The socioeconomic (SES) gradient in health—whereby higher position equates to better health—spans both time and place and is found for almost all diseases and many health risk behaviours. The near universality of this phenomenon has led to a search for more fundamental causes. Although differences in material resources and/or psychosocial attributes have been postulated, neither can satisfactorily explain the ubiquity of the socioeconomic–health gradient.1 In this edition of the *International Journal of Epidemiology*, Pulkki and colleagues2 ask if personality psychologists may prove helpful in better understanding it, is that collaboration between epidemiologists and personality psychologists may prove helpful in better understanding how one's position in the social structure affects health. In this commentary, we amplify two issues. First, we discuss promising directions in the measurement of personality, and the need to use more comprehensive, and more comparable, personality measurement across epidemiological studies.2 Second, we discuss issues of causation, and identify alternative ways in which personality may contribute to the social gradient in health.

### Measuring personality

One of the great obstacles to making progress in integrating the study of personality and the study of health is the difficulty of making personality measurement comparable across studies. The near universality of the socioeconomic–health gradient has led to a search for more fundamental causes. Although differences in material resources and/or psychosocial attributes have been postulated, neither can satisfactorily explain the ubiquity of the socioeconomic–health gradient.1 In this edition of the *International Journal of Epidemiology*, Pulkki and colleagues2 ask if personality psychologists may prove helpful in better understanding how one's position in the social structure affects health. In this commentary, we amplify two issues. First, we discuss promising directions in the measurement of personality, and the need to use more comprehensive, and more comparable, personality measurement across epidemiological studies.2 Second, we discuss issues of causation, and identify alternative ways in which personality may contribute to the social gradient in health.

### Commentary: Personality and the socioeconomic–health gradient

Richie Poulton1 and Avshalom Caspi2

The socioeconomic (SES) gradient in health—whereby higher position equates to better health—spans both time and place and is found for almost all diseases and many health risk behaviours. The near universality of this phenomenon has led to a search for more fundamental causes. Although differences in material resources and/or psychosocial attributes have been postulated, neither can satisfactorily explain the ubiquity of the socioeconomic–health gradient.1 In this edition of the *International Journal of Epidemiology*, Pulkki and colleagues2 ask if adolescent personality traits can explain the inverse relation between selected cardiovascular health risk behaviours and educational achievement. Their longitudinal study shows that a set of 'Type A'-like personality traits predict educational attainment (a component of SES) and accounts for part of the SES gradient in health risk behaviour.

The study delivers an important message that we hope will not be lost in the details of the work. The message, as we understand it, is that collaboration between epidemiologists and personality psychologists may prove helpful in better understanding how one's position in the social structure affects health. In this commentary, we amplify two issues. First, we discuss promising directions in the measurement of personality, and the need to use more comprehensive, and more comparable, personality measurement across epidemiological studies. Second, we discuss issues of causation, and identify alternative ways in which personality may contribute to the social gradient in health.

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measuring personality: How can we measure the traits that are most robust and important, in the most parsimonious way? Personality researchers have used a bewildering array of measures and scales to describe individual differences between people, with the unfortunate consequence that results can be difficult to compare from one study to the next. Moreover, measures with the same name sometimes measure concepts that are not the same, and measures with different names sometimes measure constructs that overlap considerably in their content. The result is confusion about which personality traits—if any—matter for health.

Progress in synthesizing disparate models of personality has been facilitated by the recognition that personality is organized hierarchically. At the highest level are broad traits or superfactors (e.g. extraversion) representing the most general dimensions of individual differences in personality. At successively lower levels are the more specific traits (e.g. sociability, dominance) that are, in turn, composed of more specific responses (e.g. talkative, enthusiastic). In this hierarchical scheme, higher-order constructs can be shown to account for the observed covariation among lower-order constructs and, by using a hierarchically organized structure, it is possible for health researchers to relate lower-order traits to each other in a coherent taxonomic framework. This is an especially important feature of a taxonomy, as it can improve communication between researchers who are using different measures to assess personality.

In the last decade, personality researchers have moved toward increasing consensus about the higher-order structure of adult personality, and have identified the following five important ‘superfactors’ of personality. Extraversion or positive emotionality describes the extent to which the person actively engages the world or avoids intense social experiences. Neuroticism or negative emotionality describes the extent to which the person experiences the world as distressing or threatening. Conscientiousness or constraint describes the extent and strength of impulse control. Agreeableness describes a person’s interpersonal nature on a continuum from warmth and compassion to antagonism. Openness to experience describes the depth, complexity, and quality of a person’s mental and experiential life. The increasing use of hierarchical structural models of personality, such as the ‘Big Five’ is having a useful integrative function in health research.

The research by Pulkki et al. underscores three outstanding issues that need to be taken on board in future studies that examine the contribution of personality to the SES gradient. First, for personality assessment to prove useful in epidemiological research it must be more comprehensive and measure the structure of personality, rather than isolated traits. Whereas the representativeness of a sample is the sine qua non of epidemiology, the comprehensiveness of personality measurement is the sine qua non of personality. To date, much of research about personality and health has focused on single, lower-order traits (e.g. hostility) without examining those traits in relation to an individual’s other traits. As a result, research on personality and health is filled with many studies of single traits although it is often not clear what they actually measure and at what level of the personality hierarchy.

A second issue, related to breadth of assessment, concerns level of assessment. Specifically, it is not yet clear which is the optimal level of assessment in the trait hierarchy. Although there is increasing consensus about the structure of personality traits at the higher-order level (e.g. neuroticism, agreeableness), there is less consensus about lower-order traits (e.g. irritability, hostility, self-focused negativity). Yet, the lower-order traits may provide better prediction of behavioural outcomes than do higher-order traits.

A third issue is that much more is known about assessing adult personality than about assessing personality in childhood and adolescence. Childhood personality is not simply adult personality ‘dummied down’. Developmental epidemiological studies need to attend to several issues, ranging from the theoretical (e.g. At what age does personality emerge? Is the structure of personality invariant across the life course?) to the practical (e.g. Are parents the best source of information about children’s personality? At what age can children self-report about their personality?). Intriguing findings, such as those reported by Pulkki et al., should inspire researchers to more fully consider these various measurement issues when planning their research.

Personality: cause or consequence?

Advances in understanding the SES gradient in health may be spurred on by the observation that the same personality traits that predict SES are also linked to health. Personality traits from the domain of Conscientiousness/Constraint are widely considered the most important non-cognitive predictors of educational achievement and occupational attainment. Additional evidence suggests that aspects of Positive Emotionality and Agreeableness also predict achievement outcomes. Likewise, personality traits from the domains of Conscientiousness/Constraint have been linked to longevity. Evidence also suggests that Positive Emotionality predicts salutary health, while individuals high in traits related to Disagreeableness (e.g. anger, hostility) appear to be at greatest risk of disease. Are these parallel sets of findings a coincidence, or the beginning of a causal tale?

An important issue raised by the work of Pulkki et al. involves the causal status of personality. Personality may influence the association between social class and health in at least two ways. First, it is possible that personality mediates the association between social class and health. According to this scenario, social class shapes personality differences, and the resulting class-linked personality differences shape people’s health behaviours and outcomes. Second, it is possible that personality differences actually produce social class differences. According to this scenario, the co-occurrence of low social class and poor health may be the common end point resulting from ‘risky’ personality traits.

It is not clear which model better fits the data presented by Pulkki et al. To the extent that personality differences contribute to the social gradient in health, it will be important to achieve a better understanding of how this comes about. Future studies will need to be designed in a way that will enable investigators to pit alternative conceptual models—and corresponding predictions—against each other.

An important way in which epidemiologists and psychologists can collaborate in understanding the SES gradient in health is through the comprehensive measurement and judicious application of personality models. We hope the report by Pulkki et al. will inspire such collaborations.
References

1 Gallo LC, Matthews KA. Understanding the association between socioeconomic status and physical health: do negative emotions play a role? Psychol Bull 2003;129:10–51.


