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Management of medically unexplained symptoms in children and young people: a secondary analysis of a ten-year audit of referrals to a Paediatric Psychology Service

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ABSTRACT

This study evaluated service use of children and young people with medically unexplained symptoms (MUS) referred to a Paediatric Psychology Service between 2008 and 2017. Univariate analyses of activity data indicated that the MUS group (*n*=268) required more clinical sessions than other patients (*n*=3577) (inpatient MUS: 7.5(12.5) v general: 4.0(6.0), *p*=0.006; outpatient: MUS 10.7(15.0) v general 6.3(8.9), *p*<0.001). Multivariate analyses confirmed that MUS group status remained significantly associated (p<0.001) with a higher number of contacts, even when age and gender were controlled for. Although both groups benefitted equally from psychological input, MUS referrals required more contact time than general referrals.

(100 words)

Medically unexplained symptoms (MUS) are increasingly being reconceptualised as 'bodily distress'[1] and refer to persistent bodily complaints including pain, sensory changes, and fatigue, for which insufficient explanatory pathology is identified. They account for a significant number of medical consultations[2], with childhood presentations more common in paediatric than mental health settings[3]. The risk of serious economic and quality of life repercussions in adulthood of untreated MUS has led to calls for increased funding in this area of child services[4].

The aim of this study was to use activity data relating to an acute hospital psychology service to inform future MUS service development. This was a retrospective review of a clinical database between 2008 to 2017. As a clinical audit, it did not require Ethics Committee approval but was registered as a hospital audit. General paediatric psychology referrals were compared with MUS referrals in relation to age; gender; number of clinical appointments and whether treatment objectives (eg return to school) were met. This secondary analysis built on previous analyses[5] by excluding cases referred for assessment only and controlling for the impact of sociodemographic variables on outcomes.

Between 2008 and 2017, 268 MUS referrals and 3577 general referrals were received by the Paediatric Psychology Service. The majorityof MUS referrals were from Paediatric Medicine, 68% (182/268), and Paediatric Neurology/Neurosurgery, 19% (51/268). The most common symptoms were pain, 35% (94/268), primarily abdominal or headache, and functional neurological symptoms, 19% (51/268), including non-epileptic seizures, loss of speech and motor weakness. In just under half of cases, 46% (123/268), there was a coexisting medical

diagnosis (eg respiratory infection) but this did not explain impact on functioning. The treatment approach was mainly cognitive-behavioural with involvement of family and the multi-disciplinary team.

The MUS referrals were more likely to be female, 56% (150/268) v 49% (1753/3577), p=0.033) and were older, (mean (SD) 12.4 (2.7) years v 8.9 (5.4) years, p<0.001), with age more narrowly distributed than for general referrals (Figure 1).

The proportions of inpatients seen <48 hours were similar (MUS: 89% (75/84) v general: 87% (1204/1381), p=0.574), as were the proportions of outpatients seen <6 months (MUS: 89% (102/114) v general: 93% (1284/1374), p=0.106). and the proportions where treatment objectives were fully met (MUS: 68% (125/183) v general: 71% (1868/2638), p=0.791). However, children and young people with MUS required more mean (SD) appointments than the general group, whether as an inpatient (MUS: 7.5 (12.5) v general: 4.0 (6.0), *p*=0.006) or an outpatient (MUS: 10.7 (15.0) v general: 6.3 (8.9), *p*<0.001) (Figure 2). This association between MUS group status and higher number of appointments remained significant, even when age and gender were controlled for in multivariate analyses (inpatients: B=3.25 (95% CI 1.83-4.66), *p*<0.001; outpatients: B=3.11 (95% CI 1.46-4.76), *p*<0.001).

The suggestion in the literature[4] that MUS are particularly resource-intensive to treat was supported by the main finding of this study that MUS referrals required almost twice as many appointments as general referrals. The sociodemographic characteristics of the MUS sample

were consistent with previous research in relation to age and gender[3], with presentations concentrated around puberty, which may be relevant to aetiology. Strengths of this study were the sample size, the availability of data on a comparison group and the use of routinely collected contemporaneous audit data. Limitations include the fact that this was a single centre study and information was only available for a set of pre-determined variables.

The findings of this study indicate that there are clear resource implications relating to this work, with MUS referrals requiring nearly double the input needed for other referrals, although encouragingly they appeared to respond equally well to psychological support[1,6].

(598 words)

Figure Legends (NB images uploaded separately)

Figure 1 Age distribution (years) of children and young people referred for medically unexplained symptoms (*n*=268) compared with that of general paediatric psychology referrals (*n*=3577)

Figure 2 Distribution of number of appointments provided for outpatient referrals for medically unexplained symptoms (*n*=114) compared to that for general paediatric psychology outpatient referrals (*n*=1374)

Patient and Public Involvement

There was no patient and public involvement in this clinical audit.

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Competing Interests Statement: The authors have no competing interests.

Authors' Contributions Statement: SR and GC made substantial contributions to conception and design of the study and the analysis and interpretation of data. GC drafted the article and SR revised it critically for important intellectual content. Both authors approved the final version of the manuscript.

Ethics Statement: The study did not require Ethics committee approval as it was deemed to be a clinical audit and was registered as such in 2018 by the Clinical Audit department at St George's University Hospitals NHS Foundation Trust (Ref CADB002459).

Data Sharing Statement: Anonymised dataset available from the corresponding author

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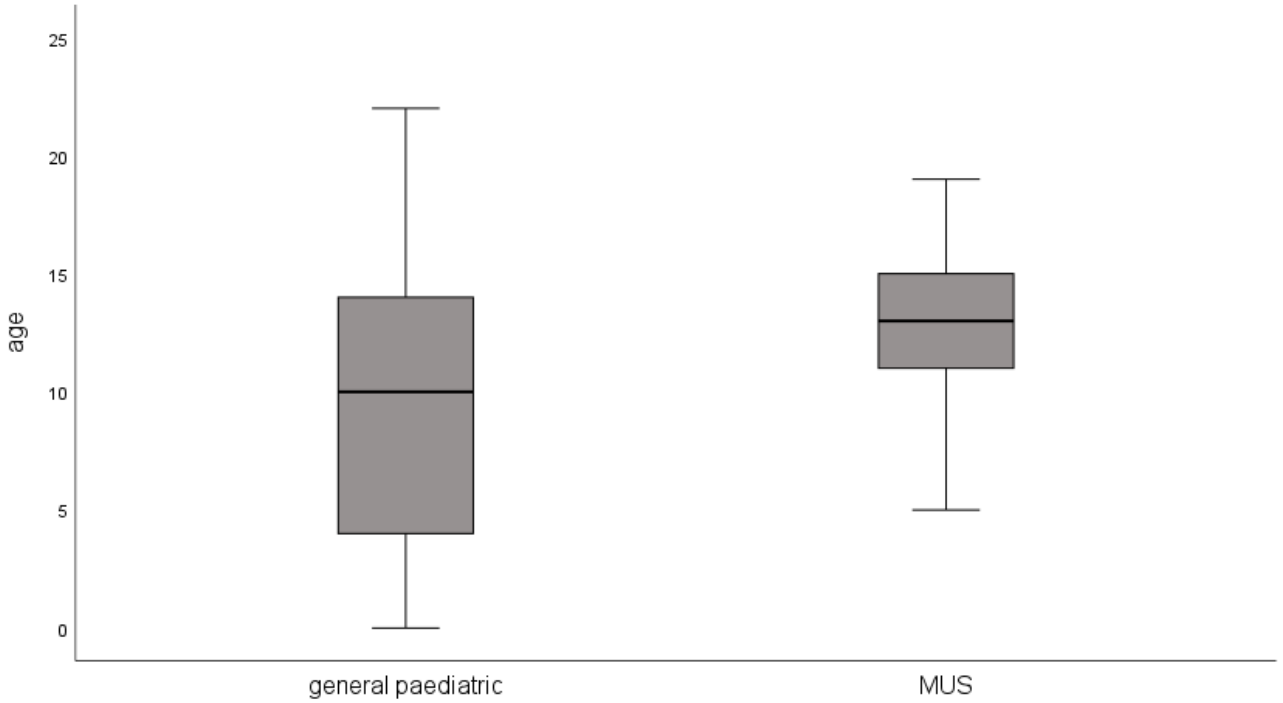
25
20
15
10
5
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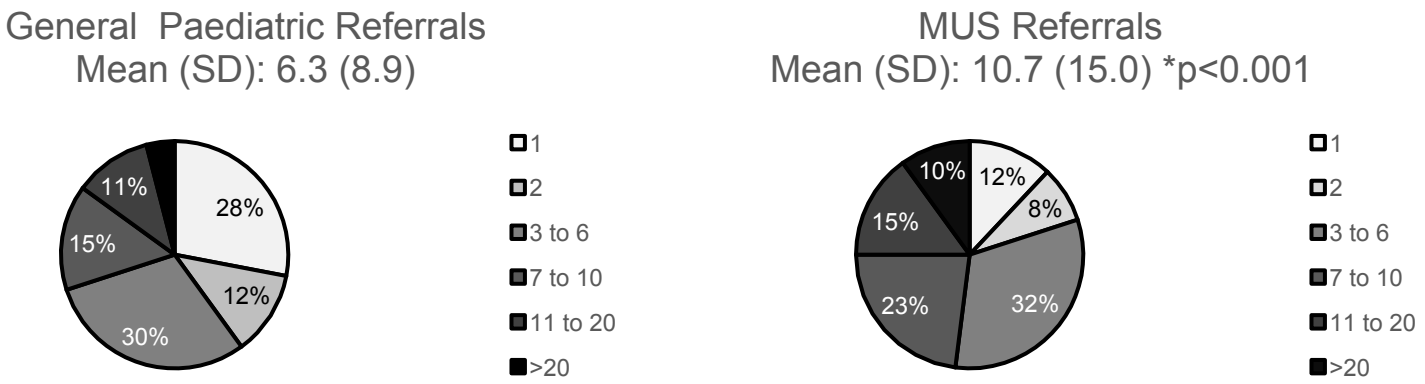
age
general paediatric
MUS


General Paediatric Referrals
Mean (SD): 6.3 (8.9)
28%
12%
30%
15%
11%
1
2
3 to 6
7 to 10
11 to 20
>20
MUS Referrals
Mean (SD): 10.7 (15.0) *p<0.001
12%
8%
32%
23%
15%
10%
1
2
3 to 6
7 to 10
11 to 20
>20