

# Pain in Multiple Sclerosis (MS): Exploring its association with anxiety, depression, and physical disability.

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## Aim

An analysis to explore the relationship between pain, anxiety, depression and physical disability in multiple sclerosis (MS).

## Background

- Pain is a common symptom in people with MS.
- Pain impacts the levels of anxiety, depression, and physical disability in MS.
- Exploring pain in MS and its association with anxiety, depression, and physical disability may provide adequate management and treatment interventions.

## Methodology

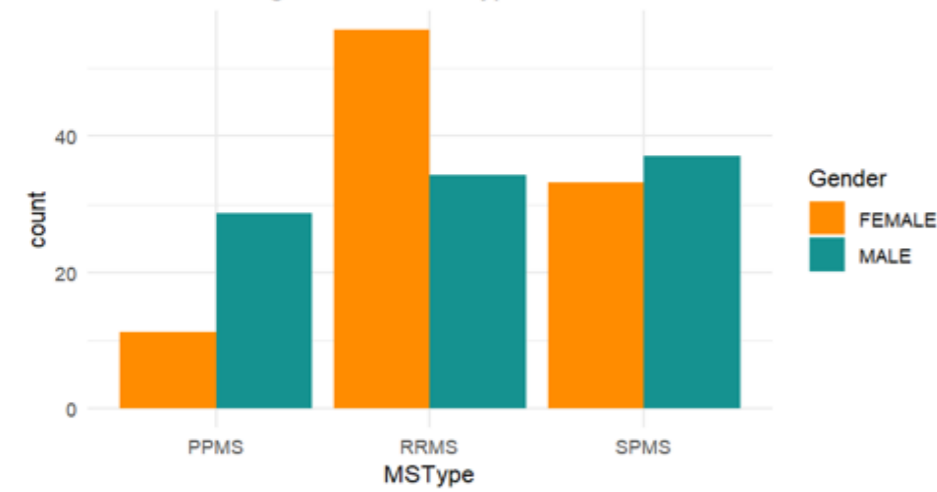
- A longitudinal cohort was selected from the UKMSR that includes the population's demographics, symptoms, first Multiple Sclerosis Impact Scale 29-physical sub-score (MSISPhys; used to determine the level of physical disability; scale from 0-100) and first Hospital Anxiety and Depression Scale sub-score (HADS; scale from 0-21).
- Groups were stratified by pain severity with 0 indicating 'mild pain', 1 indicating 'moderate pain', and 2 indicating 'severe pain'.

Pain severity

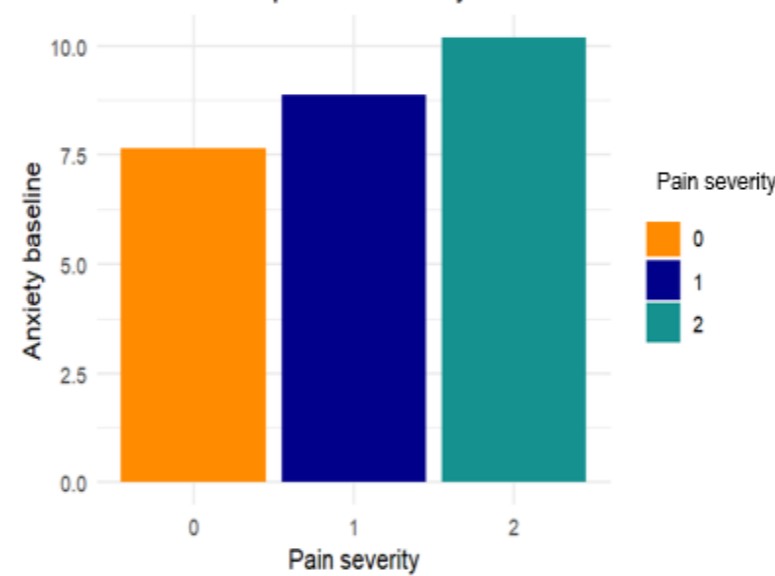
	Mild	Moderate	Severe	Significant value (p-test)
<b>n</b>	553	1237	546	
<b>Age (mean (SD))</b>	54.06 (12.15)	56.98 (11.42)	58.11 (11.59)	<0.001
<b>OnsetAge (mean (SD))</b>	37.72 (10.97)	39.74 (10.60)	40.00 (11.22)	0.017
<b>DiagnosisAge (mean (SD))</b>	41.61 (11.14)	44.09 (10.60)	44.87 (11.12)	<0.001
<b>MSTypeNow (%)</b>				<0.001
PPMS	74 (13.4)	175 (14.1)	109 (20.0)	
RRMS	347 (62.7)	617 (49.9)	219 (40.1)	
SPMS	132 (23.9)	445 (36.0)	218 (39.9)	
<b>MSAtDiagnosis (%)</b>				<0.001
PPMS	72 (13.0)	168 (13.6)	100 (18.3)	
RRMS	444 (80.3)	938 (75.8)	370 (67.8)	
SPMS	21 (3.8)	73 (5.9)	47 (8.6)	
Unknown	16 (2.9)	58 (4.7)	29 (5.3)	
<b>Gender = FEMALE/MALE (%)</b>	418/135 (75.6/24.4)	959/275 (77.7/22.3)	412/133 (75.6/24.4)	0.481
<b>HADS_anxiety_baseline (mean (SD))</b>	7.64 (4.06)	8.87 (4.35)	10.17 (4.49)	<0.001
<b>HADS_depression_baseline (mean (SD))</b>	6.67 (3.66)	8.29 (3.99)	9.80 (4.23)	<0.001
<b>MSISPhys_baseline (mean (SD))</b>	40.24 (22.93)	53.07 (22.45)	63.86 (21.03)	<0.001

Table 1: Demographics and clinical characteristics of the population stratified by pain severity.  
Image by Author.

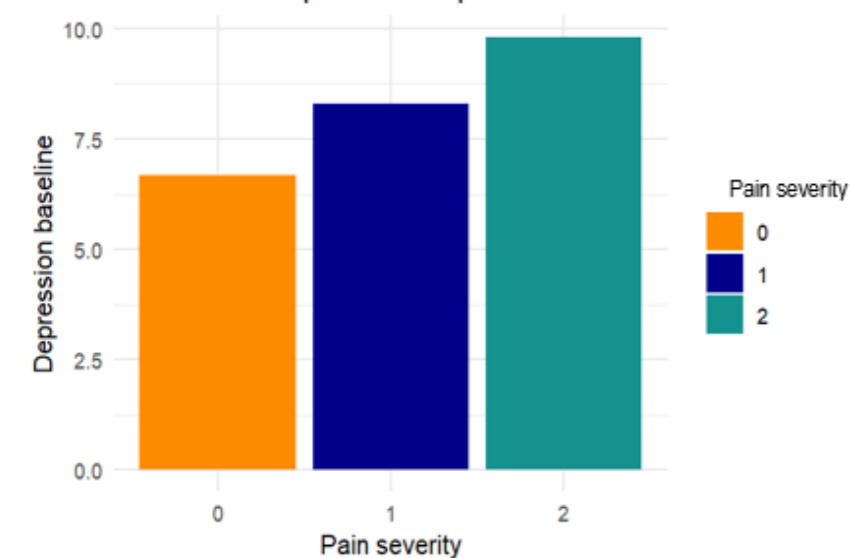
Distribution of gender and MSType



Distribution of pain and anxiety



Distribution of pain and depression



Distribution of pain and physical disability

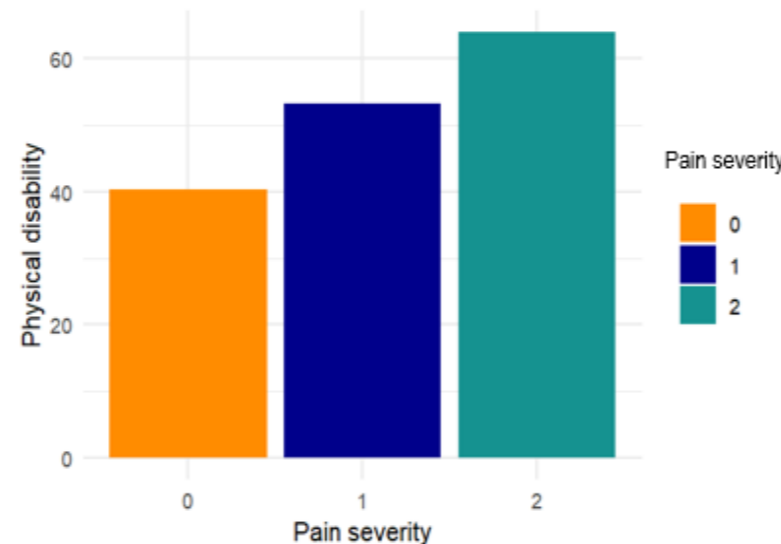


Image by Author

## Results

- A higher rate of males reported primary progressive MS (PPMS) compared to their female counterparts.
- People who experience a higher level of pain are older than those who experience less pain (mild pain: 54.06 v severe pain: 58.11).
- As level of pain severity increases, levels of anxiety (7.64 v 10.17), depression (6.67 v 9.80), and disability (40.24 v 63.86) all increase as well.
- No significant difference between gender and pain severity (p=0.481).

## Conclusion

Pain is a common symptom among people living with MS in our cohort. While pain is largely prevalent in MS patients, it can also impact the levels of MS-related physical disability, depression, and anxiety. The different levels of pain experienced by participants highlight the importance of exploring pain and adequate intervention in the management and treatment of pain in MS patients.

## Acknowledgements

We acknowledge the UKMSR participants for their contribution towards the register, which led to this research.