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MULTIDIMENSIONAL SOCIAL WELFARE, SOCIAL PROTECTION, AND DECENT WORK AMONG MIGRANT WORKER FAMILIES IN INDUSTRIAL PARKS IN BAC NINH, VIETNAM

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ABSTRACT

Industrial expansion in Vietnam has increased internal labour migration to manufacturing centres, raising questions about whether employment opportunities are accompanied by adequate social protection for migrant worker families. Evidence integrating household and workplace welfare remains limited for this population. This study examined social welfare conditions among migrant workers and their families in industrial parks in Bac Ninh Province across five domains: housing conditions, income security, health care and health security, children's education, and working conditions. A descriptive cross-sectional survey was conducted from July to November 2025, involving 600 migrant workers with permanent residence outside Bac Ninh Province. Twenty-nine indicators were summarised using frequencies, percentages, and descriptive statistics. The results showed that 55.7% of participants lived in less than 10 m² per person, while 37.2% spent at least 20% of monthly income on housing. Income shortfalls were reported by 44.0%, and 53.8% worked overtime regularly or almost every day to improve income. Although 80.0% had compulsory employer-linked health insurance, 26.5% reported moderate or severe difficulty paying health care costs not covered by insurance. Regarding children's education, 31.5% reported that all school-age children remained in the place of origin, and education costs created moderate or major financial difficulty for 19.9%. In the workplace, 45.2% worked more than 48 hours per week, 23.8% reported frequent or continuous work-related stress, and 36.8% considered worker voice mechanisms ineffective or unavailable. Overall, the findings show that formal employment and social protection coexisted with constraints in income adequacy, health system access, educational access, and employment protection.

INTRODUCTION

Vietnam's ongoing industrialization has been accompanied by substantial internal labour migration to major manufacturing centres and industrial parks (Do et al., 2021; Hoang & Turner, 2026; Lin & Nguyen, 2021; Pham et al., 2019; Trong et al., 2025). Employment opportunities in these areas provide important sources of income for workers and their families, while migrant labour has become a significant component of industrial production (Do et al., 2021; Hoang & Turner, 2026; Lin & Nguyen, 2021; Pham et al., 2019; Trong et al., 2025). However, migration for employment also changes the conditions under which workers obtain housing, maintain household income, access health care, support their children's education, and experience working life (Chan et al., 2024; Do et al., 2021; Hirudayaraj et al., 2024; Hoang & Turner, 2026; Trong et al., 2025). These issues are particularly relevant for workers whose permanent residence remains outside the destination province and whose family members may live either with them or in their place of origin.

Social welfare for migrant worker families is therefore broader than participation in formal social insurance or employment alone. Formal employment may provide wages, health insurance, employment contracts, and occupational protection, but the practical welfare of workers and their families also depends on whether income is sufficient for daily living, housing is adequate and stable, health services are financially and administratively accessible, children can access education, and working conditions provide reasonable levels of security and protection (Chan et al., 2024; Do et al., 2021; Hoang & Turner, 2026; Istiko et al., 2022; Kazi-Aoul et al., 2023; Lin & Nguyen, 2021; Luong & Nguyen, 2024). Recent

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evidence further indicates that migrant workers may experience overlapping constraints involving social protection, income security, healthcare access, housing, and employment conditions, suggesting that formal employment status alone may not adequately represent their broader welfare circumstances (Chan et al., 2024; Istiko et al., 2022; Kazi-Aoul et al., 2023; Rast et al., 2025). The International Labour Organisation identifies job creation, rights at work, social protection, and social dialogue as central components of decent work (International Labour Organisation, 2017). Its Social Protection Floors Recommendation also emphasizes effective access to essential health care and basic income security, including support for children and education (International Labour Organisation, 2012).

Recent research in Vietnam has examined important but often separate aspects of migrant workers' welfare, including housing and working conditions, labour welfare and overtime, health and social protection, family separation, and children's circumstances (Do et al., 2021; Lin & Nguyen, 2021; Luong & Nguyen, 2024; Nguyen et al., 2022; Pham et al., 2019). However, these dimensions have generally been addressed individually or in relation to specific outcomes rather than assessed concurrently within an integrated family-oriented welfare framework. Consequently, integrated empirical evidence remains limited on how household and workplace welfare conditions coexist within the same population of migrant workers and their families.

This issue is relevant in Bac Ninh Province, one of Vietnam's major industrial centres, where large manufacturing enterprises and industrial parks attract workers from other provinces (Do et al., 2021; Hoang & Turner, 2026; Pham et al., 2019). Earlier research in Bac Ninh has documented the experiences of migrant industrial workers, including employment and living conditions. However, a broader assessment integrating household and workplace dimensions remains useful for identifying current welfare priorities (Hoang & Turner, 2026). The scientific problem addressed in the present study is therefore the lack of integrated empirical evidence describing how multiple household- and employment-related dimensions of social welfare coexist among migrant worker families in a rapidly industrializing Vietnamese setting.

To address this problem, a descriptive cross-sectional survey was conducted with 600 migrant workers across seven industrial parks in Bac Ninh Province between July and November 2025, and 29 welfare indicators were summarised using descriptive statistics. The study aimed to provide a multidimensional descriptive assessment of housing conditions, income security, health care and health security, children's education, and working conditions among migrant worker families. The findings showed that relatively broad formal employment and social protection coexisted with notable constraints on income adequacy, reliance on overtime, healthcare affordability, education-related costs, housing conditions, and worker voice. The Literature Review develops the conceptual basis for the five welfare domains and specifies the research gap; the Materials and Methods section describes the design, participants, instrument, data collection, and analysis; the Results section presents the five welfare domains; the Discussions section interprets the principal findings and their implications and limitations; and the Conclusions section summarises the main contribution of the study.

LITERATURE REVIEW

Social welfare among migrant workers can be approached from several related traditions. Research on labour migration commonly recognizes that migration decisions and employment outcomes are embedded in broader household, social, institutional, and living conditions (Chan et al., 2024; Cheng et al., 2025; Hirudayaraj et al., 2024; Thomas, 2019). For industrial workers, the benefits associated with employment may therefore coexist with difficulties involving accommodation, living costs, public services, family responsibilities, or workplace conditions (Do et al., 2021; Kong & Dong, 2024; Siu & Unger, 2020). A framework that focuses only on wages or formal social insurance may consequently provide an incomplete account of the conditions experienced by migrant worker families. The present study draws on the ILO social protection framework, the decent work perspective, and the Capability Approach as complementary conceptual foundations for examining welfare across both household and workplace settings.

An integrated perspective on social welfare

The ILO social protection framework provides one foundation for the present analysis. Social protection concerns protection against economic and social risks and access to essential services and income security across the life course (Hanechko et al., 2024; Kazi-Aoul et al., 2023). The ILO Social Protection Floors Recommendation emphasizes nationally defined guarantees intended to secure effective access to essential health care and basic income security. It also recognizes that income security for children is important for access to nutrition, education, care, and other necessary goods and services (International Labour Organisation, 2012). This perspective is relevant to migrant workers because formal employment does not necessarily eliminate risks associated with insufficient income, interruptions in insurance coverage, health expenditures, or family responsibilities (Hanechko et al., 2024; Kazi-Aoul et al., 2023).

The decent work perspective complements social protection by focusing more explicitly on the quality of employment. The ILO conceptualizes decent work in terms of employment opportunities, rights at work, social protection, and social dialogue. It includes fair income, workplace security, equality of treatment, opportunities for personal development and social integration, and the ability of workers to express concerns and participate in decisions that affect their working lives (International Labour Organisation, 2017). For migrant industrial workers, these considerations can be reflected in working hours, contractual arrangements, occupational protection, work-related stress, discrimination or harassment, and mechanisms through which workers can raise workplace concerns (Kwak & Wang, 2022; Sbaa et al., 2025).

However, formal entitlements and resources do not necessarily indicate what individuals and families can actually achieve. The Capability Approach provides a useful complementary perspective by distinguishing the availability of resources from people’s substantive opportunities to convert those resources into valued ways of living (Freeman et al., 2023; Nako et al., 2025). From this perspective, having an income, an insurance card, a school nearby, or formal employment is important, but welfare also depends on whether these resources can be effectively used given living costs, administrative

requirements, working schedules, family arrangements, and other contextual constraints (Freeman et al., 2023; Kazi-Aoul et al., 2023; Nako et al., 2025). This distinction is particularly relevant to migrant families because relocation may alter the practical accessibility of housing, public services, education, and family support networks (Kazi-Aoul et al., 2023; Nassar, 2025).

These perspectives are not treated as components of a single causal theory. Rather, they provide complementary conceptual lenses for organizing the present descriptive assessment. Social protection emphasises income and access to essential services; decent work provides a framework for employment quality and worker protection; and the Capability Approach broadens the analysis to encompass the practical opportunities available to workers and their families. Together, they support the examination of five related welfare domains. Within this integrated framework, income security and health care are most directly aligned with the social protection perspective; working conditions are closely aligned with decent work; and housing and children's education reflect a capability-oriented focus on whether resources and essential services can be effectively accessed and used. These five domains are therefore treated as complementary areas of social welfare rather than as components of a single latent construct (Freeman et al., 2023; International Labour Organisation, 2012, 2017; Nako et al., 2025).

Housing conditions and income security

Housing is a fundamental component of migrant workers' living conditions because employment-related migration creates an immediate need for accommodation at the destination (Chadchan et al., 2024; Desai, 2025; Srivastava & Sutradhar, 2016). Studies of internal migrant and industrial workers have identified differences and challenges in housing quality, residential space, rental arrangements, and access to basic services (Chadchan et al., 2024; Desai, 2025; Huang et al., 2023). Research in Vietnam has also shown that housing conditions can differ between migrant and local industrial workers (Do et al., 2021). For workers living near industrial areas, housing adequacy is not determined only by whether accommodation is available. Living space, access to essential amenities, safety, rental costs, and residential stability may all influence whether accommodation provides a sustainable living environment (Chadchan et al., 2024; Lombard, 2023).

Housing affordability is closely connected with income security. Earnings obtained through migration must support not only workers' individual consumption but, in many cases, family expenses at both the destination and place of origin (Desai, 2025; Srivastava & Sutradhar, 2016; Zhang et al., 2021). Nominal income alone may therefore be insufficient for evaluating economic welfare. Income adequacy relative to living costs, reliability of wage payment, access to employer allowances, and dependence on overtime earnings provide additional information about workers' effective economic position (Luong & Nguyen, 2024; Nguyen et al., 2021). Recent studies of industrial workers in Vietnam have continued to identify income as a key concern, particularly during periods of economic disruption and rising living costs (Luong & Nguyen, 2024).

The relationship between wages and overtime is especially relevant. Overtime can increase household income and may be voluntarily sought by workers; however, persistent reliance on overtime because ordinary earnings are insufficient may indicate that standard employment income does not fully cover household needs (Luong & Nguyen, 2024; Zhang et al., 2023). Longer working hours can also compete with rest, family responsibilities, health care use, and social participation (Luong & Nguyen, 2024; Wong et al., 2019; Zhang et al., 2023). For this reason, the present framework treats income security and working conditions as analytically distinct domains while recognizing their practical interdependence.

Health care and health security

Health insurance is an important element of formal social protection, but insurance status alone does not provide a complete measure of effective access to health care (Kunpeuk et al., 2020; Lai et al., 2024). Workers may continue to face direct payments, transportation costs, administrative procedures, service availability, time constraints, or interruptions in coverage (Chen et al., 2017; Kunpeuk et al., 2020; Loganathan et al., 2019; Rast et al., 2025). The ILO social protection framework explicitly emphasizes effective access to essential health care, indicating that formal entitlement and practical accessibility should be distinguished (International Labour Organisation, 2012).

This distinction is relevant to internal migrant workers in Vietnam. Previous studies and institutional reports have examined migrant workers' access to health care, health insurance, and broader social protection, indicating that mobility and employment arrangements can shape the way workers use available systems (S. Chen et al., 2020; Chen et al., 2017; Lattof, 2018; Vietnam Chamber of Commerce and Industry, 2023). Initial care-seeking behaviour is also relevant, as workers experiencing minor illness may seek formal health services, purchase medicines directly, or manage their illness themselves. Such decisions may reflect several factors, including perceived severity, convenience, cost, time availability, and previous experience with health services (Lattof, 2018; Min et al., 2026; Rast et al., 2025). These possibilities should not be inferred from care-seeking behaviour alone, but they demonstrate why practical access deserves consideration alongside insurance enrollment.

Health security in the present study therefore encompasses both formal protection and selected indicators of practical accessibility. Health insurance status, periodic health examinations, self-rated physical health, financial difficulty associated with treatment, administrative barriers, and initial responses to illness together provide a broader description than insurance coverage alone.

Children's education and family welfare

Internal labour migration is also a family process. Migrant workers may move alone, migrate with spouses and children, or maintain households whose members live across different locations (Siu & Unger, 2020; Tang et al., 2024). Where children remain in the place of origin, caregiving may be provided by grandparents or other relatives, while children accompanying

migrant parents must access educational services at the destination (Nguyen et al., 2022). Prior Vietnamese and international evidence has identified children's education and access to childcare or schools as relevant concerns for migrant worker families (Siu & Unger, 2020; Summers et al., 2022).

Educational welfare should therefore be considered in terms of both access and household feasibility. School availability does not necessarily mean that migrant families can enrol children without administrative, financial, or logistical difficulty (Evans et al., 2020; Summers et al., 2022). Enrollment documentation, residence-related procedures, education expenditure, and the type and quality of available schooling may influence family decisions (Chen et al., 2024; Tang et al., 2024). Reports on internal migrant workers in Vietnam have previously discussed difficulties with housing and access to basic services, including childcare and schools (UNICEF Vietnam, 2017). More recent policy-oriented work has also considered education together with housing, employment, health care, and social welfare for migrant workers (Pham et al., 2024).

From a capability perspective, this distinction between formal service availability and effective educational opportunity is important (Evans et al., 2020; Summers et al., 2022). A school place has limited practical value if administrative barriers, costs, distance, or household working arrangements prevent a family from using it. Children's place of residence and schooling, school type, educational expenditure, enrollment difficulties, perceived cost burden, and education quality therefore represent complementary indicators of educational welfare in migrant families.

Working conditions and decent work

Employment is the principal reason for migration among the workers considered in this study, making working conditions a central component of their broader social welfare. Decent work involves more than having a job. It includes fair income, security, social protection, equality, voice, and safe and acceptable working conditions (International Labour Organisation, 2017). Research on industrial workers in Vietnam has previously identified differences or challenges involving working environments, working hours, and employment protection (Do et al., 2021; Hoang & Turner, 2026). Studies conducted in Bac Ninh have likewise documented difficult working and living circumstances among some migrant industrial workers (Hoang & Turner, 2026).

Working time is particularly important because long hours may reflect production requirements as well as workers' efforts to increase earnings (Do et al., 2021; Hoang & Turner, 2026). Occupational safety also depends not simply on the presence of safety rules but on practical protection, including adequate personal protective equipment where required (Do et al., 2021; Lu et al., 2015; Wong et al., 2020). Employment contracts provide another indicator of employment security, while work-related stress and discrimination or harassment address psychosocial aspects of employment (Daly et al., 2018; Satyen & Becerra, 2022; Sterud et al., 2018).

Worker voice is also relevant. The opportunity to express concerns and participate in decisions that affect working life is part of the ILO's conception of decent work and social dialogue (International Labour Organisation, 2017). Formal complaint or feedback mechanisms may therefore contribute to worker protection only when such mechanisms are available and perceived as capable of receiving and addressing workers' concerns (Do et al., 2021; Nguyen, 2025). Examining these conditions together provides a more complete description of employment quality than contract status alone.

Research gap and study purpose

Overall, the reviewed literature indicates that migrant worker welfare is multidimensional, encompassing household resources, access to essential services, and employment conditions. Vietnamese and international studies have generated substantial evidence on housing and working conditions, income and overtime, health care and social protection, and children's circumstances, but these dimensions have generally been examined separately or in relation to specific outcomes (Do et al., 2021; Hoang & Turner, 2026; Kazi-Aoul et al., 2023; Luong & Nguyen, 2024; Nguyen et al., 2022). Research in Bac Ninh has also documented important aspects of migrant workers' living and employment experiences (Hoang & Turner, 2026).

Taken together, however, the reviewed studies provide limited integrated evidence on how housing conditions, income security, health care and health security, children's education, and working conditions coexist within the same population of migrant workers and their families. This gap is important because formal employment or social protection coverage may coexist with practical constraints in household resources, access to services, and employment quality. An integrated assessment across these five domains can therefore provide a more complete descriptive basis for identifying areas where welfare conditions appear relatively secure and areas where constraints remain common.

Accordingly, the purpose of this study was to provide a multidimensional descriptive assessment of social welfare conditions among migrant worker families in industrial parks in Bac Ninh Province by examining 29 indicators across five domains: housing conditions, income security, health care and health security, children's education, and working conditions. Based on the integrated theoretical framework and the evidence reviewed above, the following domain-specific hypotheses were formulated regarding the expected patterns of social welfare conditions among migrant worker families:

H_1: A substantial proportion of migrant worker families experience constraints in living space, housing affordability, and residential stability, despite relatively broad access to basic housing amenities.

H_2: A substantial proportion of migrant worker families experience insufficient income relative to living costs and rely on overtime work to supplement earnings.

H_3: Formal health insurance coverage among migrant workers coexists with financial and administrative barriers to effective health care access.

H_4: A substantial proportion of migrant worker families experience family separation, enrollment-related difficulties, and financial burdens associated with children's education.

H_5: Formal employment protections among migrant workers coexist with constraints related to working hours, psychosocial working conditions, and worker voice.

MATERIALS AND METHODS

A descriptive cross-sectional survey design was used to examine the social welfare conditions of migrant worker families in industrial areas of Bac Ninh Province, Vietnam. The study focused on five domains identified in the analytical framework: housing conditions, income security, health care and health security, children's education, and working conditions. A multidimensional indicator-based approach was used because these domains were represented by distinct indicators of living conditions, access to services, economic security, and employment conditions rather than by a single psychometric scale. No experimental manipulation or intervention was involved.

Setting and Participants

Bac Ninh Province was selected as the study setting because it is one of Vietnam's major industrial centres, with rapid urbanization, a substantial concentration of large manufacturing enterprises, and a considerable workforce originating from other provinces. These characteristics provided an appropriate setting for examining social welfare issues experienced by migrant workers and their families. Data were collected from workers employed across seven industrial parks in the province between July and November 2025. Participants were recruited using convenience and snowball sampling. Initial participants were recruited through the research team's existing professional and community contacts in the study area, and eligible participants were subsequently invited to refer other migrant workers who met the same eligibility criteria.

Eligible participants were adults aged 18 years or older with a registered permanent residence outside Bac Ninh Province who were currently living and working in the province. A total of 600 eligible migrant workers provided usable survey responses and constituted the analytical sample. No a priori statistical power analysis was performed because the study was designed primarily as a descriptive indicator-based assessment rather than an inferential test of population parameters or causal effects. Because convenience and snowball sampling were used, conventional probability-based margins of sampling error were not interpreted as estimates of population precision.

Participants were aged 19 to 67 years (M = 33.77, SD = 7.13). The sample included 325 men (54.2%), 266 women (44.3%), and 9 participants who reported another gender (1.5%). Most participants had completed upper secondary education (61.3%), followed by college or university education (15.8%) and lower secondary education (15.5%). Regarding marital status, 338 participants (56.3%) were married and living with their spouse; 204 (34.0%) were single and had never married; 48 (8.0%) were married but living apart from their spouse; and 10 (1.7%) were divorced, separated, or widowed. Regarding residence registration status, 296 participants (49.3%) reported long-term temporary residence registration, 278 (46.3%) reported short-term temporary residence registration, 24 (4.0%) had no temporary residence registration, and 2 (0.3%) did not disclose this information. Participants were employed in foreign-invested enterprises (63.3%) and domestic private enterprises (36.7%). They were recruited from seven industrial parks, with the largest proportions working in Đại Đồng–Hoàn Sơn Industrial Park (19.0%), Yên Phong Industrial Park (16.5%), Vân Trung Industrial Park (13.8%), and VSIP (13.8%). Industrial park information was not disclosed for 60 participants (10.0%). Further participant and workplace characteristics are presented in Table 1.

Table 1. Participant and workplace characteristics (N = 600)

Characteristic	*n*	*%*	*Characteristic*	*n*	*%*
Age, years			**Residence registration status**		
M (SD)	33.77 (7.13)		Long-term temporary residence registration	296	49.3
Range	19–67		Short-term temporary residence registration	278	46.3
Gender			No temporary residence registration	24	4.0
Men	325	54.2	Not disclosed	2	0.3
Women	266	44.3	**Enterprise type**		
Another gender	9	1.5	Domestic private enterprise	220	36.7
Educational attainment			Foreign-invested enterprise	380	63.3
Primary education or below	6	1.0	**Industrial park**		
Lower secondary education	93	15.5	Quế Võ I	67	11.2
Upper secondary education	368	61.3	Đại Đồng–Hoàn Sơn	114	19.0
Intermediate education	35	5.8	Yên Phong	99	16.5
College or university education	95	15.8	Đình Trám	77	12.8
Postgraduate education	3	0.5	Vân Trung	83	13.8
Marital status			VSIP	83	13.8
Single (never married)	204	34.0	Nam Sơn–Hạp Lĩnh	17	2.8
Married and living with spouse	338	56.3	Not disclosed	60	10.0
Married but living apart from spouse	48	8.0			
Divorced, separated, or widowed	10	1.7			

Note. **Percentages were calculated based on the total sample size (N = 600). Percentages may not total 100.0 because of rounding. M = mean; SD = standard deviation.**

Survey Instrument

Data were collected using a structured Vietnamese-language questionnaire developed for the broader research project on social welfare for migrant worker families in industrial parks in Bac Ninh Province. The questionnaire contained four main parts. The first recorded characteristics of the workplace and study site, including industrial park, enterprise type, and

industrial sector. The second collected participant characteristics, including year of birth, gender, educational attainment, marital status, residence registration status, and other background information. The third consisted of questions covering five social welfare domains: housing conditions, income security, health care and health security, children's education, and working conditions. Most questions used categorical or ordered response options that described participants' current circumstances, access to services, or perceived level of difficulty.

For the present article, 29 core indicators were selected from the broader questionnaire to represent the five predefined welfare domains while reducing conceptual overlap. Indicators were retained when they directly represented a distinct aspect of the corresponding welfare domain and could be interpreted independently as a descriptive indicator; no psychometric item-reduction procedure was applied. Five indicators represented housing conditions: living space per person, housing cost burden, availability of essential amenities, residential safety, and housing stability. Six indicators represented income security: individual monthly income, household monthly income, income adequacy relative to living costs, dependence on overtime work for additional income, wage payment security, and non-wage allowances or support. Six indicators represented health and health care: health insurance status, initial care-seeking behaviour, self-rated physical health, periodic health examinations, difficulty paying health care costs, and administrative barriers to health care. Six indicators represented children's education: where children lived and studied, type of school attended at the destination, educational expenditure, difficulty with school enrollment, perceived educational cost burden, and satisfaction with educational quality. The remaining six indicators represented working conditions: weekly working hours, provision of occupational protective equipment, employment contract type, work-related stress, workplace discrimination or harassment, and mechanisms for workers to raise concerns or suggestions. These indicators were analysed separately and were not treated as items of a single standardised scale. Accordingly, neither a total social welfare score nor an internal consistency coefficient was calculated.

For this study, housing conditions were defined as the adequacy, affordability, safety, and stability of participants' accommodation. They were operationalized using five indicators: living space, housing cost burden, essential amenities, residential safety, and housing stability. Income security was defined as the adequacy and reliability of financial resources available to meet living needs. It was operationalized using individual and household income, perceived income adequacy, overtime dependence, wage payment security, and employer-provided allowances. Health care and health security were defined as formal health protection and practical access to health services. They were operationalized using insurance status, care-seeking behaviour, self-rated physical health, periodic health examinations, healthcare cost burden, and administrative barriers. Children's educational welfare was defined as the accessibility, affordability, and perceived adequacy of education for participants' children and was operationalized using children's place of residence and schooling, school type, educational expenditure, enrollment difficulties, cost burden, and satisfaction with the quality of education. Working conditions were defined as employment security, occupational protection, psychosocial working conditions, and worker voice. They were operationalized using weekly working hours, personal protective equipment, employment contract status, work-related stress, discrimination or harassment, and worker voice mechanisms.

Data Collection Procedure

The survey was conducted between July and November 2025 in the selected industrial parks. The questionnaire was administered in paper-based form. Before participation, respondents were informed of the purpose of the study, the research use of the information they provided, and the survey's anonymity. No respondent names were requested in the questionnaire. Participation was voluntary, and participants could decline to provide information for individual questions. Completed questionnaires were reviewed for completeness before data entry. Responses recorded as not provided for industrial park and residence registration status were retained as not disclosed in the descriptive reporting. Education-related indicators were summarised using the total sample denominator (N = 600), with non-applicable or undisclosed responses retained in the reported categories where relevant.

Data Analysis

Data were analyzed using SPSS version 24. The analysis was descriptive and designed to characterize the sample and the distribution of social welfare conditions, rather than to test between-group differences or causal relationships. The domain-specific hypotheses were assessed descriptively by comparing the observed indicator patterns with the expected patterns specified in each hypothesis; no inferential tests of significance were conducted. No inferential analyses were conducted because distinct categorical and ordinal indicators represented the welfare domains and were not combined into continuous composite scores. No covariates were specified because no adjusted inferential models were estimated.

Frequencies and percentages were calculated for categorical and ordinal variables. Age was summarised using the mean, standard deviation, and observed range. For each of the 29 core welfare indicators, response distributions were summarised using counts and percentages appropriate to the original response categories. Descriptive statistics were selected according to the measurement properties of each variable rather than calculating means for nominal or ordinal categories. This approach is consistent with the principle that the reported descriptive statistics should reflect the nature and purpose of the variables being analyzed. Percentages for the main participant characteristics were calculated using the total sample of 600 participants, with not disclosed retained as a reporting category where applicable. Percentages for the reported indicators were calculated using the total sample (N = 600), with "not disclosed" retained as a reporting category where applicable. The five predefined welfare domains organized the results. Detailed distributions were presented in tables, whereas the text highlighted the most informative patterns without repeating all numerical values reported in the tables.

RESULTS

The results are presented across the five predefined social welfare domains: housing conditions, income security, health care and health security, children's education, and working conditions. Consistent with the study's descriptive purpose, the text highlights the most informative response patterns, while detailed frequencies and percentages are reported in Tables 2–6.

Housing Conditions

Table 2 summarises the five core indicators of participants' current housing conditions. More than half of the participants (55.7%) reported having less than 10 m² of living space per person, including 13.7% with less than 5 m² per person. Monthly housing costs, including electricity and water, accounted for 10% to less than 20% of monthly income for 41.8% of participants, while 37.2% reported spending at least 20% of their monthly income on these costs. Housing cost information was not disclosed by 7.2% of participants.

Table 2. Core indicators of housing conditions among migrant workers (N = 600)

Indicator and response category	*n*	*%*	*Indicator and response category*	*n*	*%*
Living space per person			**Residential safety and security**		
Less than 5 m² per person	82	13.7	Completely safe, with no incidents reported	329	54.8
5 to less than 10 m² per person	252	42.0	Generally safe, with occasional minor incidents	135	22.5
10 to less than 15 m² per person	182	30.3	Somewhat unsafe, with frequent concerns about security	81	13.5
15 m² or more per person	84	14.0	Very unsafe, with direct experience of serious incidents	55	9.2
Monthly housing costs as a share of monthly income			**Housing stability**		
Less than 10%	83	13.8	No difficulty; housing consistently stable	307	51.2
10% to less than 20%	251	41.8	Occasional minor difficulties	150	25.0
20% to less than 30%	204	34.0	Moderate difficulties	98	16.3
30% or more	19	3.2	Major difficulties	43	7.2
Not disclosed	43	7.2	Not disclosed	2	0.3
Availability of essential housing amenities					
All essential amenities available for private use	383	63.8			
All essential amenities available but shared with others	83	13.8			
One or two essential amenities unavailable	103	17.2			
Several essential amenities unavailable	30	5.0			
Not disclosed	1	0.2			
***Note.* Percentages were calculated based on the total sample size (*N* = 600). Percentages may not total 100.0 because of rounding.**					

Most participants reported having access to all essential housing amenities. Specifically, 63.8% had all essential amenities for private use, and 13.8% had all essential amenities but shared them with others. In contrast, 22.2% reported that one or more essential amenities were unavailable. Regarding residential safety, 54.8% described their current accommodation as completely safe, and a further 22.5% considered it generally safe with only occasional minor incidents. However, 22.7% described their residential environment as somewhat or very unsafe. Housing stability also varied: 51.2% reported no difficulty maintaining stable housing, 25.0% reported occasional minor difficulties, and 23.5% reported moderate or major difficulties.

Income Security

Table 3 presents the six core indicators of income security. Individual monthly income was concentrated in the VND 8 million to VND 11.9 million range (approximately USD 308 to less than USD 462), reported by 63.3% of participants. A further 21.3% reported earning at least VND 12 million (approximately USD 462) per month, whereas 15.3% earned less than VND 8 million (approximately USD 308). At the household level, the most common monthly income range was VND 15 million to less than VND 20 million (approximately USD 577 to less than USD 769; 40.7%), followed by VND 10 million to less than VND 15 million (approximately USD 385 to less than USD 577; 31.5%).

Table 3. Participant and workplace characteristics (N = 600)

Indicator and response category	*n*	*%*	*Indicator and response category*	*n*	*%*
Individual monthly income			**Frequency of overtime work to improve income**		
Less than VND 5 million (USD 192)	5	0.8	Very rarely works overtime	69	11.5
VND 5 million to <8 million (USD 192 to <308)	87	14.5	Occasionally works overtime when additional income is needed	203	33.8
VND 8 million to <12 million (USD 308 to <462)	380	63.3	Regularly works overtime because the basic wage is insufficient for living expenses	206	34.3
VND 12 million or more (USD 462 or more)	128	21.3	Has to work overtime almost every day	117	19.5
Monthly household income			Not disclosed	5	0.8
Less than VND 10 million (USD 385)	46	7.7	**Wage payment security**		
VND 10 million to <15 million (USD 385 to <577)	189	31.5	Wages always paid on time and transparently	418	69.7
VND 15 million to <20 million (USD 577 to <769)	244	40.7	Rare problems, limited to occasional minor delays or errors	44	7.3
VND 20 million to <30 million (USD 769 to <1,154)	111	18.5	Occasional delayed wages or unclear wage deductions	87	14.5
VND 30 million or more (USD 1,154 or more)	10	1.7	Frequent delayed wages or prolonged unpaid wages	50	8.3
Income adequacy relative to living costs			Not disclosed	1	0.2
More than sufficient, with some capacity to save	80	13.3	**Employer-provided allowances and support**		
Sufficient to cover living costs, with little surplus	252	42.0	Several types of allowances provided	332	55.3

Slightly insufficient, requiring substantial economizing	169	28.2	One or two important allowances provided	92	15.3
Seriously insufficient, often requiring borrowing	95	15.8	Only minor or limited support provided	107	17.8
Not disclosed	4	0.7	Almost no allowances beyond the basic wage	63	10.5
			Not disclosed	6	1.0

Note. **Percentages were calculated based on the total sample size (*N* = 600). Approximate USD equivalents were calculated using the study conversion rate of USD 1 = VND 26,000. USD amounts were rounded to the nearest whole dollar. Percentages may not total 100.0 because of rounding.**

Perceived income adequacy showed a less favourable pattern than the income distributions alone. While 55.3% reported that their current income was sufficient to cover living costs, including 13.3% who also reported being able to save, 44.0% indicated some degree of income shortfall. Specifically, 28.2% reported a modest shortfall that required substantial economizing, and 15.8% reported a serious shortfall that often required borrowing. Overtime work was also common: 34.3% reported working overtime regularly because their basic wage was insufficient for living expenses, while another 19.5% reported having to work overtime almost every day. Thus, 53.8% reported regular or near-daily overtime to improve their income.

Most participants (69.7%) reported receiving wages on time with transparent payment practices. However, 30.1% reported at least occasional problems involving delayed wages, unpaid wages, or unclear wage deductions, including 8.3% who experienced frequent delays or prolonged unpaid wages. Employer-provided allowances were relatively common. More than half of participants (55.3%) reported receiving several types of allowances, and 15.3% reported receiving one or two important allowances. In contrast, 10.5% reported receiving almost no allowances beyond their basic wage.

Health Care and Health Security

Table 4 summarises participants' health insurance coverage, health care use, self-rated physical health, and barriers to accessing care. Most participants reported currently having health insurance. Specifically, 80.0% were covered by employer-sponsored compulsory health insurance, and 2.5% had purchased voluntary health insurance independently. In contrast, 14.2% had previously been insured but reported that their coverage was no longer valid, while 3.2% had never participated in health insurance.

Table 4. *Core indicators of health care and health security among migrant workers (N = 600)*

Indicator and response category	***n***	***%***	***Indicator and response category***	***n***	***%***
Health insurance status			**Periodic health examinations**		
Compulsory health insurance provided through employer	480	80.0	Periodic examinations through employer and/or independently	309	51.5
Voluntary health insurance purchased independently	15	2.5	Mandatory employer-provided examinations only	157	26.2
Previously insured, but coverage no longer valid	85	14.2	Examinations conducted irregularly, more than one year apart	97	16.2
Never participated in health insurance	19	3.2	Never received a periodic health examination	34	5.7
Not disclosed	1	0.2	Not disclosed	3	0.5
Initial care-seeking behaviour when experiencing a health problem			**Difficulty paying health care costs not covered by health insurance**		
Purchase medicine directly from a pharmacy	371	61.8	No financial difficulty	175	29.2
Self-treatment at home through traditional remedies or rest	49	8.2	Minor difficulty; affordable with reduced household spending	260	43.3
Seek care from a commune health station or private clinic	140	23.3	Moderate difficulty; requires borrowing or using savings	112	18.7
Go directly to a district- or provincial-level hospital	38	6.3	Severe difficulty; unable to afford costs or treatment may be delayed	47	7.8
Not disclosed	2	0.3	Not disclosed	6	1.0
Self-rated physical health			**Administrative barriers to health care**		
Very good	124	20.7	No administrative barriers	329	54.8
Good	174	29.0	Minor barriers that can be resolved quickly	109	18.2
Fair	281	46.8	Moderate barriers requiring substantial time or effort	116	19.3
Poor	21	3.5	Major barriers that may prevent access to care	39	6.5
			Not disclosed	7	1.2

Note. **Percentages were calculated using the total sample (*N* = 600). Percentages may not total 100.0 because of rounding. Administrative barriers included procedures related to health insurance referrals and required documentation.**

When experiencing a health problem, self-management was the most frequently reported initial response. A total of 61.8% of participants reported purchasing medicine directly from a pharmacy, and 8.2% initially treated themselves at home through rest or traditional remedies. By comparison, 23.3% first sought care from a commune health station or private clinic, while 6.3% went directly to a district- or provincial-level hospital. Participants' self-rated physical health was generally favourable or moderate: 20.7% rated their health as very good, 29.0% as good, 46.8% as fair, and 3.5% as poor.

Periodic health examinations were also relatively common. More than half of participants (51.5%) reported receiving periodic examinations through their employer and/or independently, and 26.2% relied only on mandatory employer-provided examinations. A further 16.2% reported undergoing examinations less regularly, while 5.7% had never received a periodic health examination. Financial barriers to health care remained evident. Although 29.2% reported no difficulty paying health care costs not covered by health insurance, 43.3% experienced minor financial difficulty, 18.7%

reported moderate difficulty requiring borrowing or the use of savings, and 7.8% reported severe difficulty that could result in delayed treatment. Administrative barriers were less commonly reported but were still present: 44.0% experienced at least some difficulty with procedures such as insurance referrals or documentation, including 25.8% who reported moderate or major barriers.

Children's Education

Table 5 presents the core indicators of children's education. Regarding where school-age children lived and studied, 24.2% of participants reported that all their children lived and studied at the destination, whereas 31.5% reported that all children remained in their place of origin, usually under the care of grandparents. A further 6.2% had children living in both the destination and the place of origin, while 5.2% reported having no children of school age. This information was not disclosed by 33.0% of participants.

Table 5. Core indicators of children's education among migrant worker families (N = 600)

Indicator and response category	*n*	*%*	*Indicator and response category*	*n*	*%*
Children's place of residence and schooling			**Difficulty with school enrollment at the destination**		
All children live and study at the destination	145	24.2	No difficulty	131	21.8
All children live and study in the place of origin	189	31.5	Minor difficulty, such as time spent preparing documents	115	19.2
Some children are at the destination and others in the place of origin	37	6.2	Moderate difficulty, such as additional procedures or expenses	69	11.5
No children of school age	31	5.2	Major difficulty, such as enrollment refusal or having to use a private school	21	3.5
Not disclosed	198	33.0	Not disclosed	264	44.0
Type of school attended at the destination			**Education cost burden relative to current income**		
Public school	264	44.0	Easily affordable	48	8.0
Private or non-public school	28	4.7	Affordable, but requires substantial economizing	223	37.2
Informal/community-based class or family childcare group	33	5.5	Moderate difficulty, requiring regular reductions in other spending	73	12.2
Child not attending school/no child studying at the destination	33	5.5	Major financial burden and a source of continuing concern	46	7.7
Not disclosed	242	40.3	Not disclosed	210	35.0
Monthly education expenditure per child			**Satisfaction with education quality at the destination**		
Less than VND 500,000 (approximately USD 19)	14	2.3	Very satisfied	76	12.7
VND 500,000 to <1 million (approximately USD 19 to <38)	38	6.3	Satisfied	65	10.8
VND 1 million to <2 million (approximately USD 38 to <77)	157	26.2	Neither satisfied nor dissatisfied	400	66.7
VND 2 million or more (approximately USD 77 or more)	177	29.5	Dissatisfied	10	1.7
Not disclosed	214	35.7	Very dissatisfied	49	8.2

Note. **Percentages were calculated based on the total sample size (*N* = 600). Approximate USD equivalents were calculated using the study conversion rate of USD 1 = VND 26,000. USD amounts were rounded to the nearest whole dollar. Percentages may not total 100.0 because of rounding. Education expenditure included tuition, meals, uniforms, supplementary learning, and related educational expenses.**

For schooling at the destination, 44.0% of the total sample reported that their children attended public schools, compared with 4.7% using private or non-public schools and 5.5% using informal or community-based educational arrangements. Monthly education expenditure per child was commonly at least VND 1 million (approximately USD 38): 26.2% reported spending VND 1 million to less than VND 2 million per child per month, and 29.5% reported spending VND 2 million (approximately USD 77) or more. Education expenditure was not disclosed by 35.7% of participants.

Difficulties with school enrollment were reported at varying levels. While 21.8% reported no difficulty, 19.2% experienced minor difficulties, mainly related to time-consuming documentation; 11.5% reported moderate difficulties, involving additional procedures or expenses; and 3.5% reported major difficulties, such as being refused enrollment or having to place their child in a private school. Education costs also represented a financial constraint for some families. Only 8.0% reported that these costs were easily affordable, whereas 37.2% could meet the costs only by substantially reducing other spending, 12.2% reported moderate financial difficulty, and 7.7% described education expenditure as a major household financial concern. Regarding perceived quality of education at the destination, 23.5% were satisfied or very satisfied, 66.7% were neutral, and 9.9% were dissatisfied or very dissatisfied.

Working conditions

Table 6 summarises the core indicators of working conditions. Weekly working hours varied considerably across participants. While 44.3% reported working 40 to 48 hours per week and 10.5% worked fewer than 40 hours, 31.5% reported working 49 to 60 hours per week and 13.7% worked more than 60 hours per week. Overall, 45.2% therefore reported working more than 48 hours per week, including overtime.

Table 6. Core indicators of working conditions among migrant workers (N = 600)

Indicator and response category	*n*	*%*	*Indicator and response category*	*n*	*%*
Weekly working hours, including overtime			**Frequency of work-related stress**		
Less than 40 hours/week	63	10.5	Rarely	92	15.3

40 to 48 hours/week	266	44.3	Occasionally, particularly during urgent projects or production orders	363	60.5
49 to 60 hours/week	189	31.5	Frequently, almost every day	93	15.5
More than 60 hours/week	82	13.7	Always, with feelings of exhaustion or overload	50	8.3
Provision of personal protective equipment (PPE)			Not disclosed	2	0.3
All necessary PPE provided regularly and of good quality	375	62.5	**Workplace discrimination or harassment**		
PPE provided, but quality or replacement is inadequate	61	10.2	Never experienced discrimination or harassment	403	67.2
Only some basic PPE provided	112	18.7	Rarely experienced	71	11.8
No PPE provided	48	8.0	Occasionally experienced	63	10.5
Not disclosed	4	0.7	Frequently experienced discrimination or harassment	61	10.2
Employment contract status			Not disclosed	2	0.3
Indefinite-term employment contract	281	46.8	**Worker voice mechanism**		
Fixed-term employment contract	206	34.3	Very effective; concerns are heard and addressed	275	45.8
Probationary or short-term seasonal contract only	80	13.3	Somewhat effective; a feedback channel exists, but issues are rarely resolved	102	17.0
No formal employment contract; work based on verbal agreement	26	4.3	Ineffective; concerns are raised but receive little attention	144	24.0
Not disclosed	7	1.2	No formal feedback channel or mechanism	77	12.8
			Not disclosed	2	0.3

Note. **Percentages were calculated using the total sample (*N* = 600). Percentages may not total 100.0 because of rounding. PPE = personal protective equipment.**

Most participants reported receiving some form of personal protective equipment (PPE), although the level of provision varied. A total of 62.5% reported that all necessary PPE was provided regularly and was of good quality. In contrast, 10.2% reported inadequate quality or irregular replacement, 18.7% received only some basic protective equipment, and 8.0% reported receiving no PPE. Regarding employment arrangements, 46.8% reported having an indefinite-term employment contract and 34.3% a fixed-term contract. Another 13.3% reported only a probationary or short-term seasonal contract, while 4.3% worked without a formal employment contract.

Work-related stress was experienced at different frequencies. Most participants (60.5%) reported feeling stressed occasionally, particularly during periods of urgent projects or production orders. However, 15.5% reported frequent stress, and 8.3% reported experiencing continuous stress, accompanied by feelings of exhaustion or overload. Workplace discrimination or harassment was less commonly reported, although 32.5% experienced it at least rarely: 11.8% reported rare experiences, 10.5% occasional experiences, and 10.2% frequent experiences. Finally, 45.8% considered the existing mechanism for workers to raise concerns or suggest improvements to be very effective, while 17.0% considered it somewhat effective. By contrast, 24.0% reported that the mechanism was ineffective, and 12.8% indicated that no formal channel or mechanism was available.

DISCUSSIONS

The descriptive findings were generally consistent with the five domain-specific hypotheses, although the observed welfare profile was mixed rather than uniformly unfavourable. Specifically, the housing findings were consistent with H_1, the income-security findings with H_2, the healthcare findings with H_3, the education findings with H_4, and the working-condition findings with H_5. Many participants reported stable housing, access to essential amenities, health insurance coverage, formal employment contracts, and employer-provided protective equipment. However, several concerns were consistently evident, particularly income inadequacy, reliance on overtime, health care affordability, educational costs, long working hours, and gaps in workplace protections and worker voice. Taken together, these findings suggest that social welfare among migrant worker families should be understood not only in terms of formal access to employment and social protection, but also in terms of whether available resources and services are sufficient to support everyday living conditions and family needs.

Housing conditions were comparatively mixed rather than uniformly poor. Most participants had access to essential amenities and described their residential environment as completely or generally safe. Nevertheless, 55.7% lived in less than 10 m² per person, 37.2% spent at least 20% of their monthly income on housing costs, and nearly one-quarter reported moderate or major housing instability. This mixed pattern complements earlier Vietnamese evidence showing that migrant industrial workers may experience housing disadvantages even when accommodation and basic services are available (Do et al., 2021). These findings indicate that basic access to accommodation does not necessarily imply adequate space, affordability, or residential security (Chadchan et al., 2024; Loomans, 2024; Rana et al., 2025).

Income security appears to be one of the most important areas requiring attention. Although most participants reported monthly individual incomes between VND 8 million and less than VND 12 million, the absolute income distribution did not fully reflect perceived economic adequacy. More than two-fifths reported that their income was insufficient relative to living costs, including 15.8% who experienced serious shortfalls and often needed to borrow. In addition, 53.8% reported working overtime regularly, almost every day, to increase their income. This pattern is consistent with previous research on factory-worker welfare in Vietnam, which has identified income pressure and overtime work as closely related concerns, and with broader evidence that extended working time may impose costs on workers' well-being and family life (Luong & Nguyen, 2024; Zhang et al., 2023). One plausible explanation is that, for some workers, earnings from standard working hours may not be sufficient to meet current living and household expenses, making overtime an important supplementary income strategy rather than solely a response to production requirements (Luong & Nguyen, 2024; Zhang et al., 2023). Reliance on overtime as an income strategy may also reduce time available for rest, family

responsibilities, and social participation (Arlinghaus et al., 2019; Y. Chen et al., 2020; Yang et al., 2023). The finding reinforces this concern that 45.2% worked more than 48 hours per week. From a social welfare perspective, therefore, income adequacy should be considered together with working time rather than treating wages and employment conditions as separate issues (Zhang et al., 2023; Zhang et al., 2024).

Health protection showed a similar contrast between formal coverage and practical accessibility. Employer-linked compulsory health insurance covered 80.0% of participants, indicating relatively broad formal protection. Nevertheless, 14.2% reported that previous insurance coverage was no longer valid, and financial barriers remained substantial. Only 29.2% reported no difficulty paying health care costs not covered by insurance, whereas 26.5% experienced moderate or severe financial difficulty. Administrative procedures were another concern, with approximately one quarter reporting moderate or major barriers. The coexistence of relatively high insurance coverage with continuing financial and administrative barriers is consistent with previous studies showing that formal insurance enrollment does not necessarily translate into effective access to health care among migrant workers (S. Chen et al., 2020; Loganathan et al., 2019; Rast et al., 2025). These results suggest that insurance enrollment alone may not guarantee effective access to health care when additional costs and administrative requirements remain difficult to manage (S. Chen et al., 2020; Gopinadhan et al., 2026; Loganathan et al., 2019; Rast et al., 2025). The high proportion of participants who initially purchased medicine directly from pharmacies when ill may also reflect convenience, cost considerations, limited time, or barriers to formal health care, although the present data cannot determine which explanation was most important (Lebano et al., 2020; Mann et al., 2025).

The education findings point to important family-level consequences of migration. Among the total sample, 31.5% reported that all school-age children remained in the place of origin, compared with 24.2% whose children lived and studied at the destination. This pattern is broadly consistent with previous Vietnamese and international research that describes family separation and schooling arrangements as important consequences of parental labour migration (Goodburn, 2020; Hu & Lu, 2025; Nguyen et al., 2022). Although these figures cannot establish why children remained behind, migration-related family separation is an important social welfare concern because decisions about children's residence and schooling may reflect interactions among housing, employment schedules, education access, and household finances (Goodburn, 2020; Hu & Lu, 2025; Kusuma & Babu, 2026). Financial pressure was particularly visible among those reporting education-related costs. Only 8.0% of the total sample described such costs as easily affordable, while substantial proportions reported needing to reduce other expenditure or experiencing moderate to major financial difficulty. Difficulties with enrollment procedures were also reported, including documentation requirements, additional expenses, and, for a smaller group, serious barriers to school entry. These findings suggest that improving educational welfare for migrant families requires attention not only to school availability, but also to affordability and administrative accessibility (Goodburn, 2020; Hu & Lu, 2025; Kusuma & Babu, 2026; Loganathan et al., 2023). At the same time, the relatively high proportion of not-disclosed responses for several education indicators limits the amount of detail that can be inferred about the circumstances of all families.

Working conditions represent another priority area. Formal employment arrangements were common, with 81.1% reporting either indefinite-term or fixed-term contracts, and 62.5% reporting regular provision of good-quality personal protective equipment. These findings indicate that important elements of employment protection were present for much of the sample. However, a substantial minority remained less protected. More than one quarter reported receiving incomplete, inadequate, or no personal protective equipment, while 17.6% reported only probationary or short-term seasonal arrangements or no formal employment contract. Frequent or continuous work-related stress was reported by 23.8%, and 10.2% reported frequent discrimination or harassment. Worker voice also appeared uneven: 36.8% regarded existing mechanisms as ineffective or reported that no formal feedback channel was available. These findings broadly complement previous Vietnamese evidence documenting inequalities in the working conditions of migrant industrial workers (Do et al., 2021) and international research identifying occupational and psychosocial risks among migrant workers (Hirudayaraj et al., 2024; Satyen & Becerra, 2022). One possible interpretation of this contrast is that formalized employment arrangements, such as written contracts and the provision of personal protective equipment, do not necessarily ensure favourable conditions across other dimensions of job quality, particularly work-related stress, fair treatment, and worker voice. These findings are relevant to the broader concept of decent work, which includes not only employment and income but also occupational safety, fair treatment, security, and opportunities for workers to express concerns (Reid et al., 2021; Sbaa et al., 2025; Schulte et al., 2022). Strengthening occupational protection and effective worker participation may therefore be as important as maintaining formal contractual coverage (Reid et al., 2021; Schulte et al., 2022).

Overall, the findings identify several welfare concerns that are conceptually related but were not tested for statistical association in the present analysis. For example, income shortfalls may contribute to reliance on overtime, while long working hours may constrain health care use or family time; however, the descriptive design does not establish that these conditions co-occurred in the same individuals or that one condition caused the other. The value of the indicator-based approach is therefore primarily descriptive: it identifies areas in which constraints are relatively common without imposing a single welfare score or causal structure. Conceptually, the contrast between relatively broad formal protections and continuing practical constraints is consistent with the integrated framework used in this study, particularly the distinction between formal social protection, employment quality, and individuals' effective ability to use available resources and services (Freeman et al., 2023; International Labour Organisation, 2012, 2017). From a policy perspective, the findings further indicate that the five welfare domains should not be considered solely as separate administrative issues, because migrant workers and their families encounter them within the same broader living and employment context.

The findings have several practical implications for social welfare policy in industrial areas. First, income adequacy and working time should be addressed together. A substantial proportion of workers reported insufficient income relative to living costs and regular reliance on overtime, indicating that the adequacy of earnings from standard working hours warrants attention alongside policies concerning working time. Second, broad health insurance coverage should be

complemented by measures that reduce additional health care costs and administrative barriers. Third, support for migrant families with children should focus on school enrollment procedures, education-related expenses, and access to suitable schooling at the destination. Housing interventions should likewise consider affordability, living space, safety, and residential stability rather than housing availability alone. Finally, enterprises and worker organizations may strengthen occupational protection, fair treatment, and effective channels for workers to raise concerns. These priorities support a coordinated approach involving national and local government, employers, trade unions, and community organizations rather than separate responses to individual welfare problems.

Several limitations should be considered when interpreting the findings. First, the cross-sectional, descriptive design provides a profile of welfare conditions at a single point in time and does not establish causal relationships among the five domains. Second, participants were recruited through convenience and snowball sampling across seven industrial parks in Bac Ninh Province. Consequently, the reported percentages describe the study sample and should not be interpreted as population prevalence estimates for all migrant workers in Bac Ninh Province or Vietnam. Third, the study relied on self-reported information, which may be influenced by recall or response tendencies. Some education-related indicators also had relatively high proportions of responses classified as not disclosed, reducing the available information for this domain. Finally, the indicator-based design was intended to preserve information on distinct welfare conditions rather than produce a validated composite social welfare score. Consequently, the study cannot rank participants on a single overall welfare scale or estimate relationships among the five domains. Future studies could examine similar indicators across multiple industrial provinces, follow workers and families longitudinally, and investigate how income, housing, working conditions, health care access, and children's education are related. Qualitative research may also help clarify why some migrant families experience particular barriers and how existing support mechanisms are used.

CONCLUSIONS

This study provides a multidimensional account of the social welfare conditions experienced by migrant worker families in industrial parks in Bac Ninh Province. The findings reveal a mixed welfare profile in which relatively broad access to formal employment arrangements, health insurance, essential housing amenities, and occupational protection coexists with continuing constraints related to income adequacy, reliance on overtime, healthcare affordability, children's education, housing stability, long working hours, work-related stress, and worker voice. These patterns indicate that formal employment and social protection coverage alone do not fully capture the practical welfare conditions experienced by migrant workers and their families.

The principal contribution of this study lies in integrating five welfare domains: housing conditions, income security, health care and health security, children's education, and working conditions within a single indicator-based assessment. Conceptually, the findings support the value of distinguishing among formal entitlements, employment protections, and workers' practical ability to access resources and services in everyday life. The study therefore supports a broader household-and-workplace perspective on migrant worker welfare, without assuming that the five domains constitute a single latent construct or causal system.

For employers, industrial park management, and relevant public agencies, the findings highlight several areas that require attention. Income adequacy should be considered alongside working time. At the same time, occupational protection should extend beyond formal contracts and personal protective equipment to encompass psychosocial working conditions and effective mechanisms for worker voice. Local authorities and service providers may also need to address practical barriers related to health care costs, school enrollment and education expenses, and access to stable, affordable housing. Coordination among government agencies, employers, trade unions, and community organizations may provide a more coherent basis for supporting migrant worker families.

Several limitations should also be recognized. The cross-sectional design does not permit causal inference, and convenience and snowball sampling limit the extent to which the reported percentages can be generalized beyond the study sample. The findings were based on self-reported data, and some education-related indicators had substantial non-disclosure. In addition, the indicator-based design did not generate a composite welfare score or test statistical relationships among the five domains. Future research should examine migrant worker welfare across multiple industrial provinces using more representative sampling, longitudinal or inferential designs, and complementary qualitative methods to clarify how different welfare conditions interact over time.

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