

Ethnicity, deprivation and mental health outcomes

Tom Trauer, Kathy Eagar and Graham Mellsop

Abstract

Aims: To describe and measure differences between ethnic groups on standard measures of mental health outcome.

Methods: Clinical staff in eight New Zealand Health Districts collected consumer outcomes data at the start, end and review of episodes of care. Consumers were allocated to one of three ethnicity groupings — Maori, Pacific Island and “All Other”.

Results: There were large differences between the three ethnicity groupings on the measures. Maori and Pacific Island consumers appeared to demonstrate more psychotic phenomena and overall worse scores, and the All Other group, more depression. Changes in scores between start and end of episodes of care were proportionately similar across the three groups. Differences between ethnic groupings varied according to socio-economic deprivation level.

Conclusions: Potential reasons for some of the effects observed are discussed, including differing pathways to care, clinician and selection bias, and differing models of mental health.

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THERE IS A VOLUMINOUS LITERATURE attesting to ethnic differences in physical health, with the

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What is known about the topic?

Ethnic differences are associated with differences in physical and mental health status.

What does this paper add?

A study of mental health clients found large differences among the Maori, Pacific Island and “All Other” groups for the suite of outcome measures, demonstrating higher levels of severity and lower levels of functioning. The ethnicity differences did not appear to be a simple function of social deprivation as they were present in different degrees across levels of deprivation.

What are the implications for practitioners?

These findings suggest a need for further study to confirm the reasons for the substantial differences which may relate to differences in pathways to access care, the presence of bias, or differing models of mental health. ♦

preponderance of evidence pointing to poorer health in ethnic minorities. In many of these studies a concomitant influence of social factors such as low socio-economic status and deprivation is also found (for example, Schoenbaum and Waidmann¹ and Lindstrom et al²). Similar findings are found in the area of mental health, although in some studies certain minorities appear to enjoy better health than the majority, and sometimes the expected relationship with socio-economic factors is not found.³

While epidemiological studies elucidate ethnic differences in health status and access to care at the population level, different methods are required to discern whether there are also differences in treatment, management and progress among consumers already in care. Evidence of ethnic differences at the care level exist: Mark et al⁴ found African-American consumers more likely to be prescribed older antipsychotic medications, but the level of contact they received was no less than non-African-Americans. Chung et al⁵ found lower neuroleptic doses in white inpatients than in African-American inpatients; certain other

differences disappeared after socio-economic status and diagnosis were controlled for, but others did not. Flaserud⁶ also found a stronger effect of socio-economic status and primary language than race or ethnicity on several treatment variables.

In New Zealand, differences in mental health service use and clinical characteristics between different ethnic groups have been increasingly reflected in the official statistics. While there have been many decades of concern, until recently there has been little firm information. Recent comprehensive, purpose-designed investigations have begun to clarify and quantify the issues.^{7,8} The New Zealand Mental Health Classification and Outcomes Study (CAOS)^{9,10} collected information from a representative sample of New Zealand public mental health services on patient characteristics, service costs, and outcomes. In this paper we focus on particular, New Zealand-relevant ethnic groupings utilising the adult and child and adolescent outcome instruments used in the CAOS study. Given the association between ethnic grouping and social deprivation, we also examined the association with social deprivation.

Methods

In 1999, the New Zealand Health Research Council commissioned the Mental Health Classification and Outcomes Study. Its main objectives were to develop the first version of a national casemix classification for specialist mental health services and to trial the introduction of outcome measurement into routine clinical practice. The scope included all specialist mental health services provided directly by District Health Boards (DHBs) except alcohol and drug services, and residential services. The study was conducted in eight of the country's twenty-one DHBs. The participating sites were selected on the basis of the degree to which they were representative of New Zealand mental health services, how comprehensive their range of services were, their combined capacity to provide a sufficient volume and mix of "consumer cases", the suitability of their information systems, and their readiness to absorb the demands arising from a casemix study.

Three broad "blocks" of data were collected: service utilisation data; financial data; and consumer characteristics. Consumer characteristics included demographics (date of birth, sex, ethnicity, area of usual residence), psychiatric diagnosis (principal and additional), episode information (dates and reasons for start and end), legal status, and ratings on outcome measures. For adults, the key adult outcome measures were the Health of the Nation Outcome Scales (HoNOS),¹¹ and the sixteen item, short form of the Life Skills Profile (LSP-16).^{12,13} For children and adolescents the key measures were the Health of the Nation Outcome Scales for Children and Adolescents (HoNOSCA),¹⁴ the Children's Global Assessment Scale (CGAS),¹⁵ and the Factors Influencing Health Status (FIHS).¹³

Data collection was governed by the key concept of an "episode of care".⁷ An episode of care is the whole or part of a period of illness during which there is contact between a consumer and a health care provider or team of providers, is delivered in one setting (eg, hospital, clinic), and where there is no major change in the goal of the intervention. Consumers were rated on the instruments at the start and end of each episode or, for ongoing episodes, at intervals of 90 days. In this study, episode start data were collected on all consumers under care at the beginning of the study and those who entered during the study period. Similarly, episode end data were collected at episode closure or at the end of the 6-month study.

In order to assess change over the course of an episode, pairs of assessments were formed. These were the assessments at the start and end of a single episode of care. In inpatient settings the intervals between start and end assessments ranged from 1 to 157 days, and in the community between 1 and 180 days. In order to limit the analyses to realistic periods, only inpatient episodes of between 3 and 31 days, and community episodes of between 3 and 91 days were considered. The lower limit of 3 days was set to exclude episodes of such brevity that little change could be expected from the measures used. The upper limit was set at 31 days in inpatient settings

because most episodes were fairly short (median 24 days), and at 91 days in the community because this was the interval at which ongoing episodes were required to have outcome measure reapplied as part of a review. For further details see Trauer et al.¹⁰

Ethnicity information was collected through a combination of records supplied by the participating sites and, in those instances where this field was left blank by the site, by the New Zealand Health Information Service. All sources rely on self-identification. For the purposes of the analysis, ethnicity data were classified into one of three high level groupings — Maori, Pacific Island and, if neither Maori nor Pacific Island, to an “All Other” grouping.

A measure of relative social deprivation was also collected through the New Zealand Central Area Unit Index of Deprivation.¹⁶ This is a measure of relative social deprivation derived from small geographic area New Zealand census data. It is a small-area measure of deprivation — it does not measure the relative deprivation level of each person, simply where they live. A “decile” represents 10% of the total New Zealand population. People in the first decile live in areas that have the lowest rate of social deprivation. People in the tenth decile

live in areas that have the highest rate of social deprivation.

The study took steps to guarantee the protection of private and confidential information relating to mental health consumers, staff who provided data on their activities, and mental health service organisations participating in the study which contributed financial and service delivery information. Consumer privacy was protected by encryption of the unique National Health Index number and by the conversion of dates of birth to ages. Sites submitted encrypted data centrally by password-protected CD delivered by courier. Health provider information was also encrypted, and Data Protection Agreements bound all parties to be aware of and comply with the privacy protections governing the CAOS project. The study protocol was approved by one regional ethics committee on behalf of all five regional ethics committees that had jurisdiction for the eight DHBs.

Results

Data were obtained from a total of 12 576 consumers who collectively accounted for over 19 000 episodes of care. The male:female ratio was 53.5:46.5. The consumer sample covered all

I Mean HoNOS item score, by ethnic grouping and setting

	Inpatient			Community		
	Maori	Pacific Island	All Other	Maori	Pacific Island	All Other
Aggressive, overactive, etc.	1.44	1.40	1.25	1.10	0.88	0.69
Deliberate self harm	0.52	0.42	0.86	0.62	0.44	0.49
Substance misuse	1.03	0.89	0.66	1.17	0.76	0.45
Cognitive problems	1.03	0.92	0.97	1.00	0.98	0.80
Physical problems	0.60	0.63	0.72	0.77	0.70	0.88
Hallucinations/delusions	1.47	1.64	1.26	1.03	1.20	0.65
Depressed mood	0.70	0.64	1.15	1.09	0.85	1.24
Other psychological problems	1.03	1.13	1.28	0.86	0.68	1.23
Relationship problems	1.65	1.43	1.44	1.54	1.41	1.41
Activities of daily living	1.16	1.09	1.18	1.34	1.32	1.17
Accommodation problems	0.89	0.86	0.65	1.25	1.27	0.72
Occupation/leisure problems	0.94	0.93	0.68	1.37	1.45	0.86

age groups. The ethnic distribution across all ages included 20% Maori and 5% Pacific Island peoples, which differed somewhat from the national census figures (15% and 7%, respectively). The remaining 75% (termed “All Other”) comprised 69% European or *Pakeha*, and 6% diverse other ethnic groups.

HoNOS (Adults)

Box 1 shows the HoNOS item scores in inpatient and community settings for the three high level ethnicity groupings. Higher scores represent higher problem severity. In inpatient settings, the mean HoNOS scores are based on about 1250 assessments of Maori, 400 Pacific Island, and just under 3000 for the All Other grouping. In community settings, the corresponding numbers are about 2800, 770 and 12 200 (numbers vary slightly from item to item on account of missing ratings). The differences between the three groups in inpatient settings are statistically significant for all items ($F_{(2, >4000)} \geq 6.1$, $P \leq 0.002$) apart from Item 4 (cognitive problems) and Item 10 (activities of daily living), while all twelve differences between the three groups in the community are significant, partly on account of the larger numbers involved ($F_{(2, >14400)} \geq 23.1$, $P < 0.001$). Some of these differences, while statistically significant, are quite small in absolute terms, and may be of doubtful clinical significance.

The differences between the ethnic groupings are easier to discern by looking at the subscale scores. The five subscales suggested by Trauer¹⁷ are shown in Box 2.

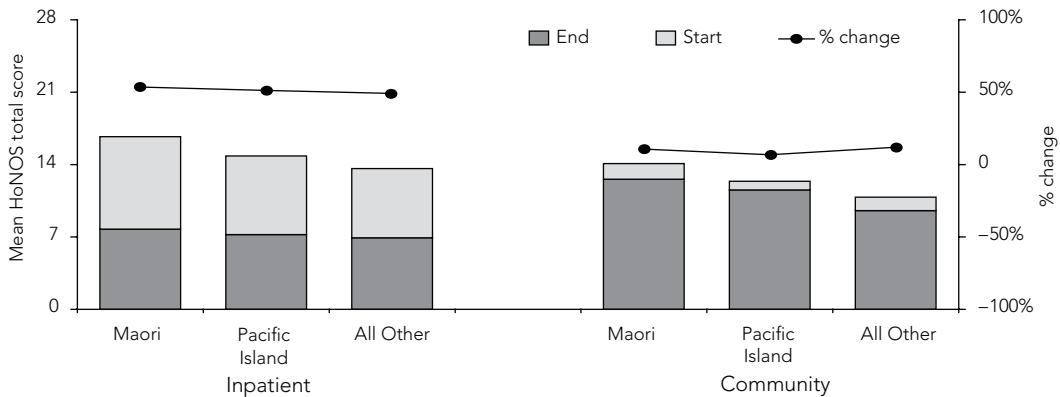
Maori had the highest mean scores on the Behaviour subscale, followed by Pacific Island and All Other in both the inpatient and community settings. By contrast, differences in mean scores on the Impairment subscale are comparatively small. On the Depression subscale, All Other had the highest mean scores, followed by Maori and Pacific Island, while on the Hallucinations/delusions “subscale” (it is only a single item) the highest scores in both settings are seen in the Pacific Island episodes, followed by Maori and All Other. On the Social subscale, the highest scores are seen about equally in Maori and Pacific Island episodes, both of which are higher than All Other. These opposite effects have led to very small and non-significant differences in the total scores in inpatient settings ($F_{(2, 3701)} = 0.65$, $P = 0.52$), but in the community the total score differences remain quite wide and statistically significant ($F_{(2, 15066)} = 119.01$, $P < 0.001$).

A subset of episodes had valid ratings at both the start and end. The numbers of Maori, Pacific Island and All Other episodes with a valid rating at both the beginning and the end of the episode in inpatient settings were 160, 35 and 410, respectively, and in community settings 669, 168 and 2822, respectively. The mean interval between start and end assessment in inpatient settings was between 15 and 16 days, and in the community between 68 and 70 days. Box 3 shows the changes in total score of the three ethnic groupings.

In Box 3, the top of each light vertical bar represents the mean start score, and the top of the dark part of the bar is the mean end score. The

2 HoNOS total and subscale scores, by ethnic grouping and setting

	Inpatient			Community		
	Maori	Pacific Island	All Other	Maori	Pacific Island	All Other
Behaviour	2.44	2.25	1.88	2.26	1.63	1.14
Impairment	1.61	1.53	1.68	1.76	1.69	1.68
Depression	3.81	3.50	4.58	4.09	3.36	4.34
Hallucinations/delusions	1.47	1.64	1.26	1.03	1.20	0.65
Social	4.28	4.04	3.64	5.47	5.43	4.13
Total score	11.31	10.80	11.08	13.04	11.68	10.49

3 Mean HoNOS total score at start and end of episodes, by ethnic grouping and setting

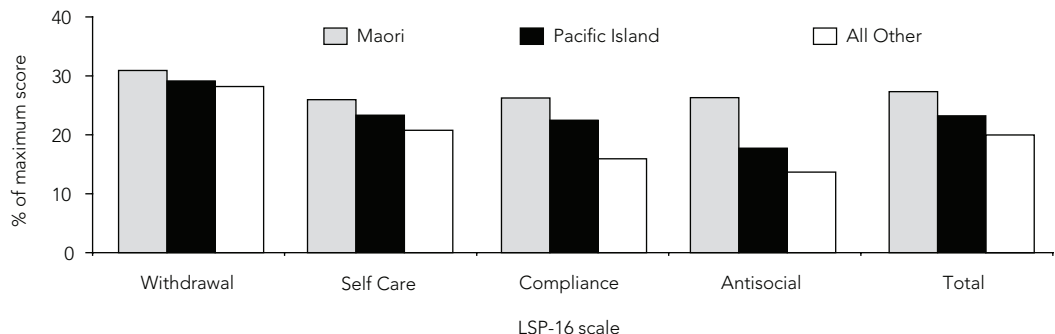
joined dots indicate the percentage change, the values of which are on the right axis. For example, the mean admission score for Maori in inpatient settings was 16.7 and the discharge score was 7.8, a change of 53.5%. Multiple regression analyses revealed that the amount of change between the three ethnic groupings was not statistically significant after the initial (start) score was taken into account.

LSP-16 (Adults)

For the LSP-16, 3110 Maori, 934 Pacific Island, and 13 315 All Other assessments were available. Higher scores represent worse problems. Box 4 shows the LSP-16 subscale and total scores, expressed as a percentage of the maximum score, for the three ethnicity groupings in all settings.

The pattern (Maori higher than Pacific Island higher than All Other) is present in each of the four subscale scores and in the total score, and for each measure the differences were significant ($F_{(2, \geq 17356)} \geq 14.94, P < 0.001$). Pair-wise comparisons, adjusted by Scheffé's test for multiple comparisons, showed that all three pair-wise differences (Maori v Pacific Island, Maori v All Other, and Pacific Island v All Other) were significant for the Self Care, Compliance and Antisocial subscales. For the Withdrawal subscale, only the difference between Maori and All Other was significant.

All but eight valid pairs of LSP-16 assessments were obtained in community settings. As with the HoNOS, only pairs where the interval was between 3 and 91 days were included, leaving over 760 Maori, 238 Pacific Island, and 3413 All

4 Mean LSP-16 subscale and total scores, by ethnic grouping

Other assessments for analysis. Box 5 shows the change in LSP-16 total scores between the start and end of community episodes.

There are improvements on all subscales and total score in all three ethnic groupings, but varying in degree, ranging between 2% and 13%. The greatest percentage improvements (9% to 13%) were on the Antisocial subscale, where all three changes were statistically significant ($P \leq 0.008$). Changes on the Withdrawal subscale were smaller (6% to 8%) but still statistically significant ($t_{(\geq 239)} \geq 2.91$, $P \leq 0.004$). The change on the Compliance subscale for the Maori group (7%) was significant ($t_{(775)} = 3.56$, $P < 0.001$), but was much smaller and non-significant for the other two groups. All changes on the Self Care subscale were of the order of 3% to 4%; and the changes on the total score were between 5% and 8% and were all highly significant ($t_{(\geq 238)} \geq 3.21$, $P \leq 0.004$). For the total scores, multiple regression analysis showed that differences in change between ethnic groupings were non-significant once initial (start) scores were taken into account.

Health of the Nation Outcome Scale for Children and Adolescents (HoNOSCA)

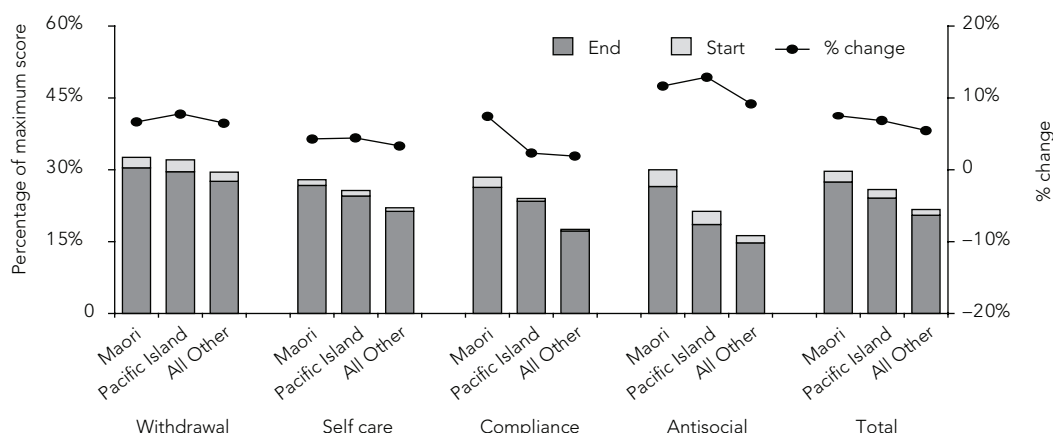
Of the 4880 valid HoNOSCA assessments obtained in the CAOS study, all but 104 were

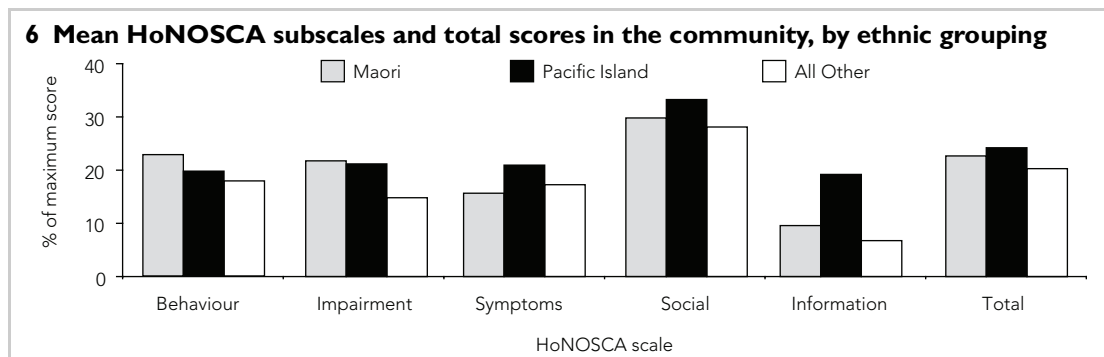
obtained in the community. As with the HoNOS, higher scores represent higher problem severity.

The biggest differences between the ethnic groups were on Items 3 (non-accidental self-injury), 4 (alcohol, substance or solvent misuse), and 5 (problems with scholastic or language skills). On these three items, Maori and Pacific Island consumers were rated higher than the All Other grouping. The Pacific Island group was rated highest, followed by Maori and All Other, on Item 7 (hallucinations, delusions or abnormal perceptions) and on Items 13 (poor school attendance), 14 (lack of knowledge or understanding about the nature of the child or adolescent's difficulties), and 15 (lack of information about services or management of the child or adolescent's difficulties). Differences between the three ethnic groups are significant ($F_{(2, \geq 4706)} \geq 3.03$, $P \leq 0.05$) on all Items except Items 9 (emotional) to 12 (family life). Box 6 shows the subscale and total scores; the latter are based on Items 1 to 13.

The area of greatest problem for all three groups was Social problems. Differences between the three ethnicity groupings on all five HoNOSCA subscales and the total score were statistically significant ($F_{(2, \geq 4682)} \geq 4.28$, $P \leq 0.02$). Pair-wise comparisons showed that, on the Behaviour subscale, only the difference between

5 Mean LSP-16 subscale and total scores at start and end of community episodes, by ethnic grouping





Maori and All Other was statistically significant. On the Impairment subscale, both the Maori and Pacific Island mean scores were higher than the All Other grouping. On the Symptoms subscale, the Pacific Island mean was significantly higher than that of Maori. None of the pair-wise differences on the social subscale were significant, but on the Information subscale all showed a statistically significant difference from each other. The Pacific Island mean was significantly higher than the Maori group, which was, in turn, significantly higher than that of the All Other grouping. As for the total score, the All Other mean was significantly lower than both the Maori and Pacific Island, which were not significantly different from each other.

For the assessment of change, there were 141 Maori, 734 All Other, and only 17 Pacific Island pairs of HoNOSCA assessments in the community where the interval was greater than 3 and less than 92 days. The mean interval was between 66 and 68 days. Omitting the Pacific Island group on account of small numbers, for Maori the mean start and end total scores were 15.0 and 12.2, respectively, a change of 19.1%; and for All Others, 12.8 and 10.6, respectively, a change of 16.7%.

Children's Global Assessment Scale (CGAS)

Of the 5160 valid CGAS ratings, all but 180 were obtained in the community. Lower scores on the CGAS represent lower functioning. The mean community CGAS ratings of 801 Maori, 123 Pacific Island, and 4025 All Other were 58.9, 53.0, and 58.4, respectively. These differences are

significant ($F_{(2, 4946)} = 9.0$, $P < 0.001$) and pair-wise analysis showed that the Pacific Island mean is significantly lower (worse) than those of Maori and All Other, which were not significantly different from each other.

For the assessment of change, there were 167 Maori, 878 All Other, and only 23 Pacific Island pairs of CGAS assessments in the community where the interval was greater than 3 and less than 92 days. The mean interval was between 67 and 69 days. Again omitting the Pacific Island group on account of small numbers, for Maori, the mean start and end total ratings were 53.5 and 59.0, respectively, a change of 10.3%; and for All Others, 56.1 and 61.2, respectively, a change of 9.1%.

Factors Influencing Health Status (FIHS) (Children and adolescents)

FIHS total scores were available for 425 Maori, 76 Pacific Island, and 2271 All Other assessments. A point is scored for each problem that is present. The differences in the mean scores, 3.46, 3.68 and 2.88, respectively, are statistically significant ($F_{(2, 2769)} = 19.13$, $P < 0.001$). Pair-wise comparisons showed that the Maori and Pacific Island means were not significantly different from each other, but both were significantly higher than the mean for the All Other group.

Examination of the seven FIHS items showed that the percentage of All Others rated positive was lower than the percentage of Maori and Pacific Island for every item, and these differences were significant at the $P \leq 0.01$ level or higher for all items with the exception of Item 4 (problems

related to primary support group, including family), which was not statistically significant. In addition, for six of the seven items, the percentage of Pacific Island rating positive was higher than the percentage of Maori.

FIHS was not required to be collected at the beginning of episodes, so there were no paired data from which to assess change.

Social deprivation

In interpreting the associations with ethnicity, it is important to take into account potentially confounding variables, such as social deprivation, which is known to be high in Maori and Pacific Islanders in New Zealand.^{18,19} As detailed in the CAOS final report,⁹ there was a preponderance of consumers in the higher deprivation deciles compared with the New Zealand population as a whole. These relativities were present for all three ethnicity groupings, but especially for Maori and Pacific Island consumers.

To increase numbers in some of the smaller groups, the ten deprivation index deciles were collapsed into quintiles. Even when the ten deciles were collapsed into five groups, there were insufficient Pacific Island child and youth episodes in the bottom two (least deprived) quintiles (a total of 13 episodes in these quintiles) to allow for meaningful analysis. Accordingly, the results presented here are for adult episodes only.

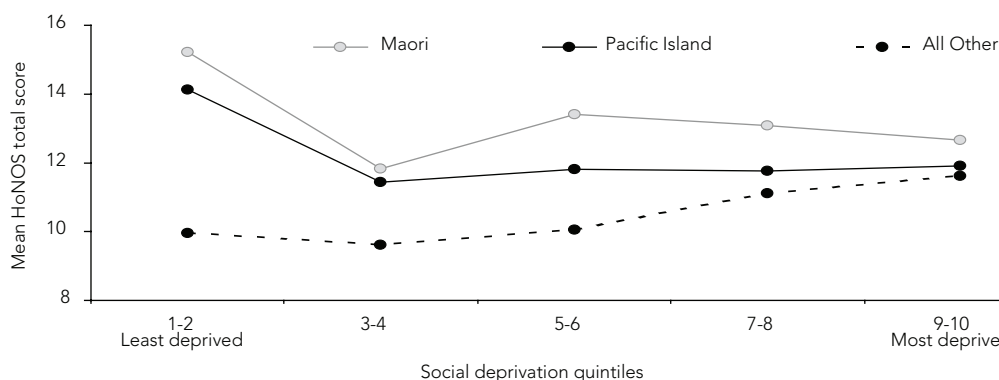
Box 7 shows the mean HoNOS total scores obtained in the community, according to ethnic grouping and deprivation quintile.

Differences in mean HoNOS total scores between the three ethnicity groupings are statistically significant ($F_{(2, \geq 2000)} \geq 6.2, P \leq 0.002$) in each of the five social deprivation quintiles. A two-way analysis of variance, with HoNOS total score as the dependent variable, and ethnicity group, deprivation quintile, and their interaction produced an overall significant result ($F_{(14, 15216)} = 27.1, P < 0.001$) with both main effects and their interaction significant at $P < 0.001$. Differences are greatest in the least deprived quintile and least in the most deprived. The ethnicity grouping approximate effect size (based on the one-way analyses of variance) for the former is 0.17 and 0.04 for the latter; the ethnicity grouping effect sizes of the three middle quintiles are between 0.07 and 0.11. Similar results were found with the LSP-16.

Discussion

There are three broad findings. First, there were large differences on the routine measures between the three ethnicity groupings, with Maori and Pacific Island consumers being rated overall worse than the All Other group and significantly different on several items. Second, changes in scores between start and end of episodes of care

7 HoNOS total scores in the community, by social deprivation quintile and ethnic grouping



tended to be quite similar across the three groups once starting scores were taken into account — that is, they were quite similar in percentage terms. Third, ethnicity differences do not appear to be a simple function of social deprivation, since they were present, but to different degrees, across the different levels of deprivation.

Aspects of these results need to be considered and understood in a context not only of ethnicity, but of culture, and in particular in the context of mental health issues in a country with a “colonial” development and a prominent indigenous people (the Maori).

The finding of higher levels of severity and lower levels of functioning in Maori and Pacific Island patients is consistent with higher severities in non-psychiatric disorders, for example asthma^{20,21} and dental caries.²² It may be hypothesised that, in contrast to the more objective determinations of severity in physical conditions, ratings of mental health symptoms by predominantly non-Maori/Pacific Island clinicians may be subject to cultural misunderstanding and misinterpretation. While we have no information on the process of assessment itself, relevant studies from elsewhere have reported inconsistent results.^{23,24} The correct assessment of mental health problems in ethnic groups requires culturally sensitive practice,²⁵ something that may require further attention by New Zealand mental health practitioners.²⁶

A different potential explanation is that differences in severity and functioning between ethnic groups are real. Maori and Pacific Island consumers may be entering the service later in their episode of illness than non-Maori and non-Pacific Island consumers and their higher severity and lower functioning could be a result of longer periods of untreated illness. This would not explain the lower ratings of depression in the Maori and Pacific people. Again, evidence relating to other conditions is mixed. Nacey et al²⁷ found that despite having a similar prevalence of symptoms to white men, fewer Maori or Pacific Island men seek help for their urinary symptoms, but Meechan et al²⁸ found no ethnicity difference in delay time in

women presenting with self-detected breast symptoms.

The third hypothesis yet to be tested is that there are major ethnicity differences in the prevalence (and possibly incidence) of major psychiatric conditions in New Zealand. A study of general practices in New Zealand²⁹ found higher rates of anxiety, depressive and substance use disorders in Maori than non-Maori attenders.

A major finding is that, despite often large pre-existing ethnic differences in severity levels in both inpatient and community settings, the amount of improvement over the course of an episode of care, defined as the percentage change from the initial level, was roughly equal for all three groups. It may be that socio-cultural factors affected the circumstances by which consumers came into contact with services, but once in care there were similar processes toward improvement and recovery. One such socio-cultural factor is the law. Among adults, Maori and Pacific Island consumers were rated as having greater behavioural problems (aggressive, overactive, agitated, disruptive behaviour, and substance misuse) than the All Other group. This is consistent with the finding that the sources of referral for Maori admissions were more likely to be from the law.³⁰

The final set of findings relates to social deprivation. These are difficult to interpret. The overall finding is that All Other adult consumers living in areas of relatively high levels of social deprivation have higher levels of severity than their counterparts living in areas of higher socio-economic status — but this is not the case for either Maori or Pacific Island groups, where this pattern is reversed. In addition, severity differences between ethnicity groupings were more marked when deprivation was least. It must be borne in mind that the effect, while definitely present, was quite weak, and it would be important for it to be independently replicated. At this stage we may only speculate as to its meaning. The previously mentioned general practice study²⁹ found evidence for social and material deprivation playing a role in the high rates of mental disorders among GP attenders, but added that there were probably additional ethnicity-specific factors involved.

One possible explanation is some form of ethnic or social bias on the part of the raters. There may be an “anchor” effect in how ratings are made, with raters assigning scores relative (“anchored”) to other consumers with whom they come into contact. Another, non-exclusive, possibility is that differences in pathways of access to care (ie, when help is sought, when help is offered, and when people are accepted into health care) may occur differently across ethnicity and socio-economic status groupings. Accessibility and acceptability of mental health services have been implicated in ethnic differences in utilisation.³¹ Failure to identify problems early may be one result, resulting in consumers not seeking or being accepted into treatment until later in their illness. Another possibility is a form of selection bias, whereby Maori and Pacific Island consumers with milder conditions and higher incomes may be more likely to access services not included in this study, such as private therapists and alternative treatments.

Another possible reason may be social and cultural dislocation. Maori and Pacific Island people living in areas of relative social advantage may experience more social and cultural dislocation in the sense of less connectedness with family networks and community supports. A similar model, known as the group density effect, has been employed to account for differences in incidence and admission rates elsewhere. Rabkin,³² studying African-American, white, and Puerto Rican residents of New York City, found that the smaller the ethnic group, the higher its hospitalisation rate in comparison to both the rate of the other residents in the same area and that of members of the same ethnic group living in areas where they constituted a numerical majority, and that these effects could not be accounted for by differences in poverty, family cohesiveness, or population mobility. Halpern³³ implicated increased exposure to prejudice, confused identity, and reduced availability of social supports as contributory factors in the group density effect.

At this point it is important to list a number of caveats and limitations. Firstly, our data relate only to consumers in the public mental health

system and did not include the sizeable New Zealand non-governmental sector or examine the New Zealand population at large. Given variations in provision and access, the effects observed in these clinical data need not be present in the wider community. Secondly, a full implementation of outcome measurement would include a consumer self-rated measure.³⁴ Research has shown that the correspondence between clinician and consumer perceptions of mental health problems is modest;³⁵ it may be even weaker when there are ethnic or cultural differences between the relevant parties.²⁴ Finally, the measures used are predicated on a Western model of mental health. It has been suggested that the Maori model is significantly different.³⁶

The measures themselves all have established levels of psychometric credibility, so they may be taken to generally reflect the clinicians’ judgments. Whether a lack of cultural concordance between the service users and the service providers diminishes the validity of current world psychiatric practice is a question awaiting clear evidence.

We conclude by noting that the present findings, while providing a uniquely objective perspective on ethnic differences in consumers in mental health services in New Zealand, raise additional important questions. To a large extent, this is not unexpected; it does however point to a need for further research in these areas.

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Competing interests

The authors declare that they have no competing interests.

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