

## The 'iceberg' of illness and 'trivial' consultations

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**SUMMARY.** The medical symptom 'iceberg' and 'trivia' were defined in terms of people's own perceptions of their symptoms and their subsequent referral behaviour. The data were collected by household interviews of patients registered at a health centre and included information on personal and environmental characteristics. Bivariate and multivariate analysis was used to explore associations between those who were part of the symptom 'iceberg' or 'trivia', and factors which might have caused such incongruous referral behaviour.

### Introduction

**R**ESearch has been carried out in Glasgow into the prevalence of symptoms and referral behaviour in the community. In this context the term 'referral behaviour' is used to describe the behaviour of patients; it is this referral behaviour which is poorly understood and has led to conflicting points of view.

For instance, morbidity surveys carried out in the community indicate that much ill health does not reach medical attention, and the term 'illness iceberg' has been used to describe this phenomenon (Last, 1963). The size of the iceberg depends on whether presymptomatic conditions are included, but several studies suggest that only about one third of those with symptoms refer themselves for medical advice, irrespective of the primary care system (Pearse and Crocker, 1943; Butler, 1970; Wadsworth *et al.*, 1971). These findings do not fit with studies of general practice in the United Kingdom (Cartwright, 1967; Mechanic, 1968), which show that many doctors complain about being bothered about what they perceive as unnecessary 'trivia'.

The conflict of expectations between family doctors and patients was studied and an attempt made to define the concepts of the iceberg and trivia more precisely. This was done by interviewing in their own homes a random sample of patients registered with a health centre. The questionnaire included a checklist of symptoms, and each positive symptom was graded by the patient for pain, disability, and perceived seriousness.

In addition, the patient was asked what action he or she had taken for each symptom and the replies were graded into a ranking scale of one for no referral, two for an informal or lay referral, and three for a formal or professional referral. A lay referral was an informal referral to a relative, friend, or acquaintance which did not primarily involve a professional role.

In this way patients' own perceptions of their symptoms were used as a basis for deciding whether their referral behaviour was explicable in terms of these perceptions or not, without imposing external value judgements about appropriateness. A symptom was defined as part of the medical iceberg if the referral was none or lay, when either the pain or disability was severe, or the symptom was considered to be serious. Conversely, those symptoms which were referred for professional advice, when there was no pain or disability and the symptom was not thought to be serious, were defined as part of the medical trivia. The number of medical symptoms which were part of the iceberg and trivia for each patient was calculated as an incongruous referral score—one score for the iceberg and another for the trivia (Hannay, 1979).

In this context, the medical iceberg refers only to subjective symptoms and not to presymptomatic conditions which could be detected only by objective screening tests. It was found that 26 per cent of those with medical symptoms were part of the medical symptom iceberg and 11 per cent were part of the trivia (Hannay and Maddox, 1975). In view of the extent of these incongruous referrals, computer programmes were used to explore associations between factors which might be predictors of the tendency for people to be part of the symptom iceberg or trivia. This paper presents the results of this further analysis.

### Method

Random monthly samples without replacement were drawn from the computer file of a health centre during the course of a year. The age/sex distribution of the sample was similar to the population in general, except that young adults tended to be under-represented because of high mobility in an area of urban redevelopment (Hannay and Maddox, 1977). A total of 1,344

interviews were completed, representing 3.1 per cent of the mean list size for the health centre for that year. Only three per cent of the sample refused to be interviewed. Most of these were elderly people and the main reason given was ill health. For children of 15 years and under the questions were answered by a parent or guardian.

Each patient was asked about a checklist of medical symptoms, which included 44 physical symptoms (Hannay, 1978), with eight mental symptoms for adults derived from a psychiatric screening test (Foulds and Hope, 1968), and four behavioural problems for children based on presenting problems at a child psychiatry clinic (Stone, F. H., 1971; personal communication). The questions were phrased in simple language and referred to the previous two weeks only. The patients were asked what they did about their symptoms, which were also graded subjectively as indicated above.

In addition to symptoms and referral behaviour, the survey included information on personal characteristics and environmental factors such as housing, mobility, and employment. Personality was assessed using the shorter Maudesley Personality Inventory (Eysenck, 1958), and intelligence measured with questions from the shorter 16PF personality test (Cattell *et al.*, 1970). Computer programmes for bivariate and multivariate analysis (Nie *et al.*, 1970) were used to explore associations between variables which might be causal to referral behaviour, and the tendency for people to be part of the medical symptom iceberg or trivia, as reflected in their incongruous referral scores.

## Results

Three hundred and six (23 per cent) of those interviewed had at least one medical symptom which was part of the symptom iceberg, and 126 (nine per cent) patients contributed to the symptom trivia. The maximum number of symptoms with an incongruous referral for any one patient was 15 for the iceberg, and five for the trivia. Of those interviewed, 1,183 (88 per cent) had one or more medical symptoms with an average of five per person. When expressed as a percentage of all those with positive symptoms, the size of the iceberg and trivia becomes 26 per cent and 11 per cent respectively (Hannay and Maddox, 1975).

The two incongruous referral scores were correlated with a wide range of independent variables, about half of which gave significant results. However, many of these associations may have been due to intervening factors not directly associated with referral behaviour.

Females were more likely than males to be part of the medical symptom iceberg, especially the middle aged (Figure 1). Those who were unemployed, who had no higher education or active religious allegiance, and those in social classes 3 and 4, were significantly more likely to be part of the medical symptom iceberg.

Conversely, owner occupiers and those living in larger

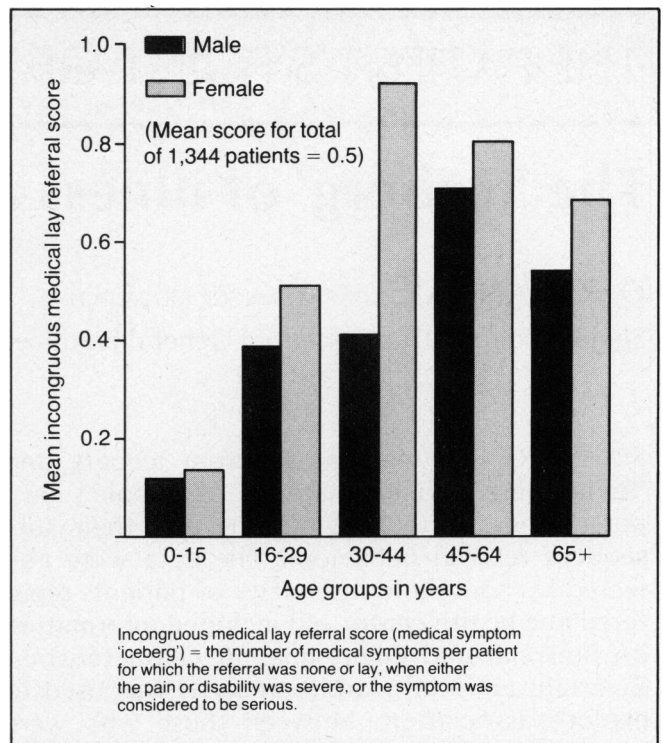
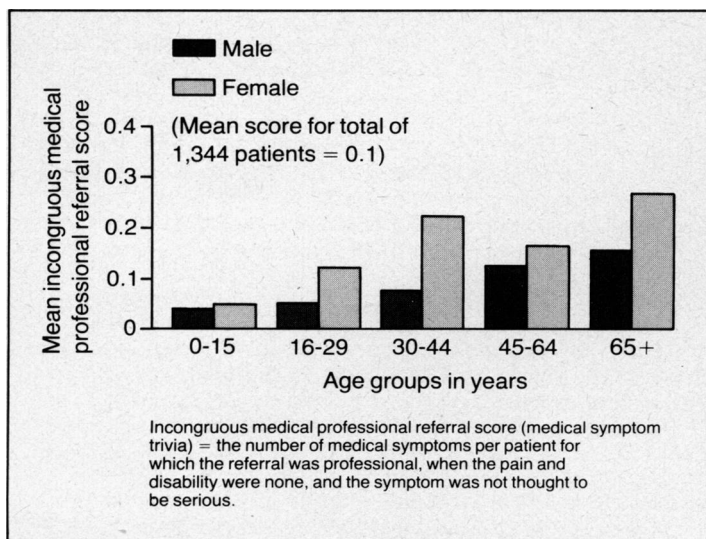


Figure 1. Age/sex distribution of the medical symptom iceberg.

dwelling were significantly less likely to contribute to the medical symptom iceberg. People living in the worse rented accommodation and with frequent moves within the city were the most likely to be part of the iceberg, whereas those from overseas were the least likely. It is interesting that it was the more neurotic and less intelligent who did not trouble their doctor when perhaps they should have done, rather than the other way round. A long walk to the health centre, preference for the doctor's previous surgery, and lack of a telephone all seemed to discourage medical referral. The tendency to be part of the medical symptom iceberg increased with the prevalence of both medical and social symptoms, and also with the numbers of previous illnesses and medicines taken, both prescribed and unprescribed.

The tendency to refer trivia for medical advice increased with age and for women (Figure 2). It was also significantly higher for the retired, separated or divorced, unemployed, and those who had left school early. There was a social class gradient, with those in social class 5 being the most likely to refer trivia, but the differences were not significant. Medical symptom trivia were least likely amongst owner occupiers, and significantly more likely for those living in one room or in households of one or two people only. Those living on the top floors of high rise flats had three times the amount of trivial referrals as those on the lower four floors. The tendency to refer medical symptom trivia also increased with the prevalence of symptoms and poor self-estimates of past and present health. There



**Figure 2.** Age/sex distribution of the medical symptom trivia.

was no clear relationship between trivial referrals and measures of personality, doctor preference, or access to the health centre.

Some of these significant correlations may have been due to interaction effects, and in order to allow for this, those variables which might be causal for the tendency to be part of the medical symptom iceberg or trivia were used in multivariate analysis. There were two of these regression equations, one for the iceberg scores and one for the trivia scores.

Twenty-eight variables were entered into a regression equation as possible predictors of the tendency to be part of the medical symptom iceberg. Of these variables, six had significant regression coefficients in the following order of importance:

1. Neuroticism score
2. Number of previous illnesses
3. Self-estimate of previous health (poor)
4. Age
5. Number of moves
6. Sex (female)

Of these, only the variable for female sex was not significant on simple correlation.

Twenty-eight variables were also entered into a regression equation as possible predictors of the tendency to refer medical symptom trivia. Of these variables, nine had significant regression coefficients in the following order of importance:

1. Number of present illnesses
2. Separation or divorce
3. Age
4. Poor experience of doctors and hospitals
5. Few years in present residence
6. Difficulty in contacting doctor
7. Number of short hospital stays

## 8. Female sex

## 9. Number of long hospital stays

Three of these variables were not significant on simple correlation, namely—recent moves, difficulty in contacting a doctor, and few long hospital stays.

## Discussion

There have been many surveys of morbidity in the community, some of them cross-cultural (White and Murnaghan, 1969), but none of which have really defined which symptoms or 'illnesses' were appropriate for medical referral, and certainly not by reference to the subjective perceptions of the patients themselves. In the same way, there have been studies of workload in primary medical care from a number of countries (McFarlane and O'Connell, 1969; Bernstein and Dolan, 1972; Ridley-Smith, 1973), but none of these seemed to take into account the quality of demand. One study of health referral patterns in America (Cauffman *et al.*, 1974) reported that eight per cent of medical referrals were 'inappropriate', and a follow-up of patients in Germany (Wesiack, 1971) concluded that 11 per cent of the conditions seen were 'trifling', but the criteria used to reach these decisions did not seem to assess the perceptions of patients. A similar criticism could be made of a recent study in the United Kingdom of 'minor' illnesses in general practice (Marsh, 1977), in which a minor illness seemed to be defined by the doctor without apparent reference to the patients' views on the matter.

As referral behaviour is motivated by the person who has the symptoms, it seemed sensible to use the patients' own assessments of their symptoms to define whether the action taken was explicable in terms of their own perceptions. If the referral behaviour could not be explained in terms of these perceptions then it seemed reasonable to call such behaviour incongruous and so define those who were part of the medical symptom iceberg and trivia.

The preponderance of women in the 30 to 44 year age group may have been due to mothers with growing families being less able to seek professional advice for their symptoms. Studies from America support the impression from the present survey that low socio-economic status is associated with a tendency not to seek medical care (Ludwig and Gibson, 1969; Hyman, 1970). Those with a high mobility in the worst housing in Glasgow were most likely to be part of the medical symptom iceberg, and as these were also the characteristics of non-responders, it is likely that the survey results underestimated the extent of the iceberg.

One study of general practice (Jacob, 1969) also reported a preponderance of the divorced and widowed amongst those making greater demands, as in the present survey, but other studies have found no personal or social differences between patients considered in need of treatment and those who were not (Thomas,

1974). The significant correlation between the medical symptom trivia and social symptoms underlines the fact that there are often latent reasons for apparently unnecessary referrals. A survey of general practice in Holland (Brouwer and Touw-Otten, 1974) concluded that the majority of adults had some other reason for seeking medical advice than the presenting complaint. Another study of people labelled as 'problem patients' by their doctor found that such patients considered themselves to be more ill, and had more interpersonal and social difficulties (Fabrega *et al.*, 1969).

It was the more neurotic and those with poor estimates of past and present health who emerged on regression analysis as being most likely to be part of the medical symptom iceberg, which was also associated with increasing age, mobility, and females. Low intelligence scores and a long bus journey to the health centre were also more common amongst those in the medical symptom iceberg, but the regression coefficients for these factors were not significant.

It is not surprising that those who referred medical symptom trivia should have considered that they had a number of illnesses and that they tended to be older and female. The associations with separation and divorce or a recent move suggest that psychosocial problems may have been the reason for trivial referrals. The contrasting significance of short and long hospital stays on regression analysis is hard to interpret; but the variables for difficulty in contacting a doctor and poor experience of doctors and hospitals suggest a result rather than a cause of referral behaviour.

The results of this study perhaps produce more questions than answers, but the questions raised are based on a rational definition of the symptom iceberg and trivia, which have tended previously to be vague value judgements. Inevitably, attempts at the quantitative analysis of large amounts of sociographic data will result in the over-simplification of complex situations. For instance, about seven per cent of those in the medical symptom iceberg also referred medical trivia, which indicates that even for one person different types of referral behaviour may coexist, depending on the symptoms involved. However, the fact that there was no overlap between the iceberg and trivia for the great majority of patients suggests that there are distinctive patterns of referral behaviour. Many of the major correlates of this referral behaviour which emerged on multivariate analysis were not unexpected. However, what was surprising, apart from the size of the medical symptom iceberg compared with trivia, was the fact that it was the more neurotic who were most likely to be part of the iceberg, rather than the trivia as many might have expected.

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