

Wellness Literacy and Multidimensional Wellness Among Employed Mothers in Peri-Urban Areas of the Colombo District in Sri Lanka: A Community-Based Cross-Sectional Study

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Abstract

Employed mothers in peri-urban areas of Colombo District balance paid work, childcare, household responsibilities, and social expectations. This study measured the wellness literacy and eight dimensions of wellness of 127 working mothers in Colombo District, Sri Lanka, by a cross-sectional approach. A questionnaire was designed to measure wellness literacy, physical, psychological, social, occupational, intellectual, emotional, spiritual and environmental wellness. Descriptive statistics, Cronbach's alpha, Pearson correlations and two-tailed independent-samples t-tests were used to analyse the data. The level of wellness literacy was moderate. Social and spiritual wellness were the highest, demonstrating the importance of beliefs, family and friends, and social supports for everyday living, with occupational and environmental wellness being the lowest. Wellness literacy was associated with all dimensions, and especially psychological and emotional wellness. Wellness literature was higher in well-educated mothers and in families with a higher income. These results suggest wellness education and family and community support at work are required.

Keywords: Wellness Literacy; Employed Mothers; Peri-urban Sri Lanka; Wellness; Work-Family Balance.

Introduction

In recent decades, Sri Lankan women have increasingly participated in paid work, particularly in urban and peri-urban areas, where increasing living expenses and growing service sector jobs and family dynamics have shifted gender roles. But women's participation in the labour force is lower than men's. Many families have women workers with multiple roles, including caring for children, the elderly and routine housework (Department of Census and Statistics, 2023; UN Women, 2015; World Bank, 2026). This can affect their day-to-day well-being. Peri-urban neighbourhoods are rural-urban areas. These can be rapidly urbanising, have uneven access to public services, a wide range of livelihoods and diverse social values (Tacoli, 2003). These contexts can present particular challenges for employed mothers and impact

time, resources and support needed for well-being. Well-being is more than the absence of illness. Traditional models of well-being view it as a dynamic, multidimensional process that involves physical, psychological, social, occupational, intellectual, emotional, spiritual and environmental well-being (Hettler, 1980; Adams et al., 1997; Swarbrick, 2006).

These dimensions are interrelated. For example, sleep deprivation may reduce work performance, occupational stress may affect mood and family relationships, and poor neighbourhood environments may limit opportunities for physical activity and feelings of safety. A multidimensional perspective is therefore important, as it captures the complexity of women's lived experiences rather than reducing well-being to a single health indicator. Health literacy refers to the ability to access, understand, evaluate, and use

health information to make informed decisions (Institute of Medicine, 2004; Nutbeam, 2000; Sorensen et al., 2012).

Few studies have examined the association between health literacy and self-management, preventive care behaviours and health outcomes. Baker et al. (2008), Berkman et al. (2011), and DeWalt et al. (2004) found that, in previous studies, higher levels of health literacy were linked to better self-management, more use of preventive care and better health outcomes. But an individual's capacity to locate, comprehend and access health information can also be influenced by the level of education, income, workplace factors and social support (Cho et al. 2008; Pleasant et al. 2016).

In Sri Lanka, women's employment, maternal responsibilities, and women's involvement in the labour force have been studied. But there is limited knowledge and understanding of the concept of wellness literacy and multidimensional wellness among employed mothers in the peri-urban area in Colombo District. Most of the previous research has concentrated on the employment of women or on the challenges associated with working mothers. There has been less focus on the understanding of wellness information and its utilisation by working mothers in their everyday lives (Kodagoda & Duncan, 2010; Samarakoon & Mayadunne, 2018).

There is, therefore, limited evidence about the relationship between wellness literacy and multidimensional wellness among employed mothers in Sri Lanka. The purpose of this study is to explore the relationship between wellness literacy and the eight

wellness domains of employed mothers residing in peri-urban areas of Colombo District.

Literature Review

Wellness consists of a number of interconnected components of an individual's life. Hettler said wellness was a conscious practice of balancing various aspects of life. Later, these areas were measured with the Perceived Wellness Survey (Hettler, 1980; Adams et al., 1997). These models are useful for the study of mothers in the workforce, as there could be a difficulty in one aspect of life which could impact other areas of life. For instance, when mothers are emotionally strained, this can impact their job satisfaction, when neighbourhood conditions restrict access to physical activity, and when family and spiritual support help to manage psychological stress. Studies in various contexts have demonstrated that individual behaviour, social interactions, and living circumstances influence each other's state of wellness.

Health literacy is more than the ability to read health information. According to Nutbeam (2000), there are three levels of health literacy: functional, interactive, and critical health literacy. These skills enable individuals to read information, convey to health care and make decisions. Subsequent conceptualisations of health literacy included four core health literacy abilities: access, interpret, assess, and act (Institute of Medicine, 2004; Sorensen et al., 2012; Pleasant et al., 2016). Various countries and cultural contexts have utilised the tools of health literacy.

However, because these tools are often local to specific countries, languages, or cultures, they may have to be similarly adapted for the local context (Chinn & McCarthy, 2013; Duong et al., 2017). Wellness literacy in this study is defined as the knowledge, evaluation and application of information to promote wellness in multiple life domains (Hou et al., 2021; Edwards & Rothbard, 2000).

Employed mothers must make decisions daily regarding nutrition, sleep, stress, transportation, and family and work-family balance, issues that specifically relate to wellness literacy. Their use of wellness information is not solely a function of their knowledge and skills, but also the support and opportunities they have in their social and physical world (Nutbeam, 2000; Sorensen et al., 2012). Work-family conflict is when a worker doesn't have enough time, energy or resources to manage work and family responsibilities. Experiences in one role may also affect the other role because work and family responsibilities are closely connected (Edwards & Rothbard, 2000). This conflict can be affected by personal factors, but it can also be influenced by work factors and family factors, including having multiple roles (Greenhaus & Beutell, 1985; Frone, 2003; Bianchi & Milkie, 2010; Nomaguchi & Milkie, 2020; Allen et al., 2012). Family, neighbours and employers can provide assistance to make daily life easier to manage and reduce isolation for the mother (Cohen & Wills, 1985). This support can also boost mothers' decision-making confidence regarding their health, work and family. The ability to manage stress and emotions is also important. Stress

management by mothers may make it easier to maintain healthy routines, for example, adequate sleep, balanced nutrition, and stress management of everyday challenges (Swarbrick, 2006).

Education and income are also related to wellness literacy and wellness. Teaching can enhance the skills of reading, communication and critical thinking. May also help people to use health and other services with greater confidence. Families' ability to afford nutritious food, appropriate housing, transport and healthcare services is impacted by income (Cho et al., 2008; Pleasant et al., 2016). Environmental conditions, such as housing quality and neighbourhood safety, can also affect mental health and everyday well-being (Evans et al., 2003; Katulanda et al., 2010). Therefore, wellness literacy should not be seen only as an individual skill. It is also influenced by the social, economic and living conditions in which mothers make daily choices. Although previous studies provide useful evidence on wellness, health literacy and women's roles, there is still limited research on how wellness literacy is connected with multidimensional well-being among employed mothers in peri-urban Sri Lanka. This study addresses this gap by examining wellness literacy and well-being across eight domains, and by exploring their associations with socio-demographic factors such as education and household income among employed mothers in the Colombo District.

Significance of the Study

This study is significant as it provides evidence from the peri-urban areas of

Colombo District, Sri Lanka, takes a multidimensional approach to wellness, and demonstrates the impact of wellness literacy on more effective support initiatives in the community and workplace. It also shows that empowering mothers with knowledge and practical skills for decision-making can be advantageous for the entire family, as mothers are significant in health and well-being practices.

Research Problem

Peri-urban mothers of Colombo District, who work, experience a unique combination of employment, care and social demands that may affect multiple aspects of their wellness. But there is a lack of contextual evidence on the association between wellness literacy and multidimensional wellness among this population. The present study, therefore, fills this gap by investigating the associations between wellness literacy and multidimensional wellness among employed mothers in the peri-urban areas of Colombo District in Sri Lanka.

Research Objectives

The present study examined the wellness literacy and wellness of working mothers in the peri-urban areas of the Colombo District in terms of levels, associations and socio-demographic factors.

Specific objectives:

- (1) To assess the level of wellness literacy among employed mothers in peri-urban areas of the Colombo District
- (2) To assess multidimensional wellness across eight domains.

(3) To analyse the relationship between wellness literacy and multidimensional wellness

(4) To examine the influence of education level and household income on wellness literacy and overall wellness.

Methodology

This study used a community-based cross-sectional research design using a quantitative survey to examine the association between wellness literacy and multidimensional well-being among employed mothers in peri-urban areas of Colombo District, Sri Lanka. The study population consisted of employed mothers aged 25–63 years who had lived in the selected peri-urban communities for at least six months and had at least one child. Both full-time and part-time employed mothers were included. The required sample size was calculated using the single population proportion formula.

Sample size formula (single proportion):

$$n = \frac{Z^2 \times p(1 - p)}{d^2}$$

Where:

n = required sample size

Z = Z value for 95% confidence level(1.96)

p = estimated proportion (0.50, used when prevalence is unknown)

d = margin of error (e.g. 0.087)

based on this calculation;

$$n = \frac{(1.96)^2 \times 0.50(1 - 0.50)}{(0.087)^2} \approx 127$$

The calculation sample size was approximately 127 participants. Based on the sample size calculation, 127 employed mothers were included in the study. Data were collected using a structured, self-administered questionnaire with three sections. The first section gathered socio-demographic and employment-related information. The second section focused on wellness literacy, including knowledge and understanding, access to wellness information, evaluation of information, and use of that information in daily life. The third section assessed multidimensional wellness across eight areas: physical, psychological, social, occupational, intellectual, emotional, spiritual and environmental wellness. These areas were selected based on established wellness models (Adams et al., 1997; Hettler, 1980; Swarbrick, 2006). Before the main data collection, the questionnaire was pilot-tested with ten mothers from similar backgrounds to check whether the questions were clear, culturally suitable and easy to answer.

Table 1. Wellness Dimensions, Measurement Focus, and Sources

Dimension	Measurement focus	Reference /basis
Physical	Exercise, nutrition, and sleep quality	Items based on wellness models and the Perceived Wellness Survey (Adams et al., 1997).
Psychological	Stress management, life satisfaction	Ryff (1989) and wellness framework-based items.
Social	Family support and community involvement	Cohen and Wills (1985) and framework-based items.

Occupational	Job satisfaction, work-life balance	Work-family and work-life balance literature (Allen et al., 2012; oydanoff, 2004).
Intellectual	Learning, problem-solving, and intellectual stimulation	Wellness framework-based items (Hettler, 1980).
Emotional	Emotional regulation, resilience, empathy	Wellness and recovery-oriented wellness literature (Swarbrick, 2006).
Spiritual	Sense of purpose, alignment with values	Items based on wellness frameworks (Hettler, 1980; Adams et al., 1997).
Environmental	Living conditions, safety, and access to resources	Wellness framework-based items (Swarbrick, 2006; Tacoli, 2003).

Data Analysis

Data were analysed using descriptive and inferential statistical methods. The reliability of the questionnaire scales was checked with Cronbach's alpha, and values of 0.70 or above were considered acceptable (Nunnally & Bernstein, 1994). Descriptive statistics, including means, standard deviations, frequencies and percentages, were used to describe the participants' socio-demographic characteristics, wellness literacy scores and wellness domain scores. Pearson correlation analysis was used to examine how wellness literacy was related to each wellness domain. Independent-samples t-tests were then used to compare wellness literacy and wellness outcomes between education groups. Household income was analysed descriptively to observe whether wellness literacy and

overall wellness differed across income categories.

Table 2. Summary of statistical analyses

Analysis	Purpose	Interpretation	Application in this study
Cronbach's alpha	Assess internal consistency reliability	Values ≥ 0.70 indicate acceptable internal consistency	Used to evaluate the reliability of wellness literacy and domain scales.
Descriptive statistics	Summarise participant characteristics and key variables	Higher/lower means scores indicate variation in levels; frequencies describe distributions	Used for socio-demographic variables and scale scores.
Pearson correlation	Examine relationships between variables	The correlation coefficient (r) indicates the strength and direction of association	Used to assess relationships between wellness literacy and wellness domains.
Independent-samples t-test	Compare the mean differences between groups	$p < 0.05$ indicates statistical significance; effect size (eg, Cohen's d) strengthens interpretation	Used to compare education level groups on literacy and wellness outcomes.
Income group comparison	Explore patterns across income categories	Patterns interpreted descriptively	Used to identify social gradients in wellness literacy and well-being

Results

A total of 127 employed mothers participated in the study. Participants were aged between 25 and 63 years ($M = 39.8$, $SD = 9.6$). The majority were married (84.3%) and had one to three children. Educational attainment ranged from no formal schooling to tertiary or graduate-level education, with most participants having completed Advanced Level education or higher. Nearly half of the participants were employed in the private sector (48.0%), followed by government

employment (32.3%) and self-employment (19.7%). The household income also showed wide variations, with the highest proportion of households having income ranging from LKR 50,001 to LKR 75,000 (27.6%), indicating that the sample was mostly in the middle-income group.

Table 3. Socio-demographic characteristics of participants ($n = 127$)

Variable	Category	n	%
Age (years)	25–34	34	26.8
	35–44	51	40.2
	45–54	29	22.8
	55–63	13	10.2
Marital status	Married	107	84.3
	Single	3	2.4
	Divorced	15	11.8
	Widow	2	1.6
Education level	No schooling	1	0.8
	Grade 1–5	4	3.1
	Up to O/L	15	11.8
	Up to A/L	47	37.0
	Diploma	13	10.2
	Degree	11	8.7
	Tertiary/Other	36	28.3
Employment sector	Private sector	61	48.0
	Government	41	32.3
	Self-employed	25	19.7
Additional work descriptions*	Business owner/entrepreneur	8	6.3
	Professional/managerial	15	11.8
	Part-time/ contractual	12	9.4
Monthly income (LKR)	< 25,000	18	14.2
	25,001–50,000	27	21.3
	50,001–75,000	35	27.6
	75,001–100,000	23	18.1
	100,001–150,000>	24	18.9

*Business owner/entrepreneur and professional/managerial employment sectors are also included as supplement descriptions of the work.

Wellness Literacy

The overall mean wellness literacy score for participants was 72.4 (SD 11.3), which is considered to be at a moderate level of wellness literacy. There were significant differences between subdomains, with application and decision-making having the highest mean score. The internal consistency reliability was fair to good for each subscale (Cronbach's alpha ranging from .79 to .86).

Table 4. Descriptive statistics and reliability of wellness literacy

Variable	Items	Mean	SD	Cronbach's
Total Wellness literacy	9	72.4	11.3	0.86
Knowledge and understanding	3	24.1	3.2	0.79
Access and evaluation	3	23.2	3.5	0.81
Application and decision-making	3	25.1	3.1	0.84

Multidimensional Wellness

The mean scores were highest in the spiritual and social wellness areas, and lowest in the environmental and occupational wellness areas across the eight domains of wellness. Physical, intellectual, psychological and emotional wellness were in the mid-range. The pattern indicates that mothers receive both social and spiritual strength in the face of stressors such as work and neighbourhood

factors. Lower occupational wellness may be indicative of time strain, job stress and lack of flexibility, while lower environmental wellness may be about safety, transport, housing or access to supportive facilities.

Table 5. Mean and Standard Deviation of Multidimensional Wellness Domains

Wellness domain	Number of items used to measure each wellness domain	Mean	SD
Physical	4	68.2	12.1
Psychological	4	65.7	13.5
Social	3	66.3	12.7
Occupational	3	61.7	14.2
Intellectual	3	67.4	11.9
Emotional	4	64.9	13.1
Spiritual	2	70.5	12.4
Environmental	4	59.4	14.7

(Domains scores were calculated from items using a Likert scale and then converted to a 0-100 range to allow for comparison across domains.)

Association between Wellness Literacy and Wellness Domains

Pearson correlation showed significant positive correlations between wellness literacy and each of the eight wellness domains (all $p < .001$). The correlation coefficients were moderate to strong, with the highest being for psychological wellness ($r = .62$) and emotional wellness ($r = .56$). Environmental wellness showed the weakest association ($r = .38$).

Taken together, these findings suggest that mothers with higher reported wellness literacy tended to report more positive everyday wellness experiences.

Table 6. Pearson correlations between wellness literacy and wellness domains (n = 127)

Wellness domain	r (Pearson)	95% CI for r	p-value
Emotional wellness	0.56	[0.43, 0.67]	< .001
Environmental wellness	0.38	[0.22, 0.52]	< .001
Intellectual wellness	0.50	[0.36, 0.62]	< .001
Occupational wellness	0.47	[0.32, 0.60]	< .001
Physical wellness	0.49	[0.35, 0.61]	< .001
Psychological wellness	0.62	[0.50, 0.72]	< .001
Social wellness	0.53	[0.39, 0.64]	< .001
Spiritual wellness	0.48	[0.33, 0.60]	< .001

Difference by Education Level

Independent-samples t-tests revealed statistically significant differences in wellness outcomes based on education level. Participants with tertiary or graduate education reported significantly higher wellness literacy and overall wellness compared to those with lower educational attainment. These patterns are consistent with broader literature suggesting that education supports understanding, appraisal, confidence, and problem-solving in health-related

decision-making (Cho et al., 2008; Pleasant et al., 2016).

Table 7. Comparison of wellness outcomes by education level

Variable	Lower education (n = 40) Mean ± SD	Higher education (n = 87) Mean ± SD	t	p
Wellness literacy	68.2 ± 9.1	75.3 ± 10.2	4.12	< 0.001
Overall wellness	64.7 ± 6.8	69.5 ± 7.2	3.92	< 0.001
Psychological wellness	63.2 ± 7.5	67.4 ± 8.1	3.21	0.002

Income-based trends in Wellness

A gradual increase in wellness literacy and overall wellness was observed across increasing household income categories. Participants in higher-income groups consistently reported higher scores compared to those in lower-income groups. These patterns are descriptive and suggest a possible socio-economic gradient in wellness outcomes. These findings are descriptive rather than causal, but they suggest that material resources may influence how easily mothers translate knowledge into daily practice. Financial capacity shapes access to food, rest, transport, safer environments, and essential services.

Table 8. Comparison of wellness scores by household income

Income (LKR)	n	Wellness literacy M ± SD	Overall wellness M ± SD
< 25,000	18	68.4 ± 9.8	63.5 ± 6.7
25,001-50,000	27	71.0 ± 10.5	65.9 ± 7.0
50,001-75,000	35	72.8 ± 11.2	67.1 ± 7.3

75,001-100,000	23	73.4 ± 11.5	68.0 ± 7.1
100,001– 150,000>	24	74.1 ± 12.0	69.2 ± 7.5

The selected statistical methods were appropriate for the study design and data type, enabling a reliable assessment of relationships, group differences, and patterns in wellness literacy and multidimensional well-being.

Discussion

This study showed that employed mothers in peri-urban Colombo perceive wellness in a multifaceted and differential manner. Moderate levels of wellness literacy and higher levels of social and spiritual wellness, combined with relatively lower levels of occupational and environmental wellness, were observed. This is reflective of the multifaceted nature of mothers' lives, which includes social and personal resilience and meaning in the face of work-related stress and barriers.

The moderate wellness literacy level is significant because it indicates that participants have a basic level of knowledge and skills. But this does not necessarily translate to the consistent use of this knowledge in all areas of wellness. This study echoes other health literacy research, which focuses on the idea that having information is not enough to promote health (Nutbeam, 2000; Sorensen et al., 2012). This gap between knowing and practising healthy behaviours is especially important for mothers who manage paid employment, emotional responsibilities and household work. In everyday life, knowing what is healthy does not always mean

that mothers have enough time, energy or support to put this knowledge into practice. Therefore, wellness literacy is not simply about receiving information. It is also the ability to use that knowledge in a practical way when making daily decisions about health, family and work.

Higher spiritual and social wellness scores suggest that social, cultural and religious support still plays an important role in South Asian family life. Higher social and spiritual wellness scores could also be due to mothers' expectations about family support and community connections, values and religious/ spiritual beliefs in their lives. These can be sources of help that can assist mothers to cope with stress, emotional stress and daily demands. The results of previous studies have also shown that social support can mitigate the negative impact of stress (Cohen & Wills, 1985; Grzywacz & Marks, 2000).

The lower occupational wellness score may be due to the stress that mothers feel when having to balance work and family. Competing responsibilities can lead to stress and poor wellness based on the work-family conflict theory (Greenhaus & Beutell, 1985; Frone, 2003). Employed mothers may face pressure to perform well in the workplace while also carrying major responsibilities at home. Previous research has shown that a high workload and insufficient flexibility at work, as well as a lack of childcare support, have been associated with a decrease in occupational wellness among women (Bianchi & Milkie, 2010; Nomaguchi & Milkie, 2020; Kodagoda & Duncan, 2010). This decrease in environmental wellness score may be a result

of challenges with living conditions. The lack of adequate rest, physical activity, recreation and social interaction opportunities may be due to poor transport, inappropriate housing and absence of safe public places. The link between housing/neighbourhood conditions and mental health and well-being has been demonstrated in previous studies (Evans et al., 2003). The lower environmental wellness score observed in this study is in line with this evidence.

Overall, mothers who had higher wellness literacy reported higher scores in all eight domains of wellness. Psychological/emotional wellness had the strongest relationship. This can be a sign that wellness literacy is associated with the mothers' recognition of stress, coping with emotions and dealing with daily stressors. There is also previous research that has found a correlation between health literacy and self-management and increased confidence in health services use (Berkman et al., 2011; McCormack et al., 2017; Kickbusch et al., 2013). These results are not to be interpreted as a simple responsibility of mothers to take care of their health. Wellness knowledge may be easier to utilise if a mother receives support at home, at work and from her community.

The gap in education and earnings also reveals that there is a link between access to resources and the differences. Learning can contribute to the understanding, communication and decision making. There is a tendency that a higher income correlates with access to healthcare, childcare, transport, appropriate housing and safer neighbourhoods.

Wellness literacy thus must be considered both as an individual attribute and within the broader context of mothers' lives and work. These conditions encompass family support, workplace practices, community resources and social/economic conditions.

Implications

Wellness literacy programs should use language that learners can understand, with examples that are familiar and relevant to the local culture. This can assist mothers to make the content their own real-life experiences. These programmes should not only provide information but also offer practical support. They should also provide some practical guidance which mothers can follow when they are involved in employment, childcare, household affairs and transport issues.

Educational sessions should allow time for mothers to ask questions, share their experiences and discuss how wellness information can be used in the home, workplace and community. Occupational wellness was one of the domains with lower scores in this study, and employers have an important role in supporting it. They should be aware of the challenges faced daily by working mothers. Flexible working arrangements, predictable schedules, supportive supervision, fair leave policies and mental health support can minimise work-related stress. Small adjustments, including clearer communication, fairer workloads, and a more supportive attitude from supervisors, may also help promote mothers' wellness.

Safe roads, reliable public transport, green spaces, child care facilities and access to

essential services can make life easier for employed mothers. Improving wellness is not the responsibility of mothers alone. Employers, families, health care services, community groups and local authorities are also important in providing support.

Conclusion

This study aimed to investigate wellness literacy and eight wellness domains among employed mothers in the peri-urban population of Colombo District. The participants had a moderate level of wellness literacy. All eight wellness domains were found to have a positive association with wellness literacy. The highest social and spiritual wellness scores are consistent with the support that mothers receive through family relationships, community life, personal values and religious and spiritual beliefs. The mean scores for both occupational and environmental wellness were the lowest. Factors such as work stress, inflexibility, transport issues, safety and living environment can have an impact on the level of wellness in these areas.

Participants with higher levels of education had higher wellness literacy and overall wellness scores. There was also an increase in wellness literacy and overall wellness scores by the household income categories.

Giving information may not be sufficient to enhance the well-being of employed mothers. Supportive home, work and community environments are also important for mothers. Supportive workplaces, safe neighbourhoods, and reliable

transport, and family and community support can help mothers apply wellness knowledge to their everyday lives.

Wellness programs in peri-urban areas should, therefore, be a combination of wellness information that is clear and understandable and a system of workplace and community support.

Future research should explore wellness as an overall experience and not just one after another physical wellness indicator. Appropriate tools to measure wellness literacy in Sri Lanka also need to be developed culturally.

Qualitative research can offer a more detailed understanding of the experiences of employed mothers and how they perceive wellness, the challenges that they face and how they apply their knowledge of wellness in their daily lives.

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