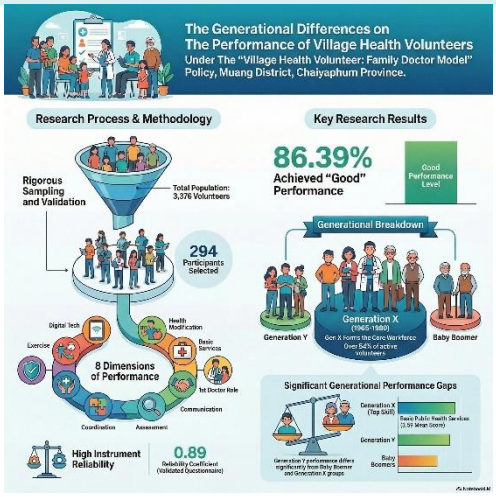
The Generational Differences on The Performance of Village Health Volunteers Under The "Village Health Volunteer: Family Doctor Model" Policy, Muang District, Chaiyaphum Province

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Received: 14 March 2026, Revised:23 April 2026, Accepted:1 May 2026, Published: 6 May 2026

A B S T R A C T



Despite increasing policy emphasis on digitally supported community health services under the Thailand 4.0 initiative, limited evidence exists on whether Village Health Volunteer (VHV) performance differs across generational groups in local implementation contexts. Objective: This study examined whether operational performance under the "Village Health Volunteer: Family Doctor Model" policy differed across generational groups among VHVs in Muaang District, Chaiyaphum Province. Methods: A cross-sectional survey was conducted among 294 VHVs selected through stratified random sampling. Data were collected using a structured questionnaire with acceptable content validity (IOC = 0.67–1.00) and reliability (α = 0.89) and were analyzed using descriptive statistics and one-way ANOVA. Results: The majority of VHVs (54.08%) belonged to Generation X. Most VHVs demonstrated good overall performance (86.39%), with basic public health service provision achieving the highest mean score (M = 3.59, SD = 0.70). Operational performance differed significantly across generational groups, $F(3, 290) = 4.75$, $p = .003$. Post hoc analysis indicated that Generation Y differed significantly from the Baby Boomer and Generation X groups. Conclusions: These findings suggest the need for generation-responsive strategies to strengthen VHV capacity, particularly in relation to digital adaptation and role-specific community health practice.

Keywords: Village health volunteers, Generational differences, Community health workforce, Family doctor policy, Digital health adaptation

1. Introduction

Thailand is currently undergoing a period of rapid technological transformation, particularly within the framework of the Thailand 4.0 initiative. This policy prioritizes the integration of digital technology into all sectors, including public health (Health 4.0). This national policy aims to drive the economy through innovation, technology, and knowledge, and it has been linked to the public health system by upgrading the roles of Village Health Volunteers (VHVs) to be more modern and efficient, specifically

under the "VHV as Family Doctor" concept (Department of Health Service Support, 2022). This transformation has posed significant challenges for community health systems, particularly regarding the adaptation of the existing health workforce to new digital platforms and service delivery models. Non-communicable diseases (NCDs) such as diabetes, hypertension, and chronic kidney disease continue to rise, placing increased demands on community-level health services (Department of Health Service Support, 2024).

Currently, Thailand has more than one million VHVs serving communities across the country (Khanthavudh et al., 2025). These non-professional volunteers have been integral to primary healthcare delivery in Thailand since the 1970s. Each volunteer is responsible for caring for approximately 10–20 households and is required to work at least one day per week (Khanthavudh et al., 2025). The Ministry of Public Health has established a five-year operational plan (2023–2027) that emphasizes enhancing the potential of VHVs. As a vital force in community-level public health, VHVs strengthen communities' ability to manage health appropriately. They support health promotion, surveillance, prevention, and the control of diseases and health hazards. Research has demonstrated that targeted training programs can significantly improve VHV competencies in areas such as communication, systems thinking, and community diagnosis (Khuancharee et al., 2025). Furthermore, they collaborate closely with relevant agencies to formulate policies and address significant local health issues. These efforts help reduce health expenditures, alleviate hospital congestion, shorten waiting times, and prevent unnecessary hospitalizations (Department of Health Service Support, 2024).

The role of the VHV as Family Doctor in promoting community health is crucial. They utilize digital technology, particularly the Smart VHV application, for their operations and reporting. They serve as leaders in self-care and health behavior modification, providing basic public health services to ensure community access to care. Additionally, they develop Family Health Volunteers (FHVs) as core family care leaders and support them in caring for the "607 target group" to ensure a high quality of life. This group includes the elderly (aged 60 and above) and patients with seven chronic diseases: chronic respiratory disease, cardiovascular disease, chronic kidney failure, cerebrovascular disease, obesity, cancer, and diabetes, as well as those at risk of or recovering from COVID-19 at home. Furthermore, VHVs participate in screening, caring for, and promoting the health of the elderly, while organizing surveillance activities tailored to local health conditions. They also function as the "1st doctor," collaborating with the 2nd and 3rd doctors to support the national policy of "Every Thai Family has Three Personal Doctors" (Department of Health Service Support, 2022). However, VHVs' roles are primarily focused on biomedical tasks related to physical health, with limited policy support and training for other aspects such as mental health care (Khanthavudh et al., 2025). This biomedical focus may limit the effectiveness of the Family Doctor policy in addressing the comprehensive health needs of the community.

Simultaneously, generational diversity—encompassing youth, middle-aged individuals, and the elderly—presents a variety of values, concepts, preferences, and styles. Technological advancements have further accelerated these changes (Yuvabadhana Foundation, 2023). Each group differs in terms of attitude, technological proficiency, interests, and learning behaviors. As these diverse behavioral groups enter the workforce, generational gaps often lead to misunderstandings, resulting in communication failures, poor collaboration, or ineffective service. Understanding these generational differences is essential, as it fosters greater social compromise and mutual understanding (Anuratpanich, 2016). Generational differences may influence operational performance through variations in digital familiarity, communication style, learning preferences, and adaptability to new service models.

In the context of the VHV as Family Doctor guidelines, this diversity presents a challenge. While

some age groups are more prepared to use technology, others face limitations regarding skills, familiarity, and technological acceptance. Research indicates that younger VHVs tend to have better smartphone skills compared to other age groups (Apichatammarit, 2022). For instance, a study among Thai VHVs found that only 40% of participants were computer or smartphone literate, and most VHVs were older adults with over 10 years of experience (Khuancharee et al., 2025). These differences impact operational efficiency, cooperation, and coordination among VHVs within the community.

Despite increasing policy emphasis on digitally supported community health services, limited evidence exists on whether VHV performance differs across generational groups in local implementation contexts. Consequently, studying the relationship between generational differences and the operational roles of VHVs under the "VHV as Family Doctor" policy in Muang District, Chaiyaphum Province, is of great importance. This study aimed to examine and compare the operational performance of Village Health Volunteers across generational groups under the "VHV as Family Doctor" policy. It was hypothesized that operational performance would differ significantly across generations.

2. Research method

This study employed a cross-sectional descriptive survey research design, utilizing questionnaires as the primary tool for data collection. The methodology was structured to investigate and compare the operational roles of Village Health Volunteers (VHVs) across different generations.

2.1 Research materials

The primary materials used in this study included a structured questionnaire designed to measure three key areas: personal characteristics, generational groups, and the eight specific dimensions of the "VHV as Family Doctor" policy. Additionally, statistical software was utilized for data processing, including normality testing and hypothesis testing.

2.2 Research procedure

1. Population and Sampling Procedures

The study population consisted of 3,376 Village Health Volunteers (VHVs) in Muang District, Chaiyaphum Province (Muang Chaiyaphum District Public Health Office, 2025). The sample size was initially calculated at 267 participants using the population proportion estimation formula for a known population size (Daniel, 1995). To account for potential incomplete responses, the sample size was increased by 10%, resulting in a final sample of 294 participants.

A stratified sampling method was employed by calculating the percentage of VHVs in each sub-district (Tambon) to determine the proportional sample size for each area. Participants were selected based on specific inclusion criteria: having at least one year of experience as a VHV, being a permanent resident of the area, and possessing literacy skills (reading and writing). The exclusion criteria included VHVs who were absent during the data collection period, those who had been temporarily suspended from their VHV duties, and those with physical or cognitive conditions that prevented them from completing the questionnaire. The final selection within each sub-district was conducted through a simple random draw.

It should be noted that a major limitation of this study was the highly unequal group sizes across generations, particularly the very small number of Generation Z participants (n = 4). This imbalance may affect the statistical power and generalizability of the results for this subgroup.

2. Research Instruments and Quality Assessment

The research instrument was a three-part questionnaire developed based on relevant literature and the research framework:

Part 1: Personal Characteristics (7 items): Including gender, age, status, education, occupation, income, and VHV experience.

Part 2: Generational Groups: Categorized into Baby Boomers (2489–2507), Generation X (2508–2523), Generation Y (2524–2539), and Generation Z (2540–2552).

Part 3: Operational Roles under the "VHV as Family Doctor" Policy (40 items): Divided into 8 dimensions (5 items each), covering digital technology usage, health behavior modification, basic health services, Family Health Volunteer (FHV) development, support for the "607" target group, elderly health screening, community health surveillance, and the "1st Doctor" role.

The performance roles were measured using a 4-point Likert scale. For positive operational questions, scores ranged from 4 (Regularly) to 1 (Never), while negative questions were reverse-coded. The interpretation of the mean scores followed the criteria of Best (Best, 1977):

3.01 – 4.00: Good performance level

2.01 – 3.00: Moderate performance level

1.00 – 2.00: Improvement required

Regarding instrument quality, content validity was verified by three experts, yielding an Index of Item-Objective Congruence (IOC) between 0.67 and 1.00. The reliability of the instrument was tested using Cronbach's alpha coefficient, which yielded an overall reliability of 0.89.

3. Data Collection and Ethical Considerations

The research protocol was approved by the Human Research Ethics Committee of Valaya Alongkorn Rajabhat University under the Royal Patronage, Pathum Thani Province, on September 9, 2025 (COA No. 0083/2568, REC No. 0058/2568). Participants were informed of their voluntary participation and the confidentiality of their data. Results are presented in an aggregate format to ensure anonymity.

4. Data Analysis

Data were analyzed using a statistical software package through the following techniques:

Descriptive statistics: They were used to analyze personal characteristics and operational roles, presented as frequency, percentage, arithmetic mean, standard deviation, median, minimum, and maximum values.

Inferential Statistics: A one-way ANOVA was applied to compare the operational roles across different generational groups at a 0.05 significance level. Before conducting the one-way ANOVA, the assumptions of normality (assessed using the Kolmogorov–Smirnov test) and homogeneity of variance (assessed using Levene's test) were tested and confirmed. The results indicated that the data met the required assumptions for ANOVA. Post hoc pairwise comparisons were conducted using the Scheffé method.

3. Results and discussion

The implementation of the "VHV as Family Doctor" policy represents a critical shift towards Health 4.0, prioritizing digital integration and the enhancement of Village Health Volunteers' (VHVs') roles in community health management. This section presents the findings from the study of 294 VHVs in Muang District, Chaiyaphum Province, focusing on their operational performance across eight dimensions. The results provide evidence of how these volunteers support health promotion, disease surveillance, and basic health services, while highlighting the impact of generational diversity—ranging

from the Baby Boomer generation to Generation Z—on their ability to adapt to technological advancements and policy requirements.

3.1 Results

The analysis of the personal characteristics of the Village Health Volunteers (VHVs) revealed that the vast majority were female (87.80%), while males accounted for 12.20%. Regarding age distribution, more than half of the participants were between 45 and 60 years old (54.08%). This was followed by those aged over 61 years (34.35%), those aged 29 to 44 years (10.21%), and those younger than 28 years (1.36%), respectively. The minimum age recorded was 19 years, while the maximum was 81 years.

In terms of marital status, the majority were married (68.40%), followed by those who were widowed, divorced, or separated (19.40%), and single individuals (12.20%). Regarding educational attainment, more than half had completed secondary education or a vocational certificate (53.70%). The remainder had completed primary education (33.30%), a diploma or high vocational certificate (10.90%), or a bachelor's degree (2.00%).

The predominant occupation among VHVs was farming (74.50%). Other occupations—including commerce, general labor, private business, and being unemployed—accounted for 22.10%, while government or state enterprise employees, private company employees, and students represented 2.40%, 0.70%, and 0.30%, respectively. In terms of monthly income, 47.60% earned less than 5,000 Baht, followed by 40.50% earning between 5,001 and 10,000 Baht, 11.60% earning between 10,001 and 20,000 Baht, and 0.30% earning over 30,001 Baht. The mean monthly income was 5,748.30 Baht (SD = 3,812.45).

Regarding professional experience, more than half of the VHVs had worked for 11 to 20 years (32.99%). This was followed by those with less than 5 years of experience (29.93%), 21 to 30 years (18.03%), 6 to 10 years (13.61%), and 31 to 40 years (5.44%). The minimum years of experience was 1 year, and the maximum was 40 years. The mean years of experience was 13.57 years (SD = 9.84).

The analysis of generational groups (Generation) showed that the largest group of VHVs belonged to Generation X (born between 1965 and 1980), totaling 159 individuals (54.08%). This was followed by the Baby Boomer group (born between 1946 and 1964) with 101 individuals (34.35%), Generation Y (born between 1981 and 1996) with 30 individuals (10.21%), and Generation Z (born between 1997 and 2009) with 4 individuals (1.36%), as shown in Table 1.

Table 1. Number and Percentage of Village Health Volunteers Classified by Generational Groups (n = 294)

Generation	Number (n)	Percentage (%)
Baby Boomer Generation: Born between 1946 and 1964 (B.E. 2489 – 2507)	101	34.35
Generation X (Gen X): Born between 1965 and 1980 (B.E. 2508 – 2523)	159	54.08
Generation Y (Gen Y): Born between 1981 and 1996 (B.E. 2524 – 2539)	30	10.21
Generation Z (Gen Z): Born between 1997 and 2009 (B.E. 2540 – 2552)	4	1.36
Total	294	100.00

The analysis of the operational performance of VHVs under the "VHV as Family Doctor" policy in Muang District, Chaiyaphum Province, revealed that a substantial majority of the participants demonstrated a high level of performance. Specifically, 254 volunteers (86.39%) performed their roles at a "Good" level, while 40 volunteers (13.61%) were at a "Moderate" level. No participants were found to be at the "Improvement Required" level. The details are presented in Table 2 below.

Table 2. Number and Percentage of Operational Performance Levels of Village Health Volunteers (n = 294)

Performance Level	Mean Score Range	Number (n)	Percentage (%)
Good	3.01 – 4.00	254	86.39
Moderate	2.01 – 3.00	40	13.61
Improvement Required	1.00 – 2.00	0	0.00
Total		294	100.00

The analysis of the operational roles of VHVs under the "VHV as Family Doctor" policy in Muang District, Chaiyaphum Province, categorized by dimension, revealed that the dimension with the highest performance level was Dimension 3: Basic Public Health Service Provision (M = 3.59, SD = 0.70). This was followed by Dimension 7: Participation in Public Health Surveillance and Prevention Activities tailored to local health conditions (M = 3.54, SD = 0.78). Conversely, the dimension with the lowest mean score was Dimension 2: Health Care and Health Behavior Modification (M = 3.20, SD = 0.82). Detailed results for all eight dimensions are presented in Table 3.

Table 3. Means and Standard Deviations of VHV Operational Roles by Dimension (n = 294)

Operational Dimensions	Mean (M)	Standard Deviation (S.D.)	Performance Level
1. Use of Digital Technology	3.44	0.73	Good
2. Health Care and Health Behavior Modification	3.20	0.82	Good
3. Basic Public Health Service Provision	3.59	0.70	Good
4. Developing FHVs as Family Care Leaders	3.33	0.89	Good
5. Supporting FHVs in Caring for the "607" Group	3.44	0.80	Good
6. Elderly Health Screening and Promotion	3.47	0.81	Good
7. Public Health Surveillance and Local Prevention	3.54	0.78	Good
8. Serving as the "1st Doctor"	3.40	0.87	Good

The comparison of operational roles indicated that different generational groups exhibited significantly different levels of operational performance. A one-way ANOVA revealed a significant difference in operational performance across generational groups, $F(3, 290) = 4.75$, $p = .003$. The statistical details are presented in Table 4.

Table 4. Comparison of VHV Operational Roles Classified by Generational Groups

Generation	Sum of Squares (SS)	df	Mean Square (MS)	F	p-value
Between Groups	1.05	3.00	0.35	4.75	0.003*
Within Groups	21.34	290	0.74		
Total	22.39	293			

*Significant at the 0.05 level.

Table 5. Pairwise Comparison of VHV Operational Roles by Generational Groups using the Scheffé Method

Generational Groups	Baby Boomer	Gen X	Gen Y	Gen Z
Baby Boomer	-	-	0.024*	-
Gen X	-	-	0.031*	-
Gen Y	0.024*	0.031*	-	-
Gen Z	-	-	-	-

*Significant at the 0.05 level.

The Scheffé post hoc analysis revealed that Generation Y (born 1981–1996) demonstrated significantly higher operational performance compared to both Baby Boomers ($p = .024$) and Generation X ($p = .031$). No significant differences were found between other generational pairs, including comparisons involving Generation Z, which may be attributed to the very small sample size of this group ($n = 4$).

3.2 Discussion

The study on the operational roles of VHVs under the "VHV as Family Doctor" policy in Muang District, Chaiyaphum Province, revealed that 86.39% of VHVs performed at a "good" level. This reflects the VHVs' ability to effectively respond to the Ministry of Public Health's policies, which aim to develop VHV potential as a vital force in driving community-level public health operations. These findings are consistent with the study by Promsang et al. (2022), which found that the overall performance of VHVs according to their roles was at a good level. One possible explanation for this high performance is the combination of personal factors, such as long-standing experience in the community (mean experience = 13.57 years), and organizational factors, including the standardized training and supervision provided by the Ministry of Public Health. This is consistent with findings from Khuancharee et al. (2025), which demonstrated that structured training programs significantly improved VHV competencies in communication, systems thinking, and community diagnosis.

When considering individual dimensions, the VHVs achieved the highest performance in Basic Public Health Service Provision ($M = 3.59$, $SD = 0.70$). Specifically, tasks such as blood pressure measurement and screening for diabetes and chronic diseases in the community were performed at a high level. This may be because health promotion, disease prevention, and basic screening are core roles that VHVs have been familiar with and have practiced for a long time. This aligns with the research of Panyaphon (2023), which highlighted the prominent role of VHVs in health promotion. Furthermore, in terms of digital technology, VHVs demonstrated a very high level of accuracy in reporting data via the "Smart VHV" application ($M = 3.87$), indicating successful adaptation to the Health 4.0 era. This is also supported by Yaebkai and Wongsawat (2020), who found that introducing innovation and digital

technology into healthcare services enhanced the effectiveness of VHV operations.

Conversely, the dimension with the lowest performance score—though still within the "good" range—was Health Care and Health Behavior Modification (M = 3.20, SD = 0.82). Notably, VHVs expressed a lack of confidence in their ability to help the community change health behaviors, which was rated at a moderate level (M = 2.16). This may be attributed to the challenging nature of behavior modification, which requires communication skills, consistency, and motivational psychology. Additionally, over half of the sample consisted of Generation X and Baby Boomers. According to Panyaphon (2023), significant obstacles in VHV performance often arise from personal factors related to physical health and advanced age. Furthermore, Khanthavudh et al. (2025) found that VHVs' practice is primarily focused on biomedical tasks due to policy constraints and limited training, which may explain their lower confidence in behavioral counseling approaches.

Regarding the comparison of generational groups, the results showed that different generations of VHVs exhibited significantly different operational roles at the 0.05 level. Specifically, a one-way ANOVA revealed $F(3, 290) = 4.75$, $p = .003$. Scheffé's post hoc test revealed that the performance of Generation Y (born 1981–1996) differed significantly from both the Baby Boomer (born 1946–1964) and Generation X (born 1965–1980) groups. These differences align with the concepts presented by the Yuvabadhana Foundation (2023), suggesting that generational diversity leads to different values, mindsets, preferences, and technological adaptability. This also supports the study by Anuratpanich (2016), which identified generational differences as a key factor in diverse behaviors and occasional workplace misunderstandings.

In the context of the "VHV as Family Doctor" policy, digital technology—specifically the "Smart VHV" application—is central to operations. One possible explanation is that younger VHVs may be more familiar with digital tools and may adapt more easily to technology-supported service delivery. Generation Y, as "digital natives," are more familiar with technology and adapt more quickly. In contrast, Baby Boomers and Generation X may face limitations in technical skills and acceptance, as noted by Apichatammarit (2022), who found that younger VHVs possess superior smartphone skills. This is further supported by international evidence; for instance, Linn et al. (2018) found that while VHVs in Myanmar provided accessible treatment services comparable to basic health staff, the quality and completeness of treatment varied depending on factors such as training and supervision, underscoring the importance of standardized support for community health workers across different capacity levels.

In the study area, VHVs generally followed the Ministry of Public Health guidelines for operational practice. However, the extent to which individual VHVs fully implemented all aspects of the policy varied by generation. Older VHVs tended to excel in relationship-based tasks such as elderly screening and community surveillance, while younger VHVs performed better in technology-dependent dimensions. This suggests that the Ministry's standardized system provides a baseline, but generational characteristics create variation in the depth of implementation.

However, the research also found that in certain dimensions—such as elderly health screening, disease surveillance, and serving as the "1st doctor"—there were no significant differences across generations. This suggests that these tasks rely heavily on trust, experience, and strong community relationships. Baby Boomers and Generation X possess high social capital as respected elders, which compensates for their physical or technological limitations. Furthermore, since all VHVs operate under the same standardized system provided by the Ministry of Public Health, consistent performance is maintained. As noted by Sibphantha and Ruangthamsing (2024), a clear and structured organizational system helps align the behaviors of personnel, even when they belong to different generations.

4. Conclusion

This study examined the operational performance of Village Health Volunteers (VHVs) under the "VHV as Family Doctor" policy in Muang District, Chaiyaphum Province, with two main objectives: (1) to investigate the operational performance of VHVs across eight dimensions, and (2) to compare performance across generational groups.

The majority of VHVs belonged to Generation X (born 1965–1980), accounting for 54.08%, followed by the Baby Boomer generation (born 1946–1964) at 34.35%. Overall, most VHVs performed their roles at a "Good" level (86.39%). When analyzing the eight dimensions, the highest-rated area was Basic Public Health Service Provision (M = 3.59, SD = 0.70), followed by Participation in Public Health Surveillance and Local Prevention Activities (M = 3.54, SD = 0.78). Conversely, the dimension with the lowest performance score was Health Care and Health Behavior Modification (M = 3.20, SD = 0.82).

The comparison of generational groups revealed that generational differences significantly impact operational performance, $F(3, 290) = 4.75$, $p = .003$. Pairwise comparisons further indicated that Generation Y demonstrated a distinct difference in performance levels compared to the Baby Boomer and Generation X groups.

The findings highlight the importance of generation-responsive strategies in strengthening the capacity of VHVs under the "VHV as Family Doctor" policy. Policy recommendations include: (1) developing differentiated training programs that address the specific needs of each generational group, such as digital literacy training for older VHVs and community engagement skills for younger VHVs; (2) promoting intergenerational mentoring programs that leverage the community experience of older VHVs alongside the technological skills of younger VHVs; and (3) providing ongoing supervision and support structures that accommodate diverse learning preferences across generations.

This study has several limitations that should be considered. First, the cross-sectional design and reliance on self-reported questionnaire data may not fully capture the complexity of VHV performance in practice. Second, the highly unequal group sizes across generations, particularly the very small number of Generation Z participants (n = 4), limit the generalizability of findings for this subgroup. Third, the study was conducted in a single district, which may limit the applicability of the results to other contexts. Fourth, the study employed only a quantitative approach; incorporating qualitative methods, such as in-depth interviews, could provide richer insights into the factors underlying generational differences in performance.

Future research should consider multi-site studies across different provinces, longitudinal designs to track performance changes over time, and mixed-methods approaches that combine quantitative data with qualitative interviews to explore the underlying reasons for generational differences in VHV operational performance.

Acknowledgements

This research was made possible through the cooperation of the Muang Chaiyaphum District Public Health Office and the dedicated Village Health Volunteers (VHVs) of Muang District. The authors also express sincere gratitude to the Human Research Ethics Committee of Valaya Alongkorn Rajabhat University under the Royal Patronage for their ethical oversight (COA No. 0083/2568). This article is part of a research project titled 'The Generational Differences on the Performance of Village Health Volunteers Under the Role of "Family Doctor Volunteers" Muang District, Chaiyaphum Province'.

The authors acknowledge the use of language-support tools for English editing and grammar refinement only. These tools did not contribute to data analysis, interpretation, or authorship. Special thanks are extended to colleagues for their invaluable suggestions throughout the research process.

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