

## BACKGROUND

- Previous research has highlighted the importance of physicians' early diagnostic hypotheses for their subsequent judgments (1). It has also been shown that physicians' **diagnostic accuracy** improves when they are presented with a list of **diagnostic suggestions** to consider **at the start** of the patient encounter (2). The psychological mechanisms underlying this improvement in accuracy have not yet been explored.
- Our main hypothesis was that the provision of early diagnostic hypotheses has a **debiasing effect** on physicians' thinking. In **three experiments**, we looked into four different aspects of the diagnostic process, as well as into the associated biases that potentially operate during this process: Diagnostic certainty (**overconfidence**), information search (**premature closure**), information evaluation (**information distortion**) and diagnostic shift (**resistance to change mind**).

## METHODS

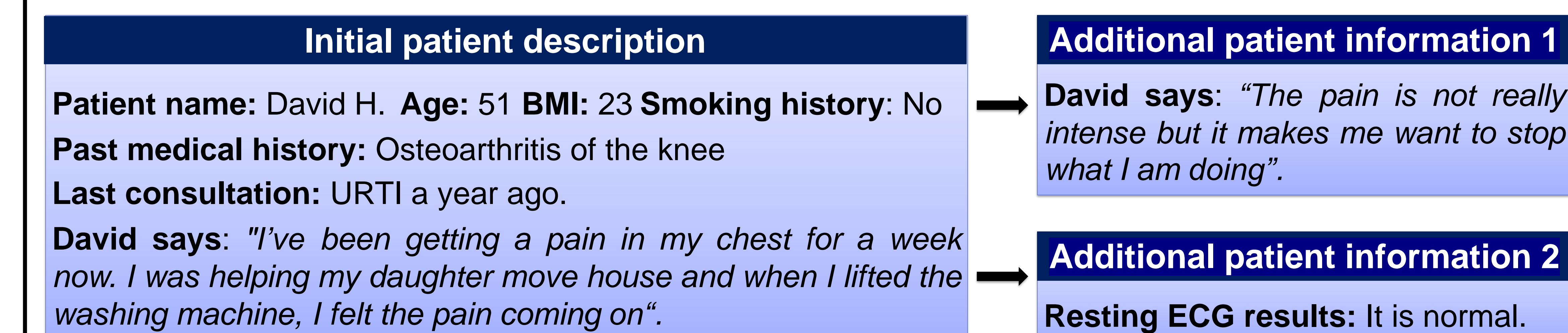
**Clinical scenarios:** Each patient scenario had two parts: **initial description** and **additional information**. In all three experiments, the initial description was designed to **steer** participants toward certain diagnoses. In experiment 1, the additional information was **somewhat inconsistent** with the initial steer. In experiments 2 and 3, the additional information was **neutral** and open to interpretation.

**Participants:** 194, 248 and 248 UK GPs in experiments 1, 2 and 3 respectively.

**Design and procedure:** GPs were presented with two patient scenarios at random, one with and the other without diagnostic suggestions. They provided their **diagnosis** (free text) and **confidence** (0-10 scale), **before and after** the suggestions. They also **requested** additional information from a list of seven items and, finally, **evaluated** each item in relation to their initial diagnosis (i.e., how much it supports it) on a 0-10 scale.

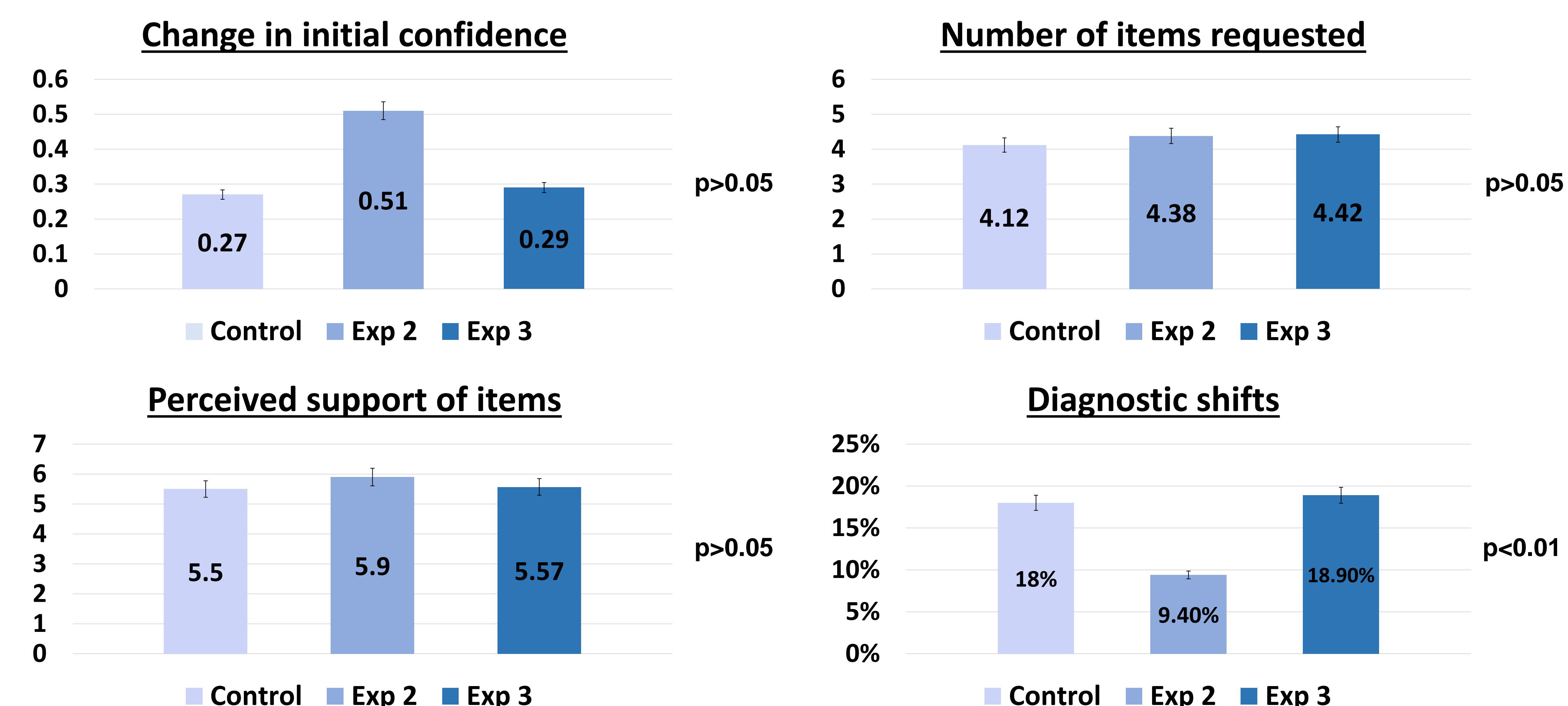
In experiment 2, the list of diagnostic suggestions **included** GPs' own diagnosis.

In experiment 3, the list of diagnostic suggestions **did not include** GPs' own diagnosis.



## RESULTS

- Diagnostic suggestions had only minimal effects on physicians' thinking.
- In all three experiments, **initial confidence** was negatively associated with **changes in diagnosis** ( $p < 0.001$ ).
- In experiments 2 and 3, GPs with higher initial confidence **a)** requested fewer items of information before reaching a conclusion, **b)** evaluated this information in a more biased fashion and **c)** recorded fewer differential diagnoses ( $p < 0.001$ ).



Comparison between conditions: No suggestions (Control) vs. suggestions with GPs' own diagnosis (Exp 2) vs. suggestions without GPs' own diagnosis (Exp 3).

## CONCLUSION

Early diagnostic suggestions may have some effect on physicians' diagnostic confidence and willingness to change their mind. However, physicians' **confidence in their initial diagnostic hypothesis** has a much stronger impact on reasoning, as it appears to be the **main driver** that significantly affected the psychological mechanisms explored in the experiments described above.

## References

1. Kostopoulou O, Sirota M, Round T, Samaranyaka S, Delaney BC. The Role of Physicians' First Impressions in the Diagnosis of Possible Cancers without Alarm Symptoms. *Medical Decision Making* 2017; 37(1):9-16.
2. Kostopoulou O, Rosen A, Round T, Wright E, Douiri A, Delaney B. Early diagnostic suggestions improve accuracy of GPs: a randomised controlled trial using computer-simulated patients. *British Journal of General Practice* 2015; 65(630):49-54

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