# The Broad Inventory of Specific Life Events (BISLE): Development, Validation, and Population Prevalence

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This study presents the Broad Inventory of Specific Life Events (BISLE), a comprehensive inventory and coding schedule that categorizes a far wider range of life events occurring in the past year than those covered in previous inventories. The BISLE uses a checklist of select probe events combined with a coding scheme for qualified responses to an open-ended question capturing the broad range of other events people perceive as being important to them in the past year. We demonstrate the utility of the BISLE using a large-scale national probability New Zealand sample (*N* = 47,951). Life events relating to health (29.65%), death (21.25%), work (13.78%), and relationships (9.61%) were the most frequently reported as having occurred in the past year. Further, women, younger people, and ethnic minority group members reported more overall annual events. Coding of open-ended responses from the BISLE demonstrated excellent inter-rater reliability. Validation analyses indicated that the BISLE predicted key outcomes in expected directions, including life satisfaction and psychological distress. The BISLE was developed for large-scale panel studies with limited space that could benefit from capturing self-reports of diverse life events occurring in people's lives over a given timeframe.

**Keywords:** *Major life events, life events inventory, prevalence, demographic differences, validity, inter-rater reliability*

## Introduction

Stressors—exposure to environmental demands that cause stress—play a critical role in people's health and well-being (Wethington, 2016). Research typically categorizes stressors by (a) daily hassles which require little adaptation (e.g., bad traffic), (b) major life events, which encompass unexpected or extraordinary events that alter daily routines and/or provoke an emotional response (e.g., divorce), and (c) chronic stressors, which reflect enduring or recurring adverse circumstances in an individual's life (e.g., chronic illness; Carr & Umberson, 2013; Wethington, 2016). Although all three types of stressors provide valuable information about the amount and type of stress exposure people are experiencing in their lives, researchers have predominantly focused on major life events to examine the impact of stressors on key outcomes such as health, personality development, and subjective well-being (e.g., Bleidorn et al., 2018; Chang et al., 2015; Luhmann et al., 2012).

Yet, despite the plethora of checklists measuring life events, most inventories only focus on a subset of major life events (e.g., traumatic events; Gray et al., 2004). As such, researchers are limited in the types of life events they can capture, and little is known about the prevalence of the diverse range of events that people may experience each year (Hatch & Dohrenwend, 2007). In this paper, we introduce the Broad Inventory of Specific Life Events (BISLE), a comprehensive inventory and coding scheme that categorizes major life events to detail the national prevalence of various life events occurring during the previous year. The BISLE was specifically designed for large-scale panel studies that want to capture self-reports of a wide range of events that people may experience over time. We aim to demonstrate the utility of the BISLE using a large-scale, national probability sample from New Zealand to examine: (1) the annual population prevalence of diverse types of life events, (2) demographic differences in reported life events, and (3) the convergent and discriminant validity of the BISLE with key outcomes, including life satisfaction and psychological distress.

### *A Review of Previous Life Events Checklists*

Checklists with specific probe items are the most popular way of measuring life events (Turner & Wheaton, 1997; Wethington, 2016). Table 1 highlights the five most-cited life events inventories and their main features. Table S1 (see online supplemental materials [OSM]) provides further information on a larger sample of previous checklists which are ordered chronologically to display their development over time. Major life events were commonly defined using the life change-readjustment perspective (Wethington, 2016). This perspective defines life events as time-discrete environmental changes that impact how people conduct their lives (Dohrenwend, 2006; Luhmann et al., 2012; Wethington, 2016). The first—and still widely used (Dohrenwend, 2006)—life events checklist was the Social Readjustment Rating Scale (SRRS; Holmes & Rahe,

1967), which quantified environmental changes through 43 positive and negative life events.

Since the SRRS, life events checklists have proliferated (see Table 1 and Table S1 in OSM; Dohrenwend, 2006; Turner & Wheaton, 1997). Previous checklists inventoried a diverse number of events (9 to 320) depending on their aim. Some checklists attempted to update the SRRS with more specific events (e.g., Dohrenwend et al., 1978; Hobson et al., 1998), whereas others attempted to make population-specific checklists, such as for older adults or non-western societies (e.g., Murrell et al., 1984; Singh et al., 1984). However, over time, checklists increasingly narrowed their focus to capture traumatic and/or adverse life events, limiting the scope of events researchers can examine (e.g., Gray et al., 2004; Kubany et al., 2000). This is because most inventories were created to understand life events in relation to physical and mental illness (e.g., Brugha & Cragg, 1990; Gray et al., 2004). Therefore, the majority employed a simple checklist for participants to code and rate their own experiences, including perceived readjustment or distress (e.g., Holmes & Rahe, 1967; Hurst et al., 1978).

Additionally, the reliability and validity of previous life events checklists has been questioned (see Dohrenwend, 2006). Upon review (see Table 1 and Table S1 in OSM), we found that the internal consistency and total score test-retest reliability of the presented inventories fluctuated greatly (e.g., Holmes & Rahe, 1967; see Casey et al., 1967; Hurst et al., 1978). In contrast, some demonstrated high inter-rater reliability (see Cochrane & Robertson, 1973) and individual item reliability over time (see Brugha & Cragg, 1990). For validity, the reviewed checklists correlated with other checklists (see Carlson et al., 2011) and associated outcomes (e.g., depressive symptoms; see Lewinsohn et al., 1985).

### *Prevalence of Life Events and Demographic Differences*

Checklists are often used to generate prevalence estimates for various life events. Population-based research revealed that the most common life events were in the domains of work, death, finance, housing, travel, and health (Goldberg & Comstock, 1980; Hobson & Delunas, 2001). For example, the Department of Internal Affairs (DIA; 2014) revealed that the most common annual life events among New Zealanders in 2014 were overseas travel (41%), a family member's death (26%), starting a new job (22%), and major illness, injury or accident (12%). In contrast, buying a house (9%), having a baby (5%), getting married (5%), retirement (3%), and divorce (3%), were less frequent.

However, most research has only provided estimates for traumatic events because previous checklists only include traumatic and/or adverse events. This literature indicated that amongst the general population, accidents and traumatic events—particularly unexpected deaths of loved ones—were frequently reported (Benjet et al., 2015; Breslau et al.; 1998; Hepp et al., 2006; Norris, 1992; Vrana & Lauterbach, 1994). In New Zealand, where the current study is situated, comparable estimates have also been shown, with 9% of people on average experiencing a traumatic event every year (Kazantzis et al., 2010).

Prior research has also revealed that the experience of major life events may be qualified by demographic differences based on gender, ethnicity, and age. First, research consistently shows gender differences in the types of stressful life events experienced (Hatch & Dohrenwend, 2007). Specifically, men experienced more work, financial, legal, and traumatic events, whereas women experienced more events related to housing, social, and interpersonal domains (Kendler et al., 2001; Kessler & McLeod, 1984; Norris, 1992; Turner & Avison, 2003). However, although men reported more traumatic events overall, women reported higher rates of specific traumatic events, particularly sexual assault (Norris, 1992). In New Zealand, men reported more combat (i.e., military warfare involvement), physical assault, and accidents, whereas women reported more sexual assault, domestic violence, and tragic death such as suicide (Flett et al., 2004; Hirini et al., 2005).

Second, evidence also shows ethnic differences across life events. For example, most studies suggested that ethnic minority group members report more negative life events than their ethnic majority counterparts (e.g., Turner & Avison, 2003; Turner & Lloyd, 2004). For instance, research conducted primarily in North America revealed that ethnic minority group members experienced more discrimination (Kessler et al., 1999), death, illness, interpersonal, and financial events relative to the ethnic majority (Franko et al., 2004; Lu & Chen, 2004). However, there was a notable exception: Asian people reported the fewest traumatic events overall (Roberts et al., 2011). Within New Zealand, Hirini and colleagues (2005) found that traumatic events were common amongst Māori (65% over lifetime). Specifically, Māori reported more assaults and tragic death, while New Zealand Europeans often reported more combat (Flett et al., 2004).

Finally, research has shown age differences across life events. Younger people consistently experienced more negative life events than older people (e.g., Breslau et al., 1998; Hatch & Dohrenwend, 2007). Research from North America found that within one year, 27% of young people experienced a traumatic event, most commonly assaults (e.g., physical or sexual) and tragic death, compared to 14.2% of older adults (Norris, 1992). In contrast, older adults experienced more health, non-traumatic death, and family events compared with younger adults (Murrell et al., 1984). Similar differences were also found in New Zealand, with traumatic life events decreasing with age (Flett et al., 2004; Hirini et al., 2005).

### *The Present Study*

For researchers wanting to study or assess life events, the types and number of life events that can be examined is currently limited to a specific subset of traumatic and/or adverse events (see Hatch & Dohrenwend, 2007; Sotgiu, 2010). Accordingly, little is known about the diverse types of life events people experience each year. This is a significant gap because research shows that various life events differentially affect—and may provide buffers for—important health and well-being outcomes (see Chang et al., 2015; Monroe & Slavich, 2020). For example, research suggests that positive events—or a lack

thereof—may be more important in predicting psychological maladjustment than the occurrence of negative events alone (Chang et al., 2015). Thus, a more comprehensive inventory that widens the scope of life events experienced by individuals that ranges in both valence (i.e., positive versus negative) and normality (i.e., common versus rare) will be an important addition to the field. This includes helping resolve current inconsistencies regarding the differential effects of life events, as well as in advancing understandings of how different life events predict different clinical outcomes (see Monroe & Slavich, 2020).

Here, we present the BISLE, a comprehensive inventory and coding scheme that categorizes major life events to detail the national occurrence of a wider range of life events occurring in the past year than those covered by previous inventories. We chose the name BISLE to highlight the unique aspect and primary aim of the inventory to provide a broad assessment of a range of specific life events with different characteristics (e.g., positive to negative and common to rare). This allows the BISLE to be used to examine a variety of specific life events that have not been included in other inventories. Additionally, the specific events can be collapsed into broader categories and domains for examination of more general trends across different types of life events.

The BISLE was developed as a population screening measure for use in the New Zealand Attitudes and Values Study (NZAVS)—a longitudinal panel study that began in 2009—to track changes in life events over time. In other words, the BISLE was developed for large-scale panel studies wanting to follow the same people over time and capture naturally occurring life events (e.g., the transition to and from marriage), as well as to track national-level rates of life events during key societal events (e.g., the COVID-19 pandemic). As the NZAVS collects data on a rolling basis, the BISLE can provide monthly averages of reported life events from the past year to examine trends in life events over time.

The BISLE employs a novel approach to assessing life events by combining a quantitative checklist of select probe events with qualitative open-ended responses that allow participants to provide descriptive accounts of self-generated events. The use of an open-ended section allows the BISLE to capture (a) a wide range of events in limited space, (b) what people themselves perceive to be an important life event in their own lives, and (c) changes in events that we might not anticipate, such as experiencing lockdowns. Although self-generated events rely on people's subjective appraisals (see Dohrenwend, 2006; Monroe, 2008), research has shown that events regarded as personally important are more proximal predictors of important outcomes such as depression (Boals et al., 2010). Furthermore, asking participants to generate their own events presents issues with memory and may mean participants do not report all experienced events (see Frissa et al., 2016). Therefore, the BISLE employs the initial checklist of focal events to prompt participants' recall and illustrate what types of experiences would classify as a life event.

We used previous life events checklists and participants' open-ended responses to create the events indexed by the BISLE. We started with the events listed in the SRRS, as this inventory provided a variety of both positive and negative events using the life change-readjustment perspective (Holmes & Rahe, 1967; Wethington, 2016). However, the BISLE is distinct and different from the SRRS as it includes: (1) more specific events (see Dohrenwend et al., 1978), (2) new events relevant to the current New Zealand population, and (3) significant events reported by participants. The BISLE also incorporates several unique domains that make it distinct from prior inventories (see Table S2 in OSM for included versus novel events coded by the BISLE compared to prior inventories). Specifically, the BISLE uniquely codes several underexplored domains: discrimination, immigration, gender identity and sexuality, and social issues. We develop a new coding scheme that categorizes participants' open-ended responses into three hierarchical levels that group events to differing degrees of specificity to provide informative population-level prevalence estimates across an array of life events, including how prevalent events are relative to others.

However, the BISLE does not examine event characteristics (e.g., impact or valence) of life events like many other checklists. For example, the Life Experiences Survey by Sarason and Colleagues (1978) asks participants to indicate the occurrence of event, followed by rating the positive versus negative impact of the event. Unlike prior checklists, the BISLE was developed for the unique purpose of providing a large pool of possible life events (with a variety of characteristics) for large-scale panel studies that are designed to follow the same people, and any possible life events they may experience, over time. As the BISLE was designed to fit into large omnibus surveys, the inventory was restricted in its form, length, and detail. Therefore, our use of combined probe events and open-ended responses allowed us to gain in-depth information of stress exposure in limited space.

Researchers have predominately focused on major life events to measure stress exposure (see Wethington, 2016). However, some researchers suggest that other types of stressors—particularly daily hassles—are better predictors of psychological outcomes than the sum of life events (Kanner et al., 1981) and provide a more proximal indicator of stress exposure than major life events (DeLongis et al., 1982). However, as the emotional effects of daily hassles are only temporary (i.e., lasting one or two days; Bolger et al., 1981) and can be easily forgotten (Monroe, 2008), measuring daily hassles requires intensive repeated daily assessments that are not feasible in large-scale panel studies. Therefore, while we acknowledge that daily hassles are important indicators of stress exposure and may work together with major life events to affect health and well-being outcomes (see Carr & Umberson, 2013), we developed the BISLE for large-scale panel studies where capturing reports of major life events each year is more practical and useful.

In presenting the BISLE, we are not suggesting that there is one right way to assess life events. The variety of available life events checklists highlights the numerous purposes for measuring life events (see Table 1 and Table S1 in OSM). Rather, we developed the BISLE for large-scale panel studies, where space is limited and a general

**Table 1**. Overview of Main Features of the Top Five Most Cited Life Events Inventories (Listed Chronologically)

| Reference | Name of inventory | Popularity | # of events, time period assessed, and sample used | What was assessed | Focus of inventory | Validity & reliability | Event examples |
|---|---|---|---|---|---|---|---|
| Holmes & Rahe, 1967 | Social Readjustment and Rating Scale (SRRS) | 19515 | Events: 43 positive and negative events<br>Time period: Not stated<br>Sample: 394 male and female patients | Event occurrence<br>Ratings of readjustment to create total life change score | First inventory that measures environmental events requiring significant change to assess their relationship with illness onset | Internal consistency: α = .51 (Hurst et al., 1978)<br>Test-retest reliability (total scores): 9-month interval (*r* = .74; Casey et al., 1967)<br>Fall-off in reporting: 3 years = 35% and 5 years = 50% (Casey et al., 1967) | Marriage; change in financial state; wife began or stop work; revision of personal habits; change in social activities; vacation |
| Brown & Harris, 1978 | Interview Schedule for Events and Difficulties/ LEDS | 10956 | Events: 11 sections<br>Time period: Previous year<br>Sample: Psychiatric patients and their relatives (to test reliability) | Event occurrence<br>Emotional impact, severity, and what happened before and after the event | Interview method and schedule to overcome methodological issues in pre-existing measures of stress by gaining more in-depth information | Inter-rater agreement: 79% for all events and 92% for severe events (Brown et al., 1973) | Sections: health; marital; crises; employment; housing; role changes; money; leisure and interaction; interaction with parents; general |
| Dohrenwend et al., 1978 | Psychiatric Epidemiology Research Interview (PERI) Life Events Scale | 1729 | Events: 102 events<br>Time period: Lifetime<br>Sample: 2,877 American adults | Event occurrence<br>Domain event categories<br>Ratings of readjustment for each event | Extension of the SRRS to provide more specific events and better agreement ratings | Inter-rater reliability: 22 most frequently reported events (*r* = .43; indicative not exact; Schless & Mendels, 1978) | Birth of first child; started work for the first time; graduated from school or training; built a home; arrested; went on welfare; made new friends; physical health improved |
| Sarason et al., 1978 | Life Experiences Survey (LES) | 4261 | Events: 57 events<br>Time period: Previous year<br>Sample: 345 American university psychology students | Event occurrence (0-6 months or 7 months to 1 year)<br>Perceived negativity/ positivity and impact of the events | Scale that extends the SRRS to measure life changes in the general population with the addition of an academic domain and the ability to create subscales of negative and positive stress | Test-retest reliability: 5-6 week interval, positive change score (*r* = .19 and .53), negative change score (*r* = .56 and .88), total change score (*r* = .63 and .64; *ps* < .001, moderately reliable) | Failing a course or important exam; death of close family member; sexual difficulties; abortion; leaving home for the first time; engagement |
| Gray et al., 2004 | The Life Events Checklist (LEC) | 1563 | Events: 16 traumatic events<br>Time period: Not stated<br>Sample: 108 college students | Event exposure type experienced on a 5-point scale (1 = *happened to me*, 2 = *witnessed it*, 3 = *learned about it*, 4 = *not sure*, and 5 = *does not apply*) | Scale that measures potential exposure to traumatic events to assist in the diagnosis of PTSD | Test-retest (direct trauma exposure): 1-week interval (mean kappa for all items was .61; *r* = .82, *p* < .001)<br>Test-retest (including indirect measures: 1-week interval (mean kappa for all items of .47, *p* <.001)<br>Validity: *r* = .44 (*p* <.05) with modified PTSD symptom scale and. *r* = .48 (*p* <.05) with PTSD checklist | Fire/explosion; sexual assault; combat; motor vehicle accident; sudden unexpected death of loved one |

*Note*. Popularity refers to the number of citations on Google Scholar as of July 2021. More information and details on a wider range of previous inventories are provided in Table S1 (OSM).

screening measure that captures as many life events as possible is needed. Incorporating the BISLE is particularly beneficial for panel studies in the context of unforeseen events, such as the COVID-19 pandemic, as life events data are collected on a rolling basis allowing comparisons over time. Other uses of the BISLE include focusing on specific events (e.g., retirement), tracking changes due to societal events (e.g., terrorist attacks), and creating sum scores from reported life events to indicate the amount of stress people have been exposed to at a given time. We aim to illustrate the utility of the BISLE using a large-scale, national probability sample from New Zealand to examine: (1) the annual rates of prevalence in the population across an array of life events, (2) gender, age, and ethnic differences in the prevalence of different life events, and (3) the associations of the BISLE domains

with key outcomes (e.g., life satisfaction, subjective health).

## METHODS

### *Participants*

The NZAVS is a 20-year long panel study that started in 2009. Our analyses focus on Time 10 (2018/19), in which 47,951 participants completed the survey. This is the first time point where the NZAVS fully incorporates the BISLE. Further information regarding sampling procedures, retention rates, sample demographics, and questionnaire items can be found on the NZAVS website (see Sibley, 2021). The NZAVS is highly representative overall, yet there is some bias: (a) women are overrepresented, whereas men are underrepresented, by approximately 12% (b) people in their 20s are under-represented, (c) people of Asian ethnicity are under-represented, and (d) New Zealand Europeans are overrepresented (see Sibley, 2021; Stats NZ, n.d.). Our Time 10 sample also under-represents older adults (65+) as the NZAVS aims to track people as they age (see Sibley, 2021 for sampling procedures). Consequently, standard NZAVS post-stratification weighting procedures were applied to ensure sample representativeness (Sibley, 2021). This was done by weighting men and women according to their ethnic group and age band based on 2018 census statistics.

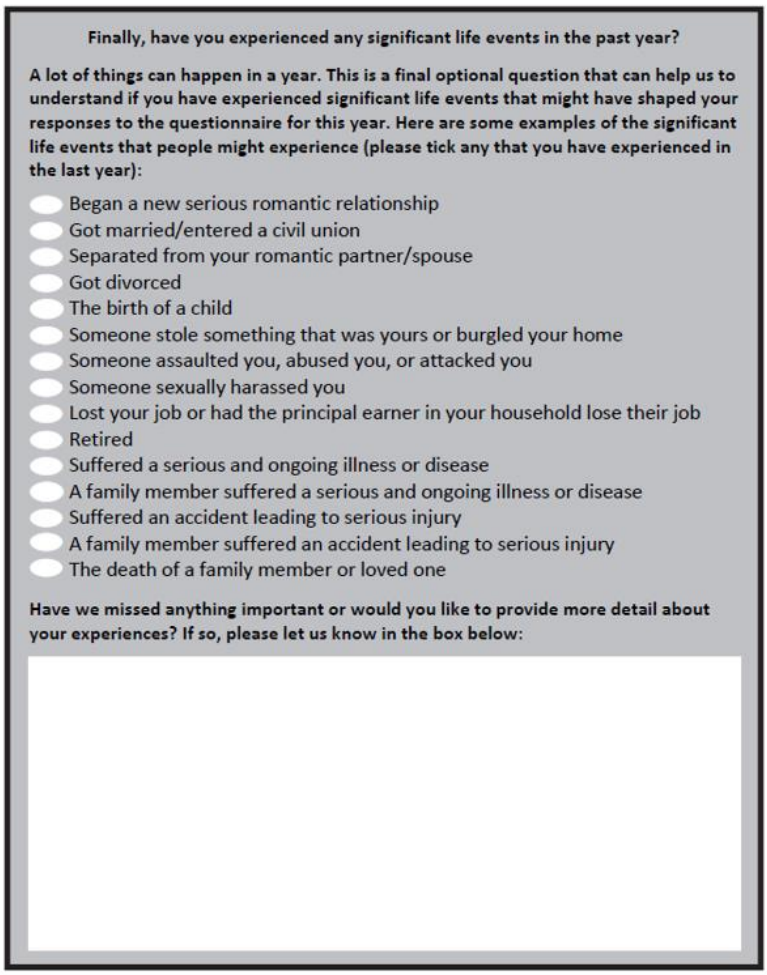



**Figure 1.** The Broad Inventory of Specific Life Events (BISLE) as Presented Within the New Zealand Attitudes and Values Study Survey

Regarding the sample's demographic characteristics, 17,810 men, 30,020 women, and 101 people who identify as gender diverse completed the Time 10 (2018) survey. The mean age of participants was 49.09 (*SD* = 13.86). For ethnicity, our sample consisted of 42,544 people who identified as New Zealand European (88.73%), 4,697 as Māori (9.80%), 1,039 as of Pacific Island descent (2.17%), 2,541 identified as Asian (5.30%), and 1,825 (3.81%) who reported another ethnicity or did not report one. Concerning other demographics of interest, 79.48% were employed (*n* = 38,025), 78.18% were born in New Zealand (*n* = 36,882), 74.70% were in a serious romantic relationship (*n* = 34,219), 70.54% were parents (*n* = 32,728), and 36.33% identified with a religious or spiritual group (*n* = 16,906).

### *Measures*

The BISLE, as presented in the NZAVS, provides 15 key probe items of common life events followed by an open-ended response option (see Figure 1). The BISLE is easy and quick to complete, with participants asked to consider if any significant and important changes have occurred in the past year that affect their responses. Open-ended responses are coded to a schedule of 590 major life events at the most detailed level using the coding scheme developed as part of the BISLE. The 590 major life events are then categorized into three hierarchical levels to examine life events at different levels of specificity.

For other variables of interest, age was calculated using participants' date of birth. For ethnicity, the standard census item was used, with a checklist and open-ended response section used to indicate which ethnic groups participants identify with. We then priority coded ethnicity into four mutually exclusive groups. Identification with Māori was prioritized over all other ethnicities, followed by Pacific, Asian, and then European (includes all European descent identities like New Zealand European and Italian). Any other ethnicities were not included in the variable. To capture participants' gender, an open-ended question asking, "What is your gender?" was used. Open-ended responses were then coded using a two-level coding scheme, with gender categorized into general identity categories (e.g., women, men, transgender, etc.) at the broadest level. Our analyses focus on those who identified as women or men. To assess convergent and discriminant validity, we also measured participants' life satisfaction, personal well-being, psychological well-being, subjective health, perceived

discrimination, and perceived national well-being (for more details, see Appendices S3 and S4 in OSM).

### *Procedure*

To generate the events coded within the BISLE, we reviewed previous inventories and participants' open-ended responses (for a full list of items, see File S1 in OSM). The BISLE coding scheme categorizes life events into three levels: specific life events (Level 3, the most detailed level), broad life event categories (Level 2), and general life event domains (Level 1) to provide population-level trends in life event occurrence. First, we created the specific life events (Level 3). Starting with the SRRS (Holmes & Rahe, 1967), we assigned five-digit codes to the most common events listed across previous checklists (e.g., got divorced; birth of a child). Events were then specified further where possible (e.g., negative and positive change in own health). Traumatic events inventories were reviewed (e.g., Norris, 1990) to create a variety of traumatic events (e.g., tragic death; natural disaster). We also incorporated events significant to New Zealand's current society (e.g., discrimination, immigration). The core life events from the inventories we reviewed (e.g., death of family member, job loss etc.) were then selected to form the brief checklist that participants complete, with the remaining specific events coded based on the self-generated responses by participants. Therefore, the checklist of common life events in the BISLE provides participants with a selection of 15 specific life events (Level 3) from the inventory that demonstrate what types of experiences participants may want to report as an important life event in the open-ended section.

The original BISLE included 475 events at the most detailed level. However, the inventory was designed so that new events could be added later while keeping the inventory coherently organized. Thus, given recent unprecedented events in New Zealand (e.g., Christchurch Terrorist Attack, COVID-19 pandemic), the initial list of events was revised to add new relevant events. We also took this opportunity to further specify some original events, based on the detail provided in participants' open-ended responses. This was to ensure the BISLE covers as many types of events as possible and increase its applicability over time. For the new events, we reviewed current literature on stressors during COVID-19 (e.g., Jean-Baptiste et al., 2020). This resulted in adding a new Level 2 category called 'Pandemic/Epidemic'. Other novel events (e.g., 'terrorist attack/mass shooting', 'misinformation in the media') were also added. To illustrate further specified events, change in work hours or conditions was further broken down into 'increased workload/work hours' and 'reduced/lost work hours'. After this process was complete, the final BISLE included 590 events at the most detailed level (see File S1 in OSM for a complete list of events in the BISLE).

The BISLE protocol involves a simple yes/no (1 = yes, 0 = no) scheme to code participants' open-ended responses. Open-ended responses are first coded to the specific life events (Level 3), with any event that occurred at least once in the past year coded as 1 (yes). If 'no' was followed by an event, we prioritized the stated event (e.g., "no but we did move house"). Events coded as 'outside time period' used the time frame given in the response (e.g., "in 2014…"). Otherwise, events were coded as occurring in the past year. Responses coded as 'other' include providing a status but not a specific event (e.g., "I am a university student"). Any stated events that did not have a particular code in the BISLE but fit within a broad event category or general domain were coded in the 'other' option within that category/domain (e.g., 'other work-related event'). Any endorsed probes from the checklist were merged with the coded open-ended responses. If participants ticked one of the checklist's key probe items but further specified the event in their open-ended response (e.g., "it was my sister that died"), the code was changed to be more specific (i.e., 'death of sibling' over 'death of family member'). After devising the coding scheme, a detailed coding guide was created with specific instructions (including details on what classifies as a major life event; see Monroe & Slavich, 2020) and examples to ensure consistent coding across independent coders (for coding details and examples, see File S1 in OSM). Given the personal nature of some of the long and unique descriptions, the statistical standard provides more generalized examples of responses that maintain the ethical standards of confidentiality.

Once coded, the 590 specific life events (Level 3), including the merged checklist probe events, were then grouped into 141 broad life event categories (Level 2) and then again into 22 general life event domains (Level 1). We created the broader levels during the development stage of the inventory once the list of specific events was finalized. Therefore, the process of collapsing the specific events into the broader levels is an automatic process once coding is completed. However, researchers can form new categories using the specific events if required for their research question (e.g., grouping job loss, death events, and relationship break-up to create a general 'loss' category). The events for the broad event categories and general domains were created using less specific events stated in previous inventories (e.g., church activities; Holmes & Rahe, 1967) and life event domains used in other research (e.g., financial events; Roohafza et al., 2011). Categorization of the specific events into these broader levels was based on prior research using event categories (e.g., Dohrenwend et al., 1978; Roohzfza et al., 2011) and organic groupings decided by the primary coder (CH) when developing the inventory. The organic groups primarily consisted of the new events and domains (e.g., social issues, discrimination). The purpose of these higher-order levels is to compare the types of life events reported at the national level. Codes under the domain of 'other' were not included in our analyses as these identified missing responses or responses that could not be interpreted or coded.

## RESULTS

### *Inter-Rater Reliability of the BISLE*

An independent coder (CH) coded all Time 10 responses. Coding 47,951 responses took roughly 500 hours given the large sample size of the NZAVS, but coding will be less time-intensive for smaller samples. Of these coded responses, a random sample of 500 were then coded by another independent coder (EZ) according to the life event domain (Level 1) codes to assess inter-rater

**Table 2.** Frequency of Occurrence using Weighted Sample across Life Event Domains (Level 1) of the BISLE

| | *N* | % |
|---|---|---|
| Life event domains (Level 1) | | |
| Deaths | 9977 | 21.25 |
| Relationships | 4511 | 9.61 |
| Work | 6471 | 13.78 |
| Health | 13919 | 29.65 |
| Family | 1029 | 2.19 |
| Financial events | 623 | 1.33 |
| Family additions | 2995 | 6.38 |
| Celebrations | 1408 | 3.00 |
| Housing | 1618 | 3.45 |
| Traumatic events | 3127 | 6.66 |
| Lifestyle changes | 273 | 0.58 |
| Possessions | 3532 | 7.52 |
| Study | 723 | 1.54 |
| Achievements | 255 | 0.54 |
| Travel | 531 | 1.13 |
| Implications with the law | 272 | 0.58 |
| Religion | 98 | 0.21 |
| Immigration | 82 | 0.17 |
| Gender identity and sexuality | 25 | 0.05 |
| Discrimination | 83 | 0.18 |
| Social issues | 645 | 1.37 |

*Note.* Estimates and frequencies are based on the weighted sample.

reliability. As shown in Table S3 (see OSM), the percent agreement between the two independent coders for all domains was extremely high (96.60%). Cohen's kappa revealed almost perfect agreement between our two independent coders across domains. Kappa coefficients ranged from .87 to 1.00 (*p*s <.001).

### *Prevalence across Broad Life Event Categories (Level 2)*

Annual prevalence estimates varied across life event categories (see Table S4 in OSM). Based on weighted sample estimates, illness and health-related conditions (24.79%) were the most frequently reported annual events. Other health events were also coded, including accident and injury (6.35%), mental health (1.68%), and treatment (1.72%). The next most frequently reported event overall was a family member's death (20.82%). In contrast, death of a friend (0.32%) and death of a pet (0.25%) were less common. Work events were frequently reported, the most common being job loss (5.26%), retirement (4.93%), and employment changes (3.58%). Similar occurrence rates were also recorded for relationship events, particularly began a relationship (5.68%) and relationship breakdown (5.20%).

Traumatic interpersonal events (5.83%) were the most reported traumatic events within the last year. This was followed by tragic death (0.36%) and motor vehicle crash (0.25%). Other traumatic events of significance in New Zealand were also recorded, including terrorist attack/mass shooting (0.15%) and natural disaster (0.08%).

Other stressful life events assessed in the BISLE were reported less frequently. For example, 0.16% violated the law, and 0.20% had been in a legal battle. Regarding negative events unique to the BISLE, only 0.07% reported having immigration or visa issues within the previous year. Institutional discrimination was reported by 0.11%, and 0.04% reported experiencing interpersonal discrimination. The prevalence of societal issues varied, with 1.24% reporting local issues and 0.20% reporting global issues.

The BISLE also recorded the annual prevalence of positive life events. Marriage (2.74% of weighted sample estimates) and birth (5.58%) were reported the most. In contrast, traveling (0.58%) and holidays (0.32%) were less common. For positive events unique to the BISLE, 0.09% reported a personal achievement, 0.34% reported gaining a qualification or graduating, 0.20% celebrated a birthday, and 0.06% celebrated an anniversary.

The annual prevalence rates for other broad life event categories also differed. Events original to the BISLE were less prevalent, such as gaining citizenship and undergoing a gender transition (0.02% each). Pregnancy (0.70%) and fertility events (0.09%) were also recorded. 2.08% reported moving house locally, while 0.86% moved countries. University events were reported by a number of people (1.08%), compared to school (0.14%) and training events (0.10%). Religious events were less frequent, with 0.12% reporting a change in their faith, religion, or spirituality, and only 0.01% reporting a change in church activities.

Due to the greater specificity of the BISLE compared to other assessments, we also compared the prevalence of positive and negative event categories. For example, financial gains were reported by 0.25% of people, compared to 0.69% reporting financial concerns. Other domains showed a similar trend: family connection (0.60%) versus family troubles (0.82%); relationship improvements (0.05%) versus relationship difficulties (0.16%); gaining possessions (0.89%) versus loss of possessions (6.63%). Conversely, positive lifestyle changes (0.23%) were reported at a similar rate to negative lifestyle changes (0.22%).

### *Prevalence of General Life Event Domains (Level 1)*

Annual prevalence estimates across life event domains are shown in Table 2 and Table S4 (see OSM). The 141 broad life event categories (Level 2) were collated into 22 general life event domains (Level 1) to explore national-level trends across life events. Based on weighted sample estimates, health (29.65%), death (21.25%), work (13.78%), and relationship (9.61%) events were the most common annual events. Other notable domains were also recorded: family additions (6.38%), traumatic events (6.66%), possessions (7.52%), housing (3.45%), travel (1.13%), financial events (1.33%), social issues (1.37%) celebrations (3.00%), and achievements (0.54%). The least common annual events were in the domains of religion (0.21%), immigration (0.17%), discrimination (0.18%), and gender identity and sexuality (0.05%).

**Table 3.** Frequency of Occurrence by Age and Chi Square Tests for each Life Event Domain (Level 1) across Age

| | 18-29 | | 30-64 | | 65+ | | $\chi^2$ |
|---|---|---|---|---|---|---|---|
| | *N* | % | *N* | % | *N* | % | |
| Life event domains (Level 1) | | | | | | | |
| Deaths | 1238 | 21.36 | 7558 | 20.46 | 931 | 21.92 | 6.69* |
| Relationships | 1114 | 19.22 | 2409 | 6.52 | 124 | 2.92 | 1281.65*** |
| Work | 687 | 11.85 | 4620 | 12.51 | 940 | 22.13 | 317.99*** |
| Health | 1692 | 29.19 | 11129 | 30.12 | 1430 | 33.66 | 26.63*** |
| Family | 96 | 1.66 | 1021 | 2.76 | 117 | 2.75 | 24.32*** |
| Financial events | 57 | 0.98 | 581 | 1.57 | 57 | 1.34 | 12.54** |
| Family additions | 445 | 7.68 | 2329 | 6.30 | 176 | 4.14 | 52.25*** |
| Celebrations | 274 | 4.73 | 833 | 2.26 | 66 | 1.55 | 142.90*** |
| Housing | 303 | 5.23 | 1299 | 3.52 | 137 | 3.23 | 44.16*** |
| Traumatic events | 592 | 10.21 | 2172 | 5.88 | 166 | 3.91 | 204.31*** |
| Lifestyle changes | 26 | 0.45 | 217 | 0.59 | 29 | 0.68 | 2.55 |
| Possessions | 502 | 8.66 | 2353 | 6.37 | 240 | 5.65 | 49.45*** |
| Study | 212 | 3.66 | 311 | 0.84 | 11 | 0.26 | 385.59*** |
| Achievements | 67 | 1.16 | 83 | 0.23 | 12 | 0.28 | 127.00*** |
| Travel | 104 | 1.79 | 360 | 0.97 | 53 | 1.25 | 31.89*** |
| Implications with the law | 26 | 0.45 | 214 | 0.58 | 17 | 0.40 | 3.42 |
| Religion | 13 | 0.22 | 52 | 0.14 | 7 | 0.17 | 2.33 |
| Immigration | 9 | 0.16 | 40 | 0.11 | 0 | 0.00 | 5.94 |
| Gender identity and sexuality | 10 | 0.17 | 17 | 0.05 | 0 | 0.00 | 16.65*** |
| Discrimination | 3 | 0.05 | 85 | 0.23 | 7 | 0.17 | 8.22* |
| Social issues | 57 | 0.98 | 474 | 1.28 | 79 | 1.86 | 15.00*** |

* $p < .05$. ** $p < .01$. *** $p < .001$. $df = 2$.

### *Age Differences*

Chi-square tests on the unweighted sample were conducted to see if age differs across life event domains (Level 1; see Table 3). Occurrence significantly declined with age for events related to relationships, health, family additions, celebrations, traumatic events, and study. Furthermore, younger people reported significantly higher occurrence across age cohorts in the domains of housing, possessions, achievements, and gender identity and sexuality. In contrast, younger people reported significantly lower rates than other age cohorts for family events, financial events, and discrimination. Older people reported significantly more work events and social issues than other age cohorts. Middle-aged people reported significantly lower occurrence of death events than other age cohorts. No significant age differences were found for lifestyle changes, implications with the law, religion, and immigration. Overall, younger people reported higher rates of various life events in the last year, including traumatic and more positive events.

### *Gender Differences*

As shown in Table 4, chi-square tests on the unweighted sample revealed that women reported significantly more events than men in the past year for the following domains: deaths, relationships, work, health, family, financial events, family additions, housing, traumatic events, lifestyle changes, study, travel, implications with the law, and gender identity and sexuality. In contrast, men reported significantly more possession events and social issues than women. Further analyses suggest that many of these significant gender differences hold across age cohorts (see Appendix S1 in OSM). However, no significant gender differences were found for celebrations, achievements, religion, immigration, and discrimination. The overall pattern suggests that women report more annual life events than men in interpersonal, work, and financial domains.

### *Ethnic Differences*

Chi-square tests on the unweighted sample revealed significant ethnic differences across life event domains (Level 1; see Table 5). Māori and Pacific people reported the highest occurrence of death events, whereas Asian people reported the lowest across ethnicities. Māori and Pacific people also reported significantly more health events, lifestyle changes, and implications with law than other ethnicities. However, Pacific and European people reported significantly higher rates of travel events than other ethnicities. Pacific people reported significantly higher occurrences of family additions and religious events, whereas Europeans reported significantly lower rates in these domains than other ethnicities. Pacific people also reported significantly more financial events than other ethnicities. Europeans also reported significantly lower rates of relationship and celebration events than other ethnicities.

Māori reported significantly higher annual prevalence of traumatic and possession events than other ethnicities. Asian people reported significantly more study events and achievements, but significantly less housing and family events compared to other ethnicities. Relative to other ethnicities, Asian and Pacific people reported significantly higher rates of immigration events and discrimination. Many of these significant ethnic differences also occurred within age cohorts (see Appendix S2 in OSM). However, no significant ethnic differences were found for work, gender identity and sexuality, and social issues. In sum, ethnic minority group members experienced the most life events, particularly negatively-valenced events, in the past year.

### *Summary of Trends across Age, Gender, and Ethnicity*

Figure 2 shows the annual prevalence, using unweighted sample estimates, of life event domains (Level 1) by ethnicity, gender, and age. Focusing on the more frequently reported events, women reported more death, relationship, and health events than men across age cohorts for Māori and Asian ethnic groups. However, Māori men aged 65+ had higher rates of work events than Māori women aged 65+. European women had higher rates of work events across younger and middle-aged cohorts. Middle-aged European women also had higher rates of relationship events than men, however younger cohorts reported similar rates. Pacific men reported more death and relationship events than Pacific women across

**Table 4.** Frequency of Occurrence by Gender and Chi Square Tests for each Life Event Domain (Level 1) across Gender

| | Women | | Men | | $\chi^2$ |
|---|---|---|---|---|---|
| | *N* | % | *N* | % | |
| Life event domains (Level 1) | | | | | |
| Deaths | 6423 | 21.79 | 3284 | 18.88 | 56.42*** |
| Relationships | 2366 | 8.03 | 1251 | 7.19 | 10.70** |
| Work | 4158 | 14.11 | 2077 | 11.94 | 44.47*** |
| Health | 9696 | 32.89 | 4499 | 25.86 | 255.97*** |
| Family | 1026 | 3.48 | 207 | 1.19 | 224.09*** |
| Financial events | 513 | 1.74 | 181 | 1.04 | 36.72*** |
| Family additions | 2053 | 6.97 | 895 | 5.15 | 61.44*** |
| Celebrations | 753 | 2.56 | 416 | 2.39 | 1.20 |
| Housing | 1306 | 4.43 | 426 | 2.45 | 120.70*** |
| Traumatic events | 2012 | 6.83 | 893 | 5.13 | 53.86*** |
| Lifestyle changes | 193 | 0.66 | 79 | 0.45 | 7.63** |
| Possessions | 1861 | 6.31 | 1222 | 7.03 | 9.02** |
| Study | 418 | 1.42 | 113 | 0.65 | 57.67*** |
| Achievements | 98 | 0.33 | 63 | 0.36 | <1 |
| Travel | 355 | 1.20 | 161 | 0.93 | 7.81** |
| Implications with the law | 190 | 0.65 | 67 | 0.39 | 13.50*** |
| Religion | 51 | 0.17 | 20 | 0.12 | 2.44 |
| Immigration | 32 | 0.11 | 16 | 0.09 | <1 |
| Gender identity and sexuality | 18 | 0.06 | 3 | 0.02 | 4.69* |
| Discrimination | 67 | 0.23 | 26 | 0.15 | 3.35 |
| Social issues | 332 | 1.13 | 278 | 1.60 | 18.97*** |

* $p < .05$. ** $p < .01$. *** $p < .001$. $df = 1$.

age cohorts. However, Pacific women reported more work and health events than Pacific men except for in the 18-29 cohort, where Pacific men reported higher rates.

Considered another way, Māori and Asian men and women aged 65+ reported more death events than other age cohorts. European women aged 65+, and European men aged 18-29, also noted more death events. Conversely, Pacific men across age cohorts reported similar rates of death events, whereas Pacific women aged 65+ reported lower rates than other age cohorts. Similarly, European, Māori, Asian, and Pacific men and women aged 18-29 reported higher rates of relationship events than other age cohorts. Across ethnicities, men and women aged 65+ reported more work events than other age cohorts. Māori, European, and Pacific men and women aged 65+ reported higher rates of health events across age cohorts. In contrast, Asian women aged 65+ reported higher rates of health events, but Asian men aged 65+ reported lower rates than other age cohorts. These patterns suggest that women across age cohorts, and those aged 65+ and 18-29 for both genders, reported higher annual rates of various types of life events across most ethnic groups.

### *Convergent and Discriminant Validity*

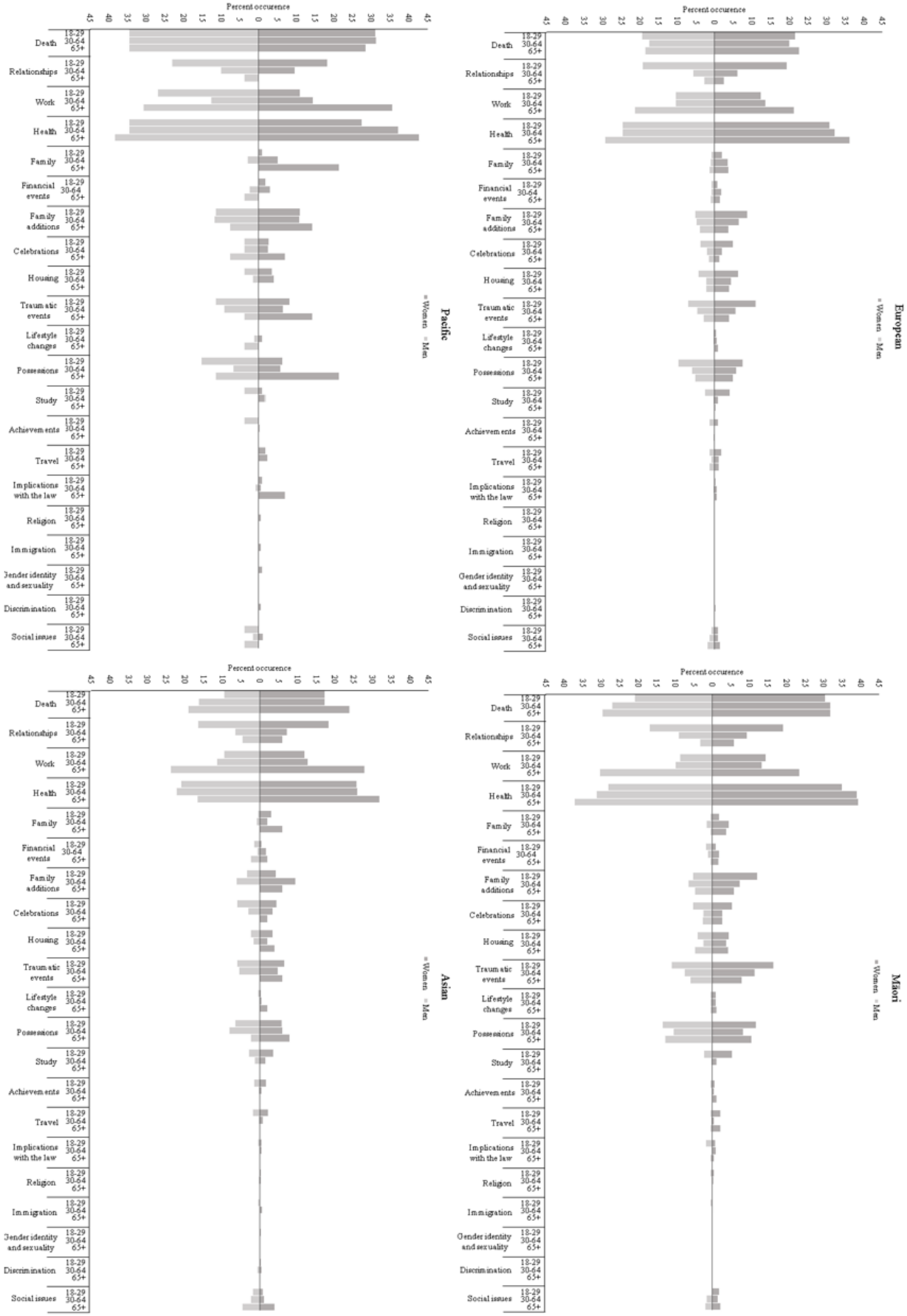
To assess the convergent and discriminant validity of the BISLE, we first explored the means for life satisfaction, personal well-being, psychological well-being, subjective health, perceived discrimination, and national well-being across reported events for each BISLE domain (Level 1; see Table S5 in OSM). The pattern of means was in the expected direction (see Table S5 in OSM for an overview). For example, life satisfaction and personal well-being was higher for positive events (e.g., celebrations) but lower for negative events (e.g., traumatic events), whereas psychological distress showed the opposite trend. Furthermore, subjective health was lower for health events, perceived discrimination was higher for discrimination events, and national well-being was lower for social issues.

**Table 5.** Frequency of Occurrence by Ethnicity and Chi Square Tests for each Life Event Domain (Level 1) across Ethnicity

| | European | | Māori | | Pacific | | Asian | | $\chi^2$ |
|---|---|---|---|---|---|---|---|---|---|
| | *N* | % | *N* | % | *N* | % | *N* | % | |
| Life event domains (Level 1) | | | | | | | | | |
| Deaths | 7364 | 19.51 | 1383 | 29.97 | 274 | 32.39 | 391 | 16.58 | 369.08*** |
| Relationships | 2731 | 7.24 | 480 | 10.40 | 94 | 11.11 | 225 | 9.54 | 83.24*** |
| Work | 5007 | 13.27 | 616 | 13.35 | 126 | 14.89 | 296 | 12.55 | 3.02 |
| Health | 11240 | 29.78 | 1666 | 36.10 | 298 | 35.23 | 578 | 24.51 | 125.43*** |
| Family | 972 | 2.58 | 146 | 3.16 | 33 | 3.90 | 43 | 1.82 | 16.93*** |
| Financial events | 545 | 1.44 | 73 | 1.58 | 22 | 2.60 | 29 | 1.23 | 8.98* |
| Family additions | 2234 | 5.92 | 346 | 7.50 | 94 | 11.11 | 168 | 7.13 | 56.56*** |
| Celebrations | 875 | 2.32 | 140 | 3.03 | 27 | 3.19 | 85 | 3.61 | 24.07*** |
| Housing | 1454 | 3.85 | 165 | 3.58 | 27 | 3.19 | 52 | 2.21 | 17.86*** |
| Traumatic events | 2147 | 5.69 | 492 | 10.66 | 65 | 7.68 | 126 | 5.34 | 180.68*** |
| Lifestyle changes | 204 | 0.54 | 40 | 0.87 | 8 | 0.95 | 10 | 0.42 | 10.62* |
| Possessions | 2321 | 6.15 | 445 | 9.64 | 58 | 6.86 | 155 | 6.57 | 82.20*** |
| Study | 396 | 1.05 | 67 | 1.45 | 10 | 1.18 | 45 | 1.91 | 19.15*** |
| Achievements | 120 | 0.32 | 16 | 0.35 | 2 | 0.24 | 17 | 0.72 | 10.91* |
| Travel | 427 | 1.13 | 32 | 0.69 | 12 | 1.42 | 23 | 0.98 | 8.50* |
| Implications with the law | 196 | 0.52 | 38 | 0.82 | 7 | 0.83 | 10 | 0.42 | 8.81* |
| Religion | 47 | 0.13 | 11 | 0.24 | 3 | 0.36 | 7 | 0.30 | 9.85* |
| Immigration | 35 | 0.09 | 3 | 0.07 | 3 | 0.36 | 8 | 0.34 | 18.14*** |
| Gender identity and sexuality | 23 | 0.06 | 0 | 0.00 | 1 | 0.12 | 1 | 0.04 | 3.47 |
| Discrimination | 73 | 0.19 | 3 | 0.07 | 3 | 0.36 | 11 | 0.47 | 13.85** |
| Social issues | 451 | 1.20 | 72 | 1.56 | 11 | 1.30 | 39 | 1.65 | 7.58 |

* $p < .05$. ** $p < .01$. *** $p < .001$. $df = 3$.

**Figure 2.** Frequency of Occurrence across Life Event Domains (Level 1) by Ethnicity, Age, and Gender



Next, we conducted several regression models, using the unweighted sample, examining links between the BISLE domains (Level 1) and key outcomes while controlling for key demographics and personality traits. If the BISLE is a valid assessment of the reported occurrence of major life events, then the BISLE domains should hold predictive power for general well-being outcomes in expected directions. Thus, we investigated whether the BISLE domains accurately predicted life satisfaction, personal well-being, and psychological distress (see Appendix S3 in OSM for specific predictions and complete results). As expected, relationship (β = -.05), work (β = -.02), health (β = -.07), and traumatic (β = -.06) events were significantly associated with lower life satisfaction, whereas celebrations (β = .03) and family additions (β = .05) were significantly associated with higher life satisfaction. Similarly, relationship (β = -.06), work (β = -.03), health (β = -.11), and traumatic (β = -.08) events were significantly associated with lower personal well-being, while celebrations (β = .03) and family additions (β = .04) were significantly associated with higher personal well-being. Conversely, study events, achievements, lifestyle changes, and immigration events were not significantly associated with life satisfaction and personal well-being. We also found that death (β = .02), relationship (β = .04), work (β = .04), health (β = .08), financial (β = .01), and traumatic (β = .07) events were significantly associated with higher psychological distress, whereas family additions (β = -.01) were significantly associated with lower psychological distress. In contrast, the more emotively neutral BISLE domains (e.g., family, housing, study, travel, and lifestyle changes) were not significantly associated with psychological distress.

We also assessed whether the BISLE domains showed distinct relationships with domain-specific outcomes: subjective health, perceived discrimination, and national well-being (see Appendix S4 in OSM for specific predictions and complete results). To demonstrate that specific domains of the BISLE are valid measures of events within that life domain, they should accurately predict related outcomes in expected ways. As predicted, health events (β = -.15) were significantly associated with lower subjective health, discrimination events (β = .03) were significantly associated with higher perceived discrimination, and social issues (β = -.07) were significantly associated with lower national well-being. Furthermore, unrelated events in the BISLE (e.g., study events, family events, lifestyle changes) were not significantly associated with these specific outcomes. These analyses support the convergent and discriminant validity of the BISLE by showing that the BISLE domains are associated with several related outcomes in ways that are congruent with prior literature.

## DISCUSSION

The BISLE is a comprehensive inventory and coding scheme that categorizes major life events to detail national prevalence estimates for numerous life events occurring in the last year. By coding open-ended responses across three hierarchical levels, the BISLE covers a wider range of life events than those in previous inventories and indicates what people themselves perceive to be an important life event. We also illustrated the utility of the BISLE using a large-scale national probability New Zealand sample to document the annual population prevalence of diverse types of life events and differences across life events for age, gender, and ethnic groups. Applying the coding scheme to participants' open-ended responses demonstrated high inter-rater reliability. In support of the convergent and discriminant validity of this measurement tool, the BISLE domains were associated with several key outcomes (e.g., life satisfaction) in expected directions. Although we did not directly compare our inventory with other inventories, these findings indicate that the BISLE shows greater inter-rater reliability, as well as comparable associations with key outcomes, relative to other well-established life events inventories (e.g., LEDS, UES; see Brown et al., 1973; Lewinsohn et al., 1985).

Annual prevalence estimates varied across life event domains using the BISLE (see Table 2 for a summary of estimates across BISLE domains). Health, death, and work events were the most common annual events. This aligns with population-based research both in New Zealand and North America (e.g., DIA, 2014; Goldberg & Comstock, 1980; Hobson & Delunas, 2001). However, relationship events were more frequent, whereas travel events were less prevalent, than reported in the research done by the DIA in 2014 using a smaller New Zealand sample. This suggests that the events reported using a basic checklist, as employed in previous research, may vary in important ways when asking participants to self-generate their own life events as the BISLE does (see also Frissa et al., 2016).

The BISLE also inventories a variety of traumatic events. The estimate provided for traumatic events using the BISLE was comparable to the estimate reported by Kazantzis and colleagues (2010) in a smaller New Zealand sample. Overall, our results support the notion that traumatic events are relatively common (e.g., Norris, 1992) and provides evidence that the BISLE is a useful tool to assess the annual prevalence of numerous traumatic events.

Regarding other events captured by the BISLE, possession events and family additions were also fairly common. The BISLE also assesses several events not covered in previous inventories, such as immigration, discrimination, gender identity and sexuality, and social issues. Furthermore, the BISLE records several positive life events, including celebrations and achievements. These data generated by the application of the BISLE adds to the extant lack of research on the prevalence of positive life events (Sotgiu, 2010) and reveals that many people report diverse types of life events every year.

The BISLE also extends research on demographic differences across life events. We found that women reported more annual events than men across almost all domains. Although the current findings contrast with prior research suggesting gender differences across different types of events (e.g., Flett et al., 2004), they do align with prior research showing that women, overall, experience more life events than men (see Davis et al., 1999; McLeod et al., 2016). Our findings that women report more work and financial events, for example, may reflect women's changing social roles beyond interpersonal domains, or that men are under-reporting experienced events

compared to women (Davis et al., 1999; McLeod et al., 2016). Therefore, idiosyncrasies in reporting life events between men and women would limit the ability of the BISLE to assess differences in actual occurrence (see Dohrenwend, 2006).

Traumatic events declined with age (for similar results, see Norris, 1992), and older people reported the most health, death, and family events annually (see Murrell et al., 1984). We also found that younger people reported higher annual rates of other life events compared to older adults, including relationships, family additions, and celebrations. In contrast, older people reported more work, financial events, and social issues than younger people. Thus, use of the BISLE reveals that age differences occur for several types of life events. However, due to our sample under-representing people aged 65 and over (see Sibley, 2021 for sampling procedures), caution must be taken when generalizing our findings to older adults.

Ethnic minority group members (Māori and Pacific) experienced more traumatic events annually than their ethnic majority counterparts (European), except for Asian people who reported the lowest occurrence (for similar findings, see Roberts et al., 2011). We also discovered that Asian people reported lower annual rates of death and health events, but higher annual rates of celebrations and achievements. This suggests that perhaps Asian people report more positive life events and fewer negative life events. Future research should further examine the rates of positive and negative events reported by Asian people, including the role of cultural differences in disclosure of stigmatizing events (Roberts et al., 2011).

We also found that Pacific and Asian people reported the highest annual rates of discrimination, which corroborates Kessler and colleagues' (1999) North American-based findings that ethnic minority group members experience more discrimination than ethnic majority group members. Furthermore, we found that Pacific people reported the most financial events in the past year across ethnicities. This aligns with previous research that shows that members of ethnic minority groups report more financial events than those in the ethnic majority (e.g., Franko et al., 2004).

### *Strengths, Caveats, and Future Directions*

A key strength of the BISLE is indexing the annual population prevalence of previously underexplored life events. Our findings suggest that an important number of people experience life events every year that are not commonly inventoried by available checklists (e.g., Paykel et al., 1971), such as discrimination and achievements. Thus, our results provide evidence that, by coding open-ended responses according to a diverse array of life events, the BISLE is an important tool for assessing a wider range of both common *and* rare events, along with what people themselves perceive as a major life event in their lives.

However, although the BISLE has a number of strengths, the inventory focuses on the occurrence, but not other characteristics (e.g., perceived valence), of life events (see Sarason et al., 1978). This is due to the BISLE being developed for large-scale panel studies that often have limited space, but want to document any important life events, and changes in those events, people experience over time. However, the focus on only the occurrence of an event limits what can be inferred about the effects of different life events using the BISLE. This limitation is notable given studies have shown that event characteristics (e.g., manageability, controllability) are important in determining health outcomes (see Friborg, 2019). Nonetheless, the BISLE provides the necessary starting point to assess the prevalence of underexplored events, in which more narrow or targeted studies can examine in more complex ways.

Incorporating a checklist along with an open-ended response option yields a unique aspect of the BISLE. Furthermore, the open-ended section only measures events people consider important enough to report. This will differ across people based their individual idiosyncrasies (see Dohrenwend, 2006; Monroe, 2008). It will also depend on the motivation of participants to provide in-depth responses, as well as time constraints. Consequently, the national prevalence estimates generated by the BISLE capture an estimate of all instances in which people deemed an experienced event of relevance and importance in their own lives, rather than the objective occurrence of all events. While this subjective recall of events may pose some limitations (Monroe, 2008), life events that are deemed important to a person are found to predict psychological outcomes, including depression and quality of life, more strongly than objective occurrence (Boals et al., 2010). Therefore, utilizing self-generated life events in the BISLE provides unique insight into the diverse types of events people experience annually.

Memory and recall of events from the past year may also pose a limitation for the use of an open-ended response section in the BISLE. Although this unique approach allows the BISLE to capture a wider range of life events than possible using a checklist alone, prior research suggests that people are less likely to report events they have experienced using an open-ended question compared to a checklist of events (see Frissa et al., 2016). Consequently, estimates from the BISLE may be conservative, as participants may forget to report some events. However, research indicates that salient events (e.g., death of spouse) are not susceptible to recall issues relative to more normative events (e.g., family illness; Funch & Marshall, 1984). Therefore, combining the open-ended responses with an initial checklist of select probe events to prompt participants to recall important life changes allows the BISLE to reduce potential recall issues while also capturing the unique and wide range of events people report.

### *Looking Forward: Using the BISLE*

The BISLE was developed for use in a large-scale national sample from New Zealand. As the BISLE includes both common *and* rare events, a large sample is most appropriate for research to benefit from the array of life events offered in the BISLE. This is because large samples can capture sub-groups of the population that experience more rare events (e.g., sexual assault) as well as those experiencing normative events (e.g., new job; Infurna et al., 2016).

The BISLE was also designed to examine the occurrence of life events every year. Thus, the BISLE provides a simple yet informative tool for capturing repeated measurements of self-reported life changes for researchers conducting multipurpose longitudinal studies. Incorporating the BISLE into longitudinal research and tracking life event occurrence over time (as we aim to do by implementing the BISLE over future NZAVS waves) will produce valuable data on experiences both before and after a wide range of naturally occurring events (Infurna et al., 2016; Poulin & Silver, 2019). For example, researchers can track changes due to unforeseen societal shifts caused by macro-level events, such as the COVID-19 pandemic and terrorist attacks. Current NZAVS research by Howard and colleagues (2022) used the BISLE to examine changes in reported life events among women and men during the first seven months of the pandemic in New Zealand compared to the same months in the year prior to the pandemic. Results indicated that people reported increased job loss, family troubles, and negative lifestyle changes during the pandemic relative to the prior year. However, the results also revealed that women were disproportionately represented in increased life events throughout the pandemic. These findings have important implications for policy and highlight the benefits of incorporating the BISLE into large-scale panel studies to track reported life events over time.

The use of a hierarchical structure to group life events in the BISLE means researchers can examine life events across different levels of specificity. For example, researchers may choose to focus on one domain (e.g., work) or examine relevant event categories (e.g., job loss and retirement). For example, researchers could use the BISLE to examine the predictors and outcomes of specific events (e.g., marriage on personality; Bleidorn et al., 2018), including how individuals commonly or differentially adapt to and anticipate various life events (Infurna et al., 2016).

A common approach to assessing life events is to create a sum score of reported events that indicates how much stress people have been exposed to over a given time period (see Wethington, 2016). Although this approach is not an explicit application of the BISLE, the wide range of life events offered in the BISLE can be used to create sum scores from either all or select life events. For example, Newton et al. (2022) used the BISLE to assess the impact of life events, along with age and ethnicity, on well-being among European and Māori women aged 40 and over. Negative events relevant to older women (e.g., death of spouse) from six categories (e.g., death) were summed to indicate the occurrence of an event in each category, and these were then summed to provide an index of the number of stressful life events experienced. Results indicated that the stressful life events score was negatively associated with life satisfaction but positively associated with meaning in life. These findings highlight another way the BISLE can be incorporated into research to advance understanding of the prevalence and impact of life events.

While the events coded in the BISLE were created in a New Zealand context, cross-cultural research shows that normative events (e.g., childbirth) are relatively universal (Scherman et al., 2017). However, different cultures do note different types of events as important (Scherman et al., 2017). For example, prior research suggests that Mexican people emphasize family and religious events, whereas Chinese people emphasize education and work events (Scherman et al., 2017). As the BISLE uses both a checklist and open-ended responses to index a wide range of events, it can capture the cultural variations in what people perceive as an important event required for a measurement tool to be cross-culturally useful. Future research should explore the utility of the BISLE in other populations and contexts to fully understand its applicability.

Many researchers are now calling for research to examine multiple types of life events (e.g., Monroe & Slavich, 2020). By measuring a wide range of life events simultaneously, the BISLE is a unique tool to assess the differential and relative effects of different types of life events, from positive to negative and personal to collective events. To illustrate, use of the BISLE can extend the lack of research testing links between specific types of life events and particular illnesses (see Cohen et al., 2019). Similarly, the BISLE can also be used to advance tentative evidence for the role of different life events in personality development (see Bleidorn et al., 2018). The inclusion of positive events in the BISLE also provides the opportunity to investigate the role of positive events (versus negative events) in clinical outcomes, such as depression (see Chang et al., 2015). Therefore, the BISLE can be used to extend currently limited understandings on when different life events converge or diverge in their effects by widening the scope of examinable events (see Monroe & Slavich, 2020).

## *Conclusion*

This study presented the BISLE, a comprehensive inventory and coding schedule that categorizes major life events to examine the national prevalence of a wide range of life events occurring in the previous year. The BISLE was developed for large-scale panel studies with limited space that could benefit from capturing self-reports of diverse life events occurring in people's lives over a given timeframe. Notably, the BISLE utilizes a quantitative checklist of select probe events *and* qualitative open-ended responses to capture what people perceive to be a noteworthy event for themselves. By coding open-ended responses across three hierarchical levels using a new coding scheme, the BISLE extends prior inventories that focus on a subset of traumatic events to assess a much broader range of life events. Applying the coding scheme to responses generated by the BISLE revealed excellent inter-rater reliability. Using a large-scale national probability New Zealand sample, the BISLE predicted several key outcomes, including life satisfaction and psychological distress, in expected ways. Our results reveal that people experience diverse types of life events each year. Health, death, work, and relationship events were the most frequently reported. Traumatic events and positive events, including birth and marriage, were also fairly common. Events unique to the BISLE, such as social issues and experiences of discrimination, varied in prevalence but were overall less common than the above events. Estimates using the BISLE also demonstrate that life events differ amongst key demographic groups,

including gender, ethnicity, and age. Overall, our results provide evidence that the BISLE is an important tool for examining diverse life events over a year and can be used to extend our understanding of how life events may affect important outcomes for people over time.

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**Declaration of Interests**
The authors declare that there is no conflict of interest regarding this manuscript.

**Data Availability Statement**
The data described in this manuscript are part of the New Zealand Attitudes and Values Study (NZAVS). Full copies of the NZAVS data files are held by all members of the NZAVS management team and advisory board. A de-identified dataset containing the variables analysed in this manuscript is available upon request from the corresponding author, or any member of the NZAVS advisory board for the purposes of replication or checking of any published study using NZAVS data. The Mplus syntax used to test all models reported in this manuscript are available on the NZAVS website: www.nzavs.auckland.ac.nz (also see the NZAVS OSF: https://osf.io/75snb/). Ethical restrictions and the need to protect the confidentiality of study participants prevent public deposition of raw data. Data may be requested from Chris Sibley (c.sibley@auckland.ac.nz) and the full statistical standard for life events in the NZAVS is provided in the supplemental information available at https://osf.io/75snb/.

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Supplemental materials for this article are available online in the supplemental information folder for the NZAVS (please see the sub-folder using the citation for this article) at: https://osf.io/75snb/