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INTRODUCTION

The relevance of several individual predictors for chronic low back pain (CLBP) has been analyzed, especially in relation to the outcomes pain intensity and disability. Prognostic models considering others primary outcomes such as Global Perceived Effect (GPE) are less investigated. In addition, recent evidence points to the relevance of considerer factors related to intervention response as potential predictors for the interventions success.

PURPOSE

The aim of this study was to assess the prognostic value of factors related to the intervention response for global perceived effect in CLBP patients undergoing physiotherapy.

MATERIALS AND METHODS

A prospective cohort study comprised 182 CLBP patients (>12 weeks' duration) referred to physiotherapy was conducted. At baseline, a large number of sociodemographic (age; gender; education; work participation; smoking) and clinical (pain duration; pain irradiation; medication; diffuse pain; kinesiophobia; catastrophizing; pain intensity; disability) variables were collected.

After physical therapy intervention (maximum of 8 weeks), all participants were assessed for pain intensity (Numeric Pain Rating Scale: 0-10), disability (Quebec Back Pain Disability Scale: 0-100) and GPE (Global Perceived Effect Scale: -5 to 5). Response to intervention in pain intensity (final scores; reduction >30%; pain < 2 points) and disability (final scores; reduction >30%; disability < 20 points) were considered potential predictive variables. Global Perceived Effect scores ≥ 3 were considered a successful response. Logistic regression (Backward Conditional Procedure) was used to analyze the associations between the predictive variables and the dependent variable (global perceived effect).

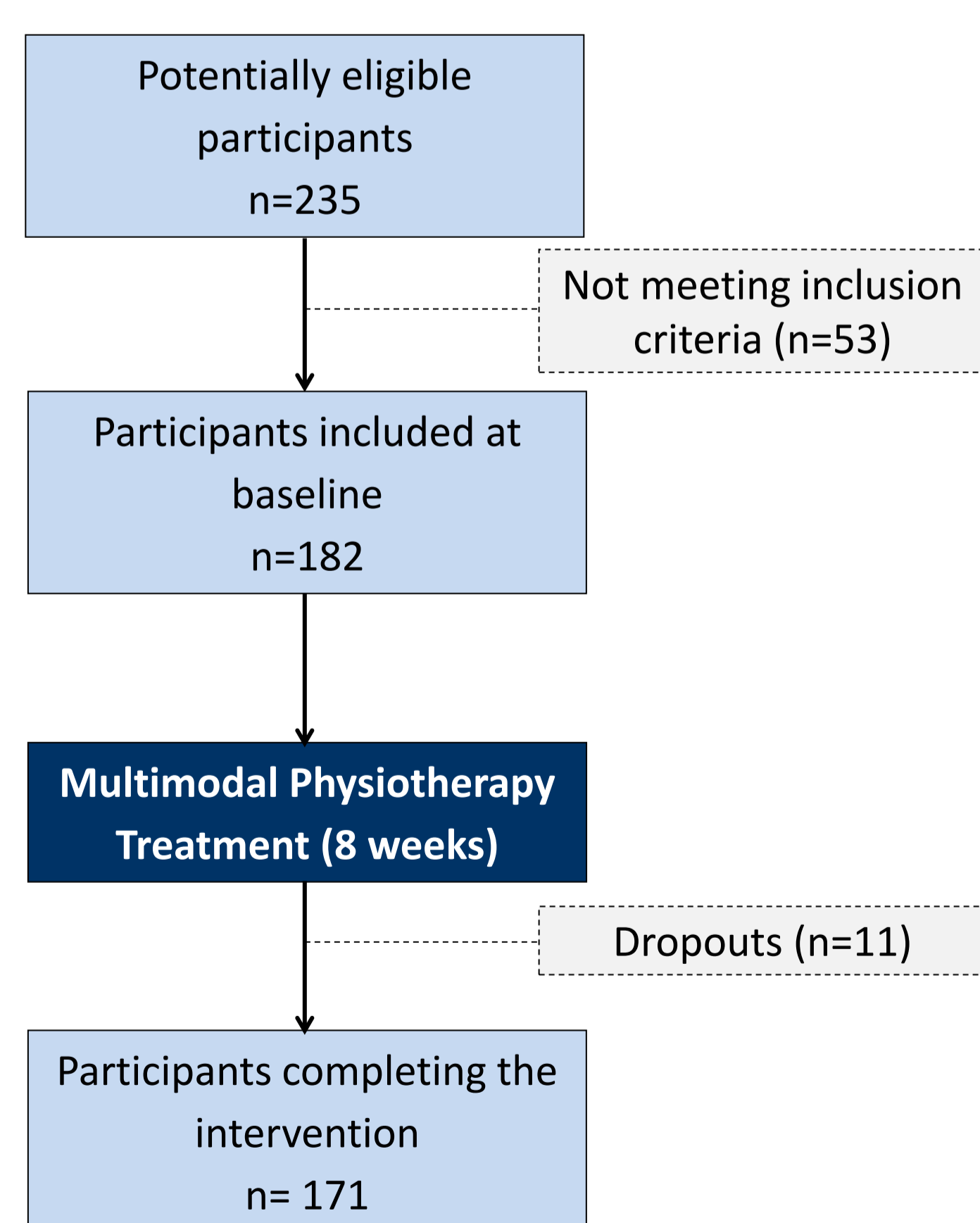


Figure 1

RESULTS

Of the 182 participants recruited, 171 completed the assessment after intervention (mean age: 48.0±10.5 years) and 121 (71%) achieved a successful response (GPE ≥ 3). After the univariate analysis, potential predictive variables ($p < 0.2$) were entered into multivariable regression model. Sociodemographic and clinical variables at the baseline were included as covariates in multivariable analysis. Only two variables were retained in the final multivariable model: final pain scores (OR=0,778; 95% IC 0,635-0,952) and a disability reduction >30% after intervention (OR=7,612; 95% IC 2,903-19,963) (Table 1). The discriminative ability of this model was good (AUC=0.823) and explained 36% of the variation (Nagelkerke's R squared) in GPE.

Independent Variables	Univariate Regression		Multivariate Regression	
	OR	p	OR (95% CI)	p
Age	1.591 (0.615-4.119)	0.339	1.684 (0.659-4.307)	0.276
Gender	0.655 (0.219-1.960)	0.449	0.598 (0.206-1.741)	0.346
Education	0.451 (0.163-1.251)	0.126	0.470 (0.170-1.296)	0.145
Working Status	0.609 (0.191-1.937)	0.401	0.586 (0.200-1.714)	0.329
Smoking	1.853 (0.410-8.379)	0.423	1.825 (0.418-7.958)	0.423
Pain irradiation	0.532 (0.211-1.340)	0.181	0.556 (0.222-1.393)	0.211
Pain duration	1.005 (0.404-2.501)	0.992	1.019 (0.416-2.496)	0.968
Medication	1.156 (0.476-2.802)	0.749	1.149 (0.480-2.746)	0.755
Diffuse pain	0.972 (0.345-2.738)	0.958	1.000 (0.368-2.714)	1.000
Fear of Movement	0.536 (0.185-1.554)	0.251	0.548 (0.201-1.494)	0.240
Catastrophizing	0.611 (0.245-1.521)	0.289	0.603 (0.257-1.415)	0.246
Pain intensity (final scores)	0.871 (0.622-1.220)	0.042*	0.778 (0.635-0.952)	0.015
Pain reduction >30%	1.612 (0.485-5.351)	0.436	-	-
Final pain score < 2 points	1.437 (0.367-5.620)	0.602	-	-
Disability (final scores)	0.980 (0.929-1.032)	0.439	-	-
Disability reduction >30%	8.822 (2.626-29.638)	0.001*	7.612 (2.903-19.963)	0.001
Final disability score < 20 points	0.322 (0.072-1.435)	0.137*	-	-

*Variables entered into multivariable regression model

CONCLUSION

CLBP patients with lower levels of pain intensity after intervention and those who achieved a reduction >30% in disability were significantly associated with a successful response in GPE after physiotherapy. Taken together with variables related to the intervention response, sociodemographic and clinical variables were not significantly associated with clinical improvement on the GPE. The relevance of modifiable variables by physiotherapy such as pain and disability to predict GPE should be analyzed in future studies.

References

- [1] Cook C, Petersen S, Donaldson M, Wilhelm M, Learman K. Does early change predict long-term (6 months) improvements in subjects who receive manual therapy for low back pain? *Physiother Theory Pract.* 2017;
- [2] Mansell G, Jordan KP, Peat GM, Dunn KM, Lasserson D, Kuijpers T, et al. Brief pain re-assessment provided more accurate prognosis than baseline information for low-back or shoulder pain. *BMC Musculoskelet Disord.* 2017;
- [3] Dworkin RH, Turk DC, Farrar JT, Haythornthwaite JA, Jensen MP, Katz NP, et al. Core outcome measures for chronic pain clinical trials: IMMPACT recommendations. *Pain.* 2005.
- [4] Ostelo, R. W. J. G., Deyo, R. A., Stratford, P., Waddell, G., Croft, P., Korff, M. Von, Vet, H. C. De. (2008). Interpreting Change Scores for Pain and Functional Status in Low Back Pain. *Spine*, 33(1), 90–94.