Diagnostic reasoning in primary care setting where presented problems and patients are mostly unselected appears as a complex process. The aim was to develop a questionnaire to describe how general practitioners (GPs) deal with uncertainty to gain more insight into the decisional process. The association of personality traits with medical decision making was investigated additionally. Raw items were identified by literature research and focus group. Items were improved by interviewing ten GPs with thinking-aloud-method. A personal case vignette related to a complex and uncertainty situation was introduced. The final questionnaire was administered to 228 GPs in Germany. Factorial validity was calculated with explorative and confirmatory factor analysis. The results of the Communicating and Dealing with Uncertainty (CoDU)-questionnaire were compared with the scales of the ‘Physician Reaction to Uncertainty’ (PRU) questionnaire and with the personality traits which were determined with the Big Five Inventory (BFI-K). The items could be assigned to four scales with varying internal consistency, namely 'communicating uncertainty' (Cronbach alpha 0.79), 'diagnostic action' (0.60), 'intuition' (0.39) and 'extended social anamnesis' (0.69). Neuroticism was positively associated with all PRU scales 'anxiety due to uncertainty' (Pearson correlation 0.487), 'concerns about bad
outcomes' (0.488), 'reluctance to disclose uncertainty to patients' (0.287), 'reluctance to disclose mistakes to physicians' (0.212) and negatively associated with the CoDU scale 'communicating uncertainty' (-0.242) (p<0.01 for all). 'Extraversion' (0.146; p<0.05), 'agreeableness' (0.145, p<0.05), 'conscientiousness' (0.168, p<0.05) and 'openness to experience' (0.186, p<0.01) were significantly positively associated with 'communicating uncertainty'. 'Extraversion' (0.162), 'conscientiousness' (0.158) and 'openness to experience' (0.155) were associated with 'extended social anamnesis' (p<0.05). The questionnaire allowed describing the diagnostic decision making process of general practitioners in complex situations. Personality traits are associated with diagnostic reasoning and communication with patients, which might be important for medical education and quality improvement purposes.