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Social avatar theory: from in vitro to in vivo (Instagrammer cognition—mind the gap)

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Abstract

The concept of a social avatar was proposed in 2013, following clinical observations about how social media users typically self-managed online image. Social avatar theory has since developed, and is a vehicle to allow examination and understanding of the potential for social media use to effect the psyche.

Through ubiquitous use, social avatar theory has effectively moved from in vitro to in vivo, and can now be applied in non-hypothetical terms. Via deconstruction/analysis of publicly available material, several theorised aspects materialise—curation, positive skew and the development of a psychologically significant ‘gap’ between online façade and offline reality. Prototypical cognitive schema can also be discerned, such as Instagrammer cognition.

It is of public health concern that the mooted potential for psychological costs to be incurred has also moved from the hypothetical. Social avatars are inherently psychoactive. For select users (further research required re: vulner-

ability factors), the creation/maintenance of a social avatar can become all-consuming and contribute to states of emotional distress and discord, such as envy and smiling depression. If the ‘gap’ has grown too large, social avatars can even contribute to psychological breakdown itself. A social avatar ‘health-check’ should therefore be developed and incorporated into digital citizenship/education initiatives.

Psychosocial support needs of women with breast cancer in the Waikato region

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Breast cancer is the most frequently diagnosed cancer among women and the third most common cancer in New Zealand. Despite improved survival rates, significant psychosocial distress is experienced by breast cancer patients. To address this, the Cancer Psychological and Social Support Service (CPSSS) provides supportive care to cancer patients and their families. We aimed to understand the characteristics and psychosocial support needs of women with breast cancer who were referred to the CPSSS at the Waikato District Health

Board (WDHB). Breast cancer data from 2016 to 2018 was obtained from the Waikato Breast Cancer Register (WBRC) and compared to psychosocial support referrals from the CPSSS for the same period.

Statistical regression was performed to compare the characteristics of those referred and not referred to CPSSS. Thematic analysis identified the main referral themes. A total of 95 (10%) of the 998 women identified with stage 0–IV breast cancer in the WBRC were referred to CPSSS. Women were more likely to be referred if they were younger, had a mastectomy or no surgery, and had received radiotherapy. Older women, and women with stage 0 cancer were less likely to seek support. Ethnicity, mode of detection, rurality, chemotherapy, endocrine therapy and reconstructive surgery were not significant factors in whether women sought psychosocial support. Treatment concerns were the most common reason for referral. The median length of time in the service was 98 days. While CPSSS is still a relatively new service in a range of other cancer support services, the 10% referral rate may be a reflection of an unmet need for psychosocial support provision in the Waikato region. Younger women, women undergoing mastectomy, those not receiving surgery and women receiving radiotherapy may in particular benefit from psychosocial support.

A 9-year review of Waikato teledermatology service

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Background

Virtual Lesion Clinic (VLC) was established in January 2010 to improve early detection of skin cancer and improve access to specialist dermatology service.

Aim

To review the VLC service, including patients' characteristics, number of visits, number of melanomas diagnosed, teledermatologic diagnosis, efficiency, patients' outcomes and diagnostic accuracy.

Methods

Patients with triage 4 were referred from primary care to VLC. Retrospective data were retrieved from 1 January 2010 to 31 May 2019. The relationship between patients' characteristics and the occurrence of melanoma were analysed. Trendlines were analysed using a linear regression model with R squared (R²) test for goodness of fit. Patients' outcomes, satisfaction and diagnostic accuracy were evaluated.

Results

This study evaluated 6,479 patients, 8,805 visits and 11,005 skin lesions. Males, age group 65–74, European, skin type 2, recent (<5 years) history or multiple history of melanoma, first-degree relatives with melanoma were associated with an increased risk of developing melanoma (p<0.05). The seasonal variation has demonstrated a positive trend line with a low fit to model (R²=0.3). The median waiting time for patients with suspected melanoma was 44.5 days. There were 97.5% of patients rated the service as "excellent". The most common lesions diagnosed were benign naevus (27%), benign keratosis (25%) and keratinocytic skin cancer (15%). The positive predictive value was 61.1% and NNT was 2.02. Diagnostic concordance

between GP and dermatologists was 29%. The ratio of confirmed melanomas in situ to invasive melanoma was 1.96 (243/124). The most common body site for melanoma was the trunk. Melanomas found on the trunk were predominantly males and melanomas found on the lower limbs were predominantly females.

Conclusion

VLC is an efficient and accurate service in evaluating skin lesions, however there is a reduction in utilisation of this service. An alternative solution has been proposed for service improvement.

Accuracy of ethnicity records at primary and secondary healthcare services in Waikato, Aotearoa New Zealand

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Background

Ethnicity is a social construct that allows for groupings based on shared history, beliefs and culture.^{1,2} As such, ethnicity is fluid, self-reported and can be multiple. In Aotearoa New Zealand, the healthcare sector records ethnicity, but these records have been inaccurate, with particular undercounting of Māori and other marginalised groups.^{3,4}

Accurate ethnicity data, as defined by the 2004 *Ethnicity Data Protocols for the Health and Disability Sector*,⁵ are essential for monitoring ethnic health inequities. As per Te Tiriti o Waitangi, Article Three, Māori have the unquestionable right to all services "of the crown".⁶ Accurate ethnicity data is a fundamental tool to ensure this treaty-based right is obtained, and to pose questions when it is not.^{7,8}

Despite the introduction of protocols, a 2006 review of local ethnicity data accuracy found ongoing inaccuracies when

compared to self-identified ethnicity mail responses (errors in multiple ethnicity records led to 41–89% accuracy at level 1 ethnicity groupings).⁹

Methods

The aim of this study was to determine the accuracy of ethnicity records at nationalised (NHI), secondary (hospital) and primary (PHO) healthcare services, as compared to ethnicity records available from two local kaupapa Māori research cohorts (Whakan-gungu Rākau study [WNR]). Within the WNR project, ethnicity data was prospectively collected in person, using a question identical to the New Zealand Census¹⁰ and following the Ministry of Health ethnicity protocol.⁵ Multiple responses recorded and results were stored at the most detailed (Level 4)¹¹ for all responses given. This data was used as the 'gold standard' for ethnicity and was compared to three separate databases: the primary health organisations, the Waikato DHB/hospital records and patient management records of national NHI linked dataset.

All participants had ethnicity records located in hospital records and NHI records, and 380 (80.2%) participants were located in PHO databases (all Level 2). Ethnicity records from the three datasets were compared with WNR, and in three different outputs: total ethnicity, prioritised ethnicity and single/combination.¹⁵

Results

A total cohort of 474 participants were identified from the WNR project (82.3% females, median age 55), with a total count of ethnicities of European 65.4%, Māori 34.4%, Asian 4.9%, Pacific Peoples 3.6%, MELAA 0.4%, and one participant did not state (0.2%). [Percentages >100% due to multiple ethnicity options].

Māori were undercounted in all databases compared to the WNR data (PHO 31.3%, hospital 31.7%, NHI 32.5% compared to WNR 34.4%). Other non-European ethnicity groups were also under-reported in the healthcare datasets. Multiple ethnicities were less frequently

recorded in PHO data (5.8%), hospital data (5.0%) and NHI data (5.3%), compared to the WNR dataset (8.6%).

Comparing different ways of managing multiple ethnicities, prioritised ethnicity had the most congruence to WNR (PHO 93.4%, Hospital 93.9%, NHI 95.1%) and total response the least (PHO data 87.4%, hospital 88.8%, NHI 90.5%).

Conclusion

Inconsistencies in ethnicity data still exist in formal health records. Lower rates of multiple ethnicities and undercounting of numerical minority ethnicity groups were identified. When managing multiple ethnicities, use of prioritised ethnicity appears to improve the undercounting of Māori, however more effort is needed in improving ethnicity data collection, recording and reporting with the aim of improving Māori health outcomes.

References

1. Krieger N. A glossary for social epidemiology. *Journal of Epidemiology and Community Health*. 2001; 55:693–700.
2. Cormack D, McLeod DS. Improving and Maintaining Quality in Ethnicity Data Collections in the Health and Disability Sector. Wellington, New Zealand: Te Rōpū Rangahau Hauora a Eru Pōmare; Apr 03 2010.
3. Harris R, Keefe V, Reid P, Robson B. Impact of changes in the death registration process upon Maori mortality statistics [letter]. *N Z Med J*. 2000; 113(19):5.
4. Cormack D. The Māori population. In: Robson B, Harris R, eds. *Hauora: Māori Standards of Health IV. A study of the years 2000-2005. Vol IV*. Wellington: Te Rōpū Rangahau Hauora a Eru Pōmare; 2007.
5. Ministry of Health New Zealand. *Ethnicity Data Protocols for the Health and Disability Sector*. Wellington, New Zealand 2004.
6. Ministry of Health New Zealand. *Treaty of Waitangi Principles*. 2014. Accessed 09 November 2017.
7. Reid P, Paine S, Curtis E, et al. Achieving health equity in Aotearoa: strengthening responsiveness to Maori in

health research. *N Z Med J*. 2017; 130(1465):96–103.

8. Robson B, Reid P. *Ethnicity Matters: Māori Perspectives - Review of the Measurement of Ethnicity*. Wellington, New Zealand: Te Rōpū Rangahau Hauora a Eru Pōmare; 2001.
9. Swan J, Lillis S, Simmons D. Investigating the accuracy of ethnicity data in New Zealand hospital records: still room for improvement. *N Z Med J*. 2006; 119(1239):U2103.
10. Statistics New Zealand. 2013 Census individual form sample (Māori/English). 2013. Accessed 19 October, 2015.
11. Statistics New Zealand. *Statistical Standard for ethnicity*. Wellington, New Zealand: Statistics New Zealand; Dec 17 2010.

Eight years later: long-term outcomes from mild traumatic brain injury in adults

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Traumatic brain injury (TBI) is a leading cause of long-term disability in adults. The majority of injuries are classed as mild but can still result in adverse outcomes. Despite the high rates of mild TBI, the long-term consequences of these injuries are not well understood. This study sought to address this by examining the long-term outcomes (eight years post-injury) of a cohort of adults with TBI, originally identified as part of the Brain Injury Outcomes New Zealand in the Community study (BIONIC) in 2010–2011 (n=151; mean age = 45.4 years; 51% male). An age and gender matched cohort free from TBI in their lifetime were recruited for comparison purposes (n=211; mean age 45.0 years, 49% male). Participants completed a series of questionnaires (online or in-person) about their current health, mood, perceived cognitive functioning, post-concussion symptoms and employment.

At eight years post-injury, adults with mild TBI reported significantly more post-concussive symptoms, particularly in the cognitive and emotional domains (p's<.01), and had poorer planning abilities (p=.03) than the comparison group. There were no significant group differences for anxiety, depression, post-traumatic stress, overall self-reported cognitive functioning or somatic symptoms (p >.05). Nearly one-third (30.5%) of the TBI group rated four or more post-concussive symptoms as at least a 'moderate' problem as compared with only 14.6% of the control group.

From 1 to 12 months post-injury, we observed significant decreases in depression (p=.02), anxiety (p=.007) and post-concussive symptoms (p<.001). However, between 12 months and 8 years, depression scores showed a significant increase (p<.001). There were no significant changes in anxiety (p=.97) or post-concussive symptoms (p=.09) from 12 months to 8 years. Regression analyses revealed that older age at injury, female gender, higher levels of anxiety and depression at one month post-injury, and a greater number of lifetime TBIs predicted 31% of the variance in post concussive symptom scores at eight years post injury.

These findings suggest that a mild TBI may result in poorer long-term outcomes particularly for cognitive (forgetfulness/poor memory; poor concentration; taking longer to think) and emotional (irritable, easily angered; feeling depressed or tearful; feeling frustrated or impatient; restlessness) symptoms. Older age at injury, female gender, poorer mental health and higher number of TBIs are linked to poorer outcomes. Overall the findings suggest that provision of mental health support and education/intervention to reduce the number of recurrent TBI may improve long-term outcomes following mild TBI.

Opioids prescribed on discharge—what happens next? (HDEC reference no.: 19/CEN/107)

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Background

Opioid use is increasing throughout New Zealand, and approximately 50% of patients who have strong opioids dispensed in the community received their initial opioid prescription in a public hospital.¹ Little information is available to describe what happens on discharge from hospital.

Aim

- To describe Waikato Hospital's current opioid discharge prescribing practice.
- To investigate community opioid dispensing patterns up to three months post-discharge.

Method

Retrospective, descriptive observational study (100 patients, naïve to strong opioids, initiated on a strong opioid in Waikato Hospital and dispensed an opioid on a discharge prescription from older person rehabilitation [OPR] wards). Hospital databases and community dispensing records will be used to identify eligible patients and dispensing patterns post-discharge. A pilot study was conducted prior to the main study.

Exclusion criteria: Domiciled outside Waikato DHB; dispensed strong opioids within one month pre-admission; or receiving palliative, oncology or opioid substitution treatment.

Pilot results

Thirty-eight percent (n=13) of patients who met study criteria had an opioid prescription dispensed on discharge (oxycodone and codeine only, average supply period nine days). The median age of patients was 81 years; 77% were female; 23% were

Māori, 69% European and 8% other ethnicities. All discharge summaries had opioids listed; however, only 54% had a post-discharge plan. Sixty-nine percent of patients received subsequent opioid prescriptions in the community: average of 59 (range 7–90) days.

Conclusion

Full results are forthcoming. If these mirror the pilot, the periods of supply on discharge and in the community subsequently are concerning. Opioid use exceeding six weeks is potentially inappropriate, particularly in older patients.^{1–3} There is a lack of information from other DHBs with which to compare these results.

The results of the study will be used to inform hospital prescribers of typical opioid prescribing practice and the value of having a well-documented plan in place for pain management.

References

1. Opioids [Internet]. Health Quality & Safety Commission. 2017 [cited 28 April 2019]. Available from: <http://www.hqsc.govt.nz/our-programmes/health-quality-evaluation/projects/atlas-of-healthcare-variation/opioids/>
2. Deyo R, Hallvik S, Hildebran C, Marino M, Dexter E, Irvine J, et al. Association Between Initial Opioid Prescribing Patterns and Subsequent Long-Term Use Among Opioid-Naïve Patients: A Statewide Retrospective Cohort Study. *Journal of General Internal Medicine* [Internet]. 2016; 32(1):21–7. Available from: <http://link.springer.com/content/pdf/10.1007%2Fs11606-016-3810-3.pdf>
3. Davis A, Davis K, Gerard C, Goyal S, Jackson G, James C, et al. Opioid rain: opioid prescribing is growing and practice is diverging. *NZMJ*. 2016; 129:11–7.

Management of thyrotoxicosis—can we do better?

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Thyrotoxicosis is a common disorder in Aotearoa with significant consequent morbidity and mortality. The impact of this disease is inequitably

distributed in this country. Māori are twice as likely to experience thyrotoxicosis (7.5x as likely for toxic multinodular goitre). Despite this previously unreported increased incidence of hyperthyroidism, Māori receive a disparate level of care at all stages, from access to diagnosis (delayed diagnosis, reduced community therapy initiation) through to ongoing care (elevated hormone levels, reduced response to therapy). Once diagnosed, after the first year of follow-up, Māori were five times more likely to be unable to attend a hospital-based clinic appointment, received 20% less blood tests and were over twice as likely to need an acute hospital admission. These findings of reduced access to care result in Māori experiencing more complications from prolonged under-treatment. As it is currently delivered, the current hospital-focused chronic care model is failing to provide for Māori communities.

Aim

To identify barriers to attending outpatient-based hospital clinics and assess patient preferences for alternative follow up strategies

Methods

Paper-based anonymised survey of patients attending thyroid clinic.

Results

A total of 115 patients completed the survey. Median age 52 years (IQR 38–69), 86% female, 64% NZE/other European, 24% Māori. The majority of patients (77%) had access to a computer. The most popular options for follow-up were: current model (83%), email (63%), clinical nurse specialist (62%) and phone (60%) with only 17% selecting videoconferencing from medical centre or their own home (23%) as in the top three options. Barriers to care were identified by 81% of participants, particularly work and parking issues (both cost and the car-parking building). Only 14% of Māori did not report any barriers to care.

Conclusion

This preliminary data serves to start discussion on means to improve follow-up care. Despite

DHB-led popularity, videoconferencing was the lowest ranked option selected by our patients.

The prevalence of cancer in a primary care practice

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There is an increasing prevalence of cancer survivors in the community due to an ageing population, implementation of cancer screening programmes and advances in cancer treatment.

The aim of this study was to evaluate the workload of cancer patients in a typical primary care practice (PCP), by determining the prevalence of primary invasive cancers and characterising cancer patients' healthcare needs using primary care data.

This study was based in a large minor-urban PCP with a total registered population of 11,174 patients. MedTech database queries and the New Zealand Cancer Registry dataset were used to identify patients diagnosed with cancer between Jan 2008–May 2019.

There were 235 cancer diagnoses (39 cancers in Māori patients and 196 in non-Māori patients). The sensitivity of the primary care data for identifying invasive cancer was calculated as 87%. The age standardised prevalence rate for cancer in Māori patients was 2,400/100,000 and 1,677/100,000 for non-Māori patients. The most prevalent cancers were breast, male genital organ, digestive system and melanomas. While enrolled with the PCP, 82 (35%) cancer patients were followed up by their general practitioner (GP) only, 67 (29%) were followed up by

secondary care, 55 (23%) were actively treated by secondary care, eight (3%) were receiving active treatment from their GP, and eight patients (3%) had also received palliative care input.

Primary care data was shown to be sensitive (87%) for identifying cancer patients in the community. Data from this PCP suggest that there may be disparities in cancer prevalence between Māori and non-Māori patients, though this needs confirming in other PCPs.

Exploring neural patterns during loss of Granger causality

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Changes in consciousness and responsiveness have been associated with changes in information flow between regions of the brain. However, these changes—such as the direction of information flow, timing and regions involved—are poorly understood. Here we assess changes in functional connectivity by applying Granger causality to 32-channel electroencephalogram (EEG) signals of 16 volunteers during propofol anaesthesia. Granger causality describes the amount of information flow between two electrodes by using auto-regressive models to assess whether past information at one electrode helps to predict current information at another electrode. We found that information flow in the low delta frequencies (0.5–1.5Hz) and alpha frequencies (8–13Hz) increased as the subjects became sedated, but then decreased to near zero as the subjects lost responsiveness. Information flow remained at zero until a few minutes before regain of responsiveness where Granger values increased to four times the induction values. This global loss of information flow during unresponsiveness is intriguing and, to the best of our knowledge, has not previously

been reported. Furthermore, these findings suggest Granger causality could be a useful tool for predicting regain of responsiveness during anaesthesia, assuming similar results are yielded in a clinical dataset.

Māori vs non-Māori patients: do we treat pneumonia differently?

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Introduction

Māori experience inequities in aspects of health leading to poorer health outcomes.¹ Pneumonia is three times more prevalent in Māori than non-Māori and associated with a six-fold increase in mortality.² Suboptimal antibiotic usage may contribute to this as differences may exist in the way Māori and non-Māori patients receive antibiotics.-

Aim

To clarify differences in antibiotic prescribing and administration for Māori and non-Māori patients with pneumonia. Specifically investigating differences in:

1. Time spent on intravenous antibiotics (IVabx)
2. Antibiotic duration
3. Percentage of antibiotic scripts dispensed in the community and lag-time to dispense.

Method

ICD-10 codes were used to retrospectively recruit 100 pneumonia patients admitted to the respiratory ward between 1 June 2018–1 June 2019. A pilot study was completed across a two-week period in July 2018. The pilot consisted of 33 patients: 33% (11) Māori and 67% (22) non-Māori patients.

Data including age, ethnicity, comorbidities and gender were collected using hospital databases and community dispensing data.

Results

Full study results forthcoming.

	Māori	Non-Māori
Median age	58	70
Median Charlson Comorbidity Index	5	5
Median days in hospital	6	3
%requiring high dependency/intensive care admission	27% (3)	14% (3)
Median days on IVabx	3	1
Median days on antibiotics	10	9
%Mortality	36% (4)	5% (1)
%Discharged on oral antibiotics	55% (6)	95% (21)
%collected discharge antibiotics	100% (6)	86% (18)
%collected day of discharge	83% (5)	89% (16)

Conclusions

Preliminary pilot data shows feasibility in undertaking this study. Despite small sample size, results suggest Māori are less likely to be discharged on oral antibiotics and more likely to:

- Spend longer in hospital
- Require high dependency/intensive care
- Spend longer on IVabx
- Have pneumonia-associated mortality—despite no differences in morbidity,

- no difference has been found in rate and time to dispensing of discharge antibiotics.

References

1. Ministry of Social Development (2016). The Social Report. Wellington, New Zealand: Ministry of Social Development
2. Chambers S, Laing R, Murdoch D, et al. Māori have a much higher incidence of community-acquired pneumonia and pneumococcal pneumonia than non-Māori: findings from two New Zealand hospitals. N Z Med J. 2006; 119(1234):1978.

Justification for presentation

Identifying a significant difference provides rationale for further investigation and intervention. The intention is to identify initiatives to reduce disparities. This study may be reflective of practice occurring in other regions across New Zealand or applicable to other infections.

The project was given expedited ethical approval by the Northern A Health and Disability Ethics Committee, HDEC Reference 19/NTA/17.

URL:

<http://www.nzma.org.nz/journal/read-the-journal/all-issues/2010-2019/2019/vol-132-no-1505-8-november-2019/8052>

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