Increased age was strongly associated with unfavourable health status and having a long-standing illness. How-ever, older participants generally rated their health posi-tively, which is consistent with several smaller studies [40, 41], though not all [42, 43]. Ageing might be the single most important factor underlying disease [44], with an almost universally accepted expectation of de-clining health as people get older. As attainable healthstates shift with age [45], older participants might evalu-ate their health more favourable, despite higher rates of illness and disability.

年龄的增长与不利的健康状况和长期患病密切相关。然而，年龄较大的参与者通常会对他们的健康状况进行正面评价，这与一些较小的研究[40,41]是一致的，尽管不是所有的研究[42,43]。衰老可能是导致疾病的唯一最重要因素[44]，人们普遍认为随着年龄的增长，健康状况会下降。随着年龄的增长，可达到的健康状态会发生变化[45]，年龄较大的参与者可能会对自己的健康状况做出更有利的评价，尽管患病率和残疾率较高。

Although women, on average, report more illnesses, disabilities and limitations in daily life [46–48], one of the most robust findings in human biology is that they live longer than men [49]. Our findings are consistent with results from the Newcastle 85+ cohort study in which women rated their health more favourably than men [46]. However, other studies reported that women rated their health less favourably than men [50–52], or did not find evidence of sex differences in self-rated health [53, 54]. Sex differences in health status could re-sult from differences in the frequency of specific ill-nesses, sex-specific reporting patterns, or biological and social factors [52]. Discrepancies in findings between studies might reflect differences in age group or socio-cultural factors.

尽管平均而言，女性在日常生活中报告了更多的疾病、残疾和限制[46-48]，但人类生物学中最有力的发现之一是她们比男性长寿[49]。我们的研究结果与纽卡斯尔85+队列研究的结果一致，在该研究中，女性比男性更看好自己的健康状况[46]。然而，其他研究报告称，女性对自己健康的评价不如男性[50-52]，或者在自我评价的健康中没有发现性别差异的证据[53,54]。健康状况的性别差异可能源于特定疾病的频率、性别特定的报告模式或生物和社会因素的差异[52]。研究结果之间的差异可能反映了年龄组或社会文化因素的差异。

High income and low levels of neighbourhood deprivation were associated with better health, which is broadly consistent with previous studies [55–57]. Not-ably, we found only a small difference in the strength of association with health status and having a long-standing illness between the high-income groups. The difference between the low-income groups, however, was substantial, supporting previous findings, which sug-gested a non-linear association between family income and mortality [58]. For self-rated health, we also found evidence of substantial differences between the high-income groups. A possible explanation for the observa-tion that there was less evidence of associations between household income and health in individuals aged 65 and over than in the younger age group is that more individ-uals in this age group received a pension income. Future studies could examine associations between health and related socioeconomic variables such as family income or household income per capita.

高收入和低邻里剥夺水平与更好的健康相关，这与之前的研究基本一致[55–57]。我们发现，在高收入人群中，与健康状况和长期患病相关的强度只有很小的差异。然而，低收入群体之间的差异很大，支持了先前的研究结果，这表明家庭收入和死亡率之间存在非线性关联[58]。对于自评健康，我们还发现高收入群体之间存在显著差异的证据。对于65岁及以上个人的家庭收入与健康之间的关联性低于年轻年龄组的观察结果，一个可能的解释是，该年龄组中有更多的个人获得养老金收入。未来的研究可以检验健康与相关社会经济变量（如家庭收入或人均家庭收入）之间的关系。

Our study provides limited evidence that education was independently associated with favourable health sta-tus after accounting for other factors, although higher levels of qualification remained associated with better self-rated health, consistent with previous research [42]. A recent UK Biobank analysis showed that remaining longer in school causally reduced participants’ risk of diabetes and mortality [59]. A potential explanation for why we did not find a consistent pattern in the full model is that most differences in health status result from educated individuals engaging in healthier lifestyle behaviours [60] that we had accounted for, or they could be due to socioeconomic or genomic factors.

我们的研究提供了有限的证据，证明在考虑其他因素后，教育与良好的健康状态独立相关，尽管与之前的研究一致，更高的学历水平仍然与更好的自我评价健康相关[42]。最近英国生物银行的一项分析表明，在学校呆的时间更长会降低参与者患糖尿病和死亡的风险[59]。我们在完整模型中未能找到一致模式的一个潜在解释是，健康状况的大部分差异都是由受过教育的个体从事我们已经解释过的更健康的生活方式行为[60]造成的，或者可能是由社会经济或基因组因素造成的。

Social isolation and loneliness were associated with poor health. The strength of association was greater for loneliness, particularly in men and in individuals below the age of 65. Social isolation and loneliness were not always correlated [61, 62] and represent different aspects of social relations (scarcity of contact with others and discrepancies between the need for, and the fulfilment of, social interaction, respectively). In a meta-analysis of 70 studies, social isolation, loneliness and living alone were associated with a 26–32% increased mortality risk [16]. There was no evidence of differences in mortality between these measures, although the strength of associ-ation was greater in individuals below the age of 65, con-sistent with our findings. A recent UK Biobank analysis found that socially isolated and lonely individuals had an increased risk of death, but only social isolation pre-dicted all-cause mortality in a joint model [22]. The dis-crepancy with our finding (loneliness was more strongly associated with poor health) might reflect differences in outcome measures (general health in the present study vs mortality in previous investigations).

社会孤立和孤独与健康状况不佳有关。孤独感的关联强度更大，尤其是在男性和65岁以下的个体中。社会孤立和孤独并不总是相互关联的[61,62]，它们代表着社会关系的不同方面（与他人接触的缺乏以及社会互动的需要和实现之间的差异）。在对70项研究的荟萃分析中，社会隔离、孤独和独居与死亡率增加26–32%相关[16]。虽然65岁以下个体的关联强度更大，但没有证据表明这些指标之间的死亡率存在差异，这与我们的研究结果一致。最近英国生物银行的一项分析发现，社会孤立和孤独的个体死亡风险增加，但在联合模型中，只有社会孤立才能预测全因死亡率[22]。我们发现的差异（孤独感与健康状况差的相关性更强）可能反映了结果指标的差异（本研究中的总体健康状况与先前研究中的死亡率）。

Long sleep duration, high BMI and past and current smoking were associated with poor health. Sleeping less than 7 h/day was also associated with poor health, con-sistent with a meta-analysis that provided evidence of a U-shaped association between sleep duration and all-cause mortality [36]. A BMI outside the optimal range of 18.5–24.9 kg/m2 was also associated with poor health, consistent with previous research that examined all-cause mortality [60].

Physical activity is a key lifestyle factor recommended for primary and secondary prevention of chronic health conditions [63] and is associated with lower mortality risk [64]. In this study, walking frequency, especially in individuals aged 65 and above, stair climbing, and en-gaging in vigorous physical activity was associated with good health. Moderate physical activity was associated with better self-rated health, especially in men. A study in middle-aged British men found evidence of an associ-ation between vigorous, but not moderate, physical ac-tivity and reduced mortality [65]. Reviews of the literature report mixed findings on the relative contribu-tions of moderate and vigorous physical activity [66, 67], with some evidence suggesting stronger associations for vigorous activity [68].

睡眠时间长、体重指数高、过去和现在吸烟与健康状况差有关。每天睡眠不足7小时也与健康状况不佳有关，这与荟萃分析一致，荟萃分析提供了睡眠时间与全因死亡率之间存在U型关联的证据[36]。BMI超出18.5–24.9 kg/m2的最佳范围也与健康状况不佳有关，这与之前研究的全因死亡率一致[60]。

体力活动是推荐用于慢性疾病初级和二级预防的关键生活方式因素[63]，与较低的死亡风险相关[64]。在这项研究中，步行频率，尤其是65岁及以上的人，爬楼梯和在剧烈的体力活动中穿行与健康相关。适度的体育活动与更好的自我评价健康相关，尤其是男性。一项针对中年英国男性的研究发现，有证据表明体力活动（而非中等体力活动）与死亡率降低之间存在关联[65]。文献回顾报告中关于中度和剧烈体力活动的相对贡献的研究结果混杂[66,67]，一些证据表明剧烈活动的相关性更强[68]。

A more frequent drinking pattern was associated with better health in this study. Alcohol drinking often occurs in a social context and might therefore constitute a proxy for social wellness, supported by the finding that non-drinkers tend to be characterised by poor psycho-social health and low socioeconomic status [69]. Moder-ate drinkers also perform more sports than lifelong abstainers [70]. Drinking less frequent than 1–2 times/week was associated with poor health and could not be fully accounted for by excluding individuals who had discontinued alcohol intake for health reasons or be-cause of their doctor’s advice. However, the association with health status was stronger for current abstainers, suggesting that some individuals are non-drinkers in later life due to illness [71]. Current abstainers who quit drinking for health reasons could exaggerate poor health outcomes associated with not drinking alcohol [72]. Those who never drink might also differ from current drinkers in other characteristics [69].

在这项研究中，更频繁的饮酒模式与更好的健康相关。饮酒通常发生在社会环境中，因此可能成为社会健康的代表，这一发现得到了非饮酒者心理社会健康状况差和社会经济地位低的特点的支持[69]。现代饮酒者也比终身禁酒者进行更多的运动[70]。每周饮酒少于1-2次与健康状况不佳有关，不能完全解释为排除因健康原因或医生建议而停止饮酒的个人。然而，对于目前的戒酒者来说，与健康状况的关联性更强，这表明一些人在晚年由于疾病而不喝酒[71]。目前出于健康原因戒酒的戒酒者可能会夸大与不饮酒相关的不良健康结果[72]。那些从不喝酒的人在其他方面也可能与现在的饮酒者有所不同[69]。