

# 河北省女性护理人员年龄与夜班频次交互作用对高血压患病率的影响

## The interaction between night shift frequency and age on hypertension prevalence among female nurses:a cross-sectional study

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**目的:** 本研究旨在通过对河北省各级医疗机构女性护理人员血压状况及夜班频次进行调查,分析年龄与夜班频次交互作用对该群体高血压患病率影响,为合理规划夜班频次,最大限度降低夜班对不同年龄护理人员高血压患病风险的影响提供科学依据。

**Objective:** This study aimed to investigate female nurses' of night shift frequency and blood pressure status work in medical institutions at all levels in Hebei province, and analyze the interaction between age and the frequency of night shift on the hypertension prevalence. In that way we can provide scientific evidence for arranging the frequency of night shift and minimizing the the risk of hypertension in nurses of different age groups.

**方法:** 本研究采用普查法,于2016年11月至2018年7月对河北省11个地市512家医疗机构护理人员进行调查。使用IBM SPSS26.0软件进行二元Logistic逐步向前回归法分析,以最低年龄组无夜班者为参照,通过不同交互作

用因素暴露组合下的OR值和Andersson等编制的Excel表计算相加交互作用系数——交互效应超额相对危险度(RERI)、交互作用归因比例(API)和交互作用指数(SI),分析年龄与夜班频次对高血压患病是否存在相加交互作用。

**Methods:** This study used a census questionnaire which was conducted in 512 medical institutions in 11 cities of Hebei Province from November 2016 to July 2018. Binary Logistic regression analysis (stepwise) was done by SPSS Version 26.0 (SPSS inc., IBM). The youngest age group without night shift was used as reference group. Odds ratio(OR) was calculated by different combination of interaction items. Interaction coefficients(relative excess risk of interaction (RERI), attributable proportion of interaction(API) and the synergy index (SI) was calculated by Excel table designed by Andersson to analyze the interaction between age and frequency of night shift in hypertension prevalence.

**结果:** 二元 Logistic回归结果显示,与18~25岁无夜班者相比,36~45岁与月均>5~10个夜班、>10个夜班对是否患高血压产生相加交互作用,RERI、API、SI及其95%置信区间依次为0.631(0.309~0.954)、0.216(0.109~0.323)、1.488(1.158~1.913)和1.037(0.061~2.013)、0.303(0.089~0.516)、1.746(1.093~2.788);46~65岁与月均>5~10个夜班对是否患高血压产生相加交互作用,RERI、API、SI和及其95%置信区间依次为1.809(0.880~2.739)、0.245(0.148~0.341)、1.394(1.199~1.622)。

**Results:** Binary Logistic regression results showed that compared with the 18-25 years old ones without night shift, there existed an additive interaction between the age of 36-45 and more than 5 to 10 night shifts or more than 10 night shifts per month on hypertension prevalence. RERI, API, SI and their 95% confidence intervals(CI) were 0.631(0.309~0.954), 0.216(0.109~0.323), 1.488(1.158~1.913), 1.037(0.061~2.013), 0.303(0.089~0.516)

and 1.746(1.093~2.788), respectively. There also existed an additive interaction between the age of 46-65 and more than 5 to 10 night shifts per month on hypertension prevalence. RERI, API, SI and their 95% confidence intervals were 1.809(0.880~2.739), 0.245(0.148~0.341) and 1.394(1.199~1.622), respectively.

**结论:** 年龄与夜班频次对女性护理人员高血压患病率存在相加交互作用,护理管理者应根据不同年龄女性特点合理规划其夜班频次,以最大程度减轻其罹患高血压风险。

**Conclusions:** There existed interaction between specific age group and frequency of night shift on the prevalence of hypertension among female nurses. Nursing managers should reasonably arrange the frequency of night shift according to the characteristics of female at different age groups in order to minimize the risk of hypertension.