

Who uses yoga and why? Who teaches yoga? Insights from a national survey in New Zealand

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ABSTRACT

Introduction. Globally, yoga has gained popularity as a health-promoting and disease-prevention discipline. The common health conditions prompting yoga use include musculoskeletal disorders, mental health conditions, asthma, fibromyalgia, arthritis, diabetes, and cancers. Although the therapeutic benefits of using yoga are well documented, little is known about the characteristics of yoga instructors (YIs) and yoga users (YUs) in New Zealand (NZ). **Aim.** This paper seeks to profile the characteristics of NZ YIs and YUs and explore reasons for yoga use. **Methods.** Online surveys for YIs and YUs were conducted to collect the sociodemographic characteristics of 84 YIs and 267 YUs. Descriptive statistics were used to determine trends. **Results.** The surveys were conducted between September 2020 and February 2021. The YIs were predominantly female (87.1%) with mean \pm s.d. years of practice of 9.8 ± 0.8 (95% CI: 8.2, 11.4). YUs were most commonly female (86%), of NZ European descent (63%), aged 45–64 years (56%), not married (52.5%), and with a university or higher education qualification (61.5%). They use yoga to alleviate chronic health conditions like back pain (18%), menopausal symptoms (14.5%), anxiety (13.5%) and depression (11.5%). **Discussion.** Most YIs in NZ are females facilitating moderate-sized yoga classes. YUs in NZ are disproportionately NZ European, female, middle-aged and tertiary educated. They use yoga to help manage long-term conditions, including mental ill-health and musculoskeletal disorders. The study findings could inform health professionals regarding the utilisation of yoga in NZ. Further research is required to gain insights into yoga use.

Keywords: chronic health conditions, mental health, musculoskeletal, New Zealand, reasons for yoga use, women's health, yoga instructors, yoga users.

Introduction

Health is a state of harmony and balance between the physical body and mind.¹ Yoga is a mind–body approach dedicated to achieving this state. Yoga is part of the Vedic knowledge system that the universe is oneself, and the key to cosmic understanding lies in people's minds and hearts.² Yoga practices, such as *Asana and Pranayama*, and mindfulness techniques, including *Pratyahara, Dharana and Dhyana*, are believed to improve physical health by enhancing cardiovascular wellbeing, strengthening immunity, and improving peaceful attention.^{3–6} Yoga practice may prevent psychosomatic disorders and enhance an individual's ability to endure stressful situations.⁷ As a holistic approach, yoga promotes positive health outcomes through physical, mental, emotional, social and spiritual wellbeing.

Very few studies report the characteristics of yoga instructors (YIs).^{8–10} According to Nalbant *et al.*⁸ most YIs in the United Kingdom are aged 45–64 years, are female and white and provide a mean of 4.5 group sessions and 2.8 personalised one-on-one yoga therapy. A similar United States (US) study reported YIs ranging in age from 28 to 82 years and having offered group and/or private yoga classes for an average of 17 years.⁹ Another US study reported that most YIs practised from urban and suburban locations for an average of 8 h per week.¹⁰ Despite some overseas evidence of YIs' characteristics, very little about their profile in New Zealand (NZ) is known.

What gap this fills

What is already known: Current research has established outside New Zealand the sociodemographic attributes and motivations of yoga instructors and users.

What this study adds: of specifics of yoga instructors and users in New Zealand. It documents and accounts for their backgrounds and distinctive traits, including methods of seeking information and communicating with healthcare providers. These insights aim to provide valuable information to the healthcare sector in New Zealand.

International estimates of yoga use vary considerably, but studies from Australia, North America, South America, and Europe report increasing yoga use. In contrast, extensive cross-sectional surveys have estimated worldwide the prevalence and characteristics of yoga use.^{11–19} They have reported a linear growth in yoga use in recent years.^{19,20} Some demographic characteristics of yoga users (YUs) differ from country to country, though many are similar.

YUs across studies and countries are similar in age, gender, income, and education. They are disproportionately young married females with high levels of education, employment and income, and high socioeconomic status.^{16,19,21} Their ages range from 19 to 87 years.^{16,17,19,22–24} Beyond the US, data on ethnic diversity are limited. Extensive US studies have reported ethnically diverse YUs, with white women more likely to use yoga than Hispanics, Blacks and Asians.^{17,22,23,25} In an Australian women's health survey ($n = 19\,209$),²¹ women were more likely to practise yoga if they lived in urban than rural areas.

Studies suggest that the amount of yoga practise undertaken per week varies internationally. Ding and Stamatakis¹⁹ found that YUs in England practised yoga on average 1.8 times per week and for an average of 1.7 h per week. A Japanese study reported that women practised yoga at an average frequency of 2.9 days per week for approximately 1.4 h daily over 3.7 years.²⁶ A US study ($n = 1045$) reported that 88.7% of YUs practised for a mean of 11.4 years at a frequency of 6.1 classes and had an average unsupervised self-practise of 9.7 days per month.²³ In 1 year, YUs spent an average of 18.6 h at yoga sessions, costing an average of US \$23.20 per session.¹¹ This expenditure could indicate a significant investment by YUs in health promotion and disease prevention. Ross *et al.*²⁷ reported that self-practise helped study participants achieve mindfulness and subjective wellbeing.

For patients with medical conditions, a health focus was the most common reason for yoga use.²⁸ In the US, 6.1% of people reported using yoga for health reasons in the past 12 months.²⁹ Similarly, a study in the UK found that 0.4% of respondents used yoga for health reasons in the past 4 weeks.¹⁹ The most frequent reasons for yoga use reported

by large population samples from Australia, the US and Germany were health, fitness, stress management, athleticism, health promotion, and emotional wellbeing, as well as seeking pain relief and social connectedness.^{16,24,28,30} However, according to Maddela *et al.*,³¹ diabetic individuals were more likely to use yoga.

Further, yoga is a cost-effective group intervention,^{32,33} and studies suggest that yoga use is effective for musculoskeletal and mental health conditions.^{34,35} Health conditions such as back pain, neck and shoulder pain, severe sprains, anxiety, and asthma were associated with greater yoga use.^{17,22,24} In these community-wide samples, yoga addressed musculoskeletal and mental health conditions. They may be the primary health-related reasons for yoga use, whereas hypertension and chronic obstructive pulmonary diseases were associated with less yoga use.¹⁷ Therefore, it could be suggested that yoga is being used for health promotion. Despite the popularity of yoga use worldwide, little is known about the NZ YUs' demographics and the characteristics of their yoga use.

Much is known about yoga use in other parts of the world.²² For example, yoga surveys in other countries reported that YUs were disproportionately middle-aged or young women living in urban areas with higher incomes, higher education, and white-collar occupations.^{11,17,21,31} The type of yoga practices preferred by YUs differ from region to region. However, studies have reported that *asana*, *pranayama* and meditation techniques were commonly practised by YUs.^{17,18,22,36–38} Further, studies have reported that yoga is used for health conditions^{11,22,31} and as an adjuvant in health promotion,¹⁶ along with conventional healthcare utilisation.^{28,39–41} One of the few New Zealand studies⁴² reported that GPs recognise yoga in the community as a weight management intervention for their patients. An Australian study has reported that general practitioners (GPs) have recommended yoga to their patients or referred them to a yoga therapist; this is most commonly among rural GPs.⁴³

Although the sociodemographic characteristics of YIs and YUs and reasons for using yoga are internationally well documented, little is known about the profile of YIs and YUs in NZ. In response, this paper explores the characteristics of YIs and their profiles, reasons for practising yoga, influencing factors, information-seeking and communication with healthcare provider/s among YUs to inform the healthcare industry in NZ. This paper reports cross-sectional survey findings whose aims include profiling the characteristics of YIs and YUs in NZ and exploring the reasons for yoga use among the YUs.

Methods

The study involves two cross-sectional online surveys; one for a national sample of YIs and the other for a national sample of YUs. Yoga establishments, institutes and YIs

across NZ were approached to invite YUs to complete an online survey. Previously, an online search was conducted to identify and ask independent YIs to participate in the study. YIs registered with Yoga New Zealand (Yoga NZ) and the New Zealand Register of Exercise Professionals (REPs) – national associations supporting yoga professionals in NZ – were also invited to participate. The YIs were required to self-complete the questionnaire and pass the digital study information flyer to their yoga students aged ≥ 16 years. Their brokerage was used because online surveys often have a low response rate,⁴⁴ especially when gate-keeping restricts access. To estimate yoga use, we required a sample of 873 YUs ($P = 0.5$; power = 80%). To obtain this number from 1750 YUs (assuming a 50% response rate), we sent the questionnaire to 220 YIs and asked them each to recruit an average of eight adult YUs.

Ethical approval and data collection

The University of Auckland Human Participants Ethics Committee granted ethics approval (reference number UAHPEC21303). The survey was administered between September 2020 and February 2021 using the Survey Monkey tool manufactured by Momentive Global, Inc. to create online surveys and collect data.

Survey instruments

The YIs' survey questionnaire relates to sociodemographic and professional characteristics. The YUs' questionnaire documents YUs' sociodemographic and yoga use characteristics and health status. Sociodemographic questions relate to respondents' marital status, urban/rural residence, highest educational qualification, and money spent on yoga use. Participants reported how long they had used yoga, weekly hours of supervised yoga practise, and places of yoga practice. They were asked whether they practise yoga independently (unsupervised/self-directed yoga practise), about any diagnosed health conditions, their reasons and influencing factors for attending yoga sessions, and information sources for yoga use.

Health and medical conditions

The survey asked respondents to report all their health conditions diagnosed by a medical professional. The authors grouped the health conditions into seven categories:

1. Mental health: Anxiety, depression, post-traumatic stress disorder
2. Musculoskeletal: Back pain, arthritis, osteoporosis
3. Women's health: Menopausal symptoms, menstrual disorders
4. Gastrointestinal: Obesity, diabetes
5. Respiratory: Asthma, chronic obstructive pulmonary disorder

6. Cardiovascular: Hypertension, heart conditions
7. Other: Cancer

Data analyses

Descriptive statistics were employed, including frequencies for categorical variables and means, standard deviations and 95% confidence intervals for continuous variables. All analyses were conducted using the statistical software program, SPSS (version 25; SPSS Inc.).

Results

Eighty-five YIs and 267 of their YUs completed the surveys between September 2020 and February 2021, with 38.6% and 30.5% response rates, respectively. The YIs were all registered with Yoga NZ or REPS NZ as yoga/exercise professionals.

Sociodemographic characteristics of YIs

Table 1 presents the YIs' sociodemographic characteristics. The YIs were predominantly female (87.1%). Half lived in Auckland, and 90% practised in urban areas, with a mean of two practice locations. Almost half practised from one place. Their mean reported years of practise was 10, with many (41%) having practised for 6–10 years. More than half facilitated one to five classes weekly. The mean length of yoga classes and mean class sizes were 68 min and 10, respectively. Over half facilitated 1-h-long yoga classes, and half reported class sizes of 6–10 participants.

Sociodemographic characteristics of YUs

Table 2 reports YUs' sociodemographic characteristics. YUs were predominately female (86%), with a mean age of 51 years. Most identified as NZ European (63%), followed by 7% Māori, 4% Indian and 26% others, including British, Asian, US, and Latin American. Two-thirds were married/de facto/living with a partner. For every five YUs, three had attained a university/higher degree, and four managed their income with little or no difficulty. Nine in every 10 lived in urban locations.

Characteristics of yoga use by YUs

Table 3 characterises YUs' yoga use. The mean years of yoga practise was 13.5, with almost three in every five YUs practising yoga for 3–5 years. The YUs attended a mean of 2.4 supervised classes weekly. Two in every five attended one yoga session, and almost three-quarters reported unsupervised yoga. The mean supervised yoga practise hours was 3.6, and the mean self-practise hours was 2.4. The mean length of a yoga session in minutes was 65, with two-thirds attending a session lasting ≤ 1 h. YUs spent an

Table 1. Sociodemographic characteristics of New Zealand (NZ) yoga instructors ($n = 85$).

Sociodemographic characteristics	Yoga instructors	
	<i>n</i>	Percentage
Gender		
Female	74	87.1
Male	11	12.9
NZ region of practice		
Auckland	45	52.9
Canterbury	8	9.4
Bay of Plenty	6	7.1
Wellington	6	7.1
Waikato	5	5.9
Tasman	4	4.7
Otago	4	4.7
Northland	2	2.4
Hawke's Bay	1	1.2
Gisborne	1	1.2
Manawatu-Wanganui	1	1.2
Nelson	1	1.2
West Coast	1	1.2
Area of practice		
Urban	76	89.5
Rural	9	10.5
Number of practice location/s	Mean (\pm s.e.)	95% CI
	2.1 \pm 0.1	1.8, 2.4
	<i>n</i>	Percentage
1	41	48.2
2	12	14.1
3	18	21.2
4	7	8.2
5 and over	7	8.2
Years of practise	Mean (\pm s.e.)	95% CI
	9.8 \pm 0.8	8.2, 11.4
	<i>n</i>	Percentage
1–5	22	25.9
6–10	35	41.2
11–15	15	17.6
16 and over	13	15.3
Weekly classes	Mean (\pm s.e.)	95% CI
	6.4 \pm 0.5	5.3, 7.4
	<i>n</i>	Percentage
1–5	48	56.5

(Continued on next column)

Table 1. (Continued)

Sociodemographic characteristics	Yoga instructors	
	<i>n</i>	Percentage
6–10	24	28.2
11 and over	13	15.3
Length of yoga class in hours and minutes	Mean (\pm s.e.)	95% CI
	68.3 \pm 1.4	65.4, 71.2
	<i>n</i>	Percentage
1 h	49	57.6
1 h 15 min	19	22.4
1 h 30 min	17	20.0
Class size (<i>n</i>)	Mean (\pm s.e.)	95% CI
	10.2 \pm 0.7	8.8, 11.9
	<i>n</i>	Percentage
1–5	16	18.8
6–10	44	51.8
11–15	17	20.0
16 and over	8	9.4

s.e., standard error; CI, confidence interval

average of NZ\$18 for each yoga session, with 44% spending < \$15 or \$15–\$20, respectively. Slightly over half reported that a doctor had diagnosed them with a health condition, and seven in every 10 used yoga to manage their health.

The 267 respondents reported 317 health conditions. Fig. 1 groups the conditions. Of the individual conditions, the most reported were back pain (16%), menopausal symptoms (13%), anxiety (12%) and depression (10%). Mental health and musculoskeletal disorders accounted for over one-quarter of all the conditions; almost one in every five conditions related to women's health.

Fig. 2 presents YUs' reasons for practising yoga. Of all the reasons, half were for enhancing wellbeing, followed by physical health (29%). The most common was for general wellbeing (10%), relaxation/stress relief (9%), and mental wellbeing (9%), followed by a desire to improve flexibility (9%).

Fig. 3 reports the yoga information sources of the YUs. Of the social media sources, the most reported were websites and internet blogs (9.7%). However, half the YUs reported using social communication, such as with friends or family. Recommendations from friends and colleagues were reported by 27%, followed by family and relatives (19%). Print and mass media, such as books, scientific literature, and magazine articles, were the second largest sources, mentioned by 26%.

Fig. 4 presents the factors that YUs reported enabling them to practise yoga. Almost one in five respondents identified how yoga increased their perception of control over their life, followed by liking the yoga teacher (15%). Intrinsic

Table 2. Sociodemographic characteristics of YUs (n = 267).

Sociodemographic characteristics	NZ yoga users	
	Mean (\pm s.e.)	95% CI
Age (years)	51.0 \pm 1.1	48.7, 53.3
	n	Percentage
20–34	38	14.2
35–44	43	16.1
45–54	86	32.2
55–64	64	24.0
65 and over	36	13.5
Gender		
Female	229	85.8
Male	37	13.9
Gender diverse	1	0.4
Ethnicity		
New Zealand European	168	62.9
Māori	18	6.7
Indian	11	4.1
Others	70	26.2
Highest education		
No formal school	3	1.1
School only	23	8.8
Trade/apprenticeship/certificate/ diploma	71	27.2
University/higher degree	164	62.8
Marital status		
Single	32	12.1
Married/de facto	180	67.9
Separated/divorced/widowed	53	20.0
Managing income		
No or little difficulty	206	78.0
Some difficulty	39	14.8
Struggles with income	19	7.2
Area of residency		
Urban	224	84.8
Rural/remote	40	15.2
Area of yoga practice		
Urban area	217	84.8
Rural/remote	18	7.0
Both	21	8.2

s.e., standard error; CI, confidence interval

factors contributed 60%. For the extrinsic factors, 19% identified the benefits of yoga, and 10% referred to the ease of accessing yoga sessions.

Discussion

This paper has reported the characteristics of NZ YIs and YUs, and the reasons for yoga use. The YI findings fit those found from the US and the UK on sociodemographic characteristics, particularly around gender, area of practice, and the number of teaching locations.^{8–10} However, the mean years of yoga practise were less than that found in the US and UK, perhaps owing to the last arrival of yoga in NZ. Nonetheless, the findings on the uptake of yoga in NZ are positive in supporting the YUs in achieving their health-related educational goals.

The NZ YUs' sociodemographic characteristics, particularly relating to gender, education, marital status, area of residence and area of practice, closely align with those reported by international studies.^{8–10,19,45–47} When considering the low participation rates among men, a systematic review on yoga use reported that financial concerns and sociocultural factors such as lack of role models could be a reason for the low participation rate among men.²² Other studies have identified that men considered yoga supplementary to other forms of physical activity, and were motivated by a desire for competition and social recognition.^{48,49}

When considering reasons for using yoga among the participants, nearly half related to achieving wellbeing by meeting health goals. Roughly half reported using it for health and wellbeing as their primary reason. International studies reported that, for physical and psychological health reasons, YUs practise yoga as a mind–body therapy, energy medicine and/or complementary and alternative medicine (CAM) through a complementary and integrated health (CIH) approach to health promotion.^{16,21,50} For patients with medical conditions, a health focus was the most common reason for using yoga.²⁸ Population studies from the US²⁹ and the UK¹⁹ reported that 6.1% and 0.4% of people used yoga for health reasons, respectively. Our study found that 68.5% of respondents used yoga for managing and/or maintaining their health. These findings suggest that YUs use yoga as a CIH approach to promoting health.

Some international studies have reported the prevalence of yoga among individuals diagnosed with specific health conditions.^{16,31,51–54} Our study found that approximately three in every five participants reported being diagnosed with a health condition. Mental ill-health was frequently reported, with anxiety and depression being the most common. As the survey ran during the coronavirus disease 2019 (COVID-19) pandemic, the high use of yoga for anxiety and depression might have resulted from the numerous lockdowns caused by the pandemic.^{55,56} Under the women's

Table 3. Characteristics of yoga use by NZ YUs.

Years of yoga practise	Mean (\pm s.e.)	95% CI
	13.5 \pm 1.0	11.5, 15.5
	n	Percentage
<1	13	4.9
1–2	39	14.6
3–5	58	21.7
6–10	47	17.6
>10	110	41.2
Usual number of supervised yoga classes per week	Mean (\pm s.e.)	95% CI
	2.4 \pm 0.1	2.1, 2.7
	n	Percentage
1	91	37.4
2	55	22.6
3	58	23.9
4 and over	39	16.0
Yoga classes in the previous week	Mean (\pm s.e.)	95% CI
	2.3 \pm 0.1	2.0, 2.6
	n	Percentage
1	86	38.9
2	61	27.6
3	32	14.5
4 and over	42	19.0
Length of a yoga session in minutes	Mean (\pm s.e.)	95% CI
	65.0 \pm 1.4	62.2, 67.8
	n	Percentage
\leq 60	174	65.7
>60	91	34.3
Average yoga practise per week in hours	Mean (\pm s.e.)	95% CI
	3.6 \pm 0.2	3.2, 4.0
Average cost per yoga session in NZ dollars	Mean (\pm s.e.)	95% CI
	17.8 \pm 1.3	15.1, 20.5
	n	Percentage
<15	93	44.3
15–20	92	43.8
21–30	16	7.6
>30	9	4.3
Unsupervised self-practise of yoga	n	Percentage
Yes	192	72.7
No	72	27.3

(Continued on next column)

Table 3. (Continued)

Hours of self-practise per week	Mean (\pm s.e.)	95% CI
	2.4 \pm 0.1	2.0, 2.8
	n	Percentage
\leq 1.5	65	34.9
1.5–3	41	36.0
3.5 and over	26	29.0
Diagnosed with a health condition		
Yes	151	56.6
No	116	43.4
Using yoga for managing health		
Yes	183	68.5
No	84	31.5

s.e., standard error; CI, confidence interval

health category, menopausal symptoms were frequently reported. Unlike previous international studies,^{17,21} our study found that people aged 45–64 years used yoga more than any other age groups. Women of menopausal age may be using yoga to manage menopausal symptoms.

Friends and colleagues were the primary information sources. Influencing factors were intrinsic and/or extrinsic.^{57,58} Intrinsic factors, such as control over one's life, include liking the yoga teacher, previous positive experiences, and personal preferences. Further, YUs reported using social communication to learn about yoga. They supported YUs' locus of control for physical, mental, social, emotional, and spiritual wellbeing. When considering the mean hours of yoga practise per week and the average cost per yoga session in NZ, YUs have a mean out-of-pocket expenditure of NZ\$ 64 per week.

Moreover, members at a recreational facility commonly paid much less; for example, some paid as little as NZ\$3 per session.⁵⁹ Therefore, as reported by previous studies,^{32,33} yoga is a cost-effective group intervention for achieving health outcomes. Hence, consistent attendance at weekly supervised yoga classes and average yoga practise by the participants could indicate regular yoga use for achieving health. Further, the high mean number of YUs reporting unsupervised self-practise of yoga may be related to the COVID-19 pandemic lockdowns.

This study has profiled YIs and YUs in NZ for the first time, providing insight into the nature of yoga use in NZ, particularly the sociodemographic characteristics, reasons for yoga use, information seeking and yoga use. However, some limitations need to be considered. First, the low response rate and small sample size make the findings difficult to generalise, although low response rates are typical in CAM studies.⁶⁰ Second, the self-reported responses to the survey questions have not been validated; for example,

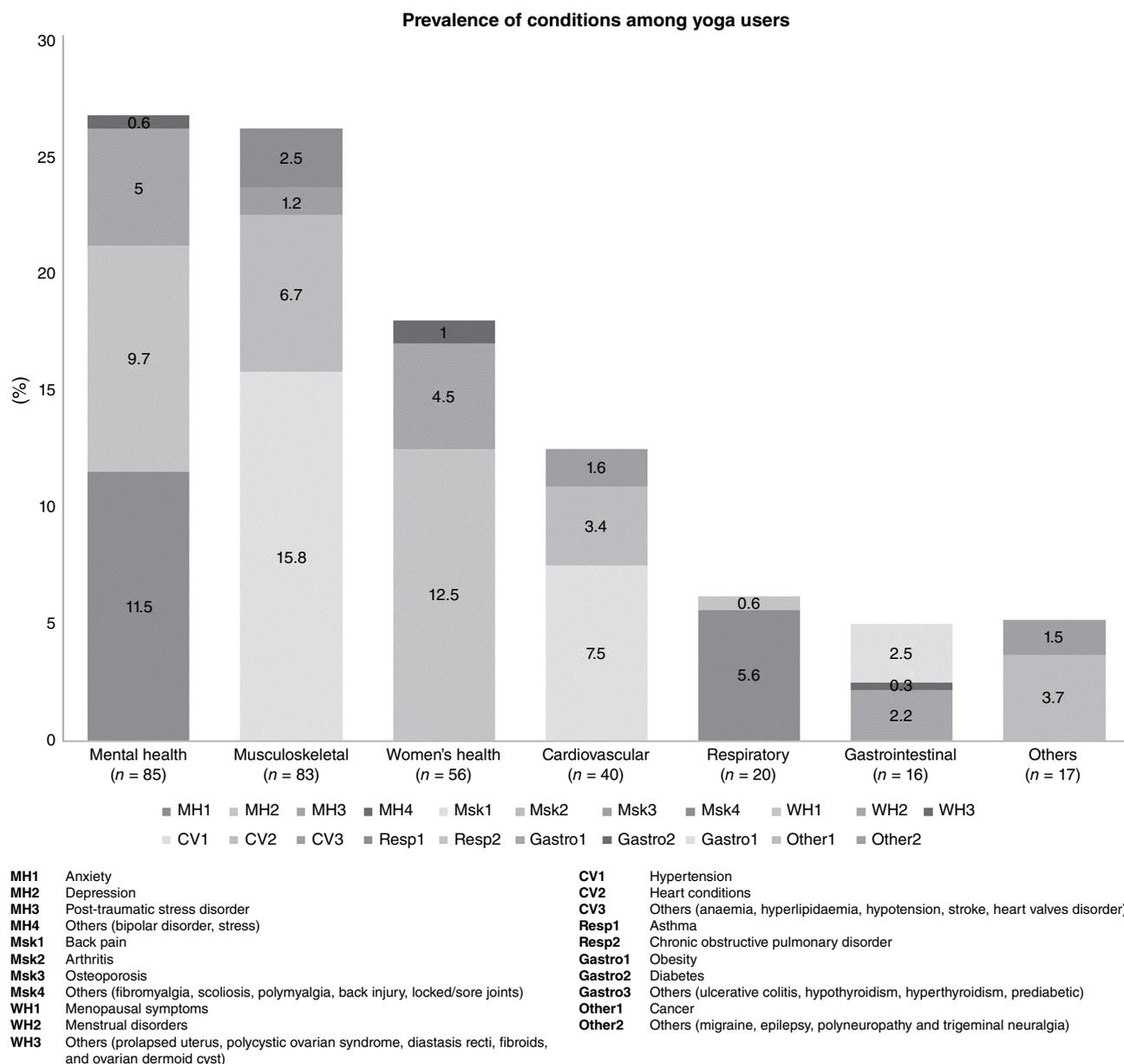


Fig. 1. Distribution of health conditions by medical categories among the YUs. Respondents were able to report multiple health conditions. *N* = 267 respondents reported *n* = 317 conditions in seven categories.

against medical records, and may be affected by biases, such as recall bias. The responses may also be atypical because our study was conducted during the COVID-19 pandemic lockdowns. Finally, asking the YIs to recruit YUs is sound practice from a recruitment perspective; it could lead to selection bias. However, it is unlikely to affect the overall themes of results. Nevertheless, our study utilised the best available Yoga NZ and REPs NZ database and provided the first focused survey of NZ YIs and YUs. These findings could inform future research, such as yoga-based intervention studies and influence policy by raising awareness and enabling a targeted approach.

Conclusion

Yoga instructors in NZ are females facilitating moderate-sized yoga classes. In proportion to yoga use internationally, NZ YUs are NZ European, female, middle-aged and tertiary educated. They are willing to pay for yoga sessions to help manage long-term conditions, including mental ill-health and musculoskeletal disorders. YUs in NZ use yoga for holistic wellbeing, which includes meeting health goals. They seek information on yoga use through social networks and use it for intrinsic motivation to keep practising yoga. These data could inform policy developers in planning to

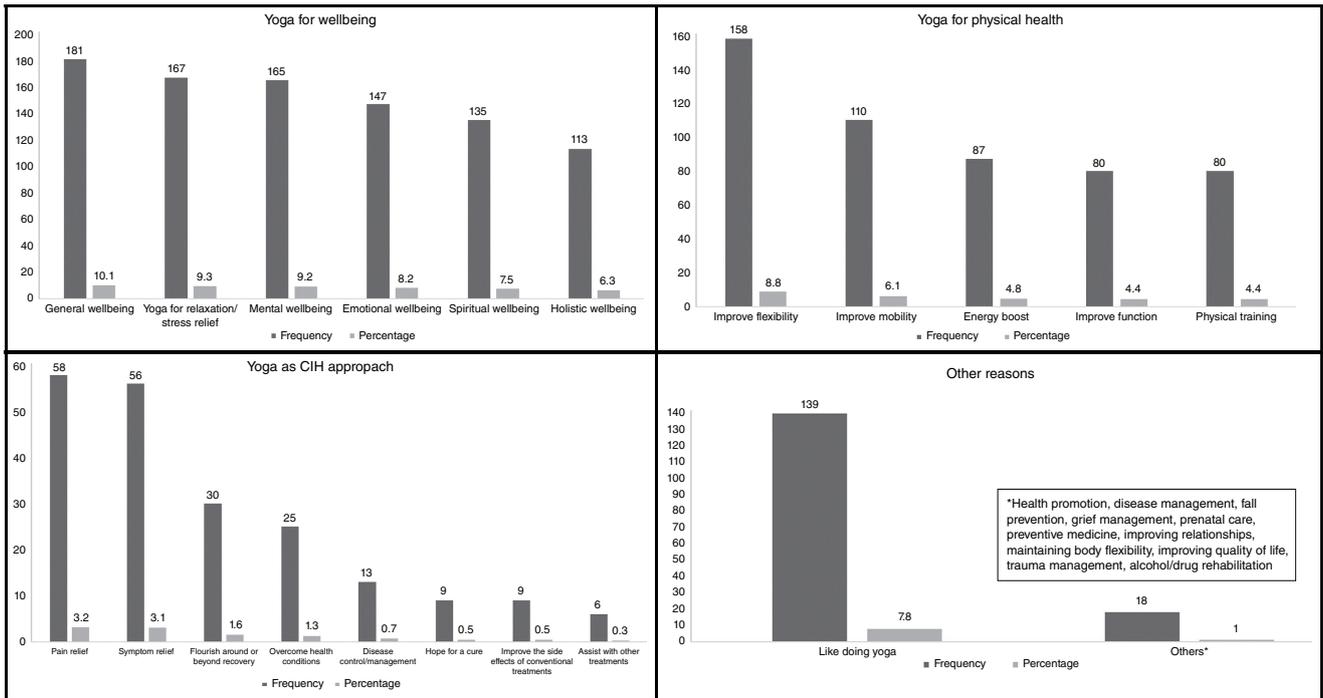


Fig. 2. Reasons for yoga use across the participants. Respondents were able to report multiple reasons for practising yoga. $N = 267$ respondents reported $n = 1788$ reasons in four categories.

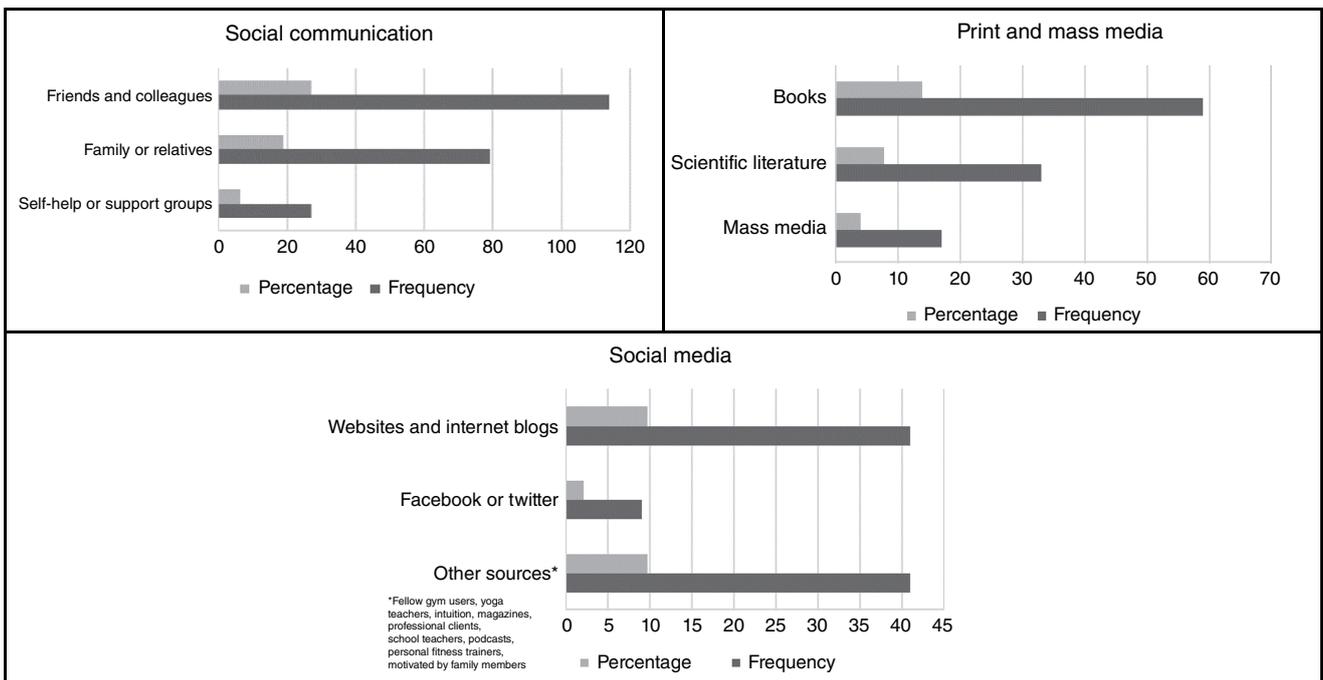


Fig. 3. Information sources for using yoga reported by the yoga users. Respondents were able to report multiple information sources for using yoga. $N = 267$ respondents reported, $n = 422$ sources in three categories.

meet the growing demand for complementary therapies as an adjunct intervention for mainstream care. Healthcare providers could develop health promotion programs or tailor

their referrals when suggesting yoga as an intervention for patients. Future research is needed to explore related issues, such as the expectations and experiences of the YUs.

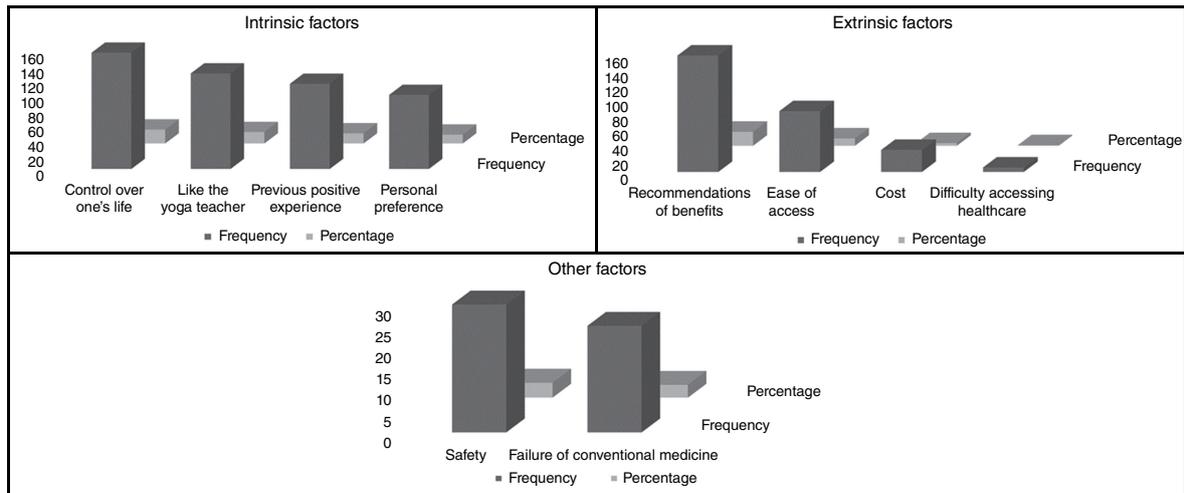


Fig. 4. Factors enabling yoga use reported by the participants. Respondents were able to report multiple influencing factors for using yoga. $N = 267$ respondents reported $n = 834$ factors in three categories.

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