

Computer use aspects in patients with motor disabilities

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Introduction: The purpose of the study is to assess computer contribution in social life and everyday activities as well as the impact of the disease on computer operation in patients with motor disabilities. These are preliminary data for the MAMEM project (*Multimedia Authoring and Management using your Eyes and Mind*).

Methods: Three groups of neurological patients were studied: a)35 patients with Parkinson’s disease (PD),b) 23 patients with cervical spinal cord injury (SCI) and c) 19 with neuromuscular disorders (NMD).

Patients’ demographics are presented in the following table.

Group	Gender M/W	Mean age ± SD (yrs)	Mean disease duration±SD (yrs)
PD	28/7	59.5 ± 8.37	9.58±4.51
SCI	16/7	49.2 ± 15.9	20.65 ± 14.6
NMD	15/4	27.2 ± 6.8	23.4±7.3

All subjects were assessed by means of two Questionnaires (scales): a. the Computer Contribution in Life Scale (CCLS) referring to the contribution of the computer in a patient’s social life ,every day activities, emotional well- being [*total score: 9=not important/45= very important*] and

b.the Disease Impact on Computer Operation Scale (DICOS) ,exploring the disease impact on various aspects of computer operation [*total score: 11=no effect/55= maximum effect*]. Both Questionnaires are presented in Appendix. Statistical Analysis. Reliability of both scales was assessed by means of Cronbach’s alpha coefficient. One way analysis of variance (ANOVA) was employed for group comparisons. Post hoc analysis was performed by means of the Scheffe test.

Results: The reliability of both scales was excellent (Cronbach’s alpha was 0.87 for CCLS and 0.93 for the DICOS, while item to total correlations ranged from 0.478 to 0.747 for CCLS and from 0.544 to 0.814 for DICOS). Mean total scale scores are presented in the following table:

SCALE	PD	SCI	NMD	p
CCLS	23.3±7.2	20.8±9.72	32.8±5,1	0.000
DICOS	25.9±9.9	31.2±15.0	20.5±5.1	0.017

Figures 1 &2 present boxplots of scale scores. Post hoc between groups comparisons showed that NMD patients regarded computer use as most important (*p=0.000*) and SCI patients had the major difficulty (*p=0.017*) with computer operation.

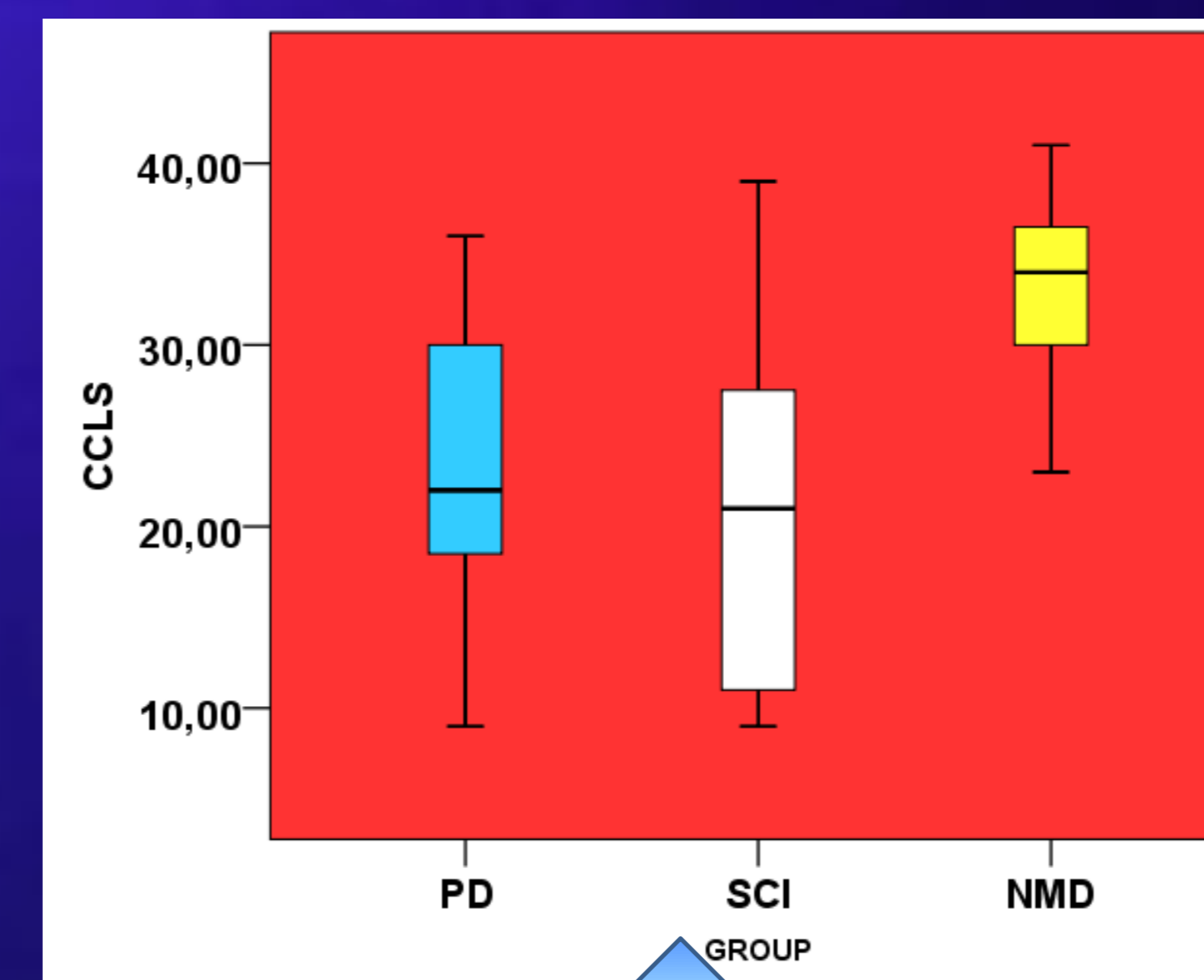


Fig1.Boxplots of CCLS scale scores

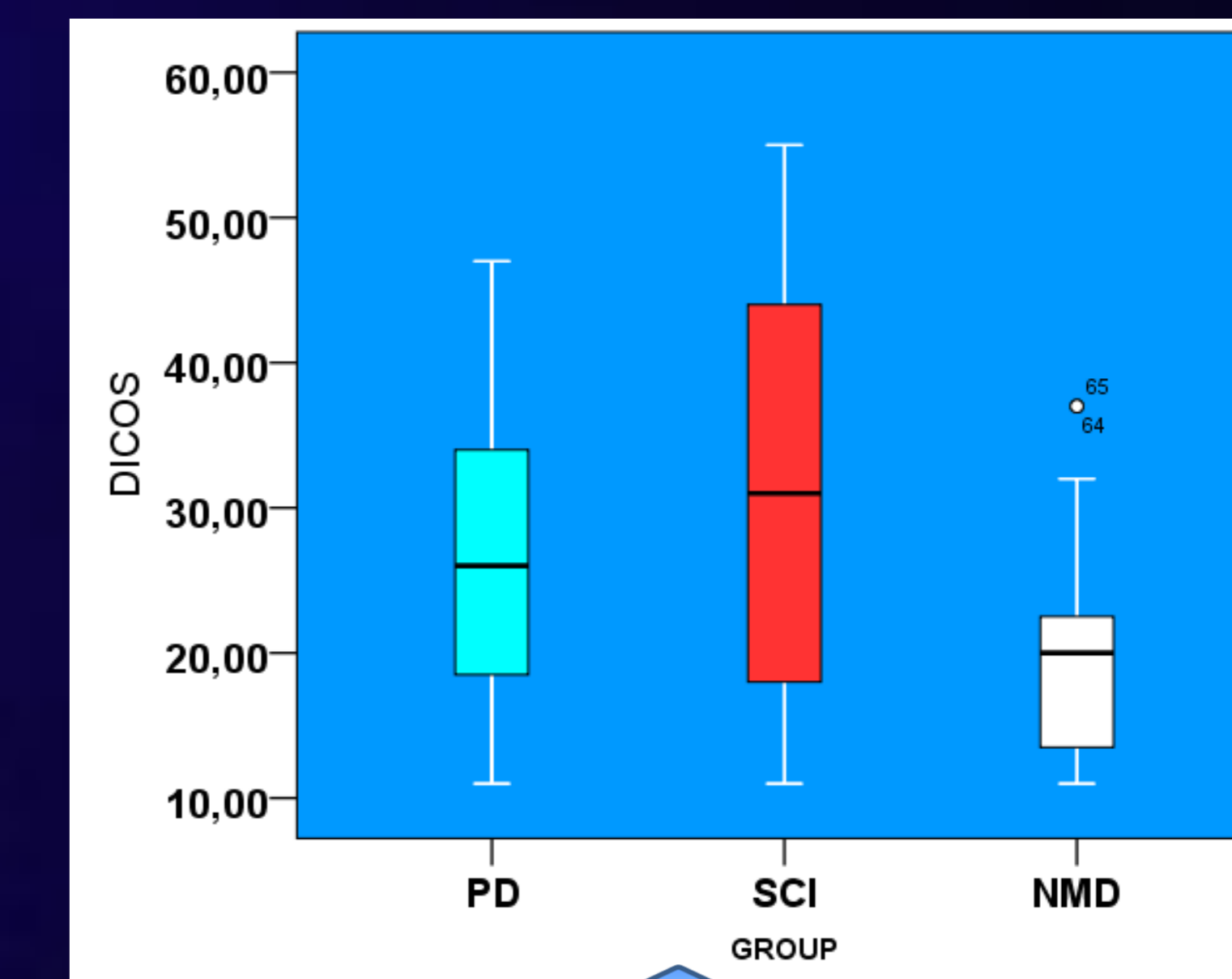


Fig2.Boxplots of DICOS scale scores

Conclusions: Our preliminary results show that patients with motor disabilities regard computer use as an important aspect of their life and their disability has a significant effect on their ability to operate it satisfactorily. This information is important for the development of innovating technology helping patients to overcome their specific disabilities.

APPENDIX

How important is the contribution of computer use in the following aspects of your life?

CCLS Items	1- not important at all, 5-very important)
Interpersonal interactions and relationships	1 2 3 4 5
Close, intimate relationships	1 2 3 4 5
Educational attainment	1 2 3 4 5
Work and employment status/potential	1 2 3 4 5
Participation in desired community, social and civic activities	1 2 3 4 5
Autonomy and self-determination (making decisions)	1 2 3 4 5
Fitting in, belonging, feeling connected	1 2 3 4 5
Emotional well-being	1 2 3 4 5
Overall health	1 2 3 4 5

How does your current physical condition affect the following computer use aspects?

DICOS items	No effect	Mildly	Moderately	Substantially	Completely
Comfort	1	2	3	4	5
Independence	1	2	3	4	5
Satisfaction	1	2	3	4	5
Pain	1	2	3	4	5
Speed of operation	1	2	3	4	5
Fatigue	1	2	3	4	5
Accuracy of operation	1	2	3	4	5
Endurance	1	2	3	4	5
Effectiveness	1	2	3	4	5
Ease of use	1	2	3	4	5
Enabling privacy	1	2	3	4	5

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