

# Implementation Status and Determinants of NIDCAP–Based Nursing Practices in Neonatal Intensive Care Units in China

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## Aims

This study aimed to evaluate the current implementation status of the Newborn Individualized Developmental Care and Assessment Program (NIDCAP) among newborn intensive care unit (NICU) nurses across China and to identify key factors influencing the delivery of developmental supportive care behaviors. It also sought to offer evidence-based recommendations to support improvements in NIDCAP practice.

## Methods

We conducted a descriptive cross-sectional study among 433 NICU nurses from 14 hospitals across seven geographical regions of China, selected via convenience sampling. Data were collected from July 2023 to January 2024 using an anonymous online questionnaire platform, with each hospital assigning a trained nurse coordinator to ensure consistency and data quality. Before deployment, all coordinators received standardized training via online sessions.

The questionnaire consisted of two parts: (1) demographic and institutional characteristics such as age, education level, NICU working years, type of hospital, and presence of prior NIDCAP-related training; and (2) the Chinese version of the Developmental Supportive Care Scale for NICU Nurses (DSCS-N). The original DSCS-N was developed by Kim et al.<sup>1</sup> in Korea and adapted for Chinese NICU settings by Qian et al.<sup>2</sup> through forward–backward translation, pilot testing, and psychometric validation. The scale comprises 20 items across six dimensions: environmental support (5 items), parental support (3), interaction (3), critical thinking (3), professional support (3), and collaboration (3). Each item was rated on a 4-point Likert scale (1 = "never perform" to 4 = "always perform"), yielding a total score ranging from 20 to 80. Higher scores indicate stronger performance in developmental care. Descriptive statistics, t-tests, ANOVA, and stepwise multiple regression were conducted using SPSS 26.0 to identify influencing factors.

## Results

The DSCS-N total score among participants ranged from 21 to 80, with a mean of  $65.41 \pm 12.79$ . The average item score was  $3.27 \pm 0.64$ , suggesting a moderate overall level of NIDCAP implementation in Chinese NICUs. Among the

six care dimensions, the "Interaction" domain scored highest (mean =  $3.52 \pm 0.58$ ), followed by "Behavioral Observation and Feedback" ( $3.29 \pm 0.76$ ), while "Education and Resource Support" was lowest ( $3.09 \pm 0.88$ ). These results indicate that nurses emphasize relational care and responsiveness to infant cues but face barriers to formal training and institutional support mechanisms.

Stepwise multiple regression analysis revealed that prior NIDCAP-related training was the strongest predictor of total DSCS-N score ( $\beta = 0.631$ ,  $p < 0.001$ ), followed by education level ( $\beta = 0.281$ ,  $p = 0.004$ ), length of NICU experience ( $\beta = 0.256$ ,  $p = 0.012$ ), and hospital type ( $\beta = 0.198$ ,  $p = 0.027$ ). The model accounted for 60.8% of the variance ( $R^2 = 0.608$ ,  $p < 0.001$ ). Nurses who had undergone formal NIDCAP training scored an average of 16.13 points higher than those without training, highlighting a substantial impact of structured exposure on practice behavior. Nurses with  $\geq 5$  years of NICU experience also demonstrated more consistent developmental care delivery, particularly in crisis management and behavioral regulation.

## Conclusion

Although NIDCAP practices have been adopted in Chinese NICUs, implementation remains variable and moderate. Barriers include limited training, staffing shortages, and reduced family involvement. Structured hybrid training, integration into credentialing, and nurse–parent collaboration are recommended. National policies should support NIDCAP institutionalization within pediatric care standards.

## Relevance to NIDCAP

This study offers large-scale empirical evidence on the implementation of NIDCAP principles in China. It identifies key gaps and influencing factors, offering insights aligned with the NIDCAP Federation International's Strategic Plan. The findings support targeted interventions to build workforce capacity, enhance developmental care competencies, and guide policy to advance NIDCAP globally.

## References

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