The goal of the present study is to explore the nicotine effects on mismatch negativity (MMN), which reflects the automatic processing in schizophrenia. Twenty healthy Controls (ten smokers and ten nonsmokers) and sixteen schizophrenic patients (six smokers and ten nonsmokers) participated in event-related potentials (ERP) experiments during a passive auditory oddball paradigm. The subjects were underwent the ERP sessions before and 8 hours after nicotine and placebo exposures from dermal patches. Two factorial ANOVA with one repeated measure revealed no significant interaction between groups (control-nonsmokers, control-smokers, schizophrenic-nonsmokers vs. schizophrenic-smokers) and conditions (baseline, placebo or nicotine) in amplitudes, but confirmed the effect of groups and conditions in latencies. Post-hoc tests revealed that MMN latencies in nicotine condition are shorter than those in placebo condition in healthy volunteers who are both of smokers and non-smokers (p<0.01). In contrast, there were no significant differences in latencies of schizophrenics between conditions. Conclusively, nicotine might activate and accelerate the automatic information processing and enhance vigilance levels in healthy volunteers. In contrast, there were no such effects observed in schizophrenics. These findings suggested that nicotinic receptor was disordered in schizophrenic patients.