




BMJ Open General hospital specialists' attitudes toward psychiatry: a cross-sectional survey in seven countries

Inoka Koshali Wimalaratne ,¹ Jane McCarthy ,¹ Birit F P Broekman,^{2,3} Klaas Nauta,² Samudra Kathriarachchi,⁴ Anuprabha Wickramasinghe,⁵ Alexander Merkin,^{6,7} Alexander Kursakov,⁸ Raz Gross,^{9,10} Doron Amsalem,¹¹ Xiaoping Wang,¹² Jun Wang,¹² Clarissa de Rosalmeida Dantas,¹³ Victoria de Carvalho Pereira,¹³ David Menkes ,^{1,14}

To cite: Wimalaratne IK, McCarthy J, Broekman BFP, *et al.* General hospital specialists' attitudes toward psychiatry: a cross-sectional survey in seven countries. *BMJ Open* 2021;**11**:e054173. doi:10.1136/bmjopen-2021-054173

► Prepublication history for this paper is available online. To view these files, please visit the journal online (<http://dx.doi.org/10.1136/bmjopen-2021-054173>).

Received 06 June 2021
Accepted 13 October 2021



© Author(s) (or their employer(s)) 2021. Re-use permitted under CC BY-NC. No commercial re-use. See rights and permissions. Published by BMJ.

For numbered affiliations see end of article.

Correspondence to

Dr Inoka Koshali Wimalaratne; inoka_kw@yahoo.com

ABSTRACT

Objective Psychiatric comorbidities are common in physical illness and significantly affect health outcomes. Attitudes of general hospital doctors toward psychiatry are important as they influence referral patterns and quality of care. Little is known about these attitudes and their cultural correlates. The aim of this study was to identify attitudes toward psychiatry among general hospital specialists in relation to culture of the practice setting and other clinician factors (gender, age, seniority and speciality).

Methods A cross-sectional, descriptive study was carried out in seven countries (New Zealand, China, Sri Lanka, Russia, Israel, Brazil, the Netherlands). Data were collected from senior medical staff of various disciplines using an updated version of Mayou and Smith's (1986) self-administered questionnaire.

Results A total of 889 hospital doctors participated. While favourable attitudes toward both psychiatric consultation and management were endorsed by a majority, significant differences were also observed between countries. Subgroup differences were mostly confined to gender, acuity of practice setting and speciality. For example, female doctors in Russia ($\chi^2=7.7$, $p=0.0056$), China ($\chi^2=9.2$, $p=0.0025$) and the Netherlands ($\chi^2=5.7$, $p=0.0174$) endorsed more positive attitudes compared with their male counterparts, but this gender effect was not replicated in the total sample. Chronic care specialists were overall more inclined to manage patients' emotional problems compared with those working in acute care ($\chi^2=70.8$, p (adjusted) <0.0001), a significant finding seen also in individual countries (China, New Zealand, the Netherlands, Russia). Physicians were more favourably disposed toward psychiatry compared with other specialists, especially surgeons, in all countries except Israel.

Conclusions This study adds to evidence for the association of medical attitudes with individual clinician factors and demonstrates that the influence of these factors varies by country. Understanding these issues may help to overcome barriers and improve quality of care provided to general hospital patients.

Strengths and limitations of this study

- The study recruited participants from seven culturally diverse countries with a sample size of minimum 100 per country; anonymous data were collected using a previously validated questionnaire.
- Quantitative methodology used in this study limited more meaningful, in-depth exploration of culture and attitudes.
- Anonymous questionnaire responses may reflect intended attitudes and practices rather than actual ones.
- Sampling bias due to minor variations in recruitment strategies between countries is possible.

INTRODUCTION

Consonant with the overlap between physical and psychiatric disorders, especially the association of depression with chronic medical illness, studies have endorsed the importance of psychiatric care in improving outcomes and reducing length of hospital stay.^{1–3} Studies have also highlighted gaps in service provision, especially in identifying and treating psychiatric comorbidities among patients with physical illness.⁴ Consultation liaison psychiatry is a recognised model for providing psychiatric care in general hospitals; its provision varies across settings^{5,6} and can depend on the differing views of front-line clinicians who decide when and how to refer.^{7,8} Attitudes toward mental illness and psychiatric care in general hospitals are important to consider in this regard as they often influence health outcomes. General hospital doctors are particularly relevant as they are primarily responsible for psychiatric referrals and treatment decisions.

Clinician attitudes are expressed within a cultural context and are subject to influence at multiple levels during clinical

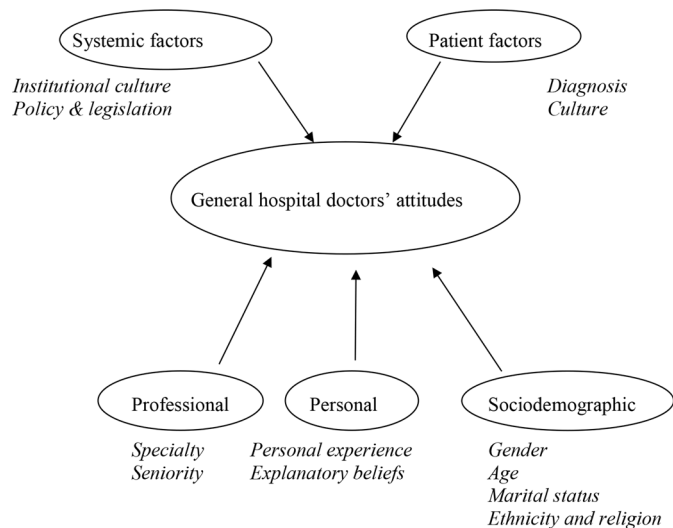


Figure 1 Factors influencing hospital doctors' attitudes.

interactions, as depicted in figure 1. Attitudes and practice among non-psychiatric doctors toward mental illness have been reported to vary according to age, specialty and seniority.^{9–13} Personal experience and also differing explanatory models of mental illness have been associated with differences in attitudes among medical professionals practising in diverse cultural settings.^{14–21} These findings underscore the importance of understanding different cultural influences on doctors' attitudes.

Positive attitudes toward people with mental illness among general hospital doctors are likely to improve quality of care provided to this vulnerable population.^{22–25} Similarly, reducing stigmatising attitudes toward psychiatry and psychiatric treatment can be expected to have a salutary effect on appropriate referral thus early detection and treatment of psychiatric comorbidities in general hospital patients.²⁶ Better understanding of cultural and other factors that influence these attitudes may thus assist in the development of improved standards of mental healthcare in general hospitals.

The primary aims of this study were thus to:

1. Identify non-psychiatrist hospital specialists' attitudes toward psychiatric management and consultation.
2. Determine the extent to which these varied according to:
 - a. The culture of the practice setting in seven countries across continents.
 - b. Individual clinician factors (gender, age, seniority and specialty) within and across countries.

METHODS

Study design

This cross-sectional, descriptive study was conducted in seven culturally diverse countries across four continents (New Zealand, China, Israel, Brazil, Russia, the Netherlands, Sri Lanka). Data collection was carried out between December 2015 and December 2018. To minimise possible confounding related to staff grade and discipline,

participants were limited to senior medical staff (hospital specialist or equivalent) of various specialties working in tertiary-level general hospital settings. Data were collected using an updated version of a previously validated, anonymous, self-administered questionnaire.^{9–11} The questionnaire contained 41 items pertaining to doctors' attitudes toward psychiatric assessment, treatment and referral. Attitudes toward psychiatric management and consultation were further assessed using the 'Doctors' Attitudes toward Collaborative Care for Mental Health (DACC-MH)', an 8-item scale derived from the original questionnaire and validated by confirmatory factor analysis.¹⁰

The questionnaire was sent either as a soft copy (email or online survey) or a hard copy (via internal hospital mail) depending on feasibility at each local centre. The questionnaire was translated to relevant languages as required by approved translators. The validity of translated questionnaires was confirmed by inspection of back translations. A co-investigator in each country was responsible for translation (if required), data collection and liaison with the principal researcher. The two previous studies used sample sizes of 194 and 225 which were adequately powered to show statistically significant differences by seniority and specialty.^{9–11} For this study, a sample size of 100 respondents from each country (total sample size 700) was therefore considered as reaching statistically adequate power. To fulfil this target, the questionnaire was sent to 500 potential respondents per country considering an average response rate of 20%–40% in similar voluntary surveys.

Statistical analysis

Statistical analyses were performed using the R Stats Package V.4.1.0. Statistical significance was set at $p < 0.05$ level. Descriptive statistics were recorded using frequencies and percentages for each question. Univariate comparisons were performed using χ^2 tests of differences in attitude among specialists with different personal and other characteristics. These overall χ^2 tests were adjusted for multiple comparisons over all the tests using the Holm method.²⁷ If adjusted p values were significant (< 0.05), pairwise comparisons were performed using Fisher's exact test. These comparisons were also adjusted for multiple comparisons using false discovery rate control, thereby minimising the risk of false positive results.

Patient and public involvement

Patients and the wider public were not involved in this study.

RESULTS

Demographic data

A total of 889 specialists participated in the study with a minimum of 100 in each of 7 countries. Recruited participants were primarily from tertiary level (some university-affiliated) general hospitals and based in urban/city areas. An even gender split of 47% each was seen in the

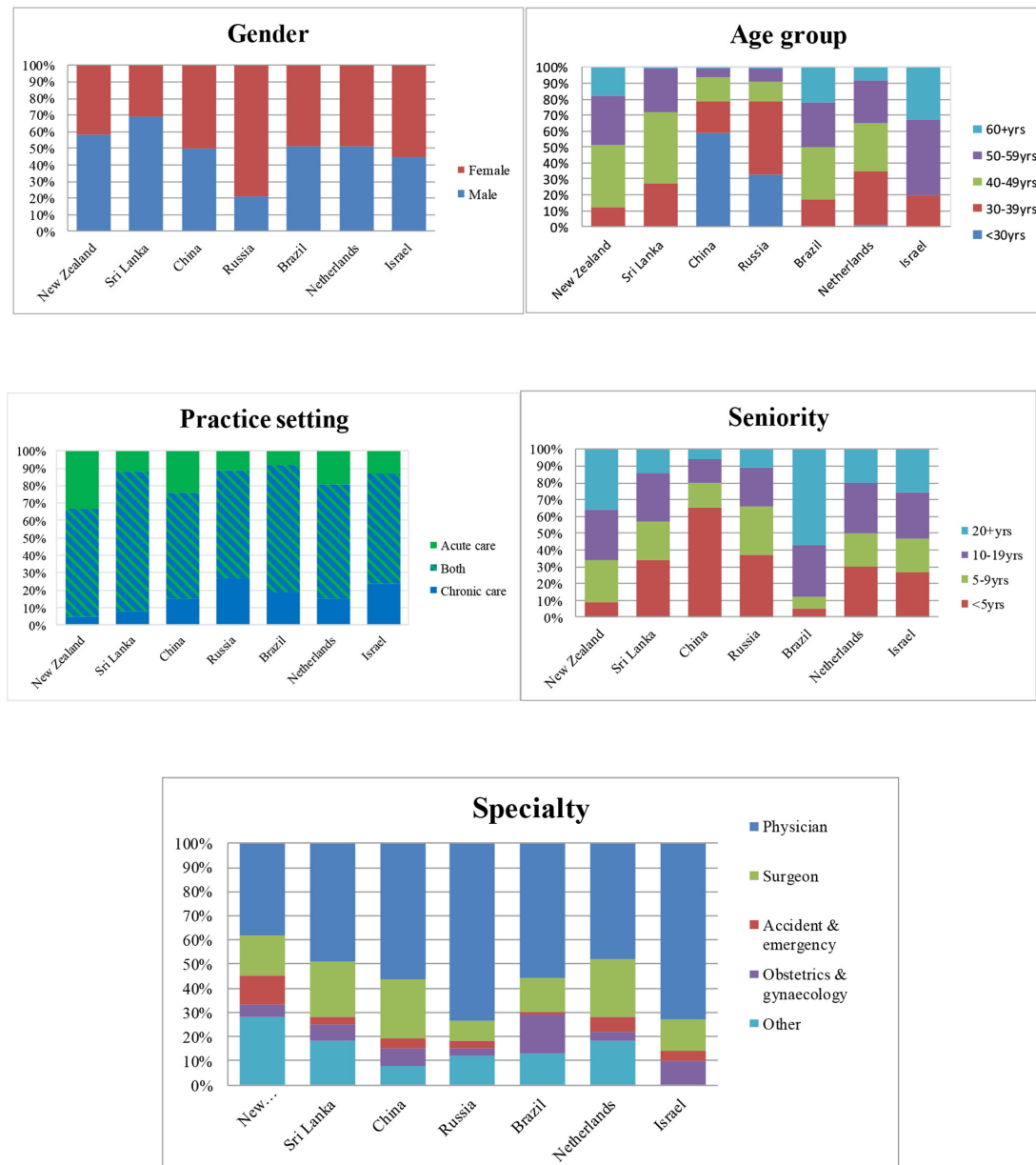


Figure 2 Demographic data. Missing responses excluded (<10% in all cases).

total sample, with 6% unknown/unspecified. As shown in [figure 2](#), a male preponderance was seen in New Zealand (58%) and Sri Lanka (69%), while women predominated in Russia (79%) and Israel (55%). The most common (24.5%) age group of respondents in the total sample was 40–49 years, with similar age distributions seen in New Zealand, Sri Lanka and Brazil. By contrast, most respondents (79%) in China and Russia were aged less than 40 years.

Sixty-one per cent of the total sample worked in both acute and chronic care, while 14% worked in chronic care and 17% in acute care exclusively. A total of 51% of respondents were physicians, followed by surgeons (17%), obstetricians and gynaecologists (7%), and accident and emergency (A&E) specialists (5%). Physicians remained the predominant respondents in individual country samples. Seniority was defined by the number of years since qualifying as a specialist. In the total sample,

respondents with specialist experience <5 years, 10–19 years and 20+ years were of similar proportions (26%, 25% and 24%, respectively). Also shown in [figure 2](#) is the finding that more than 50% of specialists in Sri Lanka, China and Russia had <10 years of experience.

Respondents were invited to define their cultural identity by describing their ethnicity and religion. Responses were analysed to describe cultural composition of participants in each country and main findings are highlighted in [table 1](#).

DACC-MH scale

Attitudes toward management

Differences in attitudes were seen between countries as outlined in [table 2](#), some of which reached statistical significance. For example, specialists in Israel and Brazil were more in favour of managing emotional problems of chronic outpatients ($\chi^2=77.0$, p (adjusted)<0.0001)

Table 1 Self-identified ethnicity and religion of participants

Country	Ethnicity	Religion
New Zealand	62% European, 1% Maori, 10% other	17% Christian, 22% atheist or agnostic
Sri Lanka	88% Sinhalese, 6% Tamil	80% Buddhist, 6% Hindu
China	93% Han Chinese, 5% Miao or Hui	97% no religious affiliation
Russia	46% Russian, 7% Slavic, 5% European	46% Christian or Orthodox, 14% atheist or agnostic, 5% Muslim
Brazil	84% white	51% Catholic, 10% Spiritist, 6% Christian
The Netherlands	89% Caucasian	64% no religious affiliation, 11% Catholic
Israel	15% Israeli, 13% Caucasian, 11% Jewish	44% Jewish, 10% secular

compared with others. By contrast, specialists in Brazil and the Netherlands were less approving of hospital doctors using psychological methods ($\chi^2=71.4$, p (adjusted) <0.0001). A significant proportion of specialists (43%) in Russia felt hospital doctors were not responsible for emotional care of patients ($\chi^2=110$, p (adjusted) <0.0001).

Attitudes toward consultation

Specialists based in the Netherlands and New Zealand were significantly less keen on psychiatric consultation compared with others (table 2). Specialists in the Netherlands were less welcoming of contact with psychiatrists compared with in Brazil, Israel and New Zealand ($\chi^2=44.2$, p (adjusted) <0.0001). Specialists in both the Netherlands and New Zealand were less keen than those in other countries on seeking help in providing psychological/social care ($\chi^2=152$, p (adjusted) <0.0001), knowing more about what psychiatrists had to offer ($\chi^2=93.6$, p (adjusted) <0.0001) and having more contact with psychiatric services ($\chi^2=148$, p (adjusted) <0.0001).

Gender differences

While significant gender differences were not found in the total sample ($N=889$), in three countries (China, Russia, the Netherlands), women consistently showed more favourable attitudes toward both psychiatric management and consultation. For example, female specialists in Russia were less likely than their male counterparts to confine themselves to physical assessment ($\chi^2=7.7$, $p=0.0056$). Similarly, female specialists in China were more likely to take responsibility for emotional care of patients ($\chi^2=9.2$, $p=0.0025$) and those in the Netherlands were more welcoming of contact with psychiatrists ($\chi^2=5.7$, $p=0.0174$). As these gender differences appeared to be significant within these individual countries but not in the total sample, a log-linear model was applied to assess the significance of any interaction between country and gender. However, this could not be established as associations between gender and country in relation to all DACC-MH scale items were statistically insignificant (all $p>0.05$).

Table 2 Percentage agreeing with target statement

	New Zealand n=159	Sri Lanka n=100	China n=110	Russia n=100	Brazil n=106	The Netherlands n=179	Israel n=135
<i>Attitudes toward management</i>							
1. Management of emotional problems is an important part of my care of chronic outpatients.	72	86	77	81	93	70	98
2. Even when psychological factors are important, I confine myself to physical assessment.	16	17	30	16	14	25	12
3. Hospital doctors should be able to use psychological methods.	87	93	98	88	75	78	90
4. Hospital doctors are not responsible for emotional care.	13	7	17	43	16	9	17
<i>Attitudes toward consultation</i>							
5. I'd welcome more contact with psychiatrists.	87	88	87	83	92	70	93
6. I'd like more help in providing psychological/social care.	80	96	98	98	87	63	96
7. I'd like to know more about what psychiatrists have to offer.	81	97	96	98	89	76	95
8. I'd like more contact with the psychiatric service.	82	95	94	87	89	60	96

Age group differences

Responses in total sample suggested older specialists were more favourably disposed toward psychiatric management and younger ones toward consultation. However, only some of these differences reached statistical significance, especially when *p* values were adjusted for multiple comparisons. For example, younger specialists (<30 years and 30–39 years) expressed more interest in knowing what psychiatrists had to offer compared with older ones (40–49 years and 50–59 years) ($\chi^2=27.6$, *p* (adjusted)=0.0225). No significant age group differences were seen in any of the individual country samples except for Brazil and Sri Lanka where attitudes of specialists aged 40–49 years differed from the rest. In Brazil, they were more inclined to find out what psychiatrists had to offer compared with older age groups ($\chi^2=10.3$, *p*=0.0163) and in Sri Lanka they were more likely to use psychological methods compared with younger age groups ($\chi^2=10.4$, *p*=0.0157).

Practice setting differences

Statistically significant differences between acute and chronic care specialists were seen in total as well as individual country samples. Those providing chronic care were, unsurprisingly, more likely to endorse medical management of emotional problems of outpatients compared with other specialists in the total sample ($\chi^2=70.8$, *p* (adjusted)<0.0001). This was consistent with findings in China ($\chi^2=9.4$, *p*=0.0091), New Zealand ($\chi^2=10.9$, *p*=0.0121), the Netherlands ($\chi^2=37.3$, *p* (adjusted)<0.0001) and Russia ($\chi^2=9.1$, *p*=0.0283). Similarly, in Sri Lanka, acute care specialists were less inclined to seek help in providing psychological or social care compared with others ($\chi^2=9.8$, *p*=0.0208). Practice setting differences were not significant in Brazil or Israel.

Specialty differences

Physicians were more positive toward both psychiatric management and consultation compared with other specialties, especially surgeons. This was a consistent finding in the total sample and all individual country samples except for Israel. In the total sample, physicians were more favourably disposed to managing emotional problems of chronic outpatients compared with surgeons ($\chi^2=118$, *p* (adjusted)<0.0001) and A&E specialists (*p* (adjusted)=0.0002). They were less likely to confine themselves to physical assessment ($\chi^2=264$, *p* (adjusted)=0.0002) and more inclined to use psychological methods ($\chi^2=254$, *p* (adjusted)=0.0010) and to welcome contact with psychiatrists ($\chi^2=39.0$, *p* (adjusted)<0.0001) compared with surgeons. They were also keener to know what psychiatrists had to offer ($\chi^2=376$, *p* (adjusted)=0.0437) compared with A&E specialists.

Seniority differences

Significant differences were not apparent in the total sample but were detected in Brazil and New Zealand. In both countries, specialists with longest (20+ years) clinical

experience showed more positive attitudes toward psychiatric management but not consultation. Similar to the analysis of gender differences, a log-linear model was applied to assess a possible interaction between country and seniority. The only significant association between country and seniority was seen in relation to management of emotional problems in chronic outpatients (*p*=0.01).

DISCUSSION

Positive attitudes toward management of psychiatric/psychological problems and psychiatric consultation/referrals were seen across the seven participating countries among general hospital specialists of diverse demographic, seniority and specialty backgrounds. Statistically significant differences were observed between some countries in relation to several items in the DACC-MH scale. Specialists in Israel were more favourably disposed toward psychiatric management in comparison with the Netherlands and Russia. In terms of attitudes toward psychiatric consultation and referrals, specialists in the Netherlands and New Zealand were less keen compared with others.

When attitudes of specialists were assessed in relation to their demographic and seniority/specialty, significant differences were seen within the total sample as well as individual countries. These subgroup differences were more prominent in relation to gender, practice setting and specialty than other variables. Female specialists in China, Russia and the Netherlands were significantly more inclined to endorse both psychiatric management and consultation/referral compared with their male counterparts. While these findings were consistent with previous studies,^{9–11} they were not replicated in the total sample. This raised the possibility of country-specific factors influencing gender differences in attitudes. However, our analysis failed to establish significant associations between country and gender. When practice setting differences were examined, chronic care specialists were significantly more attuned to psychiatric management and consultation/referral compared with acute care specialists in the total sample as well as within all participating countries except Brazil and Israel. In keeping with findings from previous studies,^{9–13} physicians endorsed more positive attitudes than others, especially surgeons, a consistent finding in the total sample and all individual countries except for Israel. While age group comparisons indicated that older specialists tended to be more positive toward psychiatric management and younger ones toward consultation, this failed to reach statistical significance in both the total and individual country samples. Seniority differences were not significant in the total sample although specialists with longest (20+ years) clinical experience showed more positive attitudes toward psychiatric management in Brazil and New Zealand compared with others. Interestingly, a statistically significant association between country and seniority was established in relation to attitudes toward management of emotional problems in chronic patients. This finding supports the likelihood



of country-specific and cultural factors having an impact on attitudinal differences based on seniority (see below).

This study strengthens evidence for attitudinal differences among general hospital doctors toward psychiatric referral and treatment based on gender, practice setting acuity and specialty. It has also shown significant differences between countries, suggesting that cultural factors may influence these attitudes. Although the cultural identity of each participant was examined in relation to their ethnicity and religion, the response rates did not provide adequate statistical power for meaningful comparisons. However, responses indicated some countries were more homogeneous in terms of participants' cultural identity compared with others (table 1). For example, Sri Lankan participants were 80% Buddhist and 88% Sinhalese. Similarly, 97% identified as atheist and 93% of Han ethnicity in China. Our data indicate significant differences in attitudes among hospital doctors in China, especially in relation to gender. This could imply that the role of gender in influencing attitudes is stronger, or at least more readily discerned, in a culturally homogeneous group of hospital doctors compared with a heterogeneous group.

While these are intriguing findings, the study was limited by possibility of sampling bias due to variations in recruitment strategies (use of social media, email databases and organisational internal mail) used in different countries. Further studies with more standardised recruitment strategies are needed to establish any association between cultural composition of participating countries (homogeneous vs heterogeneous) and attitudinal differences. Applying same criteria for all participants/countries and recruiting from more than one centre in each country to ensure a more representative sample are some of the strategies that can minimise these biases. One of the main challenges of using quantitative methods relates to the definition, ascertainment and analysis of cultural identity. Future studies using qualitative methods are likely to be more useful and informative in this regard. Focus group interviewing is a qualitative research tool effective in generating rich data about shared experience and can be employed to gain in-depth knowledge subsequent to a survey. This interviewing strategy enables exploration of a target group's perspectives and the organisational rationale of decision-makers. Cultural values and beliefs can be further explored using this method²⁸ allowing more in-depth evaluation of clinicians' personal beliefs and the institutional culture of practice settings. It would be also useful to explore various models of psychiatric care provided and resources available in local settings in each country as this may also influence doctors' attitudes towards psychiatric management and referrals.

CONCLUSION

This study strengthens evidence for associations between doctors' personal characteristics (gender, seniority and specialty) and their attitudes toward psychiatry. It also provides evidence for significant differences between

participants working in culturally diverse general hospital settings across seven countries, but did not establish clear overall relationships between cultural factors and attitudinal differences among general hospital doctors.

The COVID-19 pandemic and its association with adverse mental health outcomes^{29 30} have also highlighted the critical role of psychiatric care in the general hospital setting.³¹ Doctors' attitudes toward psychiatry are important to understand when considering how to address unmet mental health needs of patients and barriers caused by negative attitudes. Meeting these challenges will assist efforts to reduce mortality/morbidity and prolonged hospital stay in general hospitals. Future studies will be required to refine understanding of links between general hospital doctors' attitudes and underlying cultural factors, both individual and systemic. Better understanding of cultural and other factors that influence attitudes can lead to development of more culturally appropriate educational and training programmes. This would allow anti-stigma strategies to be developed and targeted to specific populations.³² Specifically examining the influence of culture on clinician attitudes, for example, in countries with varying cultural mixes, may assist the training of culturally competent doctors and contribute to quality improvement of psychiatric care in general hospitals.

Author affiliations

¹Department of Psychiatry, Faculty of Medical and Health Sciences, University of Auckland, Auckland, New Zealand

²Department of Psychiatry, Amsterdam UMC, VU University, Amsterdam, the Netherlands

³Department of Psychiatry, OLVG, Amsterdam, the Netherlands

⁴Department of Psychiatry, University of Sri Jayewardenepura, Nugegoda, Sri Lanka

⁵Department of Psychiatry, Faculty of Medicine and Allied Sciences, Rajarata University, Anuradhapura, Sri Lanka

⁶National Institute for Stroke and Applied Neurosciences, Auckland University of Technology, Auckland, New Zealand

⁷Centre for Precise Psychiatry and Neurosciences, Kaufbeuren, Germany

⁸National Medical Research Centre of Cardiology, Ministry of Healthcare Russian Federation, Moscow, Russia

⁹Division of Psychiatry, Sheba Medical Center, Tel Hashomer, Israel

¹⁰Department of Epidemiology and Preventative Medicine and Department of Psychiatry, Sackler Faculty of Medicine, Tel Aviv University, Tel Aviv, Israel

¹¹New York State Psychiatric Institute and Department of Psychiatry, Columbia University Vagelos College of Physicians and Surgeons, New York, New York, USA

¹²Department of Psychiatry, National Clinical Research Centre for Mental Disorders, The Second Xiangya Hospital, Central South University, Changsha, China

¹³Department of Psychiatry, Medical School, University of Campinas-UNICAMP, Campinas, Brazil

¹⁴Waikato District Health Board, Hamilton, New Zealand

Twitter David Menkes @davidmenkes

Acknowledgements The authors gratefully acknowledge the hospital specialists who participated. Our special gratitude to Professor Graham Mellsop for his support and guidance during the early stages of this study. We also acknowledge Daniel Barnette and Reginald Marsh for their statistical advice and input. Our thanks to the following colleagues for their assistance with data collection: Fred Sundram (New Zealand), Chris Kenedi (New Zealand), Sarah Cullum (New Zealand), Luckshika Amarakoon (Sri Lanka), Prabath Malinga Dharmapala (Sri Lanka), Arunprasath Selvendran (Sri Lanka), Prabodini Lakmali Harishchandra (Sri Lanka).

Contributors IKW was responsible for writing the manuscript, developing the study design, data collection and statistical analysis. DM and JM contributed to the

study's design and supervised the overall study. All authors (IKW, DM, JM, BFPB, KN, SK, AW, AM, AK, RG, DA, XW, JW, CdRD and VdCP) provided intellectual input to the manuscript and have given their final approval of the version to be published. IKW is responsible for the overall content as the guarantor.

Funding The New Zealand arm of the study was funded by Waikato Health Trust and IKW's PhD study was supported by the University of Auckland (no grant number).

Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication Not required.

Ethics approval The proposal was initially submitted to the New Zealand Health and Disability Ethics Committee in March 2016 and was judged to be outside the scope of formal ethical review, as it did not involve patients, invasive procedures or treatments. The study proposal was subsequently submitted to local ethics committees in New Zealand, as well as other countries via co-researchers; ethical approval was obtained in each case. Ethical approval was granted from the relevant institutional review boards: Quality and Patient Safety, Waikato District Health Board, New Zealand. (RD016034); Ethics Review Committee, Faculty of Medicine and Allied Sciences, Rajarata University of Sri Lanka. (ERC/2016/73); Ethics Review Committee, The Chaim Sheba Medical Centre, Affiliated to the Tel-Aviv University, Sackler School of Medicine, Israel. (4881-18-SMC); Ethics Review Committee, University of Campinas–Unicamp, Brazil (CAAE:04208018.8.0000.5404/NP:3.106.326); Medical Ethics Review Committee, VU University, Amsterdam, the Netherlands. (METcVUmc2017.029). The study was identified as low risk and exempted by the following review boards: Health and Disability Ethics Committees, Ministry of Health, New Zealand; Ethics Committees of the Second Xiangya Hospital, Central South University, China; Independent Ethics Committee at the National Research Centre for Preventive Medicine, Russia.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data are available upon reasonable request. Original data are available upon reasonable request to the lead author Inoka Wimalaratne (inoka_kw@yahoo.com).

Open access This is an open access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited, appropriate credit is given, any changes made indicated, and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/4.0/>.

ORCID iDs

Inoka Koshali Wimalaratne <http://orcid.org/0000-0002-7997-4005>

Jane McCarthy <http://orcid.org/0000-0002-4702-1939>

David Menkes <http://orcid.org/0000-0003-3760-7896>

REFERENCES

- Carter P, Reynolds J, Carter A, *et al*. The impact of psychiatric comorbidities on the length of hospital stay in patients with heart failure. *Int J Cardiol* 2016;207:292–6.
- Lichtman JH, Froelicher ES, Blumenthal JA, *et al*. Depression as a risk factor for poor prognosis among patients with acute coronary syndrome: systematic review and recommendations: a scientific statement from the American heart association. *Circulation* 2014;129:1350–69.
- Zhang MWB, Ho RCM, Cheung MWL, *et al*. Prevalence of depressive symptoms in patients with chronic obstructive pulmonary disease: a systematic review, meta-analysis and meta-regression. *Gen Hosp Psychiatry* 2011;33:217–23.
- Hansen MS, Fink P, Frydenberg M, *et al*. Mental disorders among internal medical inpatients: prevalence, detection, and treatment status. *J Psychosom Res* 2001;50:199–204.
- Krautgartner M, Alexandrowicz R, Benda N, *et al*. Need and utilization of psychiatric consultation services among General Hospital inpatients. *Soc Psychiatry Psychiatr Epidemiol* 2006;41:294–301.
- Sakhuja D, Bisson JI. Liaison psychiatry services in Wales. *Psychiatr Bull* 2008;32:134–6.
- Chen KY, Evans R, Larkins S. Why are hospital doctors not referring to Consultation-Liaison Psychiatry? – a systemic review. *BMC Psychiatry* 2016;16:390.
- Solomons LC, Thachil A, Burgess C, *et al*. Quality of psychiatric care in the General Hospital: referrer perceptions of an inpatient liaison psychiatry service. *Gen Hosp Psychiatry* 2011;33:260–6.
- Morgan JF, Killoughery M. Hospital doctors' management of psychological problems – Mayou & Smith revisited. *Br J Psychiatry* 2003;182:153–7.
- Thombs BD, Adeponle AB, Kirmayer LJ, *et al*. A brief scale to assess Hospital doctors' attitudes toward collaborative care for mental health. *Can J Psychiatry* 2010;55:264–7.
- Mayou R, Smith EB. Hospital doctors' management of psychological problems. *Br J Psychiatry* 1986;148:194–7.
- Wang J, Wang Q, Wimalaratne I, *et al*. Chinese non-psychiatric Hospital doctors' attitudes toward management of psychological/psychiatric problems. *BMC Health Serv Res* 2017;17:576.
- Nauta K, Boenink AD, Wimalaratne IK, *et al*. Attitudes of General Hospital consultants towards psychosocial and psychiatric problems in Netherlands. *Psychol Health Med* 2019;24:402–13.
- Sathyanath S, Mendonsa RD, Thattil AM, *et al*. Socially restrictive attitudes towards people with mental illness among the non-psychiatry medical professionals in a university teaching hospital in South India. *International Journal of Social Psychiatry* 2016;62:221–6.
- Challapallisri V, Dempster LV. Attitude of doctors towards mentally ill in Hyderabad, India: results of a prospective survey. *Indian J Psychiatry* 2015;57:190–5.
- Fernando SM, Deane FP, McLeod HJ. Sri Lankan doctors' and medical undergraduates' attitudes towards mental illness. *Soc Psychiatry Psychiatr Epidemiol* 2010;45:733–9.
- Mukherjee R, Fialho A, Wijetunge A, *et al*. The stigmatisation of psychiatric illness: the attitudes of medical students and doctors in a London teaching hospital. *Psychiatric Bulletin* 2002;26:178–81.
- Naeem F, Ayub M, Javed Z, *et al*. Stigma and psychiatric illness. A survey of attitude of medical students and doctors in Lahore, Pakistan. *J Ayub Med Coll Abbottabad* 2006;18:46–9.
- Richards M, Hori H, Sartorius N, *et al*. Cross-cultural comparisons of attitudes toward schizophrenia amongst the general population and physicians: a series of web-based surveys in Japan and the United States. *Psychiatry Res* 2014;215:300–7.
- Stefanovics E, He H, Ofori-Atta A, *et al*. Cross-National analysis of beliefs and attitude toward mental illness among medical professionals from five countries. *Psychiatric Quarterly* 2016;87:63–73.
- Adewuya AO, Oguntade AA. Doctors' attitude towards people with mental illness in Western Nigeria. *Soc Psychiatry Psychiatr Epidemiol* 2007;42:931–6.
- Corrigan PW, Mittal D, Reaves CM, *et al*. Mental health stigma and primary health care decisions. *Psychiatry Res* 2014;218:35–8.
- Jones S, Howard L, Thornicroft G. 'Diagnostic overshadowing': worse physical health care for people with mental illness. *Acta Psychiatr Scand* 2008;118:169–71.
- van Nieuwenhuizen A, Henderson C, Kassam A, *et al*. Emergency department staff views and experiences on diagnostic overshadowing related to people with mental illness. *Epidemiol Psychiatr Sci* 2013;22:255–62.
- Welch LC, Litman HJ, Borba CPC, *et al*. Does a physician's attitude toward a patient with mental illness affect clinical management of diabetes? results from a Mixed-Method study. *Health Serv Res* 2015;50:998–1020.
- Wakil MA, Abdul IW, Jidda MS, *et al*. Attitude towards psychiatric treatment and referral pattern in the University of Maiduguri Teaching Hospital – a preliminary report. *Afr J Psychiatry* 2013;16:182–6.
- Holm S. A simple sequentially rejective multiple test procedure. *Scandinavian Journal of Statistics* 1979;6:65–70.
- Holloway I, Galvin K. *Qualitative research in nursing and health care*. 4th edn. John Wiley and Sons, 2017.
- Hao F, Tam W, Hu X, *et al*. A quantitative and qualitative study on the neuropsychiatric sequelae of acutely ill COVID-19 inpatients in isolation facilities. *Transl Psychiatry* 2020;10:355.
- Rogers JP, Chesney E, Oliver D, *et al*. Psychiatric and neuropsychiatric presentations associated with severe coronavirus infections: a systematic review and meta-analysis with comparison to the COVID-19 pandemic. *Lancet Psychiatry* 2020;7:611–27.
- Horn M, Granon B, Vaiva G, *et al*. Role and importance of consultation-liaison psychiatry during the Covid-19 epidemic. *J Psychosom Res* 2020;137:110214.
- Zhang Z, Sun K, Jatchavala C, *et al*. Overview of stigma against psychiatric illnesses and advancements of Anti-Stigma activities in six Asian societies. *Int J Environ Res Public Health* 2019;17:280.