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‘The gut war’: Functional somatic disorders in the UK during the Second World War

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Abstract

Hospital admission and mortality statistics suggested that peptic ulcer reached a peak prevalence in the mid-1950s. During the Second World War, against this background of serious and common pathology, an epidemic of dyspepsia afflicted both service personnel and civilians alike. In the absence of reliable diagnostic techniques, physicians struggled to distinguish between life-threatening illness and mild, temporary disorders. This article explores the context in which non-ulcer stomach conditions flourished. At a time when fear was considered defeatist and overt psychological disorder attracted stigma, both soldiers and civilians exposed to frightening events may have unconsciously translated their distress into gastrointestinal disorders. While the nature of army food was initially identified as the cause of duodenal ulcer in servicemen, the pre-war idea that conscientious and anxious individuals were at high risk gathered support and fed into post-war beliefs that this was a stress-related illness. Diet continued to be employed as a means of management at a time when the nation was preoccupied by food because of the constraints imposed by rationing. The peptic ulcer phenomenon set much of the medical agenda for the war years and conflicted with the commonly held view that the British people had never been healthier.

Keywords

dyspepsia; functional disorder; peptic ulcer; psychosomatic illness; somatization

Introduction

In September 1941, after nine months of aerial bombing, Lord Woolton, Minister of Food, proclaimed that the British nation ‘had never been better in health for years’ (Mackay, 2002: 207). Indeed, from 1942 onwards the death rate, infant mortality and the incidence of tuberculosis all fell suggesting that Woolton’s claim had some substance (Calder, 1969). In addition, Richard Titmuss in his official history of wartime social policy argued that a corporate sense of purpose and full employment protected the nation against mental illness. Despite casualties from air raids and the death of service relatives killed in combat, a reduction in recorded cases of psychiatric illness, suicide and aberrant behaviour, including drunkenness, seemed to confirm anecdotal accounts of civilian resilience and buoyant morale (Titmuss, 1950: 340–1). Not only did the incidence of mental disorder appear to fall,

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a qualitative shift is said to have occurred in the presentation of cases. Ahrenfeldt, himself an army psychiatrist, argued that medical discharges from the armed forces were dominated by ‘anxiety neuroses’, which rose in number from 1943 (Ahrenfeldt, 1958: 276). More recently, Bourke argued that ‘unlike the First World War when hysterical reactions greatly outnumbered fear reactions, from 1940 there were epidemics of acute anxiety’ (Bourke, 1998: 226). In other words, a stressed or war-weary soldier expressed his feelings openly rather than in disguised form as a psychosomatic disorder. The decline in presentations characterized by functional physical symptoms was explained by administrative measures to outlaw conversion disorders such as shell shock and disordered action of the heart (DAH) but also by research that established a link between habitual somatization and psychological disorder. Particularly influential was the discovery by Paul Wood, a cardiologist, and Maxwell Jones, a psychiatrist, that effort syndrome, once thought to be a sign of cardiac disease, arose disproportionately in families with a history of mental illness (Wood, 1941; M. Jones and Lewis, 1941). In addition, servicemen were increasingly made aware of unconscious mechanisms in so-called ‘war neuroses’ through education and psychotherapy (Rickman, 1941: 785–6).

The particular case made for Britain during the Second World War accords with general hypotheses about changes in the pattern of mental illness. Psychological understanding undoubtedly spread during the 20th century and for the UK became a major university discipline in the post-1945 period. It is suggested that this burgeoning knowledge translated itself into growing insight about the relationship between mental states and bodily processes (Thomson, 2003). As a result, hysteria, once common in the 19th century, is said to have almost vanished from the western world (Veith, 1965). Within the military, this disappearance is explained by the transition from crude models of war-related injury (soldier’s heart, gas hysteria, shell shock) to nuanced psychological paradigms (Neill, 1993), culminating in 1980 with the recognition of post-traumatic stress disorder (PTSD) by the American Psychiatric Association (*DSM-III*, 1980: 236–8). An alternative hypothesis is that the appeal of particular diagnoses was a cultural phenomenon, determined by popular health fears, welfare systems, or developments in medical knowledge. There may, in fact, have been no change in the balance of physical and psychiatric symptoms presented by soldiers even though their psychological understanding may have broadened (Micale, 1993). Tremor and headache, for example, may be no less common today than they were during the First World War but because of the status of shell shock within military medicine attracted the attention of doctors and patients alike.

Taking the phenomenon of peptic ulcer, this article explores the proposition that functional somatic disorders were supplanted during the Second World War by psychological presentations. Young has convincingly argued that PTSD is ‘a historical product’ of the 1970s and the Vietnam War (Young, 1995: 5), so to what extent can the associated epidemic of dyspepsia be interpreted as a function of the practices, technologies and health beliefs of a nation at war? Furthermore, the stresses and strains endured by civilians and soldiers may have exercised a significant effect on the immediate post-war medical agenda.

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Definitions

‘Functional somatic disorder’ refers to an illness characterized by physical symptoms (such as muscle or joint pain, shortness of breath, palpitations, tremor, dyspepsia, fatigue, or headache) for which no organic cause can be discovered (Kellner, 1985). Because these disorders mimic serious disease, patients are often subjected to invasive investigations which prove inconclusive or negative. Briquet’s syndrome, a late 19th-century term, was introduced to describe chronic, multi-symptom complaints that led to repeated medical contact (Guze, 1975). Because symptoms persist but cannot be explained using physical models of disease, doctors often wearied of such patients. Arthur Hurst, a general physician, recalled of his student days at Guy’s Hospital during the early 1900s that ‘if no evidence of organic disease was discovered, it was assumed that the symptoms were “functional” or “nervous” in origin’ and ‘the possible cause of illness and its treatment were not discussed. The teaching at Guy’s was in this respect typical of that of other British hospitals’ (Hurst, 1949: 103).

In 1922, the Viennese psychoanalyst Wilhelm Stekel (1868–1940) coined the term ‘*organsprache*’ (literally ‘organ-speech’) to describe physical symptoms that expressed a psychic conflict (Marin and Carron, 2002). In 1925, the term was translated by J. van Teslaar as ‘somatization’ thereby incorporating Freud’s notion of conversion, a process by which the affect attached to a psychic conflict is expressed unconsciously as a physical phenomenon. Aches and pains in the absence of organic disease were conceptualized as a defence mechanism employed as a consequence of a neurotic mental state (Mumford, 1992). The term ‘conversion disorder’ was introduced to describe cases where a change in physical functioning could not be explained by known pathology and yet was not under the voluntary control of the individual. In soldiers, this was commonly a single episode and could manifest itself in a wide range of presentations, including temporary blindness, loss of feeling or function in a limb, headache, or mutism. Cases characterized by multiple physical symptoms experienced over several years were given the label ‘somatization disorder’. Recent studies have shown that such patients have a tendency to experience bodily distress unaccounted for by pathological findings but attribute the symptoms to physical illness and as a result regularly seek medical help (Lipowski, 1988). Thus, somatoform disorders can be either a discrete response to a specific stressor, or an habitual form of behaviour that is established as a child or in early adulthood.

Somatoform disorders can affect any area of the body. It has been argued, however, that their bodily focus was influenced by gaps in medical knowledge and popular health fears (E. Jones and Wessely, 2005). The epidemic of DAH that hit the British army from the 1880s flourished because investigative techniques were imprecise, treatment non-existent and genuine heart disease both common and fatal (Wooley, 2002). Cases of DAH could not be dismissed as mere hysteria because their symptoms were similar to those found in association with serious pathology. As will be seen, non-ulcer dyspepsia proved problematic during the Second World War because it was set against an epidemic of peptic ulcer, a potentially fatal disorder, for which there was no effective treatment and no reliable investigative procedure.

The ‘gut war’

During the Second World War, both the medical profession and the public were greatly concerned by stomach illness, in particular peptic ulcer, gastritis and dyspepsia (Editorial, 1945a: 240; Christie and Tansey, 2002; E. Jones and Wessely, 2004; Miller, 2010; Miller, 2011). As early as December 1940, an editorial in the *British Medical Journal* noted that gastrointestinal disorder was a significant cause of invalidity from the British Expeditionary Force (Editorial, 1940: 836). Drawing a comparison between the tics and contractures of the First World War, a German naval psychiatrist observed that ‘in this war it is the stomach that shakes not the hand’ (Curran and Critchley, 1946: 11). Grinker and Spiegel, both US military psychiatrists, reported that ‘gastrointestinal symptoms flourish in an abundance and variety’, contrasting with ‘the frequent cardiac syndromes observed in the last war’ (Grinker and Spiegel, 1945: 254–5). By spring 1944, more patients were admitted to British hospitals for peptic ulcer than any other condition (Hurst, 1944a).

Although the increasing interest shown by military doctors in stomach disorders during the Second World War reflected a cultural shift in the bodily focus of somatoform disorders, it was also underpinned by mortality data. Evidence from the pre-war period suggested that objective pathology underlay at least part of the phenomenon. Although not a leading cause of death in England and Wales, perforated ulcer killed 43,200 in the decade before 1939; of concern was the fact that 22,500 deaths occurred in the four years from 1935 to 1939 (Morris and Titmuss, 1944). The death rate from peptic ulcer for males over 20 rose progressively from 1911 to 1945 but was significantly higher for those aged over 40 (Bailey and Love, 1949: 248; Jennings, 1940; Riley, 1942). Analysis of duodenal ulcer frequency patterns suggested that the prevalence of the disease continued to rise until the mid-1950s (Langman, 1979: 15).

Considerable mystery surrounds the natural history of peptic ulcer and no convincing explanation has been found either for the rise in cases during the 1930s and 1940s or their fall before the introduction of an effective medicine, cimetidine (Tagamet), in 1976 (Jones, 2001).1 During the Second World War, treatment for severe cases was limited to risky surgery (gastrectomy), fuelling a well-founded fear of the condition (Editorial, 1945a). Furthermore, before the introduction of the fibre-optic endoscope in the early 1970s, physicians had no reliable way of distinguishing dyspepsia and abdominal pain from peptic ulcer (Hinds Howell, 1941; Tidy, 1943). Diagnosis was informed by X-ray following a barium meal, occult bloods (the analysis of stools as an indicator of gastrointestinal bleeding), the fractional test meal (sampling of stomach contents to assess the secretion of gastric juices after food) and gastroscopy. However, all four techniques were unreliable and generated false positives (Shapiro, 1993). As a result, physicians often erred on the side of caution in the knowledge that ulcer perforation distant from an operating theatre could be fatal.

[1]In an era before widespread domestic refrigeration, a high salt diet, and with it the introduction of cheaper cigarettes in the 1920s, have been proposed to explain the rising incidence of ulcer in the inter-war period. However, this would not explain the fall after 1945 as the consumption of alcohol and cigarettes rose during the late 1950s and 1960s as real earnings improved.

Dyspepsia and peptic ulcer dominated the medical agenda of 1940, creating a crisis that threatened to undermine the fighting capability of the British army. Indigestion was widespread among recruits in the UK and a common cause of invalidity from the British Expeditionary Force in France. By January 1940, for example, 2,369 servicemen (22% of all evacuations) had been invalided home with diseases of the digestive system (Crew, 1956: 26), a total that was to rise to 3,424 by June (Mellor, 1972: 182). Yet no one knew the cause or the extent to which the symptom indicated the presence of a life-threatening peptic ulcer (Hutchison, 1941: 78).

At first, it was hypothesized that dyspepsia represented a new entity akin to DAH or effort syndrome witnessed during the First World War, while others suggested that it was due to a specific, short-term type of ulceration (Editorial, 1940). Urgent study was commissioned from the Royal College of Physicians supported by the Leverhulme Trust. Reginald Payne and Charles Newman of the Postgraduate Medical School at Hammersmith Hospital reviewed 201 servicemen invalided from France and found ulcer present in 167 (83%) together with a further 13 (7%) probable cases (Payne and Newman, 1940). However, this worrying finding was offset by the discovery that 92% of the ulcers identified arose in men with a history of ulceration. Some solace was sought in the finding that a high percentage of cases were middle-aged reservists, prompting the hypothesis that pre-existing, dormant ulcers had been aggravated by military service.

Further research was needed to discover whether the ulcer cases invalided from the British Expeditionary Force were representative of servicemen in general. Although studies conducted in UK military hospitals suggested that the high percentages were untypical, they also showed that gastrointestinal disorders were common. Major James Hutchison found lower levels of ulceration: 45.5% among in-patients and 35.5% among out-patients; he argued that these rates were equivalent to those recorded in peacetime for civilians and that army life had not led to a dramatic increase in the incidence of peptic ulcer (Hutchison, 1941). Similarly, Major John Spillane reported that of 200 cases of chronic dyspepsia referred to his military hospital only 32% had evidence of ulceration (Spillane, 1940). However, the picture was not uniform and a 1941 study conducted in a military hospital in north-west England found that of 246 servicemen (including veterans of Dunkirk and the Lofoten raid) with gastrointestinal pain, 64% received a diagnosis of ulcer. The authors also concluded that most cases represented an exacerbation of an existing condition: the ‘strain of army life tends to induce recrudescence’ (Graham and Kerr, 1941: 476). By May 1942, digestive disorders accounted for 17% of all discharges for disease from the army and RAF (Editorial, 1944). The hope was that the careful screening of younger recruits would see the ulcer rate fall.

At the outset of war, when the armed forces expanded at a rapid rate, dyspepsia offered unwilling conscripts a potential escape route (Editorial, 1940: 837; Anon., 1941: 453). Having spotted the gap in medical knowledge, servicemen turned it to their advantage. Evelyn Waugh observed that military hospitals were full of ulcer cases at this time, coincidentally when psychiatrists were thin on the ground (Waugh, 1952: 96, 180). Peptic ulcer presented particular problems for the Royal Navy as small ships rarely had operating facilities. A sailor with a suspected ulcer was not sent to sea, a point recorded by Nicholas

Monsarrat, a captain of a corvette engaged in convoy protection (Monsarrat, 1954: 110–11). Indeed, it was initially believed that peptic ulcer was more common on small ships, rather than capital vessels or shore establishments, because they had a higher percentage of older reservists with existing or aggravated ulceration (Allison and Thomas, 1941). Nevertheless, studies of hospital admissions did not support the perception and suggested that cases were equally distributed throughout surface ships (Newman *et al.*, 1952).

At first, investigation and diagnosis were haphazard. Large numbers flooded inadequate facilities and often the fractional meal test was the only procedure (Newman *et al.*, 1952). Transfers between medical units led to dyspeptic soldiers having repeated tests because their notes were mislaid. In May 1941 specialist in-patient wards, ‘Emergency Medical Service [EMS] Dyspepsia Units’, were opened to concentrate expertise. An editorial in the *Lancet* for August 1945 observed that ‘in gastric disorders, which come short of actual ulceration, army experience has shown that even hospital investigation and the ritual of barium meal examination fix the susceptible soldier’s attention increasingly on the stomach and help to perpetuate “functional symptoms”’ (Editorial, 1945a: 240). As a result, admission to dyspepsia units was limited to a week, sufficient time, it was believed, to reach an accurate diagnosis.

Ulcer causation and treatment

During the Second World War, established beliefs about causation and pathology increased the likelihood that physicians would ascribe abdominal pain to peptic ulcer. A nervous disposition had been identified as a pre-disposing factor because it was hypothesized that emotional upset or arousal stimulated secretion of gastric juices (Grob, 2003). The ulcer patient was described in 1936 as being a man ‘in the firing-line of life’s struggle’ (Davies, 1936: 588); it was scarcely surprising, therefore, that soldiers or civilians actually exposed to threat of death were often diagnosed with the disorder. Among industrial workers, long hours and variable shift patterns were identified as a cause of ulceration (Newman *et al.*, 1952). Studies appeared to show that vomiting of blood (‘haematemesis’) and perforation were commonly preceded by ‘unusual emotional tension’ caused by ‘disturbing situations and events’ (Davies and Wilson, 1939: 723, 727). Indeed, peptic ulcer was characterized as ‘a local manifestation of nervous disturbance in susceptible individuals’ (Davies, 1936: 591). ‘Anxiety and tension’, Davies concluded, ‘seem to delay the healing process and complete rest in bed is occasionally required before symptoms can be dispelled’ (ibid.: 525).

In March 1941, a special meeting, held at the Royal Society of Medicine, concluded that two factors were responsible for the dramatic increase in stomach disorders in the military: irregular mealtimes and the heavier nature of army food (Tidy, 1941; Tidy, 1943). Diet was also identified by German physicians who observed that peptic ulcer was virtually absent in troops at Stalingrad where they were forced to survive on uncooked root vegetables (Miller, 2010). British army doctors discounted psychological factors as a cause because ‘peptic ulcer and all dyspeptic disturbances were noticeably rare’ during the First World War when similar stresses had operated. Not everyone agreed with this conclusion. Hinds Howell proposed a constitutional explanation:

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> … those people of poor personality who in peacetime are only just able to accommodate themselves to their home environment are no longer able to do so when this is changed on enlistment to the discipline of army environment. Whether it is pure chance that their neurosis is centred on their digestion it is difficult to say. (Hinds Howell, 1941: 693)

Although studies conducted at the beginning of the war excluded psychological explanations, increasing contact with patients led to a re-evaluation. An analysis of the social class and lifestyles of peptic-ulcer mortalities led Morris and Titmuss to conclude that duodenal ulcer was a psychosomatic disorder related to a particular ‘hypothalamic’ or highly stressed personality. They considered that the insecurity and pressure of metropolitan life, rather than nutritional factors, played a key causal role (Morris and Titmuss, 1944: 844).

Furthermore, a US study funded by the Rockefeller Foundation of 80 randomly selected patients with peptic ulcer appeared to show that pathological changes and symptoms were correlated with strong emotion, chiefly fear and anxiety (Draper, 1942). George Draper, its author, concluded that ‘lesions of peptic ulcer are associated with psychic traumata as definitely as inappropriate food’. Having concluded that dietary factors were secondary, Draper recommended that treatment pay less attention to the lesion itself and focus on psychological re-education to wean the patient from ‘the mother principle and re-establish his self respect’ (ibid.: 657).

As the war progressed, evidence from the submarine service also pointed to constitutional factors. In spring 1944, Royal Navy doctors concluded that ulcer was very rare among submariners. Because smoking was prohibited when submerged, it was initially thought that the reduced consumption of cigarettes had kept sailors healthy. At the time, however, statisticians had not established a correlation between smoking and peptic ulcer and it was hypothesized that screening had selected a robust population: ‘submarines are the most carefully selected of all ratings and tendency to ill health leads to their being given a different job’ (Dudley, 1944). The apparent absence of ‘nervous breakdown’ in submarine crews added to the assumption that peptic ulcer was associated with a neurotic personality. Indeed, an ‘ulcer constitution’ had been identified, described by Aubrey Lewis as ‘highly-strung, determined people, conscientious, ambitious and active, driving themselves in an effort to attain a perhaps unattainable standard’ (Lewis, 1944: 258). Because ulcer was ascribed to a ‘constitutional tendency’, Hurst believed that rigid adherence to a special diet together with the avoidance of ‘mental stress’ would in most cases effectively prevent the recurrence of the illness (Hurst, 1944a).

Initially it looked as though the diagnostic and treatment strategy put in place by the armed forces had addressed the problems of duodenal ulcer; rates fell steadily until 1943 (Table 1). However, this trend reflected a younger recruit population (Newman *et al.*, 1952). On the declaration of war, middle-aged territorials and reservists had been called up and many were found to have pre-existing ulceration. Modern studies have shown that the peak incidence of duodenal ulcer is between the ages of 30 and 50 (Shapiro, 1993). Conscription during 1939 captured all males under 41 years not in reserved occupations, but thereafter most recruits being much younger were at lower risk. The rise in the latter stage of the war is difficult to

explain but may have been the result of the continued spread of the disease, the subsequent conscription of males in their 40s, or greater efforts to identify cases.

A follow-up study of 192 RAF ulcer patients showed that rank was the best predictor of successful rehabilitation (Rook, 1943). Only 42% of aircraftmen were found to be still serving two years after diagnosis and return to duty, while 84% of warrant officers and NCOs remained at duty. They had made a greater investment in a military career and were perhaps more willing to manage the limitations imposed by an ulcer. Indeed, particular effort was made by the RAF to retain skilled technicians suffering from digestive disorders to the extent of offering them sheltered postings and permission to live in their own homes (Mellor, 1972: 527). In Germany, special battalions, '*Magenbataillonen*', were formed of ulcer patients so that their diet and duties could be tailored to their illness (Curran and Critchley, 1946: 12).

Although Brown proposed the formation of ulcer battalions for the British army (Brown, 1942), it was only the Royal Navy that pursued the initiative. Prompted by the discharge of 829 peptic ulcer cases in 1942, Surgeon Commander R. S. Allison proposed a scheme to retain healed cases in specially designed shore establishments where their diet and duties could be regulated (Allison, 1943). A trial was conducted of skilled ratings at HMS *Goodson* and HMS *Ferret* in Londonderry and a 'gastric mess' set up at RN Barracks, Devonport, in June 1944 (Allison, 1944). Extra milk, eggs, fish and offal were added to the diet, while small intermediate meals of milk, biscuits, bread and butter, together with antacids, were provided having been found to relieve stomach pain (Davis, 1938). Of the 49 healed ulcer patients transferred to Londonderry, only 4 relapsed, though many continued to suffer from dyspepsia. Although the trials were judged a success, the five months for which they ran were considered too short for any meaningful conclusions.

By 1944 sufficient evidence had been gathered to conclude that gastrointestinal disorders spanned the spectrum from organic disease to psychosomatic disorder. Indeed, Arthur Hurst proposed that specialist treatment units be divided into three sections: one for diagnosis, one for those with confirmed peptic ulcer and one for functional disorders (Hurst, 1944b: 179). Treatment of 'hysterical gastric symptoms', he believed, required 'congenial surroundings, cheerful companions and appetizing food', while associated anxiety could be addressed by 'any intelligent and sympathetic medical officer'. Referral to a psychiatric specialist Hurst considered 'unwise' not least because a general practitioner was more likely to make a correct diagnosis and effect a cure (ibid.: 193).

Somatoform disorders in the military

In 1941, Bennet, an army psychiatrist who had served as an infantry officer in the First World War, wrote that the 'type of psychoneurotic illness seen today differs in no way from that of the Four Years War' (Bennet, 1941: 128). Official statistics (Table 1) showed that conversion symptoms were by no means absent during the Second World War, even though the term shell shock had been explicitly excluded from medical terminology. Indeed, doctors treating servicemen evacuated from the Normandy campaign questioned the assertion that somatoform disorders, so typical of the First World War, had in fact disappeared. Once

recovered from their wounds, soldiers commonly showed the symptoms of effort syndrome and gastritis (Bourne, 1945).

On the face of it, the Second World War witnessed a dramatic change in the bodily focus of functional somatic disorders. The heart had been the seat of somatization during the First World War with some 44,855 war pensions awarded for functional cardiac diseases in contrast to only 938 after 1945 (Hope Gosse, 1952). Only 709 soldiers had been discharged from the British army by the end of 1915 as a result of peptic ulcer in contrast to the 23,574 by the end of 1941 (Newman *et al.*, 1952).

Despite this evidence, the incidence of somatoform disorders was widely stated to have fallen during the Second World War (MacKeith, 1946; Walker, 1952; Culpin, 1952). Hadfield regarded 'the far greater proportion of anxiety states … as against conversion hysteria' as 'the most striking change' between the two conflicts (Hadfield, 1942: 281). An editorial in the *British Medical Journal* for 30 June 1945 declared:

> 'Disordered action of the heart' – a favourite diagnosis in the last war – has given place to 'effort syndrome'; and now that that has been shown by Paul Wood, [Aubrey] Lewis, M. Jones and others to be in every respect the equivalent of an anxiety neurosis, it too has lost favour and has become a rare diagnosis. No longer do we talk of 'shell shock': the organic approach has given place to a preference for psychological interpretation. (Editorial, 1945b: 913)

How can we explain the discrepancy between the observations of clinicians and statistics of reported illness? To a large extent it was an issue of classification. Although DAH, or effort syndrome as it was renamed by Thomas Lewis in 1917, was a common presentation during the First World War, its apparent disappearance during the Second World War should not be taken to imply that its characteristic symptoms had also vanished. In 1946, Maxwell Jones, who had run a treatment unit for cardiac neuroses at Mill Hill, argued that 'there is no reason to assume that the condition has become less common – it is simply that the diagnosis E.S. [effort syndrome] is out of favour; psychiatrists in this country prefer to classify patients according to their psychiatric disability rather than their effort intolerance' (M. Jones and Mellersh, 1946: 180). Because Wood and Jones had shown that the symptoms of effort syndrome were functional rather than organic, doctors increasingly categorized such patients as suffering from a range of psychiatric diagnoses, and its true incidence was disguised (Lewis, 1941: 534). Retrospective studies of war pension files suggest that little change occurred to the pattern of reported symptoms but the interpretation placed on them both by doctors and by patients was subject to dynamic forces (E. Jones, Hodgins Vermaas *et al.*, 2002; E. Jones and Wessely, 2004).

Civilians

In April 1941, Aubrey Lewis was asked to investigate the incidence of mental disorder in regions subjected to air raids (Casper, 2008). He analysed consultations at a suburban general practice in Kensal Rise, north-west London, between September 1940 and May 1941 and compared them with equivalent figures for 1937 to discover whether any changes had arisen in the pattern of psychological disorders (Lewis, 1941, 1942a). In addition, various

London psychiatric out-patient clinics were surveyed, together with six general practitioners and three out-patient psychiatrists based in Merseyside, a region that had been subjected to heavy raids in 1941 (E. Jones, Woolven *et al.*, 2004). Although Lewis discovered that 'actual war stress, including air-raids', was responsible for 75% of those individuals breaking down for the first time, these numbers were not significant (Lewis, 1942b: 176). His general conclusion based on war pension data from London and Bristol was that 'after intensive raids there is a slight increase in the total amount of neurotic illness in the affected area, occurring chiefly in those who have been neurotically ill before' (ibid.: 182; Whitby, 1942). This observation offered a parallel with ulcer studies; that it was only the vulnerable or already ill that succumbed to the stress of war.

In an attempt to address what he believed were unrealistic and complacent attitudes about the incidence of 'nervous and shock response among the civilian population', Tom Harrisson, director of Mass-Observation, wrote to the *British Medical Journal* in April 1941. He and his team had observed individuals, who,

> … after a heavy bombardment, have left the next morning, found a billet with friends or relatives or strangers, and then caved in. In some cases they have simply taken to bed and stayed in bed for weeks at a time. They have not shown marked trembling or hysteria, but an extreme desire to retreat into sleep and into being looked after, as if chronically ill. (Harrisson, 1941: 573)

These cases, Harrisson believed, rarely came to the attention of GPs or out-patient psychiatrists but exercised 'a profound effect on the morale of many others'. Several psychiatrists, notably Hugh Crichton-Miller, formerly director of the Tavistock Clinic, and Clifford Allen, responded that cases of stupor or extreme distress could be explained entirely by the physical effects of raids (blast-concussion, anoxaemia, and toxic absorption from a septic focus [Crichton-Miller, 1941]). In response, Harrisson stated that most of those who retreated into a neurasthenic state had not been directly affected by bombardment but had seen its effects nearby and assumed that it was their 'turn next'. People who had been bombed and survived, he argued, did not suffer in this way, believing that lightning would not strike twice (Harrisson, 1941: 832). He concluded that

> … no one who has spent any time objectively studying the 'blitztowns' and getting right in among the mass of the people could shut their eyes … to the very considerable effect that continuous raiding has on people's nervous system. (Harrisson, 1941: 832)

Two reactions to trauma were recognized, those who respond in 'an agitated, jumpy way' and those who become inactive, falling into 'a kind of stupor', but it was assumed that both would rapidly come to the attention of the emergency services (Glover, 1940: 62–3).

Between 1942 and 1944, C. P. Blacker, a psychiatrist, undertook a major survey of the mental health of the UK population to make recommendations for the organization of post-war services. Although he supported Aubrey Lewis's earlier conclusion that the war itself had seen no appreciable rise in overt psychological disorders, Blacker discovered that most directors of psychiatric clinics believed that 'latent neurosis' existed among the civil population, which 'would be likely to disclose itself after the war' (Blacker, 1946: 175).

In addition, there is evidence to suggest that functional somatic disorders may have risen appreciably during periods of bombing. On an anecdotal level, reports suggested that patients presented with unexplained medical symptoms such as headache, fatigue, dyspepsia, joint and muscle pain. In August 1940, after a series of raids on Bristol, D. Molesworth, an official in the intelligence branch of the Ministry of Home Security, interviewed a panel doctor based in Filton, a northern suburb of the port, who reported an increased incidence of indigestion cases, and estimated at least 15% absenteeism after severe bombing (Molesworth, 1940: 2). Edward Glover, a London psychoanalyst, argued most civilians vulnerable to the stress of air raids tended to express their fears as bodily sensations and were either treated as cases of apparent organic illness or suffered without referral (Glover, 1942).

Two studies of perforated peptic ulcer during heavy air raids suggested that there was a significant increase during times of danger and stress. Stewart and de R. Winser (1942) compared admission rates for 16 central London hospitals during the Blitz (September 1940 to May 1941) with two periods when there was no bombing (January 1937 to August 1940 and June 1941 to November 1942). They found that the rate rose from between 16.5 and 25.4 per month to 35.1 per month during heavy air raids. The difference in rates was statistically significant (Spicer *et al.*, 1944) and led Stewart and de R. Winser to argue that ‘the probable cause was anxiety’; secondary to ‘nervous factors’ were: dietary changes together with increased smoking and drinking (Stewart and de R. Winser, 1942: 260). Murray Scott believed that loss of sleep during night raids and increased smoking, allied to the routine pressures of daytime jobs, had combined to increase rates of peptic ulcer during the Blitz (Murray Scott, 1945).

Felix Brown, a psychiatric registrar at Guy’s, who treated casualties from raids on London docks, identified cases of ‘acute emotional shock’, typified by tremor, tachycardia and other conversion symptoms; he also saw ‘acute transient hysterical reactions’, which presented in ‘a limp semi-stuperose state, usually with a tremor’. Both categories recovered rapidly with minimal intervention (Brown, 1941). Although Brown agreed with Lewis’s conclusion that ‘definite psychoneuroses, induced by air-raids in patients who have previously shown no psychoneurotic traits are comparatively rare’, he observed functional somatic symptoms in patients with no history of mental illness (ibid.: 687). His anecdotal evidence suggested that ‘a particularly horrible experience is needed to precipitate this reaction in a previously normal person’. As a junior hospital doctor working in North Middlesex, Dr Elizabeth Tylden treated civilians wounded by V1 rockets. She recalled that functional somatic symptoms were common and in some cases patients were offered psychiatric treatment (barbiturates) and encouraged to abreact (Tylden, 1998).

Emergency services

Civilians most likely to have experienced psychological trauma, and yet hardly studied, were members of the metropolitan emergency services. The capital experienced the most sustained, if not the most concentrated, air raids, and suffered 29,890 killed and 139,349 injured, 49.3% and 58.8% of total UK casualties respectively (Titmuss, 1950: 559–61). Many ambulance men, firefighters, police officers, nurses, air raid wardens and other rescue

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workers were wartime volunteers. They were exposed to repeated and horrific events often involving women, children and the elderly, and there is evidence that by December 1941 a number were feeling the strain. Three convalescent homes were opened in the countryside beyond London for ‘Civil Defence workers of both sexes … who are in need of a change after illness or injury, or of rest and recuperation as a result of a long spell of duty’ (Horder, 1941: 747). By March 1944, it was reported that over 30,000 Civil Defence workers had taken advantage of the respite scheme (Anon., 1944).

In 1943, under the chairmanship of Lord Horder, a group of leading industrial and commercial companies raised the funds to set up a rehabilitation centre to treat people in industry who were adversely affected by long working hours combined with the anxieties created by frequent bombing raids and family members exposed to danger in the armed forces. They purchased Roffey Park, a country house in a 300-acre [120-ha] wooded estate near Horsham, to provide a recuperative environment (Anon., 1947). With 120 beds, occupational therapy was designed to return workers to full-time employment. Gastric cases were offered a special diet and work suited to their illness. In its first two years, 1,700 patients were treated. In addition, over 300 people from the UK and overseas visited Roffey Park to learn about its methods. The holistic approach was a combination of medical treatment, dietary supervision, physical education and occupational therapy, tailored to each individual’s needs.

Although no study was conducted of Civil Defence workers who referred themselves to convalescent homes, Eric Guttmann, psychiatric consultant to the officer selection board of the National Fire Service (Anon., 1948), and A. A. Baker surveyed firemen admitted to the Mill Hill EMS Hospital with psychological disorders. Between the outbreak of war and October 1944, 70 members of the National Fire Service were admitted of whom 40 were from North London. The low numbers were taken as evidence of the rarity of psychiatric morbidity, while 50 (71%) were found to have a family history of psychiatric illness or pre-war ‘neurotic traits’ (Guttmann and Baker, 1945). However, in 36 (51%) cases a traumatic event was found to have played an important causative role.

Given the scale of the Fire Service in London (over 50,000 members by 1943) and the horrific incidents that they were required to attend (for example, the V2 rocket that struck Woolworth’s store in Deptford crowded with Christmas shoppers killing 168 people or the rocket that hit Smithfield Market in March 1945 when housewives and their children were queuing to buy food), it was surprising that so few emergency workers appear to have presented with psychiatric disorders. In a ‘stiff-upper-lip’ culture that stigmatized mental illness, traumatized rescuers may have unconsciously converted their distress into somatic symptoms. Without psychological treatment, war syndromes characterized by bodily sensations would plausibly have endured into the immediate post-war period.

Post-war interpretation

Anecdotally, Dr Frank Assinder, a general practitioner in Carshalton Beeches, Surrey, recalled of the late 1940s that ‘peptic ulcers are much rarer now than they used to be. Nervous dyspepsia was a common diagnosis’ (Assinder, 1998: 6). The incidence of stomach

disorders prompted the Medical Research Council to commission a report from Richard Doll and F. Avery Jones into ‘Occupational Factors in the Aetiology of Gastric and Duodenal Ulcers’ (Doll and Avery Jones, with Buckatzsch, 1951). Their survey of 6,047 men and women found that social class could not explain why some people with dyspepsia developed ulcers while others did not. Nevertheless, Doll and Avery Jones believed that occupation was a significant risk factor. Jobs associated with a high incidence included doctors, foremen and business executives (‘responsible positions in industry’), while farm workers, clerical and administrative staff were at low risk. Although ‘anxiety over work was complained of more frequently by men with proved ulcers than by men without symptoms of dyspepsia’, the authors remained uncertain whether stress itself was the aetiological factor, or whether it was the outcome of a particular personality type, prone to diligence and worry (ibid.: 79–80). They took the pre-war view that individual characteristics explained differences in rates:

> The duodenal ulcer subject has frequently been described as an overconscientious, hardworking, ambitious type of man, and it is reasonable to assume that it is this type who would most readily complain of anxiety from over work, and who would tend to become appointed to positions of responsibility. It is considered … that men with this conscientious type of personality are particularly prone to develop duodenal ulcers. (Doll and Avery Jones, with Buckatzsch: 80)

Although the 1956 edition of Henderson and Gillespie’s *Textbook of Psychiatry* placed duodenal ulcer in the category of physical illness, the authors added that ‘emotional factors are believed to be of decisive importance’ (Henderson and Gillespie, 1956: 89).

Evidence gathered from general practice appeared to support the concept that peptic ulcer was a stress-related disorder. Data collected by Dr John Fry at his Beckenham practice between 1952 and 1956 showed that the most common patient contacts were for digestive disorders (12%), skin disorders (10%) and psychoneuroses (8.5%). Fry found peptic ulcer common in men over 30 and under 60, but believed that the illness was over-diagnosed because only 21% went on to have surgical treatment; most patients, he observed, ‘manage quite well’ with alkalis and diet. More puzzling still was the fact that cases seemed to recover naturally with time. Fry suggested that the natural history of duodenal ulcer includes ‘a natural and spontaneous cure with advancing age’ (Fry, 1957: 1456). Curiously, Fry found that women reported only marginally lower levels of digestive symptoms (Fry, 1951) despite the fact that the incidence of peptic ulcer, established by post-mortem studies, was significantly lower in females (Bailey and McNeill Love, 1949: 248). This finding was supported by the national morbidity survey of 1956–7, which suggested that gender was a powerful predictor of ulcer but not disorders of stomach function (Logan and Cushion, 1958: 79). Smoking was considered the crucial factor compounded by the belief that a worried male would increase his consumption of cigarettes. Indigestion and abdominal pain were culturally acceptable symptoms perhaps because multiple interpretations were possible including stress, poor diet, overwork, or a somatic expression of painful emotion.

In 1950, Dr William Logan, chief medical statistician of the General Register Office, had recruited 10 GPs for a three-year pilot study. This revealed ‘wide differences between practices’ and demonstrated the need for a large representative survey (McConaghey, 1955). With the cooperation of the research committee of the College of General Practitioners,

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Logan contacted GPs in England and Wales to take part. All the doctors who did so were volunteers and received no payment for the extra work. A total of 106 practices (representing 410,000 patients) participated to provide an overview of 'communal ill-health' in the English and Welsh population (Anon., 1955). In 1955–6, GPs recorded every consultation by diagnosis to provide an overview of illness in the general population. Among the most common presentations were: abdominal pain and disorders (2.6%), dyspepsia (0.9%) and peptic ulcer (0.8%), compared with psychoneurotic disorders (5.1%) and skin disorders (6.5%). Although significant regional variation was recorded for 'disorders of the function of the stomach' (from 6.8% in the East and West Ridings, 5.9% in London and the south-east to only 2.9% in the south of England) there was no clear explanation for these differences (Logan and Cushion, 1958: 98). Geographical variation also was reported for 'psycho-somatic disorders' by region but with no explicable pattern: Northern (4.2%), London & SE (2.8%) and Wales (0.9%) (ibid.: 94).

Conclusion

Evidence from specialist treatment units for dyspepsia and effort syndrome demonstrated that psychological disorders did not displace functional somatic illness during the Second World War. Nevertheless, relative changes in their incidence are almost impossible to quantify. First, there are no objective measures from the conflict in part because popular culture introduced a reporting bias. At a time when members of the armed forces were being killed and wounded in considerable numbers, it was regarded as unpatriotic to complain of minor illness. A government threatened with invasion and subjected to air raids promoted ideas of resilience and the repression of emotional weakness; 'stiff upper lip' was the order of the day and, as Harrisson argued, people tended to hide their fears (Harrisson, 1976: 307–9). Secondly, progressive medical specialization made comparisons difficult. Disorders characterized by common but non-specific symptoms were referred to a growing range of departments including gastroenterology, neurology, cardiology, or rheumatology, rather than to general physicians. Furthermore, the stigma attached to mental illness discouraged people from reporting psychological symptoms but both soldiers and civilians appear to have been more willing to disclose somatic complaints as a proxy for distress or anxiety.

Kirmayer and Young have argued that functional somatic symptoms can be interpreted in diverse ways:

> … as an index of disease or disorder, an indication of psychopathology, a symbolic condensation of intra-psychic conflict, a culturally coded expression of distress, a medium for expressing social discontent, and a mechanism through which patients attempt to reposition themselves within their local worlds. (1998: 420)

Thus, dyspepsia could be seen either as a conscript's attempt to avoid combat without being accused of cowardice, an indicator of peptic ulcer, a means of securing a less demanding occupation, or a response to unacceptable emotions. During the Second World War, doctors and government officials interpreted dyspepsia and peptic ulcer not only as a sign of the nation's health but, because they were increasingly viewed as stress-related disorders, also as an index of morale. Personality, in particular a susceptibility to worry, was considered a crucial variable and seemed to explain why unskilled workers had the lower rates of

duodenal ulcer (Anon., 1951; Doll *et al.*, 1951). Because diagnostic techniques were unreliable and treatment risky or ineffective, diet as a means of managing the condition absorbed the attention of both doctors and patients at a time when the nation was preoccupied by food because of the constraints imposed by rationing (Doll, 2000). Hence, the ulcer epidemic of the 1940s can be understood only in a context that includes popular health beliefs, the state of medical knowledge and the enduring stress of war.

Biographical note

Edgar Jones is professor of the history of medicine and psychiatry at the Institute of Psychiatry and the King's Centre for Military Health Research. He is programme leader for the MSc in War and Psychiatry and works in the field of military psychiatry exploring how individuals coped with the intense stress of war and its effects on their mental state. He has studied how physicians conceptualized and treated shell shock and has investigated the psychological impact of air raids on civilians. Edgar Jones, with Simon Wessely, is the author of *Shell Shock to PTSD: Military Psychiatry from 1900 to the Gulf*, Maudsley Monograph (Hove, Sussex: Psychology Press, 2005).

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Table I

Admissions of army personnel to UK hospitals.

	Rate per 1,000 strength					
Diagnosis	**1940**	**1941**	**1942**	**1943**	**1944**	**1945**
Hysteria	0.7	0.8	1.6	2.0	1.5	1.4
Gastric ulcer	0.4	0.3	0.2	0.3	0.3	0.4
Duodenal ulcer	1.4	1.2	1.1	1.4	1.4	1.7
Dyspepsia and gastritis	2.8	2.9	3.8	3.7	2.7	2.7
Effort syndrome	0.3	0.3	0.3	0.3	0.2	0.2

Mellor (1972: 112, 122, 129)