

'Ask a hundred people, you get a hundred definitions': A comparison of lay and expert understanding of stress and its associations with health

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Abstract

The understanding an individual holds about stress can influence their appraisal of it and have implications for subsequent health, yet knowledge of such understanding is scarce. This study explored discrepancies between lay and expert understanding of stress and links made between stress and health. Twenty-six lay members of the local community aged 18–62 years, and seven expert stress researchers, participated in individual semi-structured interviews. Thematic analysis of the two datasets was conducted separately, then findings compared to identify similarities and differences between lay and scientific understanding. Whilst many similarities were identified, we found three important discrepancies: (i) Lay participants demonstrated a strong awareness of the indirect effects of stress on health via health behaviours; (ii) compared to experts, lay participants showed less awareness of a direct path between stress and physical health; (iii) lay participants showed less understanding of social determinants of stress and collective measures for stress management that went beyond individual responsibility. Discrepancies identified serve to highlight potential misunderstandings in lay conceptualisation of stress and its links with health. These findings have potential to facilitate the work of practitioners who serve as intermediaries to translate scientific knowledge into therapeutic benefit, through improved awareness and communication surrounding stress understanding.

KEYWORDS

coping, health, lay conceptualisation, psychosocial stress, stress understanding

1 | INTRODUCTION

The word 'stress' and its associated terminology capture a well-established and key psychosocial concept within health psychology and related disciplines, their usage having become extremely popular

in both scientific and everyday language. Yet, stress has also been cited as one of the most ambiguous constructs and its usefulness questioned (Kagan, 2016; Pollock, 1988; Young, 1980). Recently, Slavich (2019) critiqued the measurement of stress as inadequate for the complexity the concept contains and its importance for health outcomes.

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1.1 | Lay versus expert beliefs about stress and health

Despite abundant research on stress and its largely detrimental effect on health, surprisingly little is known about lay understanding of stress and health, and possible misconceptions or differences relative to scientific understanding of the concept (Kilby et al., 2021). Lay theories (synonymous with lay or public understanding) refer to beliefs that individuals hold about the world including objects, processes, events and living beings. Scientific theories are created by scientists and tested in line with the hypothetico-deductive method which requires them to be articulated and shared. In comparison, lay theories are non-scientific, implicit, informal personal mindsets, and can be complex and inconsistent, comprising both scientifically proven facts and misconceptions (Furnham, 2017).

Within this context, healthcare providers serve as intermediaries and translators of scientific knowledge to the lay public and as such their understanding of stress is likely to comprise both evidence-based scientific facts and lay theories of stress. Yet it is well established that professional reasoning or expertise is not free from specific assumptions, beliefs, and biases. For example, psychiatrists have been found to differ in their ideas about mental health problems (Harland et al., 2009) and psychology researchers may attach higher importance to certain stress beliefs (Kilby et al., 2021). The interplay between lay and scientific theories informs stress management recommendations to different audiences including those of practitioners, policymakers, patients/clients, and members of the lay public. Potential discrepancies between lay and scientific understanding of stress are of central importance to health professionals in the provision of effective stress management interventions. If such mismatches exist, then it is crucial for professionals to consider their own assumptions about stress, their own sources of knowledge and understanding used to apply that knowledge, as well as their audiences who may hold different beliefs about concepts relevant to stress and health.

1.2 | Understanding of stress

At least three different conceptualisations of stress (as a stimulus, as a stress response, and as an interaction or transactional process between person and environment) have been developed and applied in medical and social sciences. Transactional stress theory (Lazarus & Folkman, 1984), one of the most widely accepted contemporary theories of stress in psychology, emphasises the importance of individual appraisal in the stress process, to influence coping responses and subsequent health. Perception of challenge in the environment likely depends on certain beliefs about oneself, the specific situation and the external world (Lazarus & Folkman, 1984). It is reasonable to expect that what people know or think about stress will affect their interpretation of and behaviour in any situation. For instance, previous research revealed that having either more positive or more negative beliefs about stress leads to significantly different outcomes in terms of health and performance (Crum et al., 2013; Keller et al., 2012; Park et al., 2018; Smith et al., 2020).

Most studies that examine the lay perspective of stress have analysed conceptualisation of stress in specific groups of people, including those experiencing ill-health (e.g., Clark (2003) interviewed eight male and six female patients aged 36–86, treated in a Scottish hospital after having myocardial infarction) or have focused on education (e.g., 54 medical students in Singapore—Farquhar et al., 2018) or work-related stress (134, primarily British, white- and blue-collar workers aged 19–59 working in the UK—Furnham, 1997, p. 22 female clerical workers aged 25–64, from a Canadian city—Harkness et al., 2005). Studies on 45 employees aged 29–59 in the UK (Kinman & Jones, 2005) and 48 employees in Malaysia (Idris et al., 2010), from a range of occupational backgrounds in both cases, found that lay people tend to conceptualise stress as a stimulus, response to a stimulus, or a stimulus-response interaction. More recently, Kilby et al. (2021) explored lay beliefs about stress among 35 undergraduate psychology students (with 40% of the sample identifying as Australian, and the remaining participants with various ethnic backgrounds). It was found that they perceived stress as a multifaceted response to stimuli. Research also revealed that lay people consider stress a prevalent, pervasive, normal, and inevitable part of life in the modern world (Brown, 1999; Pollock, 1988), particularly in the context of work, even in relatively distinct cultures such as Canada (Harkness et al., 2005) and Malaysia (Idris et al., 2010).

Studies conducted in countries including Australia, Malaysia, New Zealand, Switzerland, and the UK, showed that from the lay perspective, stress is associated with a variety of unpleasant and undesirable events or circumstances such as unemployment, job insecurity, financial difficulties and poverty, the fast pace of life and time pressure, professional (work, study) and personal demands including caring responsibilities, and social interactions (Bhui et al., 2016; Brown, 1999; Guillet et al., 2010; Idris et al., 2010; Kilby et al., 2021; Kinman & Jones, 2005; Le Fevre & Kolt, 2010; Rydstedt et al., 2004). The lay perspective appears to acknowledge the role of structural stressors (e.g., poverty, working conditions), but systemic changes and collective strategies are rarely discussed. This encourages individual coping responses which creates a sense of individual responsibility for the experience of stress particularly in occupational settings (Kinman & Jones, 2005; Sharpley & Gardner, 2001), potentially leading individuals to perceive stress as a personal weakness (Harkness et al., 2005; Thunman & Persson, 2015; Verdonk et al., 2014).

1.3 | Conceptions of stress and its effects on health

Numerous studies report stress as detrimental to health through direct (neuroendocrine) and indirect (health behaviour mediated) pathways. Considerable evidence (Chrousos, 2009; Cohen et al., 2019; O'Connor et al., 2020) suggests that stress can affect all body systems and is implicated in development or exacerbation of a wide range of physical and mental health issues including cardiovascular disease (Kivimäki & Steptoe, 2018), diabetes (Nyberg et al., 2014), asthma (Landeo-Gutierrez & Celedón, 2020), upper respiratory tract infections (Pedersen et al., 2010), musculoskeletal

problems (Buscemi et al., 2019), autoimmune disease, anxiety and depression (Hughes et al., 2017). Negative perceptions of stress have been found to increase the risk of ill health and premature death (Keller et al., 2012). However, a growing body of evidence focuses on more positive aspects of stress for enhanced well-being and performance, highlighting the role of stress mindset (Crum et al., 2013; Crum & Lyddy, 2014; Jamieson et al., 2018).

From the lay perspective, stress involves unpleasant physiological, emotional, and cognitive symptoms, is implicated in poor performance, and negatively influences social relationships (Furnham, 1997; Idris et al., 2010; Kilby et al., 2021; Kinman & Jones, 2005; Le Fevre & Kolt, 2010). Evidence suggests that lay people tend to associate stress with poor mental health and relatively minor physical health issues (Kinman & Jones, 2005; Parker et al., 1993).

Scientific and lay perspectives on stress tend to overlap and be mutually reinforcing (Furnham, 1997; Pollock, 1988; Rydstedt et al., 2004). However, previous research points to potential misconceptions and limitations of lay understanding of stress in relation to well-being. Furthermore, lay theories have been found to play an important role in self-regulatory processes (Furnham, 2017) and it is likely that lay theories of stress specifically influence individual appraisal and behaviour. Misconceptions of stress have the potential to negatively influence health-related decisions and result in poorer well-being. It is crucial to understand how the lay perspective on stress compares to the expert perspective in order to ascertain if accepted lay understanding contains accurate and up-to-date knowledge, sufficient to make informed choices about health, and to benefit from insight into managing stress responses. Despite its importance for self-care and interventions to improve health outcomes across populations, lay understanding of mechanisms underlying the relationship between stress and health has not been studied extensively (Kilby et al., 2021).

The current study was designed to explore lay perspectives of psychosocial stress and its links to health, and to identify possible misconceptions and inconsistencies of lay perspectives in comparison to scientific understanding of stress. Specifically, we asked lay people to talk about stress and links with health, then compared these answers with explanations provided by professionals with a scientific understanding of stress. The intention was to shed light on the potential discrepancies for consideration of healthcare providers and professionals who design or deliver stress management interventions.

2 | METHODS

2.1 | Participants and recruitment

Two populations were recruited (see Appendix A for demographic details). Firstly, lay participants, defined as providing a non-expert, non-academic perspective (Furnham, 2017) which in this context meant having no formal background in health psychology or other subjects with a specific focus on stress. Therefore, lay participants, even if holding higher education degree, were expected to refer to life experience rather than scientific knowledge on stress acquired in the process of academic education. This group comprised 26 (14 female)

members of the local community in South-West England aged 18–61 years, recruited via purposive sampling. Lay participants were required to be aged 18+ years and native English speakers. The highest educational attainment ranged from age 16 school leavers (GCSE) to doctoral (PhD) level; seven participants were students at the time of the interview. Most worked full or part-time (including one freelancer and one self-employed), two were retired, and two unemployed/job seeking. Nine participants had childcare responsibilities (children/grandchildren), and three provided regular care for an adult. The study was advertised via traditional posters, the university volunteer scheme electronic newsletter, social media and word-of-mouth. Secondly, expert participants (termed hereafter 'stress experts') comprising seven academics (four males), working in higher education, each with 15+ years of experience conducting research and teaching on stress (specialist areas included psychobiology, behavioural medicine, health/occupational health psychology, and mental health nursing), were recruited through convenience sampling (personal invitation and recommendation). Inclusion criterion was at least 5 years' experience conducting research or teaching about stress.

2.2 | Procedure

Participants completed written informed consent before interview. Lay participant interviews were conducted face-to-face at the researchers' university, excepting one participant interviewed at home due to mobility issues. Stress expert interviews were conducted face-to-face ($n = 4$) or online. All interviews were audio-recorded and transcribed verbatim by the first author. Lay interviews lasted 45–119 min and expert interviews 40–90 min. All interviewees were asked about causes, experiences, and effects of stress. They were encouraged to talk freely and offer explanation (Quinn, 2005). Lay interview questions focused on personal opinions about stress and stressful situations. They were piloted with two male adults with no background in psychology. Questions for the stress experts were adopted from the lay interview script with modifications to ensure focus on scientific knowledge of stress (see Appendix B for the interview schedules and more details on questions development and piloting). Interviewees were offered a £10 gift voucher as reimbursement. The study received prior approval from Bournemouth University Research Ethics Committee (ref. id. 17377).

2.3 | Analytical approach

This exploratory study was informed by the ideas of cultural models (Quinn & Holland, 1987) and lay theories (Furnham, 2017), which hold that people develop mental models or representations of various issues throughout life and use them to make sense of the world around (in this case about stress and health). Our analytical approach assumes that these mental models can be uncovered from linguistic data generated through interviews in which responding to questions involves the activation of mental models. Thematic analysis (Braun & Clarke, 2021a) was chosen as a flexible tool allowing

generation of themes based on patterns in lay and scientific understanding of stress. A reflexivity statement is in Appendix C. Lay and expert interviews were treated as separate datasets to which the same non-linear, multi-staged analytical procedure was applied. Following guidelines (Braun & Clarke, 2021a, 2021b) the first author coded all data, with codes and themes regularly discussed by the whole team to ensure rigour and quality (for more details on how the study complies with quality criteria, please see Appendix D, COREQ criteria). Finally, the two sets of themes and subthemes were juxtaposed to identify differences between lay and expert perspectives.

3 | RESULTS AND DISCUSSION

We generated five interrelated themes, each with two to four subthemes, from the lay interviews: (1) Part of life, (2) Individual, complex experience, (3) Negativity, (4) Positivity, and (5) Nature-civilisation dichotomy; and three interrelated themes with two to four subthemes from the stress expert interviews: (1) Individuality underpinned by universality, (2) Contextuality, and (3) Negativity versus positivity. All themes and subthemes are described below (see Appendix E for thematic maps) with relevant quotes from the interviews to illustrate the findings. Additional illustrative quotes by subtheme can be found in Table S1 (lay understanding) and Table S2 (scientific understanding) in Appendix F.

3.1 | Lay understanding

3.1.1 | Theme 1: Part of life

In general, lay participants considered stress a part of life. Subtheme 1a revolves around the *commonness and inevitability* of stress. Interviewees felt people will always experience events and circumstances about which they may get stressed, across all areas of life, as P22 explained: 'work can be stressful, personal life can be stressful, money can be stressful. Most things can have stress attached to it, really.' Eliminating all stress was seen as impossible, however, while participants recognised that 'everyone gets stressed' (P18), this primarily comprised minor stressors and everyday hassles, 'slight worries' (P5), or 'something that niggles at you' (P20).

Similar beliefs about stress were reported in previous research where commonness and inevitability of stress were linked with external factors or environmental features such as the fast pace of life (Brown, 1999; Pollock, 1988) or the nature of professional work (e.g., Farquhar et al., 2018; Harkness et al., 2005; Idris et al., 2010; Kinman & Jones, 2005). However, in the current study, rejecting the idea of a stress-free life, interviewees acknowledged that stress is a *natural part of life* (subtheme 1b), a normal and—in some situations—expected response. For some participants, stress was a synonym of life or being human; they suggested that not experiencing stress would be unnatural: '(...) those are all natural things, I think that you'd

be very, a very strange person to not get stressed by job hunting, or family worries...' (P1).

3.1.2 | Theme 2: Individual, complex experience

Stress was understood as an individual, personalised experience caused by various events and circumstances and associated with different symptoms (physiological, emotional, behavioural, cognitive) and coping strategies. The *individual experience* subtheme (2a) highlights that stress is a very broad category conceptualised differently by different people, for example: '(...) stress is a difficult thing to quantify, to fathom because it's an internal, you know, mechanism, isn't it, that's probably different from one person to the next, very much (...)' (P26). Participants suggested a multitude of causes, with the caveat that people differ greatly regarding what makes them stressed and how they respond when they feel stressed, because different matters are personally important to them as transactional stress theory (Lazarus & Folkman, 1984) posits. In line with the existing literature (Harkness et al., 2005; Kinman & Jones, 2005; Lazarus & Folkman, 1984; Le Fevre & Kolt, 2010; Skinner et al., 2003), interviewees explained that experiencing stress involves a range of symptoms which vary across individuals, and described numerous coping strategies differing across people and situations, for example, active coping, cognitive strategies, arousal/emotion regulation, social support, self-care, none of which were deemed universally effective. Furthermore, they declared people may conceal signs of stress, implying that experiencing stress is considered a personal weakness (Harkness et al., 2005; Hawk & Martin, 2011; Selamu et al., 2017).

Subtheme 2b focuses on the explanations around the vital role *individual context* plays in stress experience, influencing both the appraisal of and response to any situation. Participants reflected that people differ in their need for stimulation and consequently their threshold for getting stressed and tolerating stress. In line with contemporary theories (Blascovich, 2013; Hobfoll, 1989; Lazarus & Folkman, 1984), no situation was deemed universally stressful, as perception of a situation can change over time due to shifts in individual demands, resources, values, and beliefs. Concurrent demands and access to resources were often considered to influence the appraisal process:

I won't stress about small things, but then like I said when I'm really stressed with money, moving like we have been, the fact that [son] hasn't done the dishwasher when I get home makes me far more upset than I would then if we had nothing going on.

(P22)

In referring to how easily people get stressed in general or about specific events, interviewees acknowledged the importance of both nurture (previous experiences of stress, developing skills, modelling), and nature (genes, in-born characteristics, character/personality).

Interviewees also explained that stress is 'self-inflicted almost, the stress, I think you bring it on yourself sometimes by letting a situation get out of hand (...)' (P5) suggesting that people are individually responsible for getting stressed and coping with it. They felt stress was often caused by unrealistic expectations and pressures to engage in different activities. Busyness and individual achievement were highly valued, yet may lead to stress for some people, contributing to the idea that stress is a sign of personal weakness, stigmatisation, and self-blame for not coping well enough. Moreover, most coping strategies discussed in the interviews placed responsibility on the individual:

[...] I just get myself all worked up, and I try and deal with it myself instead of, perhaps, sometimes getting help that I need. [...] I just think no, I can deal with it, you know, you don't want to burden your parents, they aren't very well, or your sister that's trying to work and look after you, you know.

(P25)

All this points to stress being considered an individual responsibility, reflecting a lack of awareness of social determinants of stress and coping, despite calls for more collective action in stress and health management (Kasperczyk, 2010; Minkler, 1999; Slavich, 2020).

3.1.3 | Theme 3: Negativity

Negativity of stress was salient in participants' minds, and commonly attributed to undesirable and unpleasant circumstances and associated with unpleasant feelings and symptoms with a range of negative short- and long-term effects. Despite being considered a normal part of life, it was seen as disruptive of normal life, leading to non-normal states and behaviours. Interviewees often referred to a sense of *oppression with limited autonomy and power* (subtheme 3a) being involved in the experiences of stress: feeling restricted, entrapped, powerless, unable to manage the situation or oneself, due to thoughts and emotions getting out of control:

It was a super-stressful situation for me because I couldn't see a way out. [...] you can't see a way out, or you know that, you know, there's not just, you know, a door that you can open, and then you'll be there eventually.

(P4)

Positive stress, when mentioned, was linked to being in control, and no stress or being relaxed associated with freedom and choice. Participants explained that the sense of oppression and unmanageability stemmed from and was exacerbated by high demands or limited resources, which aligns with scientific theories and models of stress (Demerouti et al., 2001; Hobfoll, 1989; Lazarus & Folkman, 1984). Demands and access to resources were mostly discussed

at the individual level, further contributing to understanding stress as an individual's responsibility.

Subtheme 3b covers *unpleasantness* of the causes and symptoms of stress. Stress was commonly discussed as arising from undesirable, unsettling, or 'out-of-comfort-zone' situations: difficulties, unexpected or unfamiliar events, uncomfortable social interactions, real, imagined, or anticipated threats to goals and values, one's own or a close person's health or life, and social-evaluative threats, for example, when 'something gets in the way, and I'm not able to meet that goal, of what I expect' (P4).

Corroborating previous research (Furnham, 1997; Kilby et al., 2021; Kinman & Jones, 2005; Le Fevre & Kolt, 2010), interviewees described stress in terms of psychological and physical discomfort: an unpleasant combination of arousal (restlessness, agitation) and negative emotions (anxiety, anger, fear, sadness, guilt, general unhappiness): 'I felt frustrated, felt quite worried and annoyed, and just, just what it's go like "arrghh!" kind of thing' (P13). They also noted worrying and cognitive disorganisation (racing thoughts, inability to think clearly), and physiological changes that may cause discomfort (muscle tension, racing heart, quickened or irregular breathing, sweating, aches) as P15 described: '(...) if I get stressed I will get tension headaches, and like my muscles in my shoulders, everything gets so tight, and I can feel that physically in myself.'

Subtheme 3c concerns the *negative effects* of stress. Participants acknowledged that stress can negatively impact one's health, social relations, and performance. Regarding health-related effects, they focused primarily on mental health and stress-induced unhealthy behaviour, discussing physical health mainly when prompted. As in previous studies (e.g., Furnham, 1997, Kinman & Jones, 2005, LeFevre & Kolt (2010)), when asked about stress and physical health, interviewees talked about a general feeling of being unwell, and minor, relatively short-term issues such as headaches, indigestion, or muscle tension. They showed relatively underdeveloped understanding of neuroendocrine mechanisms and links between stress and health. Despite being aware of stress-related physiological changes (e.g., increase in blood pressure), they rarely mentioned more serious or long-term issues (e.g., cardiovascular, immunological), focusing often on sleep problems and fatigue:

Interviewer: [...] is stress related to any like more grave problems, health problems?"

P5: No, I don't think so. I mean I'd hope not, really, it may do. I've not really thought about it. I shouldn't, I would imagine if you were under stress for a long time, or always under stress, I would imagine, yeah, certainly, your body might probably, would feel absolutely worn out.

Those pointing to more serious physical health problems seemed unsure about the underlying mechanisms (cf. Pollock, 1988), or used qualifying remarks (e.g., 'I'm not an expert on this sort of stuff' [P20]). A few more recognised that stress may lead to serious mental health

problems including self-harm and suicide, but most mentioned relatively mild symptoms of anxiety or low mood ('almost like depression' [P1], 'a little bit depressed' [P7], 'sort of depression' [P11]). Yet, aligning with previous research findings (Furnham, 1997; Kilby et al., 2021), participants were clearly aware of stress affecting health via unhealthy behaviours—a pathway that has been well-evidenced (Chandola et al., 2008; Heikkilä et al., 2012; Hughes et al., 2017). Unhealthy behaviours were sometimes considered a coping, emotion-regulation, or resource-channelling strategy as P6 explained: 'I used to play a lot of sport (...) But they all dropped off because I didn't have the time to actually pursue those sorts of things, because time was such a scarce resource (...)'

Development of severe health problems is often a long and complex process, and proximity between stress and health outcomes often distal. While previous research showed that stress can lead to serious health problems, many people who are exposed to stress do not suffer from health problems (Cohen et al., 2019). This can make it more difficult for the lay public to understand the complexity of the effects of stress on physical health.

In line with the existing literature (Furnham, 1997; Kilby et al., 2021; Kinman & Jones, 2005), interviewees commonly discussed negative effects of stress on social interactions and relationships: social withdrawal and isolation, or conflicts due to lack of resources (time, energy) and negative emotions (anger, irritability, anxiety, feeling overwhelmed) resulting in being snappy, aggressive, selfish, or less sociable. Furthermore, they associated stress with lower motivation, and inability to focus which could negatively influence performance as P10 put it: 'That's affecting your day, like, you look tired, you're not performing at your best at work, you're not giving everyone like you're 100%, you're being snappy.' Some also mentioned feeling clumsy, making rushed decisions and mistakes, and absence from work. Previous research yielded similar findings (Kinman & Jones, 2005; Sharpley & Gardner, 2001), particularly in the context of job-related stress.

The final subtheme (3d) concerns *non-normality* of stress. Whilst to be expected in life, participants also described stress as disrupting the normal way of functioning or leading to non-normal feelings and behaviours, for example: 'You know, there's kind of thing when you look back afterwards and think "was that me?" You know, it's almost like an alter ego, sometimes, a little bring out...' (P21). Successful coping with stress, on the other hand, was deemed to result in getting back to normal and not being stressed.

3.1.4 | Theme 4: Positivity

When prompted, most participants pointed out some positive aspects of stress. However, these were usually discussed briefly, and ideas about how stress could be positive differed, making the pattern much less clear than for negativity. Also, positivity mainly applied to low levels of stress and interviewees indicated that excessive stress is negative. Subtheme 4a covers *positive outcomes* with most participants talking about stress being motivating or energising, for

example: 'It can be a drive. It can give you a drive to do something' (P12). Yet, this was often tinted with negativity as it motivated dealing with the cause of stress to remove the unpleasant experience which can be '(...) so horrible you'd do anything to get away from it (...) So the only way to get rid of it is to conquer, or to solve an issue, or to deal with it' (P22). Several participants acknowledged that resolving stressful situations was rewarding, giving a sense of achievement, while having no stress at all equalled boredom. A few suggested that stressful experiences may promote healthy behaviours, co-operation, and help. Stress was also seen as a point of comparison, a signal for danger or a situation requiring action which aligns with the classic theory around stress as a threat (Lazarus & Folkman, 1984), and an opportunity to learn, think creatively to solve problems, and develop coping skills and resilience (Seery, 2011).

Some participants described the experience of stress, busyness, and pressure as an enjoyable *positive state* (subtheme 4b): 'Yeah, you're enjoying it. You, you might be stressing the body, or your mind, but you're enjoying the moment, you're pushing yourself' (P7). Others distinguished between negative and positive stress or mentioned 'adrenaline rush' which feels like stress but involves nervousness and excitement, and can be helpful, while stress results from unmanageable situations, is more serious, and clearly negative. Some were uncertain whether 'positive stress' is stress or needs another label as a distinct experience. This finding points to the need for better conceptualisation of stress in research.

3.1.5 | Theme 5: Nature—civilisation dichotomy

Interviewees linked stress to civilisation and technology, particularly *information and communication technologies* (ICT) (subtheme 5a), for example: 'It's on news, some things, so (...) So, I've seen something and I transferred "it's gonna happen to me", it's negativity, really' (P12). With the increase of ICT in daily life, stress has become more common; several participants explained that media is a source of bad news which makes people stressed and for some, ICT posed a threat of information overload and increased demands and pressures from needing to be constantly available (Barley et al., 2011; Brown, 1999; Riedl, 2013). Pervasiveness of social media was also highlighted as creating unrealistic expectations and preventing detachment from stressful experiences such as bullying.

Subtheme (5b) focuses on *relaxing in nature*. Most interviewees associated de-stressing activities and the state of relaxation with the natural environment: getting 'fresh air', being outside, in natural, green spaces which were described as peaceful and calming, for example: 'And looking at the sea, going out to the sea. The sea is very relaxing for me' (P12). For some, engagement with nature meant solitude to avoid social expectations or conflicts. This link between nature and relaxation is supported by mounting evidence that the natural environment and associated visual and olfactory stimuli can reduce stress and promote resilience and health (Chawla et al., 2014; Hedblom et al., 2019). Participants idealised the natural environment despite its potential risks and demands. Current research favours

green areas and time outdoors as valuable for wellbeing, which highlights how perception of the world can change. Historically, nature was likely deemed perilous, and the stress response evolved as a response to dangers in the natural environment (Slavich, 2020).

3.2 | Scientific understanding

3.2.1 | Theme 1: Individuality underpinned by universality

Experts agreed that people hold different beliefs about stress and experience stress differently. All referred to the transactional theory of stress (Lazarus & Folkman, 1984) emphasising the key role of cognitive appraisal, a range of symptoms, and coping strategies which can vary across individuals. However, a certain degree of universality and shared understanding of stress was acknowledged, otherwise 'we wouldn't be able to talk about it as part of human experience' (E7).

Subtheme 1a centres around the *individual concept* of stress. Interviewees described it as 'a psychological construct which is idiosyncratic to each individual' (E2) which develops over time depending on the individual's experience and knowledge. Thus, everyone has their own definition of stress which is true and correct for them. Yet, some experts explained that 'if you say to somebody, you know, what it's like when you're stressed, or about stress, everybody knows what you mean. You know what I mean? (...) in Western cultures' (E3) pointing to stress being also a socio-cultural concept which, despite individual differences, is understood similarly by those with similar socio-cultural backgrounds.

Subtheme 1b focuses on the *individual appraisal and stress response*. All participants highlighted the importance of cognitive appraisal which depends on the context (demands and resources) meaning that no situation is inherently stressful and 'that same set of stressors doesn't, doesn't impact upon person A and B in the same way'. So yes, stress does impact on one's life but only if you find it stressful (E1).

In line with the existing literature (Epel et al., 2018; O'Connor et al., 2020; Slavich, 2020) participants explained that if a person appraises a situation as stressful, a 'universal' acute stress response as an evolutionary-based pattern of bodily changes is likely to follow. However, as stress becomes chronic, the responses may vary greatly between people and even in the same person across time. Moreover, as experts noted, threat and challenge as different 'stressful' appraisals may involve different psychological or physiological responses (Blascovich, 2013). Also, as E4 explained, individuals may show exaggerated, moderate, or blunted physiological response to a stressor.

The third subtheme (1c) covers *individual coping*, with interviewees highlighting that as the appraisal process and stress experience is highly individualised and contextual, people may prefer and use different coping strategies (Skinner et al., 2003), none of which are universally effective. While a person should do 'what feels right for an individual' (E1), people sometimes choose strategies that

provide temporary relief but become maladaptive long-term. Individual coping skills were discussed as important, and the individual's responsibility for managing stress and stressors as empowering and motivating:

[...] you decide, you say when it's appropriate for you.
[...] You know, you take control of this, you can take control of your stress. We are here to help you, we are part of the solution but you'll decide.
(E7)

However, some experts acknowledged it can also lead to the individual bearing sole responsibility, perceiving stress as personal weakness, reinforcing stigma:

[...] the blame is put on people who can't cope. [...] they're stressed so that means they can't cope. Give them a bit of stress management training [...] the danger is, it's packaged as this, well, it's all your fault, isn't it? If you were only more resilient, you wouldn't be stressed.
(E3)

3.2.2 | Theme 2: Contextuality

As stress is an idiosyncratic concept and personal experience, experts emphasised the *need for context and clarification* (subtheme 2a). Interviewees agreed that 'stress' is a broad, vague category in both lay and scientific discourse (Cohen et al., 2019; Kagan, 2016; Pollock, 1988; Slavich, 2019; Young, 1980) describing it as a 'catch-all' phrase (E1, E2) or 'umbrella term' (E3, E6) used to denote a range of issues, potentially leading to confusion and misunderstanding among professionals and the lay public. They also acknowledged that stress is broadly understood as unhappiness and general suffering (cf. Helman, 2007). Without contextual details the term becomes meaningless and requires additional information and careful operationalisation in both scientific and lay discourse to avoid misinterpretation:

Again it's about stress, the word, the concept masking, being a blanket for many important things happening underneath. [...] And I was thinking 'but what does that really mean?' Is it, is it mental health, is it physical health? Is it people not being able to balance work and home, family demands? What is it?
(E6)

Subtheme 2b concerns experts' acknowledgement of the *influence of the context* on exposure to stressors, cognitive appraisal, the stress response including the coping process, and the effects of stress. Following the biopsychosocial model (Engel, 1977) and stress theory (Epel et al., 2018; Hobfoll, 1989; Lazarus & Folkman, 1984),

interviewees discussed numerous personal (e.g., genetic make-up, personality, lifestyle) and environmental (e.g., characteristics of a stimuli/demand, social, economic, and cultural) factors which can change dynamically and interact with each other:

So it's again... related to resources or whatever it is they think they can do about the situation they're in, their coping style, the... outlook on life, a whole range of other psychological constructs that we know feeding to individual differences would impact on whether that person's life is perceived as stressful or not.

(E1)

3.2.3 | Theme 3: Negativity versus positivity

Experts described stress mainly in negative terms, yet explained that stress, particularly short-term, may be positive, and that stress management is key in mitigating stress-related risks and maximising benefits. Linking back to the *Individuality* and *Contextuality* themes, people perceive and experience stress differently in a specific situation depending on the context, and individual experience may also change or reinforce conceptualisation of stress as more positive or negative.

Subtheme 3a focuses on stress as an *unpleasant experience*, which interviewees suggested is most often caused by undesirable or threatening major and everyday events and circumstances which may interact creating 'a cascading effect' (cf. Segerstrom & O'Connor, 2012). Responding to such events requires resources and adjustment, and may elicit negative emotions, unpleasant physical sensations, and psychological discomfort as explained by E1: '(...) what does stress make you feel, it makes you feel tense, makes you feel anxious, makes you feel tired.'

Subtheme 3b covers longer-term *negative effects* associated primarily with chronic or excessive stress. Participants explained that '(...) stress can influence how you behave, what you do in terms of health behaviours in particular, and also can influence your biology' (E2), acknowledging both direct (neuroendocrine) and indirect (behavioural) pathways. Stress was linked with both minor and serious physical health conditions (immune and cardiovascular issues, cancer, diabetes), and mental health problems (mood disorders, addictions, eating disorders) following allostatic load theory (McEwen, 2016; Sterling, 2012). Some of these effects were attributed to cortisol as a primary stress hormone, but experts highlighted the complexity of stress-cortisol-health mechanisms in relation to the distinction between acute and chronic stress. Similarly, they recognised that the indirect pathway linking stress and health through health behaviours is not straightforward and can be modified by factors such as hormones and personality. Generally, experts provided more detailed explanations than lay participants of the mechanisms linking stress and health; they also mentioned stress affecting social interactions and performance, leading to people potentially

becoming more irritated, aggressive, or socially withdrawn, and experiencing problems with motivation, engagement, or concentration as '(stress) can turn into burnout, it can impact people's engagement, it can impact counterproductive work behaviours' (E6).

While *positivity of stress* (subtheme 3b) was not discussed a lot, participants tried to normalise stress and described it as an adaptive mechanism. However, this mainly applied to short-term stress responses mounted to deal with a stressor and switched off once the stressor disappears, for example, '(...) stress response of staying in a shelter after the war is over, obviously I'm not adapting. It's all about adapting in amount and time (*appropriate*) to the context' (E5). Experts also recognised that stress, if not excessive, can increase energy and motivation, facilitate change, learning, and development of coping skills which aligns with the concept of eustress (Nelson & Simmons, 2003; Selye, 1978), the learning hypothesis (Karasek & Theorell, 1990), and recent calls for 'de-stressing stress' (Crum & Lyddy, 2014; Jamieson et al., 2018):

[...] stress can be the thing that makes you finally decide that you're going to quit the job, because the job is crushing, or whatever. So that's not necessary a negative thing, it can be a very sort of positive thing.

(E7)

The final subtheme (3c) centres around the *importance of stress management*. According to participants, as a stress-free life is impossible, stress management is crucial to minimise the negative and maximise the positive effects of stress, so '(w)e should be doing this, trying to get people learn to cope better with these things, and with strategies in place' (E2). Stress management involves individual skills and actions such as personal coping strategies, recovery, and self-care. Yet, linking to the *Individual coping* subtheme (1c), stress management cannot be limited to the individual level, 'they can't just bring in along training courses and tell you to go off and sort yourself out' (E4). It was acknowledged that individual coping skills may be inadequate due to environmental constraints (high demands, lack of resources) and may serve to reinforce individual responsibility for getting stressed and coping with it. Like other researchers (Kasperczyk, 2010; Minkler, 1999; Slavich, 2020), some experts in this study called for a more holistic and collective approach at different levels (e.g., individual, community, policymaking), including primary, secondary and tertiary prevention, systemic changes to improve living and working conditions, and education and awareness-raising about stress to promote a healthy self-care culture, normalise stress and reduce stigma:

You need to focus on improving jobs, designing better workplaces, and so on. Not on changing individual's, character, traits and so on. [...] if you improve jobs, improve the working conditions, then you have a chance to influence more people than if you're focusing on individuals one by one.

(E6)

3.3 | Comparison of lay and expert understanding

This study aimed to explore and compare the lay and scientific conceptualisations of psychological stress to identify potential discrepancies between the two perspectives. Thematic analyses uncovered a high level of consistency between the lay and stress expert perspectives. Both groups regarded stress as inevitable with individual experience influenced by the context and highlighted the negativity of stress reflected in the unpleasantness of the experience and its detrimental effects on health, social relationships, and performance. Generally, stress was deemed synonymous with distress and the idea of eustress (Nelson & Simmons, 2003; Selye, 1978) was less salient.

Stress was viewed as a nebulous concept covering a wide range of issues in both lay and scientific viewpoints. This correspondence between the two perspectives was not unexpected. Past research also revealed that lay conceptualisation of stress aligns with the scientific perspective and has suggested that the two inform and reinforce each other (Furnham, 1997; Kinman & Jones, 2005; Pollock, 1988). Being 'lay' does not equate to a lack of specialised knowledge (Entwistle et al., 1998). People acquire knowledge about wellbeing from both personal (e.g., healthcare staff) and impersonal sources (e.g., books) (Helman, 2007). Stress is a very popular topic, with broad coverage in the media and popular science books. Psychological research, which contributes to advancements in the scientific perspective, is by definition based on lay experiences.

Despite the similarities, specific lay conceptualisations of stress should not be disregarded. These can influence processes of appraisal and coping (Furnham, 1997, 2017; Furnham & Henley, 1988) and inform stress management policies and programmes (Bhui et al., 2016; Kinman & Jones, 2005). In our study, lay interviewees associated stress with mental health and relatively minor physical health issues, but the link between stress and serious physical health problems was less salient. They acknowledged the indirect pathway between stress and health through unhealthy behaviour, yet knowledge about direct, neuroendocrine pathways between stress and health was underdeveloped. Similarly, lay participants recognised individual differences in stress experience which they linked with both nature and nurture, but discussed them at a superficial level. In comparison, experts provided more detailed explanations of physiological changes and effects of stress on different body systems in line with homeostasis and allostasis theories (Chrousos, 2009; McEwen, 2016; Sterling, 2012), as well as mentioning specific biological mechanisms influencing the experience of stress. Limited understanding of the direct pathway is unsurprising, as neurophysiological mechanisms underlying stress experience and the stress-health relationship are complex (Cohen et al., 2019). Research has also shown that lay theories about health and illness are centred around psychosocial factors rather than biological or medical explanations (Furnham, 2017). While lay interviewees discussed major life events and life-threatening situations as stressors, their own experiences mostly involved everyday demands and hassles. Other studies also found that people see stress as caused by daily pressures and difficulties (Brown, 1999; Kilby et al., 2021; Kinman & Jones, 2005). Such

everyday stress may be downplayed as a valid cause or contributor to severe health issues. This suggests a need to promote knowledge of the direct links between stress and health among the lay public, along with further awareness raising of stress-related unhealthy behaviours. A range of healthcare, education and occupational professionals who provide health advice to the public would be qualified to do this, including public health officers, nurses, health visitors, counsellors, general practitioners, educators, human resource managers, and occupational health and safety specialists. Further research is needed to explore how this can be incorporated into practice.

Lay interviews revealed that taking individual responsibility for getting stressed and coping with it is commonplace, while sociocultural determinants were rarely mentioned. Even financial problems and social support were discussed as individual demands and resources rather than broader issues at community, organisation, or societal levels. This individualistic thinking (cf. 'healthism'—Crawford, 1980) may lead to self-blame, perceiving stress as a personal weakness or incapability, stigmatisation, and unwillingness to report stress-related issues or seek help (Harkness et al., 2005; Thunman & Persson, 2015; Verdonk et al., 2014). Experts highlighted the significance of both individual coping skills and collective responsibility for stress management. There is also evidence that the prevalence of stress and its effects differ depending on socioeconomic circumstances (Avison, 2016). Recognising individual responsibility and agency in stress and coping can assist in interventions designed to equip and empower people with coping skills. However, the wider socio-economic, political, and cultural context of stress and health requires consideration to promote the recognition of socio-economic factors in stress experiences, and collective as well as individual responsibility for stress management (Slavich, 2020). Such information could be provided in both local and national health promotion campaigns and stress management interventions to improve the wider public's understanding of stress, reduce stigma surrounding it and foster adaptive coping and better health outcomes.

Whereas lay participants linked stress with civilisation and technology, and relaxation and recovery with nature, the civilisation-nature dichotomy was largely absent in the expert interviews. Further research is needed on the links between stress and technological progress or urbanisation; lay perspectives that highlight the value of spending time outdoors for stress management can inform interventions to improve working and living conditions. Our findings also suggest the need for further research on ecotherapy (interaction with a nature to enhance healing and growth), in line with previous research on the benefits of nature for stress and mental and physical wellbeing (Buzzell & Chalquist, 2009; Summers & Vivian, 2018).

In addition to revealing similarities and discrepancies between lay and scientific perspectives on stress, this study has more general implications for defining and understanding stress. Both groups of participants provided detailed, meaningful accounts, validated across interviews. Experts referred to the same theoretical underpinnings of the idea of stress and health: transactional stress theory (Lazarus & Folkman, 1984) and the concepts of homeo- and allostasis confirming

these to be widely acknowledged in contemporary psychology. This clearly shows a shared understanding of stress within and, to an extent, across the two groups. It was also apparent that stress is not a single, unified construct but an abstract and complex concept, a label for a range of issues in both lay and scientific discourses. As 'stress' can mean a variety of experiences, stressors, responses to these stressors, and short and long-term effects, this risks confusion and misunderstanding. This highlights the importance of good communication between healthcare professionals and clients to ensure they are talking about the same concept when they refer to stress. Furthermore, the differences in lay compared to scientific conceptualisation identified could be incorporated into measures used in research about stress beliefs. This could enable better understanding about how and why individual conceptualisation of stress can change over time, whether there are cultural differences in understanding stress, and how specific ways of thinking about stress and health influence stress appraisal and subsequent coping, health behaviours and outcomes.

3.4 | Limitations

Whilst shedding light on lay and scientific understanding of stress, this study has several limitations. Lay participants were adult native speakers of English, and the sample was of relatively high educational attainment and socioeconomic status, which may have contributed to similarities between the two perspectives. Previous research showed cultural differences in stress conceptualisation (Idris et al., 2010; Kinman & Jones, 2005). We acknowledge that our inferences are limited and urge future research to examine beliefs about stress and their links with health more inclusively across a more diverse socioeconomic and educational cohort. Such conceptualisation might differ to a greater degree relative to the scientific perspective. Studying a wider age range to include children's, adolescents', and older people's views about stress may help tailor educational and health promotion interventions acknowledging dominant sources of stress across the lifespan. Another limitation was the small number of experts, who all had relatively similar academic backgrounds. Future research would benefit from exploring conceptualisations of stress in other disciplines (psychiatry, pedagogy, sociology, human resources management) which can inform lay understanding of stress. Finally, as context is crucial for understanding stress, it must be noted that the interviews were conducted before the Covid-19 pandemic; a follow-up study exploring post pandemic-related changes in lay understanding of stress and health is warranted. More generally, the findings presented centre around comparison of beliefs about stress between lay people and stress experts, and whilst they have implications for practitioners, the impact of using such information to improve accuracy of communication and understanding was not assessed in this work. We call for application of our findings to examine the benefits of implementing interventions to target the differences identified, and to improve stress management through incorporation into therapeutic approaches.

3.5 | Conclusions

Current research on lay understanding of stress is limited. This study is the first to explore lay conceptualisation of stress and compare it with that of experts. We found both similarities and discrepancies between the two perspectives and identified a poorer lay participant understanding around direct links between stress and physical health beyond behaviour change, as well as of social determinants of stress and collective measures for stress management. The fact that conceptualisation of stress in a relatively well-educated group such as our lay participants differs in some ways from the scientific perspective suggests that educational and awareness-raising interventions would benefit from communication of scientific understanding of stress to the public. Such interventions should highlight the direct pathway between stress and health and promote more collective approaches to stress management. Our findings illustrate the broad, multifaceted, biopsychosocial experience of stress; as a term, used indiscriminately to label various issues, which can create confusion and hinder both scientific research and lay understanding of the stress-health link. Whilst evidence about the effects of stress on health and well-being continues to grow, the breadth and complexity of the stress concept can make it difficult to arrive at systematic and consistent conclusions and to communicate research findings to the public. A clearer definition and understanding of the meaning of 'stress' is crucial in both lay and scientific discourse to communicate the benefits of coping with stress and improve health outcomes. Discrepancies identified serve to highlight potential misunderstandings in lay conceptualisation of stress and its links with health. These findings can facilitate the work of practitioners who serve as intermediaries in translating scientific knowledge into therapeutic benefit, through improved awareness and communication surrounding understanding and management of stress.

CONFLICT OF INTEREST STATEMENT

We have no conflicts of interest to disclose.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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