

Postprint: Study on Influencing Factors of Job Satisfaction among “3+2” Order-Oriented Assistant General Practitioners in Jiangsu Province

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Abstract

Background: The “3+2” order-oriented assistant general practitioners in Jiangsu Province play an important role in primary healthcare, but face issues such as low contract fulfillment rates and insufficient professional identity, urgently needing to improve work well-being. **Objective:** To understand the current status of work well-being among the “3+2” order-oriented assistant general practitioners in Jiangsu Province and analyze its influencing factors. **Methods:** In November 2024, an online questionnaire survey was conducted on the “3+2” order-oriented assistant general practitioners in Jiangsu Province using random sampling methods. The general information section of the questionnaire included gender, age, marital status, enrollment year, assistant physician qualification status, monthly income level, daily sleep duration, weekly working hours, and physical exercise status; professional calling, job crafting, and work well-being were scored using relevant scales. Multiple linear regression analysis was used to analyze the influencing factors of work well-being among order-oriented assistant general practitioners. **Results:** A total of 299 questionnaires were collected, including 282 valid questionnaires, with an effective recovery rate of 94.31%. Among the 282 order-oriented assistant general practitioners, 98 were male (34.75%) and 184 were female (65.25%), with an average age of (22.50 ± 1.38) years. The total score of the professional calling scale for order-oriented assistant general practitioners in Jiangsu Province was (4.23 ± 0.75) , the total score of the job crafting scale was (5.57 ± 1.40) , all exceeding the intermediate level of these scales. Male assistant general practitioners had higher scores on the job crafting scale than female practitioners ($P < 0.05$). Comparison of work well-being scores among assistant general practitioners with $P < 0.05$. Multiple linear regression analysis showed that gender, age, assistant physician qualification, and physical activity among assistant general practitioners ($P < 0.05$), with an adjusted R^2 value of 0.104; the professional calling scale ($= 0.855$, $P < 0.05$), with an adjusted R^2 value of 0.735; while the effect of the job crafting scale on work well-being was not significant ($= 0.038$, $P > 0.05$). **Conclusion:** The overall level of work well-being among the “3+2” order-oriented assistant general practitioners

in Jiangsu Province is relatively high, with professional calling being the core influencing factor that can significantly enhance work well-being. It is recommended to further improve the work well-being of assistant general practitioners through measures such as enhancing the sense of professional calling, encouraging physical exercise, strengthening training base construction, and increasing monthly income levels, with particular attention to the career development of female assistant general practitioners.

Full Text

Factors Influencing Work-related Flow Among “3+2” Order-oriented Assistant General Practitioners in Jiangsu Province

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Abstract

Background: The “3+2” order-oriented assistant general practitioners in Jiangsu Province play an important role in primary medical care but face challenges such as low contract fulfillment rates and insufficient professional identity, making it urgent to improve their work-related flow (WOLF).

Objective: To investigate the current status of WOLF among “3+2” order-oriented assistant general practitioners in Jiangsu Province and analyze its influencing factors. **Methods:** An online questionnaire survey was conducted in November 2024 using random sampling. The questionnaire collected general information including gender, age, marital status, training year, assistant practitioner qualification, monthly income, daily sleep duration, weekly work hours, and physical exercise. Career calling (CC), career reshaping (CR), and WOLF were measured using validated scales. Multiple linear regression was used to analyze influencing factors of WOLF. **Results:** Of 299 distributed questionnaires, 282 were valid (94.31% response rate). Among the 282 participants, 98 were male (34.75%) and 184 were female (65.25%), with a mean age of

(22.50 \pm 1.38) years. Mean scores were 4.23 \pm 0.75 for CC, 4.32 \pm 0.75 for CR, and 5.57 \pm 1.40 for WOLF, all above 0.05. WOLF scores differed significantly by age, training year, assistant practitioner qualification, daily sleep 0.05. Multiple linear regression showed that gender, age, assistant practitioner qualification, and physical activity 0.05, with an adjusted R^2 of 0.104. CC score had a significant positive effect on WOLF (β =0.855, P <0.05), with adjusted R^2 of 0.735, while CR had no significant effect (β =0.038, P >0.05). **Conclusion:** WOLF among “3+2” order-oriented assistant general practitioners in Jiangsu Province is relatively high, with CC being the core influencing factor. To enhance WOLF, we recommend strengthening CC, encouraging physical exercise, improving training bases, raising income levels, and particularly focusing on career development for female practitioners.

Keywords: General practitioners; Order-oriented; Assistant general practitioners; Career calling; Career reshaping; Work-related flow; Root cause analysis; Jiangsu Province

Introduction

In 2020, the Chinese government issued the “Guiding Opinions on Accelerating the Innovative Development of Medical Education” [1], explicitly calling for steadily expanding the training scale of order-oriented tuition-free medical students to form a high-quality primary care workforce with general practitioners and assistant general practitioners complementing each other. Compared with the “5+3” training model for general practitioners, the “3+2” model for assistant general practitioners has a shorter training period and can quickly fill primary care positions. Their capabilities precisely match the needs of common disease diagnosis and treatment and public health services at the primary level, providing strong support for tiered diagnosis and treatment and significantly improving medical service accessibility and equity. They play an irreplaceable role in promoting integrated medical prevention and implementing basic public health services. Jiangsu Province has enrolled rural order-oriented medical students since 2009, being one of the first provinces to implement this program, with a cumulative enrollment of 20,225 students by 2024 [2], effectively addressing personnel shortages in rural primary care institutions. However, assistant general practitioners face multiple pressures during training and practice, including heavy workload [3], limited career development space [4], insufficient professional identity [5], and low salary [6]. These issues not only affect their work enthusiasm but may also lead to burnout [7], low job satisfaction [8], reduced contract fulfillment willingness [9], and even talent loss.

Work-related flow is a key concept in positive psychology, representing positive feedback derived from work itself, characterized by concentration, enjoyment, and intrinsic motivation. It is an important indicator of occupational well-being and work value realization, enhancing self-esteem, self-efficacy, and promoting personal growth and career development [10]. For assistant general practitioners,

ers, the level of work-related flow directly affects their work enthusiasm and career stability, serving as an important guarantee for primary care service effectiveness. Career calling refers to an individual's strong intrinsic drive and sense of mission toward a profession, which can stimulate work enthusiasm and responsibility. Research shows that career calling significantly improves job satisfaction and professional commitment [11], helping individuals actively cope with work stress. For assistant general practitioners, it can enhance professional identity and help maintain positive attitudes and high performance when facing heavy workloads and complex professional environments. Career reshaping refers to the process by which individuals actively adjust work tasks, relationships, and cognition to align work with personal interests, abilities, and values. For assistant general practitioners, career reshaping can help them adapt to the diversity and complexity of primary care, enhance work autonomy and sense of achievement, relieve occupational stress, and strengthen employment stability. Domestic and international studies have found that both career calling and career reshaping have significant positive effects on work-related flow [12-14].

Empirical research on the relationship among career calling, career reshaping, and work-related flow among assistant general practitioners remains limited. Therefore, this study aims to explore the influencing mechanisms among these three factors among assistant general practitioners, providing scientific evidence for primary care talent training and management, helping to enhance their professional satisfaction and work effectiveness, and promoting the sustainable development of the primary healthcare system.

Methods

Study Design and Participants

In November 2024, we conducted an online questionnaire survey using random sampling. Questionnaire links were sent to training base directors in Jiangsu Province, who then forwarded them to WeChat groups of doctors currently in training. Participation was voluntary and anonymous, with IP and device detection to prevent duplicate submissions. Of 299 questionnaires collected, 17 were excluded due to completion time <60 seconds or obvious logical inconsistencies, yielding 282 valid questionnaires (94.31% validity rate). This study was approved by the Medical Ethics Committee of Siyang Hospital (Approval No. HY2024010), and all participants provided informed consent.

Measures

General Information Questionnaire: A self-designed questionnaire collected basic information including gender, age, marital status, training year, assistant practitioner qualification, monthly income, daily sleep duration, weekly work hours, and physical exercise.

Career Calling Scale: We used the 12-item career calling scale developed by Dobrow et al. [15] with a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). Higher scores indicate greater sense of mission, engagement, identity, and satisfaction with the profession. In this study, Cronbach's α was 0.979, Kaiser-Meyer-Olkin (KMO) value was 0.953, and Bartlett's test was $P<0.001$, indicating good reliability and validity.

Career Reshaping Scale: We used the 8-item career reshaping scale developed by Dutch scholar Tims et al. [16] in 2020, containing two dimensions: proactive career reflection and proactive career construction. This study used the Chinese version translated by Zhu Xingkui [17] in 2023, which has demonstrated good structural validity in domestic research. The 5-point Likert scale (1 = strongly disagree to 5 = strongly agree) yields higher scores for stronger adaptability, goal orientation, learning ability, resource integration, and planning capacity. Cronbach's α was 0.976, KMO was 0.936, and Bartlett's test was $P<0.001$, indicating good reliability and validity.

Work-related Flow Scale: We used the Chinese version of the work-related flow scale introduced and revised by domestic scholar Zeng Chuikai [18] in 2013, including three dimensions: concentration, enjoyment, and intrinsic motivation. The 12-item scale uses a 7-point Likert scale (1 = strongly disagree to 7 = strongly agree), with higher scores indicating greater work-related flow. In this study, Cronbach's α was 0.981, KMO was 0.952, and Bartlett's test was $P<0.001$, indicating good reliability and validity.

Statistical Analysis

Raw data were exported from Questionnaire Star to Excel and analyzed using SPSS 27.0. Normally distributed continuous variables were expressed as $(\bar{x}\pm s)$ and compared between two groups using independent samples t-tests and among multiple groups using one-way ANOVA. Categorical variables were expressed as n (%). Multiple linear regression was used to explore the effects of demographic factors, career calling, and career reshaping on work-related flow. $P<0.05$ was considered statistically significant.

Results

2.1 Basic Characteristics of Participants

Among the 282 order-oriented assistant general practitioners, 98 were male (34.75%) and 184 were female (65.25%), with a mean age of $(22.50\pm\$1.38)$ years. The majority (265, 93.97%) were aged 20– <25 years, and most were unmarried (269, 95.39%), including 91 unmarried males and 178 unmarried females. Other basic characteristics are shown in .

2.2 Overall Levels of Career Calling, Career Reshaping, and Work-related Flow

The mean career calling score was 4.23 ± 0.75 , exceeding the scale midpoint (3). The mean career reshaping score was 5.57 ± 1.40 , exceeding the scale midpoint (4). These results indicate relatively high overall levels of career calling, career reshaping, and work-related flow among order-oriented assistant general practitioners.

2.3 Comparison of Scale Scores Across Demographic Variables

Male assistant general practitioners scored significantly higher than females on career calling, career reshaping, and work-related flow scales ($P < 0.05$). Career reshaping scores did not differ significantly by age ($P > 0.05$), but participants aged ≥ 25 years had higher career calling and work-related flow scores than those aged $20-25$ years ($P < 0.05$). No significant differences were found across marital status for any of the three scales ($P > 0.05$). Career reshaping scores did not differ by training year ($P > 0.05$), but participants who entered training in 2024 had higher career calling and work-related flow scores than those who entered in 2023 ($P < 0.05$). Career reshaping scores did not differ by assistant practitioner qualification ($P > 0.05$), but those with qualifications had higher career calling and work-related flow scores ($P < 0.05$). Career reshaping and work-related flow scores did not differ by income level ($P > 0.05$), but career calling scores did differ significantly ($P < 0.05$), with participants earning $\geq 1,100$ yuan/month scoring higher than those earning $< 1,000$ yuan/month ($P = 0.002$). Career reshaping scores did not differ by sleep duration ($P > 0.05$), but participants sleeping ≥ 7 hours daily had higher career calling and work-related flow scores than those sleeping < 7 hours ($P < 0.05$). No significant differences were found for any scale by weekly work hours ($P > 0.05$). Career reshaping scores did not differ by physical exercise frequency ($P > 0.05$), but career calling and work-related flow scores did ($P < 0.05$). Participants who exercised daily had higher career calling and work-related flow scores than those who exercised monthly or not at all ($P < 0.001$ and $P = 0.002$, respectively). Detailed results are shown in .

2.4 Multiple Linear Regression Analysis of Work-related Flow Influencing Factors

We used hierarchical regression to examine the effects of demographic variables, career calling, and career reshaping on work-related flow. In Model 1, with work-related flow as the dependent variable and gender, age, marital status, training year, assistant practitioner qualification, income, sleep duration, weekly work hours, and physical exercise as independent variables, the adjusted R^2 was 0.104. Gender, age, assistant practitioner qualification, and physical exercise significantly influenced work-related flow ($P < 0.05$). In Model 2, adding career calling significantly increased the adjusted R^2 to 0.735, with demographic variables no longer significant ($P > 0.05$), indicating that career calling explained 73.5% of the variance in work-related flow after controlling for demographics. In Model 3, adding career reshaping did not change the adjusted R^2 and had

no significant effect on work-related flow ($P>0.05$), suggesting limited explanatory power. Multicollinearity tests showed variance inflation factor (VIF) values around 2 across all three models, indicating no multicollinearity issues. Detailed results are shown in and .

Discussion

3.1 Overall Level of Work-related Flow Among Order-oriented Assistant General Practitioners in Jiangsu Province

Our findings show that work-related flow scores among “3+2” order-oriented assistant general practitioners in Jiangsu Province exceed the scale midpoint, with both career calling and career reshaping scores also above midpoint levels. This indicates that assistant general practitioners in Jiangsu generally have a certain degree of professional identity and positive attitude, are relatively satisfied with their work status, and commonly experience high levels of concentration, enjoyment, and intrinsic motivation in their work. These results are consistent with Zhang et al.’s [19] findings that work satisfaction among primary care general practitioners in Jiangsu is above moderate levels, suggesting that whether in assistant general practice training or already working at the primary level, practitioners report good work-related flow. In recent years, with the advancement of the national “Healthy China” strategy and significantly improved public health awareness, general practice has gradually become a key focus for national and local governments. To support the “Healthy Jiangsu 2030” plan, Jiangsu has implemented multi-dimensional policies to support general practice development and talent training [20-23], gradually optimizing the general practitioner training system and comprehensively improving compensation. These measures demonstrate Jiangsu’s high priority for general practice and talent, enhancing work-related flow.

3.2 Physical Exercise Can Enhance Work-related Flow Among Assistant General Practitioners

Integrating physical exercise into daily life is not only an important pathway to meet people’s aspirations for a better life but also a core initiative for advancing the Healthy China strategy. In line with the “Weight Management Year” initiative, society has formed a new trend of actively participating in exercise and emphasizing healthy lifestyles. One-way ANOVA results show that higher exercise frequency is associated with higher career calling and work-related flow scores ($P<0.05$), indicating that healthy lifestyles and habits positively impact professional development and work status. Model 1 multiple linear regression results show that physical exercise is a positive influencing factor for work-related flow ($\beta=-0.147$, $P<0.05$). Yan et al.’s [24] research demonstrates that regular physical exercise not only improves physical and mental health by stimulating

neurotransmitter secretion but also provides social support and positive emotions through exercise-related social circles.

Through regular, normalized physical exercise, assistant general practitioners can improve their physical and mental health from physiological, psychological, and social support perspectives, thereby significantly enhancing work-related flow. Training bases should establish fitness facilities and provide dedicated exercise time while organizing group activities to enhance participation. Bases should also conduct health lectures and promote exercise benefits [25] to raise exercise awareness. Where possible, bases can combine psychological interventions by establishing exercise support groups to help assistant general practitioners relieve stress and create a positive exercise atmosphere.

3.3 Significant Gender Differences in Career Calling, Career Reshaping, and Work-related Flow

Male “3+2” order-oriented assistant general practitioners in Jiangsu scored significantly higher than females on career calling, career reshaping, and work-related flow scales ($P<0.05$), and regression analysis showed gender significantly influenced work-related flow ($\beta=-0.140$, $P<0.05$). Females accounted for 65.25% of participants (184/282), similar to the approximately 72.2% female employment rate in China’s medical field [26], indicating women’s important role in protecting public health. However, traditional society emphasizes women’s family roles, and previous research confirms that Chinese women are primary providers of family care and household work, including female medical staff [26]. Liu’s [27] 2021 survey of 16 public hospitals in Korla, Xinjiang found that female medical staff accounted for 70.01% of the workforce, with career development challenges primarily manifested in work-family role conflict, imbalanced political and social resources, unequal opportunities for salary and training, and career stagnation. Additionally, childbearing and childcare responsibilities significantly reduce women’s work enthusiasm, flexibility, and adaptability, causing burnout [28-29]. He et al.’s [30] survey found that childcare conflicts with women’s employment, causing career advancement barriers, marginalization, and increased risk of occupational discrimination.

Although most female assistant general practitioners are young and unmarried, future family responsibilities (such as marriage and child-rearing) may weaken their sense of career calling. We recommend paying attention to female assistant general practitioners’ career development by providing career support, planning, and lectures to help women balance work and life and enhance career calling and work-related flow. Internationally, Germany has improved gender stereotypes in organizations and society through early education, higher education, vocational fields, and multi-level pathways of individual support and environmental regulation [31], and China could借鉴 these practices to advance gender equality policies and training of female primary care medical talent.

3.4 Career Calling as the Core Influencing Factor of Work-related Flow

Career calling belongs to the positive psychology domain and is a motivational force at work that can reflect individuals' intrinsic motivation and profoundly influence their work attitudes and behaviors [32]. In hierarchical regression analysis, career calling scores had a significant positive effect on work-related flow ($\beta=0.855$, $P<0.05$); higher career calling scores predicted higher work-related flow. After introducing career calling in Model 2, the effects of some demographic variables (such as gender, age, assistant practitioner qualification, and physical exercise) on work-related flow were significantly weakened, indicating that career calling plays an important role in explaining work-related flow. Career calling is a key influencing factor for assistant general practitioners' work-related flow, primarily because it can stimulate intrinsic motivation, enhance work meaning, and increase work engagement. First, as an intrinsic driving force, career calling leads assistant general practitioners with self-directed calling to attribute greater value to their work [11], and this intrinsic motivation can directly affect their innovative vitality [33], thereby enabling them to achieve higher satisfaction and enjoyment in their work. Additionally, career calling endows work with meaning, making assistant general practitioners feel that their work contributes to society or others, which directly enhances work-related flow [11]. Therefore, further improving assistant general practitioners' career calling levels is particularly important. Furthermore, through publicity and education, society's recognition of the assistant general practitioner profession should be enhanced to further strengthen their professional pride.

3.5 Limited Effect of Career Reshaping on Work-related Flow

Although theoretically assistant general practitioners' career reshaping should influence work-related flow [12,34], the actual results did not meet expectations. In multiple linear regression analysis, career reshaping scores had no significant effect on work-related flow ($\beta=0.038$, $P>0.05$), indicating that career reshaping has limited explanatory power for work-related flow variation. Tims noted that career reshaping is the process by which individuals actively utilize acquired resources to adjust and change their work environment and responsibilities to achieve person-job fit, increase work engagement, and improve satisfaction. Based on the definition of career reshaping and analysis of assistant general practice training realities, reasons are as follows: First, assistant general practitioners lack supportive resources for career reshaping. Li's [36] survey of Jiangsu assistant general practitioner training bases showed that incomplete base construction and insufficient general practice teaching faculty weaken the effectiveness of career reshaping. Second, low monthly income levels reduce motivation for career reshaping; income level is an important reference for personal social value and a primary measure for improving job satisfaction. Zhang et al.'s [6] cohort study noted that income level seriously affects assistant general practitioners' willingness to serve at the primary level. In this sur-

vey, 24.83% of assistant general practitioners still earned less than 1,100 yuan monthly. If the full annual fiscal subsidy of 20,000 yuan were distributed to trainees, the maximum monthly income would be only 1,667 yuan, significantly lower than Jiangsu's minimum wage standard of 2,010 yuan. This large income gap and mismatch between income and labor value reduces their motivation to actively reshape their professional roles and tasks. We recommend strengthening assistant general practice training base construction, improving teaching faculty quality, and providing systematic, high-quality training support. At the national, provincial health commission, and training base levels, increased investment in training funds should be provided to raise income levels during training and enhance personal value and professional recognition.

Conclusion

This study focused on work-related flow and its influencing factors among “3+2” order-oriented assistant general practitioners in Jiangsu Province, aiming to provide scientific evidence for primary care talent training and management. Through an online questionnaire survey of 282 valid responses and multiple linear regression analysis, we found that career calling is the core influencing factor of work-related flow, with gender, age, assistant practitioner qualification, and physical exercise also having significant effects. The results indicate that work-related flow among Jiangsu assistant general practitioners is relatively high overall, but female practitioners show lower levels of career calling, career reshaping, and work-related flow. This study provides empirical support for improving work-related flow among assistant general practitioners in Jiangsu and has significance for optimizing the primary care talent training system.

Limitations include the study's restriction to Jiangsu Province and its focus on practitioners in training rather than those already working at primary care facilities, which may limit generalizability. Future research should expand sample size and scope to further validate and explore the influencing mechanisms of work-related flow among “3+2” assistant general practitioners, providing more empirically meaningful interventions to enhance their professional satisfaction and work effectiveness.

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Author Contributions

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