An assessment of an outcome of injury questionnaire using a Pacific model of health and wellbeing
Radilaite Delaibatiki Cammock, Sarah Derrett, Faafetai Sopoaga

Abstract

Aim To use a Pacific model of health to describe relationships between questions within a structured questionnaire developed for a prospective study of injured New Zealand residents’ outcomes and important elements of Pacific people’s health; and identify health issues of particular importance for Pacific peoples that future studies may consider including.

Method The Fonofale model of Pacific health identifies culture, family, physical, spiritual, and ‘other’ elements (e.g. socioeconomic status and service use) as important. In consultation with Pacific researchers, each question from a Prospective Outcomes of Injury Study (POIS) questionnaire was assessed. Relationship between the type and number of POIS questions were considered in relation to each of the Fonofale elements.

Results Two-thirds of the POIS questions were able to be placed within a single element of the Fonofale model; remaining questions were placed into multiple elements. The POIS questionnaire strongly addressed the physical, mental and ‘other’ Fonofale elements. Culture, spirituality and family elements were not strongly addressed.

Conclusions The Fonofale model identified areas of strength in the POIS questionnaire, and areas of limitation. Researchers undertaking population studies or surveys could consider using a Pacific model to help inform structured questionnaire development.

Pacific peoples comprise 6.9% of New Zealand’s total population. Pacific peoples have lower income, higher levels of unemployment, poorer housing and lower life expectancy than other New Zealanders.\textsuperscript{1,2}

Within New Zealand, injury-related mortality and morbidity is also not proportionately distributed. For example, Pacific males suffer on average higher rates of injury resulting in death,\textsuperscript{3} and Pacific peoples have higher rates of hospitalisation due to injury (2744 per 100,000) compared with the national average (2393 per 100,000).\textsuperscript{4}

Pacific peoples are also highly represented in occupations associated with greater risk of injury.\textsuperscript{5,6} Additionally, many migrants from Pacific nations to New Zealand support extended families in the islands. Balancing the need to meet responsibilities, cultural traditions and the demands of living in a contemporary New Zealand society is difficult, particularly in times of economic recession.

Given the socioeconomic circumstances and risk of injury, it is important to assess injury and resulting disability among Pacific peoples.
The rate of overall disability reported among Pacific peoples in New Zealand is approximately 11%, with most living in the community. A greater proportion of Pacific peoples (57%) with a disability are aged less than 44 years, compared with European New Zealanders (27%).

Despite these findings, there remains a paucity of research addressing the social and cultural aspects of injury and rehabilitation outcomes for Pacific peoples in New Zealand.

Furthermore, if Pacific people are experiencing disabilities at younger ages and cannot work, the potential ramifications for their families and health are great. Research is required to understand outcomes following injury among Pacific peoples; ideally such research would address health and disability issues of importance and relevance to Pacific peoples.

Pacific models of health encapsulate Pacific values, beliefs and traditions. There is a general consensus in the literature that Pacific peoples’ views of health and disability are different to mainstream European ideologies.

Pacific models, tend to consider social and cultural dimensions of health and approach health and wellbeing holistically. Somewhat akin to the Māori ‘Te Whare Tapa Wha’ model of health and well-being, Pacific models of health illustrate the importance of balancing the well-being of the body, mind and spirit, and also the importance of the family.

Various ‘Pacific’ models have been developed. A distinguishing feature of Pacific models is the symbolic representation of concepts. These symbols tend to be rooted in the values, customs and traditions of particular Pacific ethnicities. For example the Tongan Fonua (nation) model represents the relationship between the environment and humanity, paying particular attention to Tongan hierarchy. Other examples include: the Tongan Kakala Model (process of making a fragrant garland), Samoan Fu’afaletui Model (Samoan knowledge system), the Cook Island—Tivaevae Model (traditional quilt patchwork) and Tokelauan Te Vaka Atafaga Model (canoe).

Many models can be adapted to function as useful frameworks for research and analysis. Models, such as the Fonua and Tivaevae models have been used in education and social science investigations. In New Zealand the Fonofale, Faafaletui and Te Vaka models have been used in health contexts.

This paper discusses the importance of applying Pacific frameworks of health to general population health studies and assesses a questionnaire used in a study of injured New Zealand residents to determine whether aspects of importance to Pacific peoples’ health were captured.

Specifically, this paper seeks to:

- Describe relationships between the Prospective Outcomes of Injury Study (POIS) questionnaire and important elements of Pacific people’s health and disability using a Pacific model; and

- Identify questions or dimensions that future studies could consider including to address health and disability issues of particular importance for Pacific peoples.
Methods

The Prospective Outcomes of Injury Study (POIS) aims to identify predictors of outcome among injured New Zealanders. POIS reports outcomes following injury for a large cohort from five regions of New Zealand—including Auckland and Manukau cities where the majority of Pacific New Zealanders reside.  

POIS has recruited New Zealand citizens or residents who experienced an injury severe enough to be placed on an entitlement claims register with New Zealand’s no-fault compensation injury insurer—the Accident Compensation Corporation (ACC). Analyses of POIS data from participants who identified as having at least one Pacific ethnicity, as per the New Zealand 2006 Census, was planned. As a precursor to these analyses, we assessed questions from the first POIS highly-structured questionnaire (usually administered by interview) to see whether it addressed aspects of health and disability important to Pacific participants. Responses to open-ended questions were also assessed to see if reference to Pacific values were made.

The POIS questionnaire used predominantly set-response-option questions, and included questions about injury characteristics, physical and mental wellbeing, health service experiences, disability, personal-wellbeing and occupational outcomes. Key Pacific models of health were reviewed to identify a framework to structure the analysis. The model selected was Fuimaono Karl Pulotu-Endemann’s Fonofale Model. The model integrates the metaphor of a house (fale), complete with a roof and a foundation. The roof of the house represents culture, the beliefs and values Pacific peoples possess. These can include beliefs in both Western and traditional methods of healing. Cultural aspects can include Pacific peoples being New Zealand or Pacific nation born and raised. It can also include the different ethnicities of individual Pacific people e.g. one parent being European (Kai valagi or Palagi) and the other parent being of a Pacific ethnicity. The foundations of the house represent the family. Pacific families provide the support network and structures to support life. The Pacific family can comprise both nuclear and extended family members. This idea of family can also be retrospective, taking account of genealogy (gafa). The posts (pou) supporting the roof represent continuous and interactive dimensions of Pacific peoples’ health. They are: spiritual health (well-being as a result of Christianity or traditional spirituality); physical health (biological and physical well-being, as well as the relationship of the body to physical or organic substances e.g. food, water, air and medications); mental health (health of the mind, involving thinking and emotion); and ‘other’ aspects which can influence health and well-being (e.g. gender, sexual orientation, age, social class, employment and educational status). The house itself is encircled by factors such as the environment, the sociopolitical context and time and place in which Pacific peoples live.

For our study, the research team analysed each question (n=212) from the first (and most comprehensive) POIS questionnaire, to see whether, and where, it may fit within the elements of the Fonofale model; with an emphasis on the central house.

The strength of each Fonofale element within the POIS questionnaire was determined according to the number and type of POIS questions. All categorizations were verified by the two Pacific authors (RDC and FS).

Results

Of the 212 questions in the POIS questionnaire, two-thirds (66%) were able to be placed within a single element of the Fonofale Model (Table 1). Most of the remainder were placed in multiple Fonofale elements. These included ‘multidimensional’ questions (10%) relating to two or three elements and,
‘overarching’ questions (22%) reflected in four or more elements of the model (e.g. participants ability to carry out usual activities, communicating and socialising).

Two percent of POIS questions were not directly applicable to Pacific peoples (e.g. questions asked only of Māori participants such as questions about Māori tribal affiliations).

Table 1. Overview of POIS questions (%) in relation to the Fonofale model

<table>
<thead>
<tr>
<th>Fonofale model</th>
<th>POIS questions n (%)</th>
<th>Examples of POIS questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Culture (Roof)</td>
<td>8 (4)</td>
<td>Ethnicity</td>
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<td></td>
<td></td>
<td>Country of birth and years lived in New Zealand</td>
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<td></td>
<td></td>
<td>Cultural sensitivity</td>
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<td></td>
<td></td>
<td>Sense of community</td>
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<tr>
<td>Family (Foundation)</td>
<td>8 (4)</td>
<td>Family involvement</td>
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<td></td>
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<td>Household responsibilities</td>
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<td></td>
<td></td>
<td>Global/social relationships</td>
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<td></td>
<td></td>
<td>Marital status</td>
</tr>
<tr>
<td>Physical (Post)</td>
<td>27 (17)</td>
<td>Injury characteristics (pre and post)</td>
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<tr>
<td></td>
<td></td>
<td>Hearing and sight</td>
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<td></td>
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<td>Physical activities</td>
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<td>Exercise</td>
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<td></td>
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<td>BMI</td>
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<td></td>
<td></td>
<td>Hand dominance</td>
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<td></td>
<td></td>
<td>Work capacity</td>
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<tr>
<td>Spiritual (Post)</td>
<td>2 (1)</td>
<td>Religion</td>
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<td></td>
<td></td>
<td>Comfort in spiritual beliefs</td>
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<tr>
<td>Mental (Post)</td>
<td>30 (14)</td>
<td>Depression, sadness</td>
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<td></td>
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<td>Loss of interest</td>
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<td></td>
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<td>Nervousness</td>
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<td></td>
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<td>Alcohol and drugs</td>
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<td></td>
<td></td>
<td>Anxiety</td>
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<tr>
<td>Other (Post)</td>
<td>47 (22)</td>
<td>Socioeconomic status: costs, work situation, pay, demand, work skill and expertise, financial support, household dwelling, income, material standard of living, education</td>
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<tr>
<td></td>
<td></td>
<td>Services: health service use, experiences with service, health system contact and trust</td>
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<td></td>
<td></td>
<td>Gender</td>
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<td></td>
<td></td>
<td>Age</td>
</tr>
<tr>
<td>Environment</td>
<td>8 (4)</td>
<td>Distance to services</td>
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<tr>
<td>Time/Context</td>
<td></td>
<td>Relationship at work</td>
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<tr>
<td>Overarching/</td>
<td>67 (32)</td>
<td>Self-efficacy, optimism</td>
</tr>
<tr>
<td>Multidimensional</td>
<td></td>
<td>Overall health and wellbeing</td>
</tr>
<tr>
<td>Unplaced</td>
<td>4 (2)</td>
<td>Māori languages and Māori tribal affiliation</td>
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</tbody>
</table>

POIS questions relating to the physical post included general health status, BMI, prior chronic illness and mobility. POIS questions relating to the mental post included those asking participants about depression, anxiety, and alcohol and drug use. There were many POIS questions addressing socioeconomic status and service use.

Although the POIS questionnaire assesses spirituality, this was not comprehensive. POIS included only two questions directly eliciting information about spirituality—
one about religious affiliation and the other about the level of comfort participants found in their faith or spiritual beliefs.

Culture was another element represented by few POIS questions. The cultural questions identified included ethnicity, migration, number of years lived in New Zealand and relationships with community. POIS questions related to the family post asked about level of family involvement in life, household responsibilities, marital status, household and family living arrangements and satisfaction with social relationships.

These are important questions to ask; however they do not sufficiently cover family and its importance in the lives of Pacific peoples. Additionally, POIS lacked questions relating to sexuality or gender roles (including fa’afafine), and questions examining conflict between traditional Pacific roles and New Zealand status roles.

Fonofale elements least addressed within the POIS questionnaire were those of spirituality, culture and family. Due to the paucity of questions addressing spirituality, culture and family, we also reviewed responses to open-ended free-text questions where participants were able to raise any factors they perceived as helping or hindering their recovery from injury.

Analysis of these open-ended questions found no additional information in relation to spirituality, family or culture; instead the emphasis was on access to health services and the nature of the injury itself.

Discussion

We found that the POIS questionnaire contained questions addressing all of the core elements within the Fonofale Model however it was restricted in three aspects: spirituality, culture and family.

For most Pacific peoples, Christian spirituality plays a fundamental role in attitudes, expectations and relationships.23 One question within the POIS questionnaire was from the Functional Assessment of Chronic Illness Therapy—Spiritual well-being scale (FACIT-Sp-12; permission to use the item was granted by www.facit.org).24

Bearing in mind the ever-present issue of responder burden in structured interviews, including the other eleven FACIT-Sp-12 questions may be advisable in future studies. Other measures could also be considered such as the 20-item Spiritual Well-being Inventory,25 and the 79-item Spiritual Assessment Inventory (SAI).26

We have been unable to identify spirituality questionnaires that have been validated for use in Pacific populations. Further research could specifically address the role of Pacific spirituality (which may include the presence of spirits and connection with the dead) in the recovery process.

We acknowledge that culture is a complex aspect to assess in questionnaires. It is likely that all the dimensions in the Fonofale model have interactions with, and possess aspects that reflect, culture.

There is no one measure that is able to fully measure culture or encompass all the factors associated with Pacific culture. Given this, a useful area to explore in future surveys would be the level of cultural alignment to New Zealand Pacific society.
Such assessments would give insights into cultural and social factors that aid in the lives and decisions of Pacific peoples. For example, while a question in POIS enquired about the length of time living at participants’ current address, additional questions could be asked about cultural reasons that may influence residency—e.g. proximity to family and Pacific communities.

Other cultural areas that could be explored include language, or languages, spoken by individuals at home; work, in communities, or at church. In the POIS questionnaire, there were questions that referred to the ability of participants to speak ‘te reo Māori’, but not for other languages.

Future surveys could include similar questions about Pacific languages spoken. However, the relationship of language with culture is a contested subject, as fluency in Pacific languages may not necessarily reflect strong cultural alignment or tendencies.

Nevertheless, it seems useful to consider alongside other questions such as the number of years lived in New Zealand and community relationships, as included in POIS.

Questions could also explore cultural traditions, customs and obligations as well as engagement in cultural activities or processes. The hypothesis is that individuals with a stronger cultural sense and belonging, more often understand and continue to practice cultural traditions and customs. These connections may cause individuals to feel a sense of belonging and provide support networks in times of difficulties, such as injury or illness. Alternatively, cultural obligations and traditions may be perceived as placing stress upon Pacific people living in New Zealand.

The other Fonofale element addressed in a somewhat limited way within the POIS questionnaire was ‘family’. Family has been identified as the fundamental unit of Pacific society, and is the foundation for the Fonofale model of health and wellbeing.

While considering future questions, researchers may want to keep in mind the structure of most Pacific families which is not restricted to the nuclear family but includes the extended family. Unfortunately measures that have been developed with Pacific populations in mind are scarce. Perhaps other questions such as the five item Family Adaptability, Partnership, Growth, Affection and Resolve (APGAR) Test could be considered.

The APGAR assesses family members’ satisfaction with five components of family function. Future studies could also assess the impact of the injury or disability on the family. Here, the 27-item Impact on Family Scale may be useful; addressing the economic, social, familial and personal strain health and illness bears on the family.

Although useful, these questions do not comprehensively address family issues of importance to Pacific peoples such as kinship, reciprocity, and communality, therefore, further work seems warranted to develop improved measures.

The health status of Pacific peoples in New Zealand needs to be improved. Injury and disability is an important area to address given its effect on the socioeconomic status and well-being of Pacific peoples.
Our assessment found the POIS survey included a wide range of questions that addressed each aspect of the Fonofale model. We found that it was particularly strong in relation to the physical, mental and ‘other’ aspects of health (particularly service use and socioeconomic status). However, more attention to spirituality, culture and family appears warranted.

We acknowledge that there are usually tensions between breadth and depth in population surveys; between asking sufficient questions and not overburdening individual participants. Minimising responder burden was always a consideration in the design of POIS. POIS has investigated a range of outcomes—including outcomes specific to Pacific people.

Currently, a POIS qualitative study is underway with Pacific women who have not recovered from injury, to investigate in an open-ended manner the issues of greatest importance to them and their wellbeing. What our present analysis of the POIS quantitative questionnaire suggests, is that more work exploring how best to strengthen some of the Fonofale elements within future quantitative studies would be useful.

With today’s global societal, economic and environmental changes the health of Pacific peoples is challenged. Researchers undertaking population studies or surveys have a role to play in strengthening the ‘fale’ within their surveys. Our findings suggest that using a Pacific model to help inform questionnaire development could help with this task.

**Competing interests:** Nil.

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