

FACTORS ASSOCIATED WITH QUALITY OF LIFE AMONG HEALTHCARE WORKERS IN A TERTIARY HOSPITAL

Mohamad Adam Bujang¹, Yoon Khee Hon^{2*}, Wei Hong Lai¹, Eileen Pin Pin Yap¹, Xun Ting Tiong¹, Selvasingam Ratnasingam³, Alex Ren Jye Kim⁴, Masliyana Husin², Yvonne Yih Huan Jee⁵, Nurul Fatma Diyana Ahmad⁶, Cheng Hoon Chew⁷, Clare Hui Hong Tan⁸, Sing Yee Khoo¹, Fazalena Johari¹, Alan Yean Yip Fong¹

1. Clinical Research Centre, Sarawak General Hospital, Ministry of Health Malaysia, Kuching, Sarawak, Malaysia
2. Institute for Clinical Research, Ministry of Health Malaysia, Shah Alam, Selangor, Malaysia
3. Department of Psychiatry, Sarawak General Hospital, Ministry of Health Malaysia, Kuching, Sarawak, Malaysia
4. Quality Unit, Sarawak General Hospital, Ministry of Health Malaysia, Kuching, Sarawak, Malaysia
5. Radiotherapy and Oncology Unit, Sarawak General Hospital, Ministry of Health Malaysia, Kuching, Sarawak, Malaysia
6. Heart Center, Sarawak General Hospital, Ministry of Health Malaysia, Kuching, Sarawak, Malaysia
7. Institute for Medical Research, Ministry of Health Malaysia, Shah Alam, Selangor, Malaysia
8. Department of Medicine, Sarawak General Hospital, Ministry of Health Malaysia, Kuching, Sarawak, Malaysia

*Correspondence: yoonkheehon@gmail.com

ABSTRACT

BACKGROUND

Assessment of the QoL and well-being among healthcare workers is vital for better healthcare and is an essential indicator for competent health service delivery.

OBJECTIVES

This cross-sectional study aims to determine the characteristics and associated factors towards QoL and well-being among healthcare workers in a tertiary hospital by using a Significant Quality of Life Measure (SigQOLM), a recent scale developed and published in 2023 which consists of four dimensions, 18 domains and 69 items.

DESIGN

It performed a secondary analysis of primary data obtained from a total of 406 healthcare workers who are currently working in a tertiary hospital.

SETTING

All the 406 healthcare workers holding various job positions in a tertiary hospital were recruited for participating in this cross-sectional study.

MAIN OUTCOME MEASURES RESULTS

Apart from "Sleep quality", "Eating regime" and "Body image", all the other domains reported a score of more than 70.0% which indicates good to excellent QoL and well-being in these healthcare workers. Overall, the QoL and well-being among healthcare workers are good. Nevertheless, three of the modifiable factors provided a major contribution towards their QoL: marital status ($p < 0.05$), job occupation ($p < 0.05$) and health condition ($p < 0.05$).

CONCLUSIONS

It is recommended to measure people's QoL and well-being using a broader spectrum of measurable parameters to elicit a more holistic understanding of their QoL and well-being so that all necessary actions can then be taken to improve their overall QoL.

KEYWORDS

healthcare workers, quality of life, SigQOLM, tertiary hospital, well-being

1. INTRODUCTION

Every human being has an innate desire to attain the highest possible quality of life (QOL) and overall well-being. The pursuit of these goals is fundamental, as they are regarded as essential elements that enable individuals to flourish and succeed in various aspects of their lives. Indeed, optimal QOL and well-being are not just abstract concepts; they encompass physical health, emotional stability, social connections, and personal fulfilment^{1,2}. These factors collectively contribute to an individual's ability to navigate the complexities of the world, overcome challenges, and achieve personal and professional aspirations. Therefore, the importance of quality of life and well-being cannot be overstated, as they are vital for the holistic development and sustained happiness of individuals across diverse contexts and cultures.

1.1 LITERATURE REVIEW

Much of the humanitarian efforts made by governments and non-governmental organizations are aimed at enhancing people's QOL and well-being in various aspects [1,2]. Given the high value being placed on QOL and well-being, how can individuals determine and measure whether their lives are considered 'excellent' or otherwise? Traditionally, two measures are commonly used to assess the QOL and well-being of individuals. The first relies on statistical indicators developed by economists, epidemiologists, and methodologists to gauge a country's or state's performance. The second relies on self-reported outcomes from individuals [3,4,5]. Throughout history, measures such as life expectancy, literacy rates, per capita income, and mortality and morbidity statistics have been widely utilized to construct various indices of well-being. Many countries around the world commonly employ statistical indicators such as the Consumer Price Index (CPI), foreign direct investment (FDI), inflation rate, and Statistical Capacity Indicators and Index (SCI) to represent a country's performance, which indirectly reflects the QOL and well-being of its people. However, there is a consensus that objective measures such as per capita income are insufficient in capturing the full spectrum of well-being [5,6,7].

1.1.1 Theoretical Framework of Occupational Stress and Well-Being

This study is informed by established occupational stress frameworks to guide the identification of factors associated with quality of life and well-being among healthcare workers in a tertiary hospital. The Job Demands–Resources (JD-R) model provides the primary structure, suggesting that job demands such as workload and time pressure may negatively influence well-being, whereas job resources including social support and autonomy may enhance it [8,9]. This framework supports the examination of workplace characteristics as key explanatory variables.

In addition, the burnout framework developed by Christina Maslach conceptualizes burnout as emotional exhaustion, depersonalization, and reduced personal accomplishment, representing a potential pathway through which occupational stressors influence overall well-being [10,11]. By integrating these frameworks, the present study conceptualizes work characteristics and psychosocial factors as determinants, and quality of life and well-being as outcomes. This theoretical positioning directly supports the study objective of determining the associated factors influencing healthcare workers' quality of life and well-being.

1.1.2 Rationale and study objectives

Quality of life (QOL) should ideally be determined by a broader spectrum of measurable parameters. A recent development in measuring QOL and well-being is the Significant Quality of Life Measure (SigQOLM) ⁷. The SigQOLM encompasses 4 elements and 18 domains comprising 69 items, offering a more comprehensive approach to measuring QOL and well-being compared to previous scales. The SigQOLM assesses health, relationships, functional activities, and survival. Therefore, an individual with excellent QOL and well-being is one who possesses optimal health, maintains positive relationships, engages in various functional activities, and demonstrates excellent survival in life. Assessment of the quality of life (QoL) among healthcare workers (HCWs) is vital for better healthcare and is an essential indicator for competent health service delivery.

This study aims to administer the SigQOLM to measure the QOL and well-being of healthcare workers specifically in a tertiary hospital. It also seeks to determine their QOL and well-being and to identify factors associated with the QOL and well-being. From these findings, we can deduce that a list of pertinent issues might have an impact on the quality-of-life of a healthcare worker, which can often be helpful for analyzing the personal and professional requirements of a healthcare worker and also to determine the association between a list of pertinent factors and quality-of-life (as well as an overall sense of well-being) of all healthcare workers.

2. MATERIALS AND METHODS

2.1 STUDY DESIGN

This cross-sectional study aims to determine the characteristics and associated factors towards quality of life (QoL) and well-being among healthcare workers in a tertiary hospital. It is based on the analysis of secondary data collected from a previous primary study aimed at developing a scale to measure quality of life and well-being, known as the Significant Quality of Life Measure (SigQOLM), successfully developed in 2023 which was previously published elsewhere [7].

2.2 STUDY SETTING

The dataset comprises 406 healthcare workers in various job positions and health conditions who are currently working in a single tertiary hospital, namely: Sarawak General Hospital. This is the largest tertiary hospital and also the main referral hospital in the state of Sarawak, Malaysia.

2.3 STUDY SAMPLE

The data had already been collected based on a cross-sectional study design from a previous primary study for developing a new scale for measuring QoL and well-being of the people called 'Significant Quality of Life Measure' (SigQOLM) in year 2023 which was previously published elsewhere. Therefore, this study used secondary data for analysis.

2.4 INCLUSION AND EXCLUSION CRITERIA

The inclusion criteria for recruiting the study respondents for this self-administered survey are: (i) all workers currently working in a healthcare setting including permanent, contract, and temporary staff, (ii) age of at least 18 years old and above, and (iii) agree to provide consent for participating in the study. The exclusion criteria are: (i) any respondents who are unconscious, (ii) are too sick, or (iii) have an unstable mental condition during the period of recruitment. The justification for these exclusion criteria is that all the respondents participating in this study are required to fill in their responses by answering an online questionnaire.

2.5 DATA COLLECTION

This study did not apply a primary data collection because all the data for this study were already collected during the initial development of the SigQOLM in 2022, when the respondents were collected within two months from February 2022 until the end of April 2022. Therefore, this study involved a secondary analysis of primary data that were previously collected by performing statistical tests on those variables from demographic profile of respondents, their health condition and SigQOLM items.

2.6 STUDY TOOL

Significant Quality of Life Measure (SigQOLM) is a generic and dynamic scale to measure QoL and well-being of people. The scale was successfully developed in 2023 which was previously published elsewhere ⁷. The SigQOLM consists of four elements (namely: "Health", "Relationships", "Functional activities" and "Survival"), 18 domains, and 69 items, with scores presented as percentages indicating higher scores reflecting better quality of life and well-being. Besides SigQOLM items, this study also observed demographic profile (gender, age, ethnicity, marital status, job position, etc) and clinical parameter of respondents (health status).

2.7 DATA ANALYSIS

Descriptive analysis was performed to derive the overall profile of the basic demographic characteristics, health conditions, and their QOL and well-being of participants were measured by using the SigQOLM. Scores were categorized into four categories: $\geq 80\%$ (Excellent), $70 < 80\%$ (Good), $50 < 70\%$ (Moderate), and $< 50\%$ (Poor), in addition to reporting mean, standard deviation, and 95% confidence interval. The rationale for these recommended cut-off scores is based on interpreting a Likert scale for SigQOLM. SigQOLM uses the Likert scale with the following definitions: 'Never' (score=4), 'Seldom' (score=3), 'Sometimes' (score=2), 'Normally' (score=1), and 'Always' (score=0). The cumulative scores are converted into percentages. Thus, a higher percentage indicates a higher QOL and well-being.

In order to identify those factors that might be associated towards QOL and well-being, a General Linear Model based on Analysis of Covariance was performed as a multivariate analysis to eliminate any potential sources of bias. Besides, it is necessary to check for multicollinearity in order to avoid bias that could possibly result from correlation between independent variables in a regression model. Highest education level and salary would not be included as independent variables due to their significant association with types of occupation. Therefore, multicollinearity must be identified and then eliminated in order to avoid introducing bias in the subsequent analysis.

All missing data shall be treated as missing values. A unique code will therefore be used to represent the missing value. All analyses were conducted using IBM SPSS software (IBM Corp. Released 2012. IBM SPSS Statistics for Windows, Version 21.0. Armonk, NY: IBM Corp.).

2.8 ETHICAL CLEARANCE

This study used secondary data obtained from a previous cross-sectional study for developing a new scale for measuring QoL and overall well-being. Therefore, prior written informed consent was not necessary. This study was approved by Medical Research and Ethics Committee (MREC) and the publication of the study results was also approved by the Director-General of the Ministry of Health, Malaysia. The MREC have granted ethics approval for this study that is registered under NMRR ID-21-01979-XDL (IIR).

3. RESULTS

3.1 SAMPLE DEMOGRAPHICS

This study was utilizing the secondary data of 406 healthcare workers who are currently working in a single tertiary hospital, with the majority being female (81.8%), aged between 18 to 35 years (53.0%), and of Malay ethnicity (34.0%). Additionally, 68.0% were reported to be married. In terms of occupation, nurses comprised the majority. Furthermore, 70.6% reported to have excellent health, indicating they were healthy without any disease (Table 1).

TABLE 1: BASIC SOCIO-DEMOGRAPHIC PROFILES AND HEALTH CONDITIONS OF RESPONDENTS

Profile	Profile category	n	%
Gender	Male	74	18.2
	Female	332	81.8
Age group	18 to 35 years	215	53.0
	36 to 40 years	88	21.7
	41 to 50 years	89	21.9
	51 to 60 years	14	3.5
Ethnicity	Malay	138	34.0
	Chinese	73	18.0
	Iban	79	19.5
	Bidayuh	83	20.4
	Other Sarawak Indigenous	19	4.7
	Others	14	3.4
Highest education level	Secondary school	19	4.7
	Graduated with certificate or diploma	265	65.3
	Graduated with undergraduate degree	91	22.4
	Graduated with postgraduate degree, specialty and/or fellowship training	31	7.6
Marital status	Married	276	68.0
	Single and never married	114	28.1
	Divorcee/Spouse passed-away	16	3.9
Occupation	Specialist/Medical doctor	73	18.0
	Pharmacist	16	3.9
	Nurses	257	63.3
	Assistant Medical Doctor	13	3.2
	Other allied health officer	35	8.6
	Other occupations	12	3.0
Health condition			
Excellent health		284	70.6
Moderate health		96	23.9
Poorest health		22	5.5

3.2 ASSESSMENT OF QUALITY OF LIFE

According to Table 2, all domains reported mean scores of more than 70.0%, indicating good to excellent levels, except for "Sleep quality," "Eating regime," and "Body image." Specifically, 27.1% reported poor sleep quality, 22.4% had poor body image, and 16.7% reported poor eating regime. The top three domains with the highest mean scores were "Self-care," followed by "Independent," and "Mobility." In terms of elements, "Survival" had the highest mean score, followed by "Relationship," "Functional activities," and "Health." In general, all domains show moderate to excellent scores, as shown in Table 2.

TABLE 2: SIGQOLM SCORES BY ELEMENTS, DOMAINS AND THE SUM TOTAL

Elements/Domains	Mean	SD	95%CI		Excellent > 80	Good 70 ≤ 80	Moderate 50 ≤ 69	Poor < 50
HEALTH	75.8	14.0	74.4	77.1	41.1%	26.6%	28.6%	3.7%
Pain	72.8	19.3	70.9	74.7	41.1%	21.4%	29.8%	7.6%
Physical Energy	72.1	22.1	69.9	74.2	40.6%	14.8%	32.5%	12.1%
Emotional symptoms	78.5	20.5	76.5	80.5	52.7%	14.3%	27.3%	5.7%
Independent	95.0	12.3	93.8	96.2	90.6%	3.9%	4.4%	1.0%
Mobility	95.2	10.4	94.1	96.2	92.4%	4.7%	2.2%	0.7%
Sleep Quality	67.6	23.2	65.4	69.9	35.2%	11.3%	36.7%	16.7%
Eating regime	59.7	27.3	57.1	62.4	23.4%	15.8%	33.7%	27.1%
Body Image	65.9	28.3	63.2	68.7	39.7%	9.4%	28.6%	22.4%
Perception of Health	73.2	24.0	70.9	75.6	46.1%	12.3%	32.5%	9.1%
RELATIONSHIP	88.5	13.1	87.2	89.8	77.3%	13.8%	7.4%	1.5%
Family Relationship	91.0	15.0	89.5	92.4	82.5%	7.6%	7.1%	2.7%
Friendship	88.2	16.1	86.6	89.8	71.7%	15.0%	11.3%	2.0%
Religiosity	86.4	20.3	84.4	88.4	72.7%	9.4%	12.3%	5.7%
FUNCTIONAL ACTIVITIES	84.2	13.5	82.9	85.5	64.0%	20.7%	13.5%	1.7%
Self-Care	96.1	10.2	95.1	97.1	91.6%	5.2%	2.7%	0.5%
Social Life	74.4	22.8	72.2	76.6	45.8%	13.8%	29.3%	11.1%
Time Usage	78.1	20.9	76.1	80.2	55.7%	16.5%	19.5%	8.4%
SURVIVAL	88.9	12.8	87.6	90.1	78.1%	15.3%	4.7%	2.0%
Basic Needs	90.3	14.3	88.9	91.6	81.0%	9.1%	8.9%	1.5%
Safety	89.9	14.9	88.4	91.3	79.3%	10.3%	8.9%	1.5%
Future Condition	86.8	18.6	85.0	88.7	76.1%	8.9%	10.8%	4.2%
SigQOLM	76.6	11.2	75.6	77.7	42.1%	31.8%	22.4%	2.2%

3.3 ASSOCIATION OF FACTORS WITH QUALITY-OF-LIFE MEASURES

Table 3 studies on the association of factors towards QOL and well-being. The analysis revealed that gender and ethnicity only affected the domain of "Religiosity" ($p < 0.05$), while age, marital status, occupation, and health condition significantly impacted most domains ($p < 0.05$). The most common factors contributing to poorer QOL and well-being were observed among individuals who were divorced or were made a widow (or widower), as well as those with the poorest health conditions.

TABLE 3: ASSOCIATION BETWEEN SOCIO-DEMOGRAPHIC FACTORS AND QUALITY OF LIFE

Elements/Domains	Associated Factors ($p < 0.05$)						Summary*
	Sex	Age	Eth	Mar	Occ	Hea	
HEALTH				x	x	x	D/P, Other occupation, Poorest health
Pain				x	x	x	D/P, Nurses, Poorest health
Physical Energy				x		x	D/P, Poorest health
Emotional				x	x		D/P, Other occupation
Symptoms							
Independent							Poorest health
Mobility						x	
Sleep Quality				x	x	x	D/P, Medical doctor, Poorest health
Eating		x		x	x	x	Oldest, D/P, Pharmacist, Moderate health
Body Image					x		Medical doctor
Perception Health				x	x	x	D/P, Other occupations, Poorest health

RELATIONSHIP			x		D/P
Family Relationship	x		x	x	Youngest, D/P, Poorest health
Friendship			x		D/P
Religiosity	x	x	x	x	Male, Chinese, D/P, Medical doctor
FUNC. ACTIVITIES	x		x	x	Youngest, D/P, Medical doctor
Self-Care	x				Youngest
Social Life			x		D/P
Time Usage	x		x	x	Youngest, D/P, Medical doctor
SURVIVAL	x		x		Youngest, D/P
Basic Needs					
Safety			x		D/P
Future Condition					
	x		x	x	Youngest, D/P, Medical doctor, Poorest health
SigQOLM			x	x	D/P, Poorest health

Note

Multivariate analysis was conducted using General Linear Model Analysis of Covariance (ANCOVA)

*Report the lowest score for each variable found to be statistically significant ($p < 0.05$)

Eth refers to ethnicity

Mar refers to marital status and considered as a modifiable factor

Occ refers to occupation and considered as a modifiable factor

Hea refers to health's condition and considered as a modifiable factor

D/P refers to divorcee or spouse passed away

4. DISCUSSION

Main findings of this study

This study represents the inaugural utilization of the SigQOLM scale to assess the quality of life (QOL) and well-being among healthcare workers within a specific tertiary healthcare institution.

What is already known on this topic

Previous research has consistently recognized QOL as a pertinent measure across diverse populations, including employed individuals, as work inherently influences overall well-being [12,13].

What this study adds

Therefore, this study's pioneering application of the SigQOLM scale to gauge QOL and well-being among healthcare workers is justified.

4.1 THE QUALITY OF LIFE (QOL) AMONG HEALTHCARE WORKERS

Apart from the three domains of "Sleep quality", "Eating regime" and "Body image", this cross-sectional study had reported mean scores of more than 70.0% in all the other domains of HRQOL, which was indicating good to excellent levels of the healthcare workers' overall QOL and well-being,

4.2 DETERMINANTS OF QOL AMONG HEALTHCARE WORKERS

This cross-sectional study had identified three domains that contributed to the low score of QOL and well-being namely: dissatisfaction with eating regime, body image, and sleep quality. Research indicates that various physical, psychological, social, and environmental factors can influence overall QOL among healthcare workers [14,15]. This study reveals that age, marital status, occupation, and health condition significantly correlate with QOL and well-being, while gender and ethnicity demonstrate minimal impact. This suggests a positive trend, indicating a lack of serious gender and racial discrimination within this population.

Health

Previous studies have highlighted that compromised HRQOL among healthcare workers, stemming from factors like poor work conditions or excessive stress, can detrimentally affect work performance and patient outcomes [16,17]. In the current healthcare environment, indicators of work stress pose significant public health concerns, underscoring the importance of addressing work and personal-related aspects that may impact healthcare workers' QOL and well-being [18,19,20].

In summary, this study has successfully identified dissatisfaction with eating regime, body image, and sleep quality as key contributors to deficient HRQOL, as indicated by QOL scores below 70.0%. Approximately 30.0% of healthcare workers in this setting were reporting to have experienced comorbidities, suggesting that many may adhere to restrictive eating regimes. Sleep quality is also affected, likely due to the necessity of working on call and night shifts. Moreover, marital status, occupation, and health condition emerge as significant independent factors associated with the health element, suggesting their substantial impact on overall QOL and well-being [21,22]. While these factors may be challenging to modify, healthcare workers must prioritize maintaining good health and adjusting their lifestyles, particularly since poor health is prevalent among divorcees and individuals who have lost their spouses.

Relationship

This study indicates that healthcare workers, particularly within this population, generally do not experience significant relationship issues, as evidenced by scores above 85.0% for family relationships, friendships, and religiosity. This positive finding is encouraging, as strong relationships enrich individuals' experiences, shape their perspectives, and profoundly influence their QOL and well-being [23,24]. Notably, many respondents' friendships are primarily with their colleagues, fostering healthy connections that contribute to emotional well-being and personal growth [25].

Functional activities

Functional activities, encompassing routine tasks performed daily, are integral to overall QOL and well-being. While healthcare workers demonstrate excellent scores in self-care, indicating proficiency in activities such as bathing and dressing, scores for domains such as social life and time usage are moderate, falling below 80.0%. Social participation and engagement are closely linked to functional activities, with limitations potentially leading to social isolation and reduced community participation, negatively impacting QOL [26]. Furthermore, engaging in physical and mental activities promotes social well-being, with research suggesting that a sense of purpose contributes to better physical health and life satisfaction [27,28,29]. Therefore, healthcare workers must prioritize engaging in healthy activities amidst their busy schedules.

Survival

Given that respondents are employed in a secure environment, scores for survival and their respective domains (i.e., basic needs, safety, and perception of future conditions) are excellent, contributing to their overall QOL and well-being. This aligns with previous findings indicating that housing conditions, health, and social support significantly influence QOL [30]. QOL and well-being encompass various factors beyond health, including relationships, social belonging, and the built environment [31]. Therefore, the SigQOLM scale's versatility, incorporating multiple elements and domains, offers a comprehensive approach to assessing an individual's QOL and well-being.

The importance

The present findings have important practical implications for healthcare management and workforce planning. The identification of modifiable occupational factors associated with quality of life and well-being suggests that organizational interventions, rather than solely individual coping strategies, are critical for improving staff outcomes [32,33]. Translating these results into practice, healthcare managers should prioritize workplace policies that address workload distribution, staffing adequacy, and supportive work environments, as these factors are consistently linked to better well-being among healthcare workers [9,34].

In particular, the observed association between sleep quality and well-being underscores the need for structured fatigue-risk management strategies. Hospital administrators could consider optimizing rostering systems to limit excessive

consecutive night shifts, ensuring adequate recovery time through minimum rest intervals between shifts, and implementing forward-rotating schedules where feasible [32,35]. In addition, providing protected rest breaks during prolonged duties and promoting a workplace culture that recognizes fatigue as a patient-safety issue may help mitigate the adverse effects of sleep deprivation on both staff well-being and clinical performance [33,36]. Overall, translating the study findings into actionable policies reinforces the applied relevance of this research.

Strengthening these practice-focused implications can further enhance the manuscript's relevance to healthcare managers, policymakers, and system planners. Translating study findings into actionable strategies such as optimizing staffing patterns, implementing fatigue-risk management protocols, promoting supportive leadership, and enhancing recognition and professional development programs allows healthcare organizations to directly address factors that influence staff quality of life and well-being. These operational recommendations support workforce sustainability and patient safety while also contributing to the broader health services management literature by providing evidence-informed strategies that link occupational stressors with tangible organizational interventions.

5. CONCLUSION

In summary, ample evidence suggests that QOL and well-being result from various factors and reflect individuals' perceptions and reactions to these elements of life. The ability of SigQOLM scale to incorporate a broader range of considerations underscores its value in assessing QOL and well-being across diverse populations, including healthy and non-healthy individuals. Moving forward, future studies are encouraged to utilize the SigQOLM scale to measure QOL and well-being comprehensively, reflecting the complexity of human life.

5.1 IMPLICATIONS OF THE STUDY

This study has implemented a pioneering application of the SigQOLM scale to gauge QOL and well-being among the healthcare workers and such an application proves to be well-justified. Therefore, the results of this study have found that the SigQOLM scale shall enable us to assess the QoL and well-being among healthcare workers within a specific tertiary healthcare institution.

5.2 RELEVANCE FOR CLINICAL PRACTICE

The study suggests that a distinctive feature of this new SigQOLM scale is its ability to incorporate a broader range of considerations for an assessment of QOL and well-being across diverse populations, including healthy and non-healthy individuals. Since the assessment of the QOL among healthcare workers (HCWs) is vital for better healthcare and is an essential indicator for competent health service delivery, hence the results of this study have identified the clinical application of this new SigQOLM scale for gauging QOL and well-being among the healthcare workers within a specific tertiary healthcare institution.

5.2 STRENGTHS, LIMITATIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH

The strength of this study lies in the fact that it is the first to report quality of life (QOL) and well-being using the newly developed scale, SigQOLM, among healthcare workers. Hence, the findings may serve as a benchmark for future studies. Irrespective of the above, the results of this study do have limitations whereby all the inferences and conclusions drawn from this study have specifically been derived from healthcare workers who are currently working in a single tertiary centre (which is the Sarawak General Hospital in Malaysia). Secondly, SigQOLM is a relatively long scale that may introduce respondent fatigue. However, future studies may consider using a shorter version of SigQOLM³⁷. In addition, future studies may need to be carried out which can offer a better representation of this determination of QoL and well-being for all healthcare workers in the whole country of Malaysia and also in various other parts of the world. Similar studies also can be carried out in the near future to study QOL and well-being for a variety of other industries and organizations which may be present in specific localities, districts, states or even countries. Besides that, future studies encourage researchers to explore SigQOLM to provide evidence of its applicability for an objective evaluation of the effect of specific interventions on QoL in studies of various research designs.

FUNDING

None.

CONFLICT OF INTEREST

The authors have no relevant financial or non-financial interests to disclose.

AVAILABILITY OF DATA AND MATERIALS

Data requests need to be made from the Director General Ministry of Health Malaysia. The request can be made via the corresponding author. Once granted the approval, the anonymous data will be made available.

References

1. De Guimarães JC, Severo EA, Júnior LA, Da Costa WP, Salmoria FT. Governance and quality of life in smart cities: Towards sustainable development goals. *Journal of Cleaner Production* 2020; 253: 119926.
2. Mo PK, Wong EL, Yeung NC, Wong SY, Chung RY, Tong AC, Ko CC, Li J, Yeoh EK. Differential associations among social support, health promoting behaviours, health-related quality of life and subjective well-being in older and younger persons: a structural equation modelling approach. *Health & Quality of Life Outcomes* 2022; 20(1): 38.
3. Liu, B. C. Quality of life indicators in U.S. metropolitan areas: A statistical analysis. New York: Praeger Publishers; 1976.
4. World Health Organization. WHOQOL-BREF: introduction, administration, scoring and generic version of the assessment: field trial version, December 1996. World Health Organization; 1996.
5. The WHOQOL Group. Development of the World Health Organization WHOQOL-BREF quality of life assessment. *Psychological Medicine* 1998; 28(3): 551-558.
6. Colquhoun D. The A to Z of the wellbeing industry: from Angelic Reiki to patient centred care. Wellbeing is big business, but how much of it works? *BMJ*. 2011 May 4;342:d2711.
7. Bujang MA, Lai WH, Hon YK, Yap EPP, Tiong XT, Ratnasingam S, Kim ARJ, Husin M, Jee YYH, Ahmad NFD, Haniff J. Measuring population health and quality of life: Developing and testing of the significant quality of life measure (SigQOLM). *Heliyon* 2023; 9(12): e22668.
8. Demerouti E, Bakker AB, Nachreiner F, Schaufeli WB. The Job Demands–Resources model of burnout. *Journal of Applied Psychology* 2023; 86(3): 499–512.
9. Bakker AB, Demerouti E. The Job Demands–Resources model: State of the art. *Journal of Managerial Psychology* 2007; 22(3): 309–328.
10. Maslach C, Jackson SE. The measurement of experienced burnout. *Journal of Occupational Behavior* 1981; 2(2): 99–113.
11. Maslach C, Schaufeli WB, Leiter MP. Job burnout. *Annual Review of Psychology* 2001; 52: 397–422.
12. Seidl, E.M.F. and Zannon, C.M.L.C. Qualidade de vida e saúde: Aspectos conceituais e metodológicos. *Cadernos de Saúde Pública* 2004; 20: 580-588.
13. Tabeleão, V. P., Tomasi, E., & Neves, S. F. Qualidade de vida e esgotamento profissional entre docentes da rede pública de Ensino Médio e Fundamental no Sul do Brasil. *Cadernos de Saúde Pública* 2011; 27(12): 2401-2408.
14. Engström S, Foldevi M, Borgquist L. Is general practice effective? A systematic literature review. *Scandinavian Journal of Primary Health Care*. 2001; 19(2): 131-144.
15. Fronteira I, Ferrinho P. Do nurses have a different physical health profile? A systematic review of experimental and observational studies on nurses' physical health. *Journal of Clinical Nursing*. 2011; 20(17-18): 2404-2424.
16. Leary S, Francis CF. Healthy staff will enhance outcomes. *Health Service Journal* 2007; 117(6056): 26-27.
17. Shields M, Wilkins K. Factors related to on-the-job abuse of nurses by patients. *Health Reports* 2009; 20(2): 7-19.
18. Buselli, Rodolfo, Sigrid Baldanzi, Martina Corsi, Martina Chiumiento, Elena Del Lupo, Claudia Carmassi, Liliana Dell'Oso, Alfonso Cristaudo. Psychological Care of Health Workers during the COVID-19 Outbreak in Italy: Preliminary Report of an Occupational Health Department (AOUP) Responsible for Monitoring Hospital Staff Condition. *Sustainability*. 2020a; 12(12): 5039.

19. Buselli R, Corsi M, Baldanzi S, Chiumiento M, Del Lupo E, Dell'Oste V, Bertelloni CA, Massimetti G, Dell'Osso L, Cristaudo A, Carmassi C. Professional Quality of Life and Mental Health Outcomes among Health Care Workers Exposed to Sars-Cov-2 (Covid-19). *International Journal of Environmental Research and Public Health*. 2020b; 17(17): 6180.
20. San Martin AH, Serrano JP, Cambriles TD, Arias EM, Méndez JM, del Yerro Álvarez MJ, Sánchez MG. Sleep characteristics in health workers exposed to the COVID-19 pandemic. *Sleep medicine* 2020; 75: 388-394.
21. Ibrahim NK, Alzahrani NA, Batwie AA, Abushal RA, Almogati GG, Sattam MA, Hussin BK. Quality of life, job satisfaction and their related factors among nurses working in king Abdulaziz University Hospital, Jeddah, Saudi Arabia. *Contemporary Nurse*. 2016; 52(4): 486-498.
22. Colby L, Mareka M, Pillay S, Sallie F, van Staden C, du Plessis ED, Joubert G. The association between the levels of burnout and quality of life among fourth-year medical students at the University of the Free State. *South African Journal of Psychiatry*. 2018; 24(0): a1101.
23. Uchino, B. N. *Social Support and Physical Health: Understanding the Health Consequences of Our Relationships*. New Haven, CT: Yale University Press; 2004.
24. Helliwell, J., Layard, R., & Sachs, J. *World Happiness Report 2019*. Published by Sustainable Development Solutions Network, New York and powered by the Gallup World Poll data; 2019. Available from: <https://worldhappiness.report/> [Accessed 9-October-2024].
25. Demir M, Orthel H. Friendship, real-ideal discrepancies, and well-being: Gender differences in college students. *The Journal of Psychology: Interdisciplinary and Applied*. 2011; 145(3): 173–193.
26. Mann M, Hosman CM, Schaalma HP, de Vries NK. Self-esteem in a broad-spectrum approach for mental health promotion. *Health Education Research* 2004; 19(4): 357-372.
27. Warburton DE, Nicol CW, Bredin SS. Health benefits of physical activity: the evidence. *Canadian Medical Association Journal* 2006; 174(6): 801-809.
28. Valenzuela MJ, Sachdev P. Brain reserve and cognitive decline: a non-parametric systematic review. *Psychological Medicine* 2006; 36(8): 1065-1073.
29. Boyle PA, Barnes LL, Buchman AS, Bennett DA. Purpose in life is associated with mortality among community-dwelling older persons. *Psychosomatic Medicine*. 2009; 71(5): 574-579.
30. Zainal NR, Kaur G, Ahmad N'A, Khalili JM. Housing Conditions and Quality of Life of the Urban Poor in Malaysia. *Procedia—Social and Behavioural Sciences*. 2012; 50: 827-838.
31. Inoguchi, T., & Fujii, S. *The quality of life in Asia: A comparison of quality of life in Asia*. Dordrecht: Springer; 2013.
32. Caruso CC, Baldwin CM, Berger A, Dollard MF. Organizational strategies to prevent occupational sleep deprivation and fatigue. *Journal of Occupational and Environmental Medicine* 2017; 59(7): e129–e136.
33. Dall'Ora C, Griffiths P, Ball J, Simon M, Aiken LH. Association of 12-hour shifts and nurses' job satisfaction, burnout, and intention to leave: Findings from a cross-sectional study of 12 European countries. *BMJ Open* 2015; 5(9): e008331.
34. Folkard S, Tucker P. Shift work, safety and productivity. *Occupational Medicine* 2003; 53(2): 95–101.
35. Rogers AE, Hwang WT, Scott LD, Aiken LH, Dinges DF. The working hours of hospital staff nurses and patient safety. *Health Affairs* 2004; 23(4): 202–212.
36. West CP, Dyrbye LN, Erwin PJ, Shanafelt TD. Interventions to prevent and reduce physician burnout: A systematic review and meta-analysis. *The Lancet* 2018; 388(10057): 2272–2281.
37. Bujang MA, Husin M, Lai WH, Hon YK, Tiong XT, Kim AR, Ahmad NF, Yap EP, Fong AY. The revised version of significant quality of life measure (SigQOLM-36). *BMC Research Notes*. 2026;19(1):35.