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# Multiple symptoms and medically unexplained symptoms — Closely related concepts in general practitioners' evaluations. A linked doctor–patient study

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ABSTRACT

*Objectives:* Symptoms for which doctors cannot find a clear medical explanation, medically unexplained symptoms (MUS), represent a challenge in medical practice. Recent proposals to define this phenomenon are based on patients' symptom count, without distinguishing between medically explained and unexplained symptoms. We describe how general practitioners (GPs) evaluate *multiple* and *medically unexplained* symptoms, and how these dimensions are interconnected. Furthermore, we explore how the number of patient-reported symptoms is associated with the two axes.
*Methods:* A multi-centre, doctor–patient-linked cross-sectional study in general practice. GPs rated consecutive patients along two 11 point ordinal scales assessing multiple (Multi-scale) and medically unexplained symptoms (MUS-scale). Patients completed a questionnaire addressing 38 symptoms experienced during the previous week and 866 linked questionnaires were available for analysis.
*Results:* GPs used the whole range of the scales, rating only a minority of the patients as "0 (not at all)". The two scales were highly correlated ($r = 0.80$), with a quadratically weighted kappa of 0.73, reflecting substantial agreement between the scales. MUS-scores were highest in middle age. There was a tendency that Multi-scores increased with age and that correlations between the scales decreased with age, in both sexes, although partly non-significant. The number of patient-reported symptoms was moderately correlated with the two scales.
*Conclusion:* Multisymptomatology captures MUS as a continuous construct to a great degree in GPs' clinical evaluations, although the two cannot be regarded as the same phenomenon. Patient-reported symptoms seem to be a less valid proxy for MUS.



## Introduction

In recent years, symptoms that doctors cannot attribute to a clear aetiology are commonly labelled "medically unexplained symptoms" (MUS). Although especially challenging in general practice, each medical specialty seems to have its own "medically unexplained" diagnosis. However, many researchers have unravelled a large degree of overlap between these diagnostic entities [1–5].

Prevalence rates of MUS vary substantially [6], reflecting the lack of a clear terminology and definitions.

Longitudinal studies demonstrate that a high number of somatic symptoms is a strong predictor of health outcomes [7], both in population- [8,9] and general practice-based data [10,11]. As multiple symptoms and MUS seem to predict similar outcomes, symptom counts may be clinically meaningful instruments to identify MUS.

The most widely used diagnostic manual in European general practice, the International Classification of Primary Care [12,13], does not contain criteria for a specific MUS syndrome, and GPs therefore use symptom diagnoses. The psychiatric diagnostic manual DSM-IV [14], however, contains categories for somatoform disorders, characterised by MUS accompanied by a substantial decrease in functional ability. Criteria for these diagnostic entities have been criticised for low criterion and predictive validity [15]. Hence, the American Psychiatric Association has proposed an alternative "super-category" [6] for MUS in the revised DSM-V: Somatic Symptom Disorder [16,17]. The diagnostic criteria no longer distinguish between medically explained and unexplained symptoms, because it was uncovered that making this distinction did not strengthen diagnostic validity. On the contrary, it could lead to disadvantages in the diagnostic process through reductions in interrater reliability [18].

Studies exploring instruments designed to assess symptom counts have documented decreasing functional levels with an increasing

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number of somatic symptoms [8,18,19]. Common symptoms, both mental and somatic, were found to be strongly associated with the number of pain sites [20], a marker of health status predicting future requirement for disability pensions [21].

In clinical practice it remains to be established whether multiple symptoms can capture the concept of MUS, and how the number of patient-reported symptoms reflects these clinical evaluations. In this study, we aim to explore the association between *multiple* and *medically unexplained* symptoms in GPs' clinical evaluations, and the degree to which the number of patient-reported symptoms is associated with the two dimensions.

## Methods

### *Study design and sample*

GPs in Oslo and the neighbouring municipality of Akershus were given a short lecture on multisymptomatology and invited to participate in the survey at small group meetings (6–8 GPs in each group). The GPs were invited to read through and ask questions regarding the questionnaires. Beyond this, they were not given further instructions as to how they were to use the forms. Those agreeing to participate were asked to complete a brief questionnaire after consultations with at least 20 consecutive patients on a random day, irrespective of reason for encounter, and to invite the patients to fill out a questionnaire after the same consultation. The GPs' and patients' questionnaires were returned separately, but could be linked through serial numbers. A pilot study was performed prior to commencement of the study to validate the questionnaires; these data were not included in the final analysis. The recruitment period was from June 2010 to January 2012.

### *Variables*

#### *GP questionnaire*

Multisymptomatology should be regarded as a continuous concept, and we therefore developed a scale to capture the range of multisymptomatology. We wanted to explore the GPs' own understanding of MUS, and as there is no generally accepted definition of the concept, we chose to provide a MUS-scale identical to the Multi-scale, in order to explore whether MUS could be considered a continuous concept.

For every consecutive consultation, the GPs were asked to rate the degree to which a patient presented multiple symptoms (multisymptomatology) in consultations: "In your opinion, is this a patient who presents many and/or differing symptoms?" This variable was measured on an 11 point ordinal scale (range 0–10), referred to as the Multi-scale. The "0" end of the scale was accompanied by the text "not at all", whereas the "10"-end of the scale was marked by "to a substantial degree".

Next, GPs were asked to evaluate the degree to which a patient presented MUS in consultations: "In your opinion, is this a patient with symptoms that cannot be fully medically explained?" The scale is referred to as the MUS-scale.

#### *Patient questionnaire*

Age was pooled into three age-groups: 18–39, 40–59 and 60+.

The validated Standardised Nordic Questionnaire (SNQ) [22] was used to measure musculoskeletal pain or discomfort as experienced by the patient during the previous seven days in 10 different body regions. A body manikin illustrated the body regions: head, neck, shoulder, elbow, hand/wrist, upper back, lower back, hip, knee and ankle/foot. Response categories were yes/no.

Symptoms not covered by the SNQ were assessed by asking the patient to rate whether or not they had been affected during the last seven days by any of 28 symptoms. The categories were 1. Infection/cold; 2. Palpitations/extra heartbeats; 3. Chest pain; 4. Breathing difficulties/feeling of not getting enough air; 5. Heart burn/stomach discomfort; 6. Constipation; 7. Bowel gas/feeling bloated; 8. Diarrhoea/loose stools; 9. Nausea/vomiting; 10. Sweating/hot flushes; 11. Cold hands/feet; 12. Problems concentrating; 13. Reduced memory; 14. Tiredness/exhaustion; 15. Dizziness; 16. Anxiety/unease; 17. Depression; 18. Sleeping problems; 19. Eczema/skin problems/itching; 20. Allergies; 21. Urinary problems; 22. Leg cramps; 23. Muscle twitching; 24. Visual impairment; 25. Dry eyes/mouth; 26. Oedema/feeling swollen; 27. Tinnitus; 28. Fainting; 29. I have not had any such symptoms.

### *Statistical analysis*

All analyses were based on the consultations for which complete linked questionnaires were available, and excluding questionnaires with missing values for age, sex, score on the Multi- or MUS-scales or number of patient-reported symptoms.

Because scores on the Multi- and MUS-scales were skewed, we applied a natural logarithm transformation to the scales, transforming the original scores plus 1. We estimate (arithmetic) means of transformed data; these means are transformed back on the original scale, thus producing geometric means of the original data. The study population is described by frequencies and geometric mean scores on the Multi- and MUS-scales with 95% confidence intervals (CI). To assess the degree of agreement between the two scales, various reliability measures were estimated. We calculated Pearson's correlation coefficient (with 95% CI), the intra-class correlation coefficient (ICC) (3,1) for single measures, using an absolute agreement definition according to the convention of Shroud and Fleiss [23], unweighted kappa ($\kappa$) and linearly and quadratically weighted $\kappa$. Given the ordinal nature of the scales, the quadratically weighted statistics is the most applicable measure. Quadratically weighted $\kappa$ equals the ICC (3,1) for absolute agreement of the untransformed scales [24]. Independent sample *t*-tests were used to compare the number of symptoms and scores on the two scales in men and women. Paired sample *t*-tests were used to compare mean scores on the scales.

We estimated an ICC for each participating GP in order to explore the degree to which their evaluations along the two scales differed.

We computed a sum score of the symptoms reported in the previous seven days (0–38), consisting of 10 pain sites and 28 other symptoms. We performed an imputation procedure, where respondents who had answered at least one question on symptoms were assumed to have meant "not present" on symptom questions that were left open.

To assess how scores on the Multi-scale and the number of patient-reported symptoms were associated with MUS-scale, we performed linear regression analyses using the MUS-scale as the dependent variable, stratifying by sex. Multiple correlation coefficients ($R^2$) are presented. We used the software IBM SPSS Statistics 20 for all statistical analyses.

## Results

A total of 66 GPs accepted to participate, of which 47 returned the questionnaires after one reminder (GP response rate of 71.2%). A total of 1024 doctor questionnaires and 909 patient questionnaires were returned (patient response rate of 89.6%). The number of coupled questionnaires was 882, of which 866 had complete data for the analyses reported in this paper. Of patients, 64.0% were women, and the age distribution stratified by sex is presented in Table 1.

GPs used the whole scales in assessing the degree of multisymptomatology and MUS. The proportion of patients rated as "0" or "not at all" was 22.2% on the Multi-scale and 30.9% on the MUS-scale (Fig. 1).

The geometric mean score on the Multi-scale was 2.23 (95% CI: 2.06–2.40), whereas the mean score on the MUS-scale was 1.53 (95% CI: 1.40–1.66). The means were significantly different in paired sample *t*-tests (applied to the transformed data), $p<.001$, for both the sexes combined and separately. Women had a geometric mean score of 2.40 (95% CI: 2.18–2.62) on the Multi-scale and 1.66 (95% CI: 1.49–1.83) on the MUS-scale. Men had a geometric mean score of 1.95 (95% CI: 1.70–2.21) on the Multi-scale and 1.31 (1.13–1.50) on the MUS scale.