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The higher the CKD grade, the higher the psychological stress in patients with CKD during COVID-19 pandemic

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Objectives: COVID pandemic is related to psychological distress and the distress depends on various factors. We have previously reported that hemodialysis patients had more psychological distress than peritoneal dialysis patients in CKD patients on dialysis in the era of COVID pandemic. However, no study has reported how psychological distress related to COVID-19 depends on renal function in the entire group of CKD patients. Therefore, this study investigated psychological distress and concerns related to COVID-19 according to CKD grade.

Methods: This was a cross-sectional study that included 397 CKD patients who visited Soonchunhyang University Cheonan Hospital from August 2020 to November 2020. Patients responded to questionnaires covering depression (9-item Patient Health Questionnaire, PHQ-9), anxiety (7-item Generalized Anxiety Disorder, GAD-7), psychological impact of event (22-item Impact of Event Scale-Revised, IES-R), insomnia (7-item Insomnia severity Index, ISI), and concerns about COVID-19. Patients were divided into three groups -patients with CKD grade 1~2, patients with CKD grade 3~5 without dialysis, and dialysis patients- according to eGFR and dialysis status. Jonckheere-Terpstra test and linear by linear association were used.

Results: The higher the CKD grade, the higher GAD-7 ($p=0.009$) and ISI score ($p=0.001$). When patients with CKD grade 1~2 and patients with CKD grade 3~5 (with or without dialysis) were compared, PHQ-9 ($p=0.026$), GAD-7 ($p=0.010$), and ISI score ($p=0.002$) were higher in CKD grade 3~5 group. However, only the ISI score ($p=0.008$) showed a significant difference depending on dialysis.

Conclusions: CKD patients showed more psychological distress as renal function worsened during the COVID-19 pandemic. Therefore, as CKD grade increases, more attention should be paid to mental care of these patients.

Figure 1. Comparison of scores of PHQ-9, GAD-7, IES-R, and ISI among grade 1~2 CKD patients, grade 3~5 non-dialytic CKD patients, and dialysis patients.

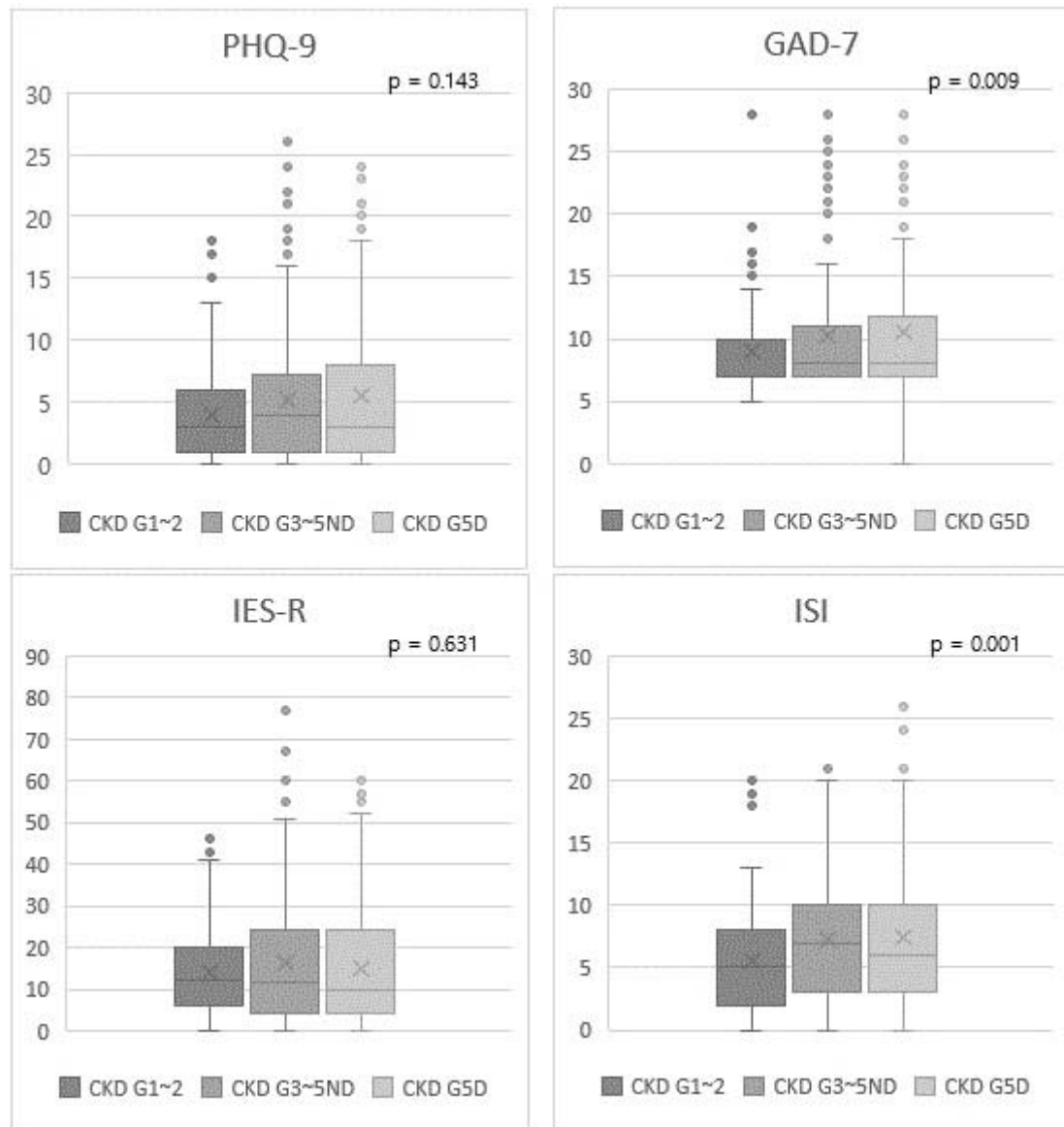


Table 1. Comparison of concerns and precautionary measures for 2019 coronavirus disease (COVID-19) in CKD patients



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	OR (95% CI)	p-value
Depression (PHQ-9 score 5~21)		
CKD		0.353
CKD grade 3~5ND	1.451 (0.834~2.525)	0.188
CKD grade5D	1.411 (0.828~2.405)	0.206
Sex (Male)	0.792 (0.519~1.210)	0.281
Age	1.064 (0.915~1.238)	0.418
DM	0.824 (0.528~1.284)	0.392
HTN	0.853 (0.516~1.409)	0.534
Moderate to severe anxiety (GAD-7 score 10~21)*		
CKD		0.013
CKD grade 3~5ND	2.119 (1.152~3.898)	0.016
CKD grade5D	2.341 (1.305~4.201)	0.004
Sex (Male)	0.607 (0.390~0.944)	0.027
Age	1.033 (0.882~1.211)	0.686
DM	0.785 (0.490~1.257)	0.314
HTN	0.598 (0.354~1.008)	0.054
Psychological impact of event (IES-R score 9~88)		
CKD		0.561
CKD grade 3~5ND	0.741 (0.428~1.281)	0.283
CKD grade5D	0.839 (0.494~1.423)	0.515
Sex (Male)	0.936 (0.612~1.432)	0.762
Age	1.019 (0.877~1.184)	0.811
DM	0.993 (0.640~1.539)	0.973
HTN	0.713 (0.428~1.188)	0.713
Insomnia (ISI score 8~28)		
CKD		<0.001
CKD grade 3~5ND	2.535 (1.410~4.560)	0.002
CKD grade5D	3.019 (1.715~5.314)	<0.001
Sex (Male)	0.690 (0.449~1.061)	0.091
Age	0.998 (0.857~1.163)	0.982
DM	0.984 (0.628~1.540)	0.943
HTN	0.693 (0.415~1.160)	0.163