cut-off score of 6 or greater was used.
[3] Mantel-Haenszel odds ratio (OR) estimate and Wald confidence intervals (CI) with 'other groups' as the referent category.
[4] Other groups include Brahman and Chhetri castes and Janajati ethnic groups.

Table 5. Direct and indirect effects for psychological morbidity by caste (Dalit/Nepali, n=75, vs. all other groups, n=241) and education (no education, n=139, vs. any education, n=177)

	Psychological morbidity (GHQ-12 total score)	
	Caste model (N=316)	Education model (N=316)
	Effect[3] (95% CI)	Effect[3] (95% CI)
Model 1[1]: total caste effect (without mediators)		
Caste (Dalit/Nepali vs. other groups [ref])	0,64 (0,40—0,89)	NA
Education (any education vs. no education [ref])	NA	−0,31 (−0,54—−0,08)
Model 2[2]: direct effects		
Direct effects of caste & covariates/potential confounders		
Caste[4] (Dalit/Nepali vs. other groups [ref])	0,43 (0,17—0,70)	NA

Table 5 *(continued)*

	Psychological morbidity (GHQ-12 total score)	
	Caste model (N=316)	Education model (N=316)
Education (any education vs. no education [ref])	NA	-0,03 (-0,26—0,20)
Gender	0,56 (0,34—0,79)	0,48 (0,27—0,69)
Age	0,24 (0,13—0,35)	0,27 (0,16—0,37)
Model 2²: indirect (mediation) effects		
Total indirect effect⁵	0,21 (0,04—0,40)	-0,28 (-0,42— -0,14)
Specific indirect effects⁵		
Education	-0,01 (-0,13—0,11)	NA
Intimate partner SLEs	0,02 (-0,01—0,09)	-0,03 (-0,09—0,02)
Family SLEs	-0,02 (-0,09—0,05)	0,02 (-0,07—0,07)
Work SLEs	0,01 (-0,01—0,07)	-0,01 (-0,05—0,03)
Financial SLEs	0,10 (0,02—0,22)	-0,15 (-0,25— -0,05)
Interpersonal relations SLEs	-0,01 (-0,06—0,04)	0,07 (0,01—0,17)
Political/legal SLEs	0,03 (-0,01—0,10)	-0,03 (-0,12—0,01)
Household income	0,08 (0,04—0,16)	-0,13 (-0,22— -0,06)
Livestock	0,02 (-0,04—0,08)	-0,01 (-0,05—0,01)
Farmland	-0,01 (-0,07—0,07)	0,01 (-0,04—0,01)
Social support	-0,01 (-0,06—0,04)	-0,01 (-0,02—0,01)

[1] Model 1: Covariates/independent variables are caste, age, gender.
[2] Model 2: Covariates/independent variables are caste, age, gender and the potential mediators (stressful life events, education and income).
[3] Effects for Model 1 and for direct effects in Model 2 are OLS linear regression coefficients with Wald confidence intervals.
[4] This is the 'direct effect' of caste, or the effect of caste not attributable to the mediators that are included in the model.
[5] Indirect effects for Model 2 are bootstrap point estimates with 2,5th and 97,5th percentile confidence intervals, analogous to 95% confidence intervals. Number of bootstrap resamples=5000. Note: The model includes all study participants and compares the impact of Dalit/Nepali caste versus all other castes. All variables are standardised/centralised scores. * p<.05, § p<.01, ‡ p<.001, † p<.0001
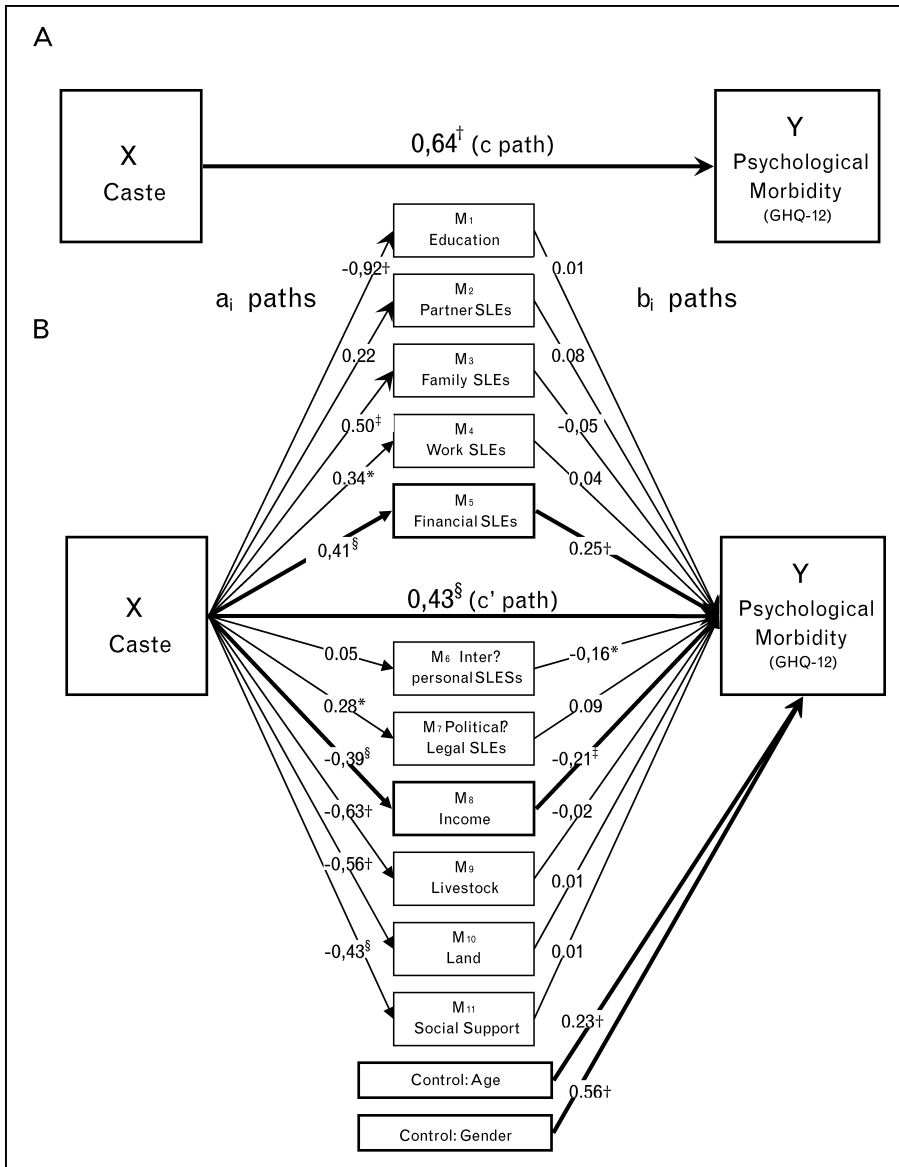
Figure 3: *Illustration of multiple mediation design with three mediators and two controls. (**A**) Unmediated model: X (caste) affects Y (GHQ-12 score). (**B**) Multiple mediators: X is hypothesized to exert indirect effects on Y through mediators (M_1—M_{11}). Path a_i represents the effect of X on the proposed mediator M_i. Path b_i is the effect of M_i on Y. Specific indirect effects are $a_i * b_i$. Total indirect effects represent the sum of specific indirect effects and equals ($c-c'$). Adapted from Preacher and Hayes, 2008. $* p<0,05$, $\S p<0,01$, $\ddagger p<0,001$, $\dagger p<0,0001$.*

portion of the relationship between caste and psychological morbidity. The *a* paths represent the association of caste with the risk factors and the *b* paths represent the association of the risk factors with psychological morbidity. Significant mediators are

those risk factors that have significant associations with both caste and psychological morbidity. In this model, financial SLEs and income were the only risk factors that were significant mediators. The specific indirect effects listed in Table 5 are the products of the *a* and *b* paths in this model.

A multiple mediation model also tested the relationship between education and psychological morbidity because education did not show a significant indirect effect (see Table 5). Education has a significant inverse association with psychological morbidity in the model with no mediators. With mediators in the model, the direct effect of education is no longer significant. As with the caste model, household income and financial SLEs have significant specific indirect effects.

Discussion

The goal of this mixed methods study was to address psychosocial wellbeing, measured as psychological morbidity, among a putative vulnerable social groups. This was done by exploring the historical evolution of the social category of caste to contextualise epidemiological findings of current caste divisions and psychological morbidity. The policy analysis of religious and political documents concerning caste reveals that the caste system is one of the oldest long standing forms of documented and institutionalised subjugation. The epidemiological analysis revealed that the rate of psychological morbidity was three times greater in Dalit/Nepalis compared with high castes and other ethnic groups. In addition, Dalit/Nepalis were more likely than the other groups to have greater exposure to stressful life events, no household cash income, no education, own few livestock and marginal social support. The multiple mediator model revealed that income and exposure to stressful financial events partially mediates, likely in an overlapping relationship, the association between caste and psychological morbidity.

The major themes identified in the policy analysis of these documents help to put the epidemiological findings in context. The caste system extensively regulates *social interactions*. Individuals of different castes must follow specific patterns of behaviour when interacting. These restrictions on social interactions likely play an important role in reducing access to social support for Dalit/Nepalis. Because of all of the regulations on interacting with others, Dalit/Nepali may feel that they could not seek out support from others in the same manner that a high caste person may feel that it is appropriate. And, widespread discrimination within the Dalit/Nepali caste groups further hampers them in supporting one another (Kisan, 2005).

Second, restrictions on *freedom of movement* have laid the historical groundwork for the disparities observed in Jumla between Dalit/Nepalis and other groups on education level by barring their admission, requiring fees beyond Dalit/Nepali economic capacities and discrimination within the classroom. Similarly, restrictions with regard to residence has forced Dalit/Nepalis to live in poorer conditions in more vulnerable regions; this likely underlies the greater exposure of Dalit/Nepalis to environmental stressors such as pollution, lack of access to clean water and lack of sanitation facilities, ultimately contributing to greater health problems among Dalit/Nepalis (Kohrt et al., 2009).

Third, restricted *access to resources* based on traditional exclusions of ownership, employment, and wealth accumulation contribute to the current finding that Dalit/Nepalis are more likely to have no household income

and to own fewer livestock. This has socio-economic implications because it precludes Dalit/Nepalis from taking on a number of occupations. Historically they have not been able to engage in food-based industry, the hotel industry, civil service, politics and healthcare. Similarly, restrictions on land ownership and the legacy of being slaves and bonded labourers has precluded financial independence. This precludes the accumulation of wealth over generations so that progeny have less access to educational opportunities. This illuminates why Dalit/Nepalis in Jumla report more financial stressors compared with other groups (Kohrt et al., 2009).

Fourth, restricted *education and social mobility* are both a reflection of and underlying factors in the poor psychosocial wellbeing. The government outlawed education for Dalit/Nepalis until 1950. Finances and caste segregation of children by teachers continued to be barriers thereafter. A Dalit/Nepali teenage girl in another community said that when she asked her parents to go to school, her mother's reply was '*is an elephant big because he studied?*' This implies that what one does, or the skills they acquire in this life, does not determine social status, but rather birth and ancestry determine everything. This reflects the attitude that Brahmans are the top of caste system regardless of their learned vocation. The *Manusmriti* states,

> '*nobody is above Brahman; whether he be a learned man or an idiot, a Brahman is a great god; whatever bad deeds a Brahman may do, he is to be highly regarded, because he is a god,*' (Manusmriti, 1796).

Therefore, changes in social mobility and caste relations will likely require by transformation in attitudes toward caste and toward education. Although education was not a significant mediator for the relationship of caste with psychological morbidity, education was associated independent of caste with psychological morbidity. As with caste, economic factors mediated the association.

Finally, the intersection of caste and restrictions on *gender relations* identified in the religious and political text provides important insight into the large and significant effect of gender on psychological morbidity. While much of this likely operates as general vulnerability of women in Hinduism, caste discrimination adds to this, making women throughout the caste hierarchy vulnerable. One of the major questions for the future will be whether movements for Dalit/Nepali advancement and women's advancement are mutually complementary. Kisan suggests that the Dalit/Nepali social movement has had a poor record of addressing the needs of Dalit/Nepali women alongside justice for the men in low castes (Kisan, 2005).

Surprisingly, caste did not moderate the association of any study variables with psychological morbidity. The failure of the moderator models in these analyses leads does not support increased or decreased susceptibility to negative impacts of risk factors. Rather, the significance of mediation rather than moderation suggests that it is the greater prevalence of risk factors that leads to greater psychological morbidity. Future studies with larger sample sizes and locally developed exposure measures may be more likely to identify moderator effects.

Future studies and current limitations

These findings form the foundation for true mixed methods studies integrating policy analysis and epidemiology. This study only employed policy analysis to determine which

themes to include in epidemiological models. Employing policy analysis to develop specific instruments focusing on caste based experiences would improve this approach greatly. This could follow other procedures used to develop local measures of mental health and functioning (Bolton & Tang, 2002; Bolton, Wilk & Ndogoni, 2004). Such instruments could include assessment of both policy related risk factors and protective factors, of which the latter was not included in this epidemiological model. Moreover, locally developed instruments of social vulnerability could include measures of the degree to which individuals attribute their vulnerability to group identity, such as being Dalit/Nepali, versus other factors.

The findings included a brief description of the policies that have incrementally tried to overturn other policies marginalising Dalit/Nepalis. However, despite these newer policies, it is apparent that the categorisation and vulnerability of Dalit/Nepalis partially resists policy changes. Future studies should explore barriers to implementation of protective policies.

The goal of this study was to assess the relationship of caste with other risk factors in predicting psychological morbidity. However, because of the cross sectional nature of these data, the interpretation of risk factors as proxies, mediators, or overlapping variables in relationship to caste is limited. Caste does not *cause* psychological morbidity. Therefore, the analyses evaluated whether caste *predisposed* individuals to higher frequency and diversity of stressful life events, which then led to greater psychological morbidity. The analyses demonstrate that while the relationship between caste and psychological morbidity is mediated, in part, by greater exposure to risk factors such as SLEs and lower income, these indirect effects only account for a portion of the

variance. Therefore, these are likely *overlapping* factors in relation to psychological morbidity. Future longitudinal studies are required to evaluate causation and change over time in relation to caste and psychological morbidity, with the specific addition of caste based discrimination measure that may represent true mediators of this relationship.

Furthermore, because of this cross sectional epidemiological design, an important caveat for the interpretation of these results is the possibility of reverse causation, or the situation in which the dependent variable, in this case mental health status, may affect the independent variables. It is possible that mental health status can affect economic status and exposure to stressful events, in which case one cannot make the assumptions of causality that are necessary for the consideration of these variables as mediators. However, by using a mixed method approach and historically examining the legacy of caste restrictions, there is greater support for suggesting that caste contributes reduced economic opportunities and more exposure to stressful life events, and that these factors in turn contribute to increased psychological morbidity.

Regarding the statistical analysis, an alternative mediation analysis method for handling multiple mediators is structural equation modelling (structural equation modelling is a statistical technique for testing and estimating causal relationships using a combination of statistical data and qualitative causal assumptions through confirmatory and/or exploratory modelling employing endogenous and exogenous variables in a manner more general than regression because variables can act as both dependent and independent roles). This would have several advantages such as the capability to model latent variables or

measurement error and to compare models using global fit tests, (The goal of structural equation modelling is to assess the fit of the model, which forms the basis for accepting versus rejecting models or accepting one competing model over another), as well as multiple caste comparison such as Chhetri versus Brahman groups or Janajati groups. However, given the small sample size, the bootstrapping technique employed here made multiple mediator regression analysis the preferred analytical approach.

Implications
The goal of this mixed methods analysis was to gain insight into the psychosocial well-being of Dalit/Nepalis and the religious and political policies underlying their well-being in order to provide recommendations for interventions for post conflict Nepal.
The analyses do suggest that persons of Dalit/Nepali caste are more likely to be in households with low income and high exposure to stressful life events, as well as having less access to other resources. The analyses do not support a conclusion that low caste, in and of itself, causes psychological morbidity. Instead, discriminatory policies against Dalit/Nepalis throughout South Asian history minimise access to resources and increase exposure to stressful life events. Therefore, by reducing the caste based discrepancies in these factors, one would hope to reduce the level of psychological morbidity among Dalit/Nepalis. One cannot necessarily change caste, but modifiable factors such as income and education are *foci* for intervention.
Economic interventions Economic differences between Dalit/Nepalis and other groups were the most significant mediators of caste differences in psychological morbidity. Therefore, post conflict psychosocial programming should involve pathways to

improve economic status such as through income generation, microcredit and vocational training programmes. For example, programming for children associated with armed groups and armed forces in Nepal involves the option of vocational training. It would be useful to collaborate with Dalit/Nepali nongovernmental organisations to promote similar training for low caste adults. However, as is evident from the policies reviewed above, even if Dalit/Nepalis have greater skills, they may still encounter roadblocks in working toward economic independence. Policy makers, financial institutions, and employers should reverse the historical restriction of loans to Dalit/Nepalis for the purchase of livestock and the exclusion of Dalit/Nepalis from work in restaurants, hotels, monasteries and businesses. Recent legislation has called for an end to this practice, so it will be important to study its consequences.
Educational interventions IASC *Action sheet* 7.1 calls for strengthening access to safe and supportive *education* and assurances that education is available regardless of ethnicity. The results here suggest that educational differences, as adults, may be associated with economic differences that mediate psychological morbidity. Schools are one of the main sites of enculturation of discrimination. Therefore, psychosocial training and sensitisation programmes for teachers in post conflict Nepal could serve to promote teachers as role models for inclusive rather than discriminatory practices. Addressing caste based differences in education may be one pathway to remedy the tremendous economic differences and consequent psychosocial differences in wellbeing.
In conclusion, addressing ethnic, racial and other forms of group identity, such as caste, are central to effective psychosocial programming in post conflict settings. A

historical understanding of the origins of these social divisions and the evolution of relations among groups is crucial. Policy analysis is one method that researchers can add to multidisciplinary studies to produce a comprehensive understanding of social vulnerability. Policy analysis can not only help to determine the most effective, pragmatic and secure avenues for conducting interventions, it also may contribute to policy advocacy with the hope of improving ethnic, racial and caste relations and breaking cycles of marginalisation.

Acknowledgements

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