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Applying the Biopsychosocial Model in Resource-Limited Settings: A Mixed-Methods Study of Young Healthcare Professionals in Myanmar

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ABSTRACT

The objective of this research is to assess the use of the biopsychosocial (BPS) model by young health care professionals in Myanmar. There is a need for further research examining how early-career providers cope with the traditional use of biomedicine and widespread cultural opposition to the BPS model in contexts of systemic resource shortages. The study employed a mixed-methods convergent design involving thirty-two health care professionals (aged 25–35), including physicians, nurses, and medical technicians. Data triangulation was achieved through structured surveys, semi-structured interviews, and field observations. Descriptive statistics were used to analyze quantitative data, while thematic analysis was applied to qualitative data to identify barriers to implementation. The survey results show that 53% of respondents consistently use the BPS framework in their clinical practice, whereas 47% reported infrequent use of the BPS model. Significant differences were observed across professions: 100% of physicians reported frequent use of the BPS model, compared with 46% of nurses and 43% of medical technicians. Qualitative findings revealed several barriers to the provision of holistic care, including acute resource shortages, insufficient discipline-specific training, and cultural resistance. Myanmar's new health care workers are leading a shift toward biopsychosocial care rather than solely disease-specific care. Even in the presence of systemic barriers, these health care workers have shown that patient-centered or holistic care can be achieved in low-resource environments when supported by adequate institutional frameworks.

Keywords: biopsychosocial model, integrative health care, rural health systems, health care professionals, Myanmar, holistic care, clinical implementation, modern health care system

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INTRODUCTION

The health care delivery system in Myanmar is currently overwhelmed by challenges, especially in rural areas, where inadequate infrastructure makes it difficult to access health services (Emami et al., 2024; Katantha et al., 2025). A major challenge in the delivery of

healthcare in Myanmar is the low density of healthcare providers. For example, Myanmar has 1.33 physicians and 1.02 nurses/midwives for every 1,000 people (Dhillon et al., 2023; Saw et al., 2019), which is far below the World Health Organization's standard for sustainable development thresholds. The chronic shortage of providers is even more pronounced in under-resourced areas of the country. Hence, the healthcare system is generally unsupportive of the many complexities within the population that require healthcare (Haar et al., 2024; Mosca et al., 2020).

Historically, the healthcare system in Myanmar has traditionally taken a biomedical approach to healthcare that has typically focused on physical illness and pathology. However, the biomedical model has not been adequate at meeting the needs of patients who suffer from multiple sources of stress and psychological trauma arising from a crisis and limited-resource environment (Farre & Rapley, 2017; Wade & Halligan, 2017). In providing care that is solely biologically based, there is often fragmented care and suboptimal long-term outcomes for patients suffering from chronic health conditions due to displacement and/or mental health issues (Kadu & Stolee, 2015; Zinszer et al., 2011).

A new wave of young clinicians (25 to 35) is leading the way for the use of the biopsychosocial model (BPS) (Bolton, 2023; Borrell-Carrio et al., 2004), which creates a research-supported way of examining patients as whole people who can be affected and helped by biological, psychological, and social factors during their care (Mead & Bower, 2000; Suls & Rothman, 2004). This project investigates whether and how young health professionals in Myanmar use the BPS model in their daily clinical care and fieldwork (Aung, 2025; Xiao et al., 2021) to improve the quality of care for patients. The study will also look at how the BPS model affects patient results, as well as the significant barriers (e.g., time and resources) that healthcare providers face when they try to implement BPS principles and practices rather than simply using conventional methods to treat illnesses (Frost et al., 2021; Wittink et al., 2022).

The importance of this research is that it may offer options for improving healthcare delivery in resource-poor settings through practical and policy-related evidence. For example, this project may provide evidence for local authorities that support creating educational programs that teach professional collaboration, as well as find a better way to make the existing healthcare system in Myanmar adaptable to low-resource environments using holistic approaches to healthcare. This research also argues that there should be a change to the overall healthcare delivery model now, and in the future, so that any new system is focused on patients and designed to provide complete experience of human illness (Engel, 1978; McLaren, 1998).

METHODS

Study Design and Sampling Strategy

Mixed methods convergent design was utilized to provide a baseline analysis of the model being implemented across both quantitative and qualitative data. A purposive sampling technique was employed to recruit a sample of 32 (n=32) healthcare professionals who were young (aged 25-35) and were working in an underserved or rural area of Myanmar (Bolton, 2023; Curry & Nunez-Smith, 2015). The sample consisted of doctors, nurses, nurse aides, and medical technicians, with all participants having a minimum of 3 years of experience in clinical practice to impart a level of professional maturity and practical familiarity with the healthcare system (Farre & Rapley, 2017).

The total sample size of 32 was determined by reaching saturation point, defined as the point when no further new themes or insights emerging from ongoing interviews (Moser & Korstjens, 2018). Due to the narrow age range (25-35 years of age) and the clearly defined geographic context (resource-poor areas) of the sample, a sample size of 32 provided sufficient depth of data for thematic analysis by occupation category, while still being manageable in terms

of operational and security limitations present in Myanmar now. The size is in accordance with the accepted methodological guidelines for conducting mixed-methods studies, indicating that samples between 20 and 40 would appropriately provide sufficient data to identify the core patterns in professional clinical practice (Curry & Nunez-Smith, 2015; Moser & Korstjens, 2018).

Data Collection

The study utilized triangulation of three data sources: interviews, surveys, and field observations to ensure the validity and depth of the findings.

Interviews

Semi-structured, in-depth interviews were conducted to explore participants' conceptual understanding and practical application of the biopsychosocial (BPS) model (Moser & Korstjens, 2018; Sadler & Hulgus, 1992). The interview guide was developed to cover the following key themes:

1. Perceptions of the biopsychosocial model
2. Practical challenges in applying the model
3. Patient outcomes associated with the model's use
4. Training and resources available for implementing the model (Dhillon et al., 2023; Kadu & Stolee, 2015)

Interviews were conducted either in person or via secure online platforms, lasting 30–45 minutes. Informed consent was obtained from all participants prior to recording. To ensure ethical safeguards, all data were pseudonymized. A detailed interview coding result can be found in Supplementary Material 1.

Surveys

A structured survey was administered to gather quantitative data on model frequency and perceived barriers (Emami et al., 2024; Engel, 1978). For those participants in Myanmar's rural areas who have limited access to digital devices, participants were given a choice to complete either a paper-based survey or Google Form survey (online). To combine the data from both types of surveys, the primary researcher converted paper-based responses from participants into a digital database by transcribing and double data entry process on the paper-based surveys, and then integrating these data with the spreadsheet output (CSV) from the Google Forms surveys; thus producing the complete survey instrument as found in Supplementary Material 2.

Observations

Field observations were made in healthcare settings where the participants were engaged in practice. These sessions lasted approximately 2 to 4 hours per site, totaling 40 hours of observation across different clinical environments. Measures were taken to ensure non-intrusive monitoring to minimize Hawthorn effects, focusing specifically on the inclusion of psychological and social questioning during clinical history-taking. observations primarily focus interactions between healthcare professionals and patients, more specifically how the biopsychosocial model was used within the delivery of patient-centered care (Haar et al., 2024; Katantha et al., 2025).

Data Analysis

Qualitative Data

Interview data were transcribed verbatim (see Supplementary Table 3 for representative transcripts) and analyzed using a three-stage thematic analysis (Moser & Korstjens, 2018):

- **Open Coding:** Identifying raw concepts such as "time-poverty" and "familial involvement."
- **Axial Coding:** Categorizing initial codes into themes like "Structural Barriers" and "Socio-cultural Expectations."
- **Thematic Synthesis:** Integrating these categories to describe the transition from biomedical to holistic care (Farre & Rapley, 2017).
  Contextual factors, including cultural expectations of paternalistic care and resource constraints, served as interpretative lenses. This allowed for a distinction between a practitioner's professional willingness and their systemic capacity to implement the model (Dhillon et al., 2023; Mead & Bower, 2000).

Quantitative Data

Survey data underwent both descriptive and inferential analysis. Beyond calculating frequencies, the study examined statistical patterns within the rural professional environment to evaluate how specific local factors influence the frequency of BPS application (Borrell-Carrio et al., 2004; Mosca et al., 2020). Given that all respondents operate in rural settings, the analysis sought to determine the extent to which rural-specific resource scarcity such as limited manpower and infrastructure serves as a predictor for the observed adoption rates of the biopsychosocial model.

Statistical Analysis

Quantitative data from surveys were analyzed to assess frequencies and use patterns of the biopsychosocial model among the young-healthcare-practice cohort in Myanmar (Farre & Rapley, 2017; Moser & Korstjens, 2018). Descriptive statistics (proportions, percentages, and frequencies) were conducted for each professional group (doctors, nurses, nurse aids, medical technicians) to summarize participants' reports of the model being used in practice. Means and standard deviations were calculated for continuous variables when applicable (i.e., years in practice) of professional experience.

Comparisons between professional roles on model uptake included chi-square tests for categorical variables to determine if the difference between observed counts were statistically significant (Borrell-Carrio et al., 2004; Mosca et al., 2020). For ordinal or continuous responses on survey items, Spearman’s correlation coefficients were calculated to assess associations between participants' frequency of model use and potential influencing factors (e.g., years and practice site: urban versus rural).

All analyses were performed in SPSS version 26. Statistical significance was set at $p < 0.05$ (Borrell-Carrio et al., 2004). This combination of statistical determination, and descriptive, provides rigor and reliability to quantify the patterns of biopsychosocial model adoption and any potentially associated influences, constituting it as a solid methodological approach for interpreting the results of the study as shown in Supplementary Material 3.

Ethics Committee Approval

Ethical approval for this study was granted by a private institution, the Examinations and Assessment Board (EAB) of Step One Training Center, Myanmar (Notification No. EAB/27790/24), dated 10 January 2024. The EAB independently reviewed and endorsed the study protocol to ensure adherence to international ethical standards, including participant safety, confidentiality, informed consent, and research integrity. All procedures were carried out in accordance with the ethical principles of the Declaration of Helsinki (2008) and conducted with full respect for the rights and well-being of all participants.

Informed Consent

Informed consent was obtained from all participants prior to their involvement in the study. Participants were fully informed about the purpose, procedures, potential risks, and benefits of the study. For in-person interviews and surveys, written consent was obtained. For the online survey, participants provided consent by confirming their understanding and agreement via an "Agree" button before proceeding. Participation was entirely voluntary, and confidentiality was strictly maintained throughout the study. Participants were also informed that anonymized data might be used for publication purposes, and their de-identified responses were included only with explicit permission.

RESULTS

Healthcare Professionals' Application of the Biopsychosocial Model Use and Perception in Myanmar

According to analysis of thirty-two healthcare professionals from rural areas (Table 2), the BPS model was consistently used by 53% of participants and sometimes used by 47%. Figures 1 and 3 show that professionals from each role within the rural health system had very different frequencies of applying the BPS model; doctors used the model frequently (100%), while nurses (46%) and medical technicians (43%) used it less frequently. Clearly, nurse aides were using the BPS model strictly on a one-time basis. All participants identified the BPS model as the essential entry point for individuals seeking holistic healing; especially for patient who experience a combination of chronic physical illnesses and/or mental health issues (Emami et al., 2024; Kadu & Stolee, 2015; Mead & Bower, 2000; Saw et al., 2019). This is particularly relevant in rural Myanmar, where social determinants strongly impact health outcomes and the BPS is critical to removing systemic impediments to wellness (Aung, 2025; Bolton, 2023).

In addition, analysis of integration of factors shows a notable gap. Table 3 and Figure 4 show the dual-factor integration between biological, psychological and social factors. Biological and psychological factors was 31%, biological and social factors was 28%, psychological and social factors was 25% respectively, and only 16% of respondents reported utilizing all three domains simultaneously (full integration).

Challenges to Implementation

Lack of Training: The most common barrier mentioned by some participants was the lack of necessary formal and continuing education in every aspect of the biopsychosocial model as shown in table 1. Many health workers knew the concept but lacked the required in-depth training

to apply it fully in practice (Curry & Nunez-Smith, 2015; Haar et al., 2024). The distribution of responses is illustrated in Figure 2.

Limited Resources: Participants often mentioned that the lack of adequate resources, such as medical supplies or equipment, staffing, and support services, is the greatest impediment to applying the model (see Table 1). Due to these drawbacks, some healthcare workers felt they could ever attend to the biological aspect of care and hardly ever touched on the psychological and social components (Borrell-Carrio et al., 2004; Mead & Bower, 2000; Suls & Rothman, 2004). The distribution of these responses is illustrated in Figure 2.

Cultural and Patient Resistance: They also mentioned a kind of cultural barrier and resistance on the part of the patients with respect to holistic approaches to care (Dhillon et al., 2023; Wittink et al., 2022). These findings are illustrated in Figure 2. Some patients and families were accustomed to traditional, biomedical approaches, resisting the enlarged framework of care, introducing psychological and social dimensions altogether (see Table 1). For example, when someone suffers from mental illness, the family members never seek help or consult because most families are afraid of being stigmatized from neighborhoods to be labeled as mental illness family (Bolton, 2023; Katantha et al., 2025).

Time Constraints: Another significant impediment mentioned was time pressure. Healthcare workers indicated that the pace of work and high number of patients often limit opportunities for a broader biopsychosocial approach, mostly in underserved regions with limited staff and resources (See Table 1). The urgency of responding to immediate health concerns very often overshadowed the chance for exploration of psychological and social factors affecting patients, negatively impacting the actualization of this model to its fullest (Engel, 1978; Kadu & Stolee, 2015).

Table 1. Thematic Analysis of Biopsychosocial Model Implementation (n = 32)

S/N	Theme	Description	Supporting Quotes	Literature Support
1	**Holistic Care Centrality**	The model is a vital strategy for effective care across multidisciplinary teams, prioritizing psychological and social wellness alongside somatic health.	*"What underpins a holistic approach providing treatment for optimal psychological and social wellness."*	(Bolton, 2023; Borrell-Carrio et al., 2004; Emami et al., 2024; Engel, 1978; Suls & Rothman, 2004)
2	**Systemic Resource Constraints**	Scarcity of manpower, formal training, and clinical materials serves as a primary barrier to efficient model adoption in Myanmar.	*"Rural clinics have meager means of mental health care personnel."*	(Aung, 2025; Gatchel et al., 2007; Kadu & Stolee, 2015; Mosca et al., 2020; Swanson et al., 2015)
3	**Socio-Cultural Barriers**	Patient resistance is often rooted in cultural customs and expectations that favor traditional biomedical paternalistic treatment.	*"Patients resist integration within social and psychological dimensions."*	(Dhillon et al., 2023; Farre & Rapley, 2017; Hatala, 2012; Wittink et al., 2022; Xiao et al., 2021)

4	**Educational Imperatives**	The lack of specialized continuing education directly limits the practical application of biopsychosocial principles in daily practice.	*"Need formal education for the better implementation of the model."*	(Curry & Nunez-Smith, 2015; Frost et al., 2021; Haar et al., 2024; Mosca et al., 2020; Xiao et al., 2021)
5	**Interdisciplinary Collaboration**	Effective management requires active cooperation between doctors, nurses, social workers, and psychologists for comprehensive care.	*"I worked along with social workers and psychologists for comprehensive care."*	(Kadu & Stolee, 2015; Katantha et al., 2025; Saw et al., 2019; Smith et al., 2013; Suls & Rothman, 2004)

Description: Table 1 presents the thematic analysis of qualitative interviews conducted with 32 healthcare professionals in Myanmar regarding the implementation of the biopsychosocial model. The "S/N" column provides a serial reference for each identified theme, while the "Description" column summarizes the core findings of the thematic analysis. "Supporting Quotes" offers direct evidence from participant responses collected in 2024, and the "Literature Support" column lists relevant academic references that align with the study's qualitative findings.

Descriptive Statistics Summary of Usage Patterns

Table 2 presents a detailed summary of responses and proportions. The proportion of frequent usage by role/occupation is illustrated in Figure 3.

Table 2. Data Summary

Role/Occupation	Frequently Used *(n)*	Occasionally Used *(n)*	Total Responses *(n)*	Proportion Frequently (%)	Proportion Occasionally (%)
Doctor	9	0	9	100%	0
Nurse	5	6	11	45%	55%
Nurse Aide	0	5	5	0	100%
Medical Technician	3	4	7	43%	57%
Overall	17	15	32	53%	47%

Description: Table 2 outlines responses from several healthcare professionals regarding how often they use biopsychosocial models at workplace. "Frequently Used" denotes the number of respondents who use the task or tool often, while "Occasionally Used" refers to those who do so occasionally. The column "Total Responses" is the number of respondents in each profession. The "Proportion Frequently (%)" column represents the percentage of individuals who frequently used the biopsychosocial model within each occupation. The "Proportion Occasionally (%)" column represents the percentage of individuals who occasionally used the biopsychosocial model within each occupation.

Table 3: Distribution of Biopsychosocial Factor Application (n = 32)

Category	Factor	Count (*n*)	Percentage (%)
Integrated Factors	Biological and Psychological	10	31%
	Biological and Social	9	28%
	Psychological and Social	8	25%
Full Integration	Biopsychosocial Factor	5	16%

Description: Table 3 summarizes the level of model integration among 32 healthcare professionals. The "Count (n)" column denotes the number of respondents utilizing specific factor combinations. The "Percentage (%)" column represents the proportion of the total cohort for each category. "Integrated Factors" refers to the dual application of two domains (Biological, Psychological, or Social), while "Full Integration" identifies the subset of respondents who simultaneously implement all three domains of the biopsychosocial model in their clinical practice.

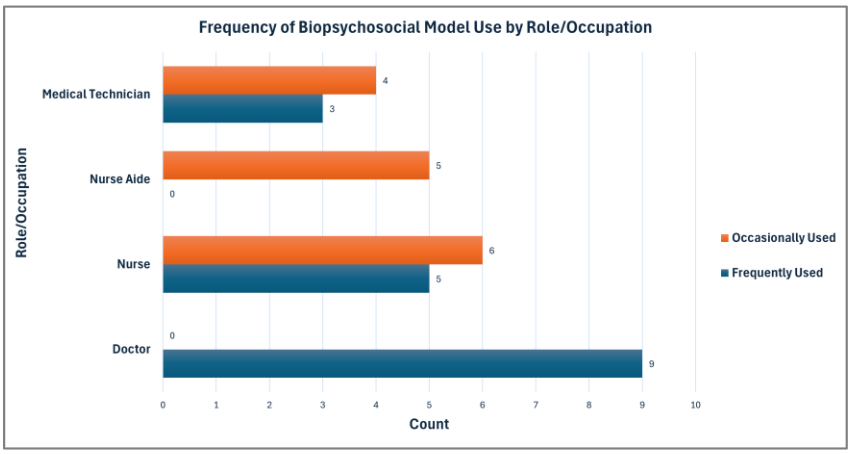

Figure 1. Frequency of Biopsychosocial (BPS) Model Use by Role/Occupation

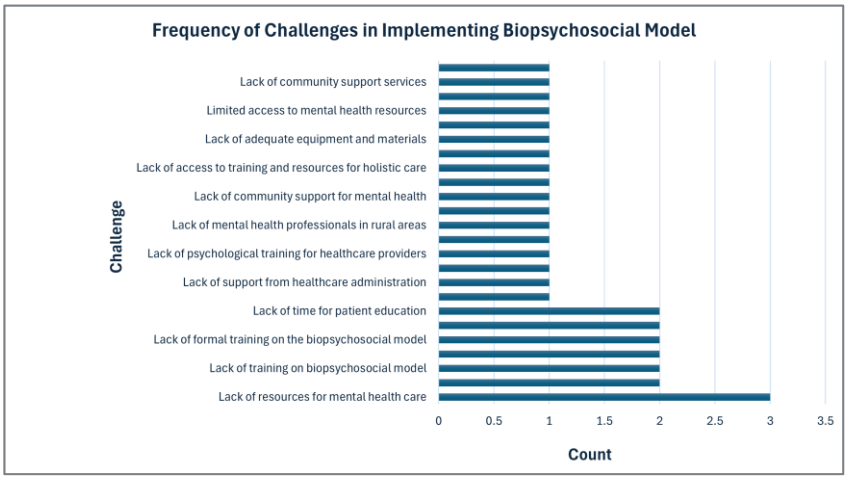

Figure 2. Frequency of Challenges in Implementing Biopsychosocial Model

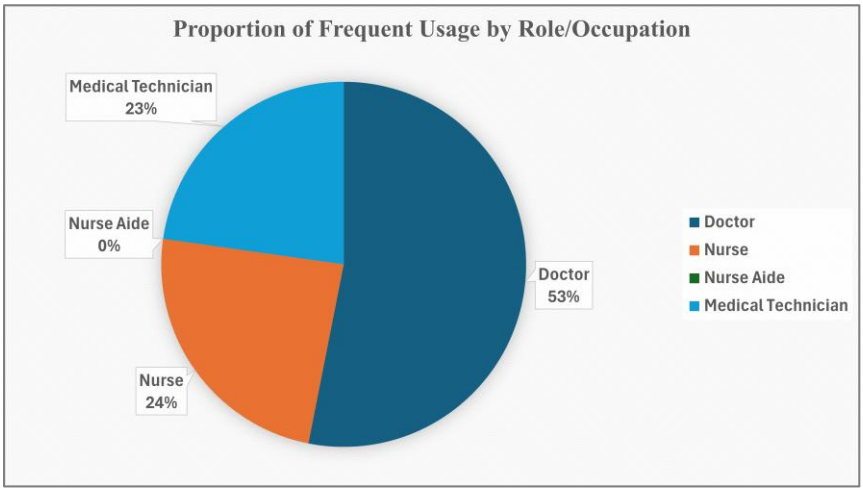

Figure 3. Proportion of Frequent Usage by Role/Occupation

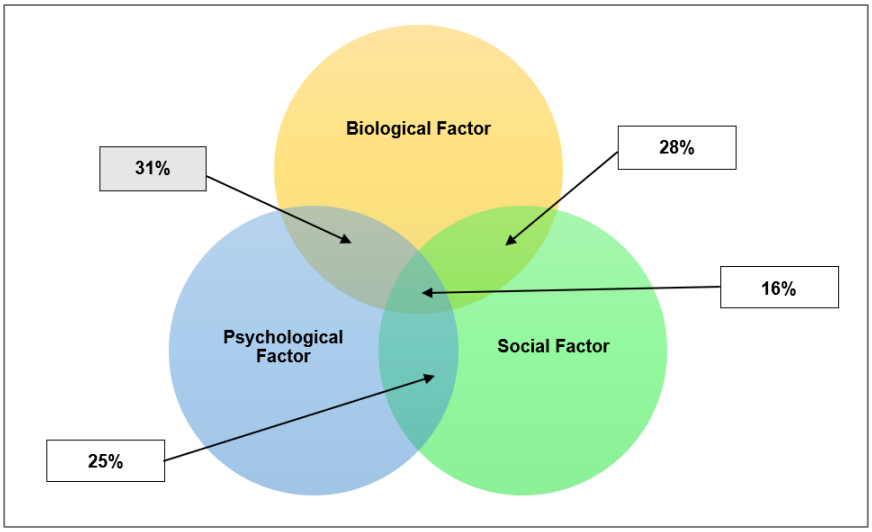

Figure 4. Proportional Impact of Biological, Psychological, and Social Factors on Young Healthcare Professionals, aged 25-35, in Myanmar

DISCUSSION

The findings from this research reveal a large change within the professional philosophy of young healthcare providers in Myanmar. The broad acceptance of the biopsychosocial (BPS) model suggests that there is an increased acknowledgement by health care professionals that biology and pharmacology alone will not support the long-term recovery of patients, particularly given limited resources available to assist patients in developing healthy lifestyles (Curry & Nunez-Smith, 2015; Farre & Rapley, 2017). The shift away from a medically centered approach toward a patient-centered approach indicates that there is an evolving professional identity for those aged 25 to 35 years and growing acceptance of the integration of psychological and social aspects into health care practice. The increased frequency of use of the BPS model across various roles (Figure 1) is further evidence that this is a wider spread change in clinical practice and not isolated to one specialty and thus represents a significant departure from historically

traditional pathology-based medical education that has previously existed in the country of Myanmar (Engel, 1978; Katantha et al., 2025).

As a result of an expanding clinical perspective, providers should now have greater access to provide care for patients with detailed, complex health care needs requiring more than just physical interventions; this includes chronic pain management, psychiatric rehabilitation and palliative care (Aung, 2025; Bolton, 2023). However, there is a significant divide between how professionals intend to use the biopsychosocial (BPS) model of care (implemented) and how capable the healthcare system is to use it (capacity). For instance, although Figure 3 indicates that frequent users of the model exist within a profession, Figure 2 shows that there are frequently faced with difficulties in using the BPS model for patients or within their organization, this is primarily due to the lack of adequate resources (below the BPS level). This leads to inefficiently functioning organizations and limited resources that can cause our current healthcare infrastructure to inadvertently favor high quantity physical treatment over the high number of time consuming and interdisciplinary collaborative practices needed to appropriately use the BPS model.

In addition, Figure 4 indicates that social determinants of health play a disproportionate role in the health outcomes experienced by the patients of young professionals (Dhillon et al., 2023; Xiao et al., 2021). In Myanmar, there are many social and economic variables that contribute to health care disparities based on where individuals live (i.e., rural versus urban) as well as what they believe within their culture and with regard to traditional definitions of sickness; therefore, the way in which these variables influence health care delivery must be considered when treating patients in rural and under-served communities. In order to achieve successful implementation of the psychological and social components of the biological-psychological-social (BPS) model, health care providers in these areas will have to address complex beliefs regarding cultural beliefs about health care through feminist theory (i.e., BPS) (Bolton, 2023; Mosca et al., 2020). Overall, it supports the concept that although new generations of health care providers are moving toward more holistic approaches, the ability to have those approaches successful will depend upon transitioning from making individual practitioner-focused shifts toward creating an environment that is more conducive to supporting the development of a community-based provider network.

LIMITATIONS

This study has few limitations. The sample size was small and limited to young healthcare professionals aged 25–35, which may affect the generalizability of the findings (Farre & Rapley, 2017). Data were collected through self-reported interviews and surveys, which may be influenced by recall or social desirability bias (Moser & Korstjens, 2018; Sadler & Hulgus, 1992). Additionally, observations were restricted to selected clinical settings and may not reflect all practices across Myanmar (Aung, 2025; Bolton, 2023).

CONCLUSION

The drive and adaptability of young healthcare professionals in Myanmar remain strong despite the resource constraints. Participants in this study proved a genuine commitment to improving patient care using the biopsychosocial model (see Table 3). This highlights the potential for change and the possibility of successful implementation, even in challenging environments (Moser & Korstjens, 2018; Sadler & Hulgus, 1992). However, for this model to be consistently and deeply embedded in healthcare practice in Myanmar, it will be vital to build up institutional support systems that will help health professionals put this model into practice. This includes not only improving resources and training but also fostering a culture that values holistic care and interdisciplinary collaboration (Emami et al., 2024; Kadu & Stolee, 2015).

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DECLARATION OF INTERESRT

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