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在线全文

电视屏幕暴露对中老年人心理健康的影响

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【摘要】 **目的** 探究中老年人电视屏幕暴露时长与心理疾病的关系。**方法** 本研究基于UK生物样本库50万人群队列，以每天观看电视时间为暴露因素，建立电视屏幕暴露的前瞻性队列，结局为心理问题相关结局，随访时间为参与者基线评估时间至2019年12月31日。采用Cox比例风险模型，在纳入人群中计算了不同组间自杀企图及患心理疾病的风险比。**结果** 共随访410 946人，平均随访时间为10.8年，其中33 071人发生结局事件。与每天看电视时间0～1 h组相比，每天看电视时间大于5 h组的风险比（*HR*）为1.37〔95%置信区间（*CI*）：1.31～1.44〕；分层分析中，与年龄≥45岁的个体相比，38～44岁的个体长时间看电视患心理疾病的风险更高（>5 h *HR* 1.83，95%*CI*：1.55～2.15）；长时间户外活动会降低看电视时间长的个体患心理疾病的风险（>5 h *HR* 1.26，95%*CI*：1.16～1.37）；睡眠小于5 h会增加看电视时间长的个体的心理健康风险（>5 h *HR* 1.56，95%*CI*：1.34～1.81），且随着睡眠时长的增加，看电视对个体心理健康的影响下降（>5 h *HR*从1.56降到1.19）。**结论** 长时间看电视增加患心理疾病的风险，户外时间和睡眠时间增加会削弱看电视对心理健康的负面影响。

【关键词】 电视屏幕暴露 心理健康 心理疾病 睡眠 户外活动

Effects of Television Screen Exposure on the Mental Health of Middle-aged and Older Adults *HU Yue*, *ZHANG Wei*△. *Mental Health Center and Psychiatric Laboratory*, *West China Hospital*, *Sichuan University*, Chengdu 610041, China

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【**Abstract**】 **Objective** To explore the relationship between the duration of TV screen exposure and mental illnesses in middle-aged and older adults. **Methods** The study was based on a cohort of 500 000 participants from UK Biobank. A prospective cohort of participants with TV screen exposure was established based on the exposure factor of the participants' daily TV watching time. The outcome was defined as psychological problem-related outcomes. The follow-up period extended from the time of baseline assessment of the participants to December 31, 2019. Cox proportional hazard model was used to calculate the hazard ratio (*HR*) of suicide attempts and mental illnesses in the population covered by the study. **Results** A total of 410 946 participants were followed up for an average of 10.8 years and 33 071 of them experienced an outcome events. Compared with the group of participants who had 0-1 h of daily TV time, the group of participants who watched TV for more than 5 h per day had an *HR* of 1.37 (95% confidence interval [*CI*]: 1.31-1.44). In stratified analysis, we found that, compared with individuals aged 45 years and over, individuals who were 38-44 years old were at a higher risk of developing mental illness when they watched TV for long periods of time (> 5 h *HR* 1.83, 95% *CI*: 1.55-2.15). Long periods of outdoor activities reduced the risk of mental illness for individuals who watched TV for long periods of time (>5 h *HR* 1.26, 95% *CI*: 1.16-1.37). Having less than 5 hours of sleep increased the mental health risks of individuals who watched TV for long periods of time (>5 h *HR* 1.56, 95% *CI*: 1.34-1.81) and when sleep duration increased, TV watching showed decreased impact on mental health risks (>5 h *HR* dropped from 1.56 to 1.19). **Conclusion** Our findings suggest that TV viewing for long periods of time increases the risk of mental illness. Increaseing outdoor activity time and sleep time reduces the negative impact of watching TV on mental health.

【**Key words**】 Television screen exposure Mental health Mental disorders Sleep Outdoor activities

屏幕暴露指一系列基于屏幕的活动，包括观看电视、玩电子游戏、平板电脑、上网及使用智能手机等。2018年中国国家统计局开展的第二次全国时间利用调查显示[1-2]，居民一天中看电视的平均时间为1 h 40 min，占每日自由支配时间的42.4%。理论上，看电视时注意力自下而上处理，且大脑处于被动接收信息状态，长此以往，可能影响认知功能或影响心理健康。既往关于屏幕暴露时长与心理健康关系的研究多聚焦于儿童、青少年，认为看电视会影响儿童语言、注意力、社会情感等发育[3]，增加焦虑、抑郁、睡眠障碍等风险[4-6]，而对成人或老年人群的研究较少，也没有较为一致的结论；而且大多研究只研究了总的屏幕使用时间，未单独研究看电视时间，并且存在样本量少、横断面研究等局限性。随着人口老龄化进程的不断加剧，如何维持老年人良好身心健康已成为当

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下的研究热点之一。本研究基于UK生物样本库50万人群队列，前瞻性研究电视屏幕暴露(看电视)时间与中老年人心理健康的关系。在本研究中我们假设看电视时间越长，老年群体患心理疾病风险越高。

1 对象与方法

1.1 数据来源

UK生物样本库是全球最大的生物医学样本数据库之一，旨在对中老年疾病的遗传和非遗传致病因素进行详细探究[7-8]。在2006–2010年期间，研究人员在全国范围内招募了50多万名年龄在40～69岁之间的受试者，收集受试有关生活方式、生活环境、医疗信息、各种躯体检测(血压、心率、握力、骨密度等)等方面的数据和生物学样本(血液、尿液、唾液样本)。数据获取途径：访问 UK 生物样本库(https://biobank.ctsu.ox.ac.uk/)，完成注册并填写申请和协议，即可获得相关数据的暂时使用权。

1.2 研究方法

1.2.1 研究设计

以UK生物样本库中50万人群为观察队列，以观察对象每日看电视时间作为暴露因素。

1.2.2 随访及目标终点

结局数据来源于UKB first occurrence列表，该列表记录了参与者第一次明确患某种疾病的时间，由UKB工作人员整合了住院数据、社区医疗保健数据、自我报告的数据而成。

1.2.2.1 结局定义

诊断为精神障碍(ICD10编码：F10-F69，F80-F99)，即不包含器质性精神障碍(F00-F09)和发育迟滞(F70-F79)。

精神障碍相关死亡及自杀企图：① 因精神障碍死亡：主要死亡诊断中含有ICD10编码F10-F69、F80-F99；②自杀企图：Ⅰ.自杀而亡 死亡诊断中包含ICD10故意自害编码X60-X84；Ⅱ.自杀未遂 a.住院诊断中包含ICD10故意自害编码X60-X84；b.主诊断精神障碍(F00-F99)+药物药剂等中毒(T36-T50，T52-T60)诊断；c.主诊断精神障碍(F00-F99)+手、腕、前臂损伤(S51、S55、S59、S61、S65、S69)诊断。

1.2.2.2 随访时间

起点为参与队列的基线评估时间，截止时间为2019年12月31日。

1.2.2.3 纳排标准

纳入标准：受试者数据相对完整。

排除标准：基线前就诊断为精神障碍或基线前就有自杀企图；中途退出；数据相对不完整。

UKB为了减少选择偏移，在设置选项时会加入Do not know(我不知道)和Prefer not to answer(不想回答)两个选项，我们为了保证样本量尽可能大，统计分析时仅排除连续型数据缺失(包括无数据、我不知道和不想回答选项)的受试者数据(数据不完整)，分类数据缺失的受试者数据还是纳入分析，归为不详组(数据相对完整)。

1.2.3 分析方法

1.2.3.1 协变量选择

人口学特征：有研究[9-12]显示，性别、年龄、受教育程度、种族都有可能是精神障碍的危险因素，因此本研究纳入以上指标作为人口学特征进行分析。

社会经济因素：①收入。有研究低收入者患精神疾病或抑郁症的风险更高[9, 13-16]。②TDI(Townsend Deprivation Index，汤森剥夺指数)。TDI是一个用于衡量人群社会经济环境的指标，不同于收入这个常用的经济指标，TDI更多地强调社会经济环境的整体水平。社会经济剥夺被认为是造成健康不平等的主要原因[17-18]，也和各种心理健康问题相关[19-23]。

生活方式：①吸烟。吸烟和精神疾病的高共现率是一个公共卫生问题，吸烟是导致与精神疾病相关的预期寿命减少的主要原因[24]，许多研究发现，吸烟与精神疾病之间存在正相关关系，吸烟率随着疾病严重程度的增加而增加[25-26]。②饮酒。 饮酒除了与酒精使用障碍相关外，还与其他心理健康问题存在联系[27-28]。③体力活动强度。 体力活动强度采用IPAQ(International Physical Activity Questionnaire，国际体力活动量表)评估。体力活动有益改善身体健康、生活满意度、认知功能和心理健康，能预防、治疗抑郁[29-32]。④社交活动。 社交在心理健康方面发挥着重要作用，社会孤立和心理健康下降之间相关[33]。较小的社交网络，更少的亲密关系，更低的社会支持都与抑郁症状有关[34]。孤独与抑郁[35-36]、自杀行为[37]、人格障碍[38]相关。

精神障碍相关因素：①基线时因紧张/焦虑/抑郁看过医生，考虑到精神疾病的发展是一个较长的过程，因此本研究将基线时精神疾病的症状也作为协变量。但是UKB基线时没有收集基线时精神症状信息，这部分症状信息是之后补评的，只有大约1/3的受试参与评估，故我们选用了基线时是否因紧张/焦虑/抑郁看过医生(包括全科医生和精神科医生)作为替代的协变量。②生活应激事件。③抑郁症家族史。

1.2.3.2 统计学方法

主要采用Cox比例风险模型进行数据分析，此外分类

变量采用卡方检验进行分析, 不满足正态分布的数据采用非参数检验进行分析。Cox比例风险模型以随访时间为时间尺度, 探讨了每天电视观看时间与健康后果之间的关系。

首先, 将每日累计电视观看时间作为连续变量, 计算每增加1 h的风险比(*HR*)。为更直观感受看电视所带来风险, 参考CELIS-MORALES等[39]关于UKB队列中屏幕时间与死亡率、心血管疾病和癌症间关系的研究, 将受试者按照电视观看时间分为以下4组: 0 ~ 1 h、2 ~ 3 h、4 ~ 5 h和大于5 h。再以年龄、体力活动强度、户外时间、拜访朋友家人的频率、团体社交活动、睡眠时间分层分析, 最后使用Landmarks分析, 将随访时间起点往后推3个月、6个月、1年、3年、5年。

使用Schoenfeld残差试验验证了比例风险假设, 所有分析均采用R4.0.3统计软件进行。

2　结果

2.1　基线特征

在2006–2010年间招募的502 507人中, 在以看电视为暴露因素的分析中我们共纳入410 946人, 随访时间中位数为10.8年, 在随访期间15 279人死亡, 33 071人发生结局事件。

表1为观察队列以每日累计看电视时间分组后的基线特征, 性别、年龄、学历、种族、TDI、家庭年收入、吸烟、拜访朋友家人频率、体力活动强度、基线时因紧张/焦虑/抑郁看过医生、基线时有生活应激事件组间差异均有统计学意义(*P*<0.001)。

2.2　看电视时间对心理健康的影响

2.2.1　看电视时间与心理疾病及相关健康后果的关系

我们运行了3个模型来分析看电视时间与队列心理健康之间的关系, 模型1以性别、年龄、受教育水平、种族、TDI和家庭年收入为协变量。模型2根据生活方式进行了调整, 在模型1的基础上加上吸烟状况、饮酒状况、拜访家人朋友的频率、体力活动强度进行调整。模型3在模型2的基础上校正了基线时是否因紧张/焦虑/抑郁看过医生、基线时生活应激事件、抑郁症家族史。当看电视时间以连续性变量纳入分析时, 在3个模型中都观察到了看电视时间与心理疾病及相关健康后果的联系, 模型1: *HR* 1.08〔95%置信区间(*CI*): 1.08 ~ 1.09〕, 模型2: *HR* 1.05(95%*CI*: 1.04 ~ 1.06), 模型3: *HR* 1.05(95%*CI*: 1.04 ~ 1.05), 意味着每多看1 h电视, 患心理疾病的风险增加0.05。

当进一步把看电视时间转换为分类变量后再纳入分析, 发现与每天看电视时间0 ~ 1 h组相比, 每天看电视时间2 ~ 3 h组的*HR*为1.08, 4 ~ 5 h组的*HR*为1.18, 大于5 h组的*HR*为1.37(表2)。

2.2.2　年龄、日常活动强度、社交和睡眠在看电视时间与精神健康结局中的中介作用

为了研究年龄、日常活动、社交和睡眠是否调节了看电视时间与健康结局之间的关系, 将参与者按年龄、体力活动强度、户外时间、拜访家人朋友的频率、团体社交活动、睡眠时间分层。结果(表3)显示与年龄≥45岁的个体相比, 38 ~ 44岁的个体看电视时间长, 患心理疾病的风险更高; 体力活动强度和团体社交活动对看电视时间与心理疾病的关系无明显影响; 长时间户外活动会降低看电视时间长的个体患心理疾病的风险; 睡眠小于5 h对会增加看电视时间长的个体的心理健康风险, 且随着睡眠时长的增加, 看电视对个体的心理健康风险影响下降; 拜访家人朋友少的群体长时间看电视与心理疾病的无明显关系。

2.3　看电视与心理健康关系的敏感性分析

基线时的暴露因素(屏幕时间)可能是心理问题的先决条件, 也有可能是心理问题的伴随条件(心理健康差的人更喜欢使用屏幕), 为了控制基线时心理健康差的人可能更喜欢看电视这一混杂因素, 验证结果的可靠性, 我们随后使用Landmark分析, 将基线随访时间往后推3个月、6个月、1年、3年、5年, 分别计算看电视时间的*HR*。结果显示(表4)看电视时间的*HR*无明显变化, 表明本研究结果可靠, 强调了看电视是心理问题的风险因素。

3　讨论

本研究基于UK生物样本库50万人群队列, 前瞻性研究看电视时长与中老年人心理健康的关系, 与先前的假设一致, 本研究主要发现: ① 每天长时间(>5 h)看电视会增加患心理疾病的风险; ② 38 ~ 44岁的群体长时间看电视患心理疾病的风险较年长的群体更高, 户外时间、睡眠时长会削弱长时间看电视对心理疾病的影响, 体力活动强度和团体社交活动对看电视与心理疾病的关联无明显影响。研究拜访家人朋友频率是否影响看电视与心理疾病关系时, 低水平组病例数较少, 结果应谨慎解读。

本研究发现看电视增加患心理疾病的风险, 这与既往有关电视和心理健康的研究结果一致[40-43], 可能的原因: ①看电视是被动型屏幕使用, 即单纯接收信息或刺激, 有研究表明中年时期看电视与灰质体积有关, 成年早期至中年看电视越多, 灰质体积就越小, 平均多看一小时电视, 灰质体积就会减少约0.5%[44], 看电视会增加认知损

表 1 队列基线特征

Table 1 Baseline data

Characteristics	TV time/(h/d)				*p*
	0-1 (*n*=86 315)	2-3 (*n*=209 554)	4-5 (*n*=95 098)	>5 (*n*=19 979)	
Male/case (%)	39 124 (45.3)	98 255 (46.9)	44 287 (46.6)	9 776 (48.9)	<0.001
Age[a]/case (%)					<0.001
38-44 yr.	12 564 (14.6)	22 887 (10.9)	5 595 (5.9)	998 (5.0)	
45-59 yr.	46 034 (53.3)	100 077 (47.8)	35 961 (37.8)	6 464 (32.4)	
60-64 yr.	16 806 (19.5)	49 416 (23.6)	27 732 (29.2)	6 015 (30.1)	
≥65 yr.	10 911 (12.6)	37 174 (17.7)	25 810 (27.1)	6 502 (32.5)	
Education/case (%)					<0.001
College or university degree	55 072 (63.8)	96 605 (46.1)	29 855 (31.4)	4 651 (23.3)	
High school degree	10 319 (12.0)	25 858 (12.3)	8 743 (9.2)	1 349 (6.8)	
Less than high school	15 242 (17.7)	58 418 (27.9)	29 923 (31.5)	5 272 (26.4)	
Unknown	5 682 (6.6)	28 673 (13.7)	26 577 (27.9)	8 707 (43.6)	
Ethnicity/case (%)					<0.001
White	74 868 (86.7)	190 771 (91.0)	88 463 (93.0)	18 370 (91.9)	
Others	11 061 (12.8)	18 150 (8.7)	6 391 (6.7)	1 544 (7.7)	
Unknown	386 (0.4)	633 (0.3)	244 (0.3)	65 (0.3)	
Mean TDI (SD)	−1.38 (3.03)	−1.65 (2.89)	−1.30 (3.08)	−0.10 (3.51)	<0.001
Average total household income before tax/case (%)					<0.001
< £ 18 000	9 329 (10.8)	30 568 (14.6)	24 572 (25.8)	8 280 (41.4)	
£ 18 000- £ 29 999	15 084 (17.5)	45 875 (21.9)	24 043 (25.3)	4 378 (21.9)	
£ 30 000- £ 51 999	20 774 (24.1)	52 579 (25.1)	18 615 (19.6)	2 324 (11.6)	
£ 52 000- £ 100 000	22 739 (26.3)	42 766 (20.4)	9 908 (10.4)	855 (4.3)	
> £ 100 000	9 085 (10.5)	10 145 (4.8)	1 505 (1.6)	126 (0.6)	
Unknown	9 304 (10.8)	27 621 (13.2)	16 455 (17.3)	4 016 (20.1)	
Smoking status/case (%)					<0.001
Never	54 123 (62.7)	121 924 (58.2)	49 593 (52.1)	9 120 (45.6)	
Previous	26 267 (30.4)	71 008 (33.9)	36 063 (37.9)	7 811 (39.1)	
Current	5 712 (6.6)	15 926 (7.6)	9 045 (9.5)	2 932 (14.7)	
Unknown	213 (0.2)	696 (0.3)	397 (0.4)	116 (0.6)	
Alcohol drinking status/case (%)					<0.001
Never	4 234 (4.9)	8 157 (3.9)	4 067 (4.3)	1 186 (5.9)	
Previous	2 563 (3.0)	5 487 (2.6)	3 181 (3.3)	1 152 (5.8)	
Current	79 451 (92.0)	195 766 (93.4)	87 770 (92.3)	17 605 (88.1)	
Unknown	67 (0.1)	144 (0.1)	80 (0.1)	36 (0.2)	
Frequency of visiting friends or family/case (%)					<0.001
Almost daily	8 557 (9.9)	22 648 (10.8)	12 009 (12.6)	2 900 (14.5)	
2-4 times a week	24 136 (28.0)	64 051 (30.6)	31 201 (32.8)	6 338 (31.7)	
Once a week	32 079 (37.2)	77 045 (36.8)	32 575 (34.3)	6 136 (30.7)	
Once a month	13 643 (15.8)	28 860 (13.8)	11 196 (11.8)	2 269 (11.4)	
Once every few months	6 164 (7.1)	13 408 (6.4)	6 056 (6.4)	1 536 (7.7)	
Never or almost never	1 098 (1.3)	2 288 (1.1)	1 355 (1.4)	543 (2.7)	
No friends/family outside the household	196 (0.2)	326 (0.2)	203 (0.2)	113 (0.6)	
Unknown	442 (0.5)	928 (0.4)	503 (0.5)	144 (0.7)	
IPAQ activity group/case (%)					<0.001
Low	12 201 (14.1)	30 370 (14.5)	14 812 (15.6)	4 181 (20.9)	
Moderate	30 914 (35.8)	70 960 (33.9)	30 222 (31.8)	5 989 (30.0)	
High	31 336 (36.3)	72 005 (34.4)	29 265 (30.8)	4 730 (23.7)	
Unknown	11 864 (13.7)	36 219 (17.3)	20 799 (21.9)	5 079 (25.4)	
Ever seeing a psychiatrist for nerves, anxiety, tension or depression/case (%)					<0.001
No	62 917 (72.9)	151 976 (72.5)	67 436 (70.9)	13 347 (66.8)	
Yes	22 849 (26.5)	56 039 (26.7)	26 870 (28.3)	6 392 (32.0)	
Unknown	549 (0.6)	1 539 (0.7)	792 (0.8)	240 (1.2)	
Life events/case (%)					<0.001
Never	49 522 (57.4)	119 548 (57.0)	53 254 (56.0)	10 156 (50.8)	
Ever	36 402 (42.2)	89 019 (42.5)	41 256 (43.4)	9 606 (48.1)	
Unknown	391 (0.5)	987 (0.5)	588 (0.6)	217 (1.1)	
Family history of depression/case (%)	2 770 (3.2)	5 502 (2.6)	2 215 (2.3)	454 (2.3)	<0.001

TDI: Townsend Deprivation Index; IPAQ: International Physical Activity Questionnaire. [a] The paticipants were divided into groups according to the World Health Organization (WHO) classification and British retirement age: young people (age<44 years); middle age (age 45-59 years); elderly (age 60-64 years), and old age (≥65 years or more).

伤的风险[40, 44-48]。而涉及杏仁核、前额叶等区域的认知损害可能会影响情绪调节能力,增加焦虑、抑郁风险。②长时间看电视通过警觉-被动产生的潜在认知压力,此外节目本身的内容也可能造成压力,例如通过描绘生动的场

表 2　看电视时间（分类变量）与心理疾病及相关健康后果的关系

Table 2　Relation of TV time (the categorical variable) with mental illness and related health outcomes

TV time/(h/d)	*n*	Number of cases (incidence density)[a]	*AR*	*HR* (95% *CI*)
0-1	86315	5491 (6.13)	0.00	1.00
2-3	209554	15672 (7.27)	1.14	1.08 (1.05-1.11)
4-5	95098	9055 (9.45)	3.32	1.18 (1.14-1.22)
>5	19979	2853 (14.85)	8.72	1.37 (1.31-1.44)

AR: attributable risk; *HR*: risk ratio; *CI*: confidence interval. [a] Incidence density: incidence per 1 000 person-years.

表 3　年龄、体力活动强度、户外时间、睡眠时长、社交对看电视时间与心理疾病及相关健康结局的关系的影响

Table 3　Influence of age, intensity of physical activity, time spent outdoors, sleep duration, and sociability on the relation of television watching time with mental illness and related health outcomes

Stratification factor	*n*	Number of cases	*HR* (95% *CI*)			
			0-1 h/d	2-3 h/d	4-5 h/d	>5 h/d
Age/yr.	410946	33071				
38-44	42044	3641	1.00	1.09 (1.01-1.19)	1.43 (1.29-1.58)	1.83 (1.55-2.15)
45-59	188536	15363	1.00	1.12 (1.07-1.16)	1.24 (1.18-1.31)	1.57 (1.45-1.69)
>60	180366	14067	1.00	1.13 (1.06-1.19)	1.28 (1.21-1.35)	1.57 (1.46-1.69)
IPAQ activity group	336985	26123				
Low	61564	5693	1.00	1.04 (0.96-1.12)	1.14 (1.05-1.24)	1.28 (1.15-1.43)
Moderate	138085	10153	1.00	1.08 (1.03-1.15)	1.20 (1.13-1.28)	1.38 (1.26-1.51)
High	137336	10277	1.00	1.06 (1.01-1.12)	1.16 (1.09-1.24)	1.27 (1.16-1.40)
Time spend outdoors in summer	385337	30625				
Low	179619	13025	1.00	1.10 (1.05-1.15)	1.20 (1.14-1.27)	1.50 (1.38-1.62)
Moderate	83291	6542	1.00	1.03 (0.95-1.10)	1.07 (0.99-1.16)	1.20 (1.07-1.34)
High	122427	11058	1.00	1.07 (1.00-1.13)	1.17 (1.10-1.25)	1.26 (1.16-1.37)
Sleep duration/h	409378	32858				
≤5	20403	2642	1.00	1.11 (0.98-1.25)	1.20 (1.05-1.36)	1.56 (1.34-1.81)
6-8	360674	27259	1.00	1.08 (1.05-1.12)	1.18 (1.13-1.23)	1.34 (1.27-1.42)
≥9	28301	2957	1.00	1.00 (0.89-1.12)	1.04 (0.92-1.18)	1.19 (1.03-1.38)
Frequency of visiting friends or family	408929	32861				
High	319675	25458	1.00	1.10 (1.06-1.14)	1.20 (1.15-1.25)	1.39 (1.32-1.47)
Moderate	83132	6522	1.00	1.07 (1.00-1.14)	1.16 (1.08-1.26)	1.34 (1.20-1.49)
Low	6122	881	1.00	0.80 (0.66-0.97)	0.92 (0.75-1.12)	1.16 (0.92-1.46)
Frequency of participation in social activities	409772	32932				
Low	121327	11154	1.00	1.05 (0.99-1.11)	1.12 (1.05-1.19)	1.29 (1.19-1.40)
Moderate	180149	14434	1.00	1.08 (1.03-1.14)	1.19 (1.13-1.25)	1.38 (1.28-1.48)
High	108296	7344	1.00	1.10 (1.04-1.17)	1.23 (1.15-1.33)	1.48 (1.32-1.67)

HR: hazard ratio; *CI*: confidence interval.

景、暴力或制造悬念。对2001– 2013年英国电视的分析，英国肥皂剧中每小时有2.1到11.5个暴力场景，其中40%被归类为中度或高度暴力[49]。甚至有人提出，这种体验的生动性比现实生活中经历诸如暴力、冲突或灾难等事件更高，因为节目为了娱乐的目的而放大戏剧性[50]。慢性压力会导致糖皮质激素水平升高，从而增加患精神障碍的风险[51]。③花更多时间看电视的人进行直接社交互动的时间更少，并限制社会支持关系的发展，社交在预防心理疾病方面发挥着重要作用[52]，从而应对能力降低，并对心理健康产生不利影响。④广义上来说，长时间看电视是一种行为成瘾，各种信息刺激使用者的多巴胺回路，和物质成瘾对大脑活动的影响有相似之处，而一种危险行为可能是另一种危险行为的风险因素[53-54]，行为成瘾的人更有可能物质成瘾。此外，电视传达了有关烟草、酒精和其他毒品的不现实信息，间接鼓励使用这些物质，有研究发现看电视与大量饮酒、频繁吸烟相关，增加了烟酒成瘾的风险[55]。⑤老年人在看电视时花更多时间看中性频道，观看的低唤起内容更多[56]，低唤起内容对应低唤醒水平，可能更容易导致消极的情绪。

数字媒体使用所带来的积极或消极影响不仅取决于使用的总时间，也可能取决于年龄。例如HUTTON等[57]发现，数字媒体使用对成年人或老年人造成的影响可能与对学龄前儿童造成的负面影响大不相同。在年龄的分层分析中，我们发现年龄38 ~ 44岁群体长时间看电视患心理疾病的风险比年长的群体更高，这种年龄差异表明这个年龄段长时间看电视对心理健康的危害更大，看电

表 4 后延随访开始时间后，看电视时间与心理疾病及相关健康后果的关系

Table 4 Relation of TV time with mental illness and related health outcomes measured according to the landmark time points on a followup schedule

TV time/(h/d)	Total number	Number of cases (incidence density)[a]	*AR*	*HR* (95% *CI*)	*P*
Without lag time	410 946	33 071			
0-1	86 315	5 491 (6.13)	0.00	1.00	
2-3	209 554	15 672 (7.27)	1.14	1.08 (1.05-1.11)	<0.001
4-5	95 098	9 055 (9.45)	3.32	1.18 (1.14-1.22)	<0.001
>5	19 979	2 853 (14.85)	8.72	1.37 (1.31-1.44)	<0.001
3 months of lag time	410 020	32 242			
0-1	86 163	5 347 (5.97)	0.00	1.00	
2-3	209 116	15 274 (7.09)	1.12	1.08 (1.05-1.11)	<0.001
4-5	94 846	8 835 (9.22)	3.25	1.18 (1.14-1.22)	<0.001
>5	19 895	2 786 (14.50)	8.53	1.37 (1.31-1.44)	<0.001
6 months of lag time	409 112	31 494			
0-1	86 021	5 227 (5.83)	0.00	1.00	
2-3	208 691	14 926 (6.92)	1.09	1.08 (1.04-1.11)	<0.001
4-5	94 592	8 613 (8.99)	3.16	1.17 (1.13-1.22)	<0.001
>5	19 808	2 728 (14.20)	8.37	1.37 (1.31-1.44)	<0.001
1 year of lag time	407 154	29 929			
0-1	85 656	4 916 (5.49)	0.00	1.00	
2-3	207 781	14 193 (6.59)	1.10	1.09 (1.05-1.12)	<0.001
4-5	94 095	8 228 (8.59)	3.10	1.19 (1.14-1.23)	<0.001
>5	19 622	2 592 (13.51)	8.02	1.38 (1.32-1.46)	<0.001
3 years of lag time	396 974	21 962			
0-1	84 010	3 597 (4.03)	0.00	1.00	
2-3	203 098	10 469 (4.88)	0.85	1.09 (1.05-1.14)	<0.001
4-5	91 165	5 992 (6.30)	2.27	1.18 (1.13-1.23)	<0.001
>5	18 701	1 904 (10.02)	5.99	1.41 (1.33-1.50)	<0.001
5 years of lag time	385 293	12 920			
0-1	82 117	2 084 (2.35)	0.00	1.00	
2-3	197 637	6 230 (2.93)	0.58	1.12 (1.07-1.18)	<0.001
4-5	87 912	3 529 (3.76)	1.41	1.21 (1.14-1.28)	<0.001
>5	17 627	1 077 (5.80)	3.45	1.43 (1.33-1.55)	<0.001

AR: attributable risk; *HR*: risk ratio; *CI*: confidence interval. [a] Incidence density: incidence per 1 000 person-years.

视时间可能与“认知需求(追寻、理解事物的动机)”存在联系，认知需求低的人可能更容易选择没有门槛、没有深度和难度的电视，而不是下棋、学习。所以，在38 ~ 44岁这一青壮年时期长时间看电视，说明其心理可能已经出现了损害，看电视时间更长。故应警惕青壮年时期的长时间看电视。

体力活动强度并未影响看电视与心理健康的关系，而户外时间削弱了看电视对心理健康的负面影响，这与既往部分研究一致[31]，这些研究发现体力活动水平和锻炼习惯并未改变看电视与抑郁症的关系，也有研究发现体力活动水平减弱了看电视与抑郁症状的关联[44, 46-47, 58]，可能活动强度不是关键，而是否进行户外活动才是关键，未来可能需要更全面完善的研究来探究体力活动水平是否影响了看电视与心理健康间的关系。户外活动时间可

能从绿地空间和维生素D两个方面影响精神心理健康。绿地空间(如森林和公园)能促进精神疲劳的恢复[59-63], 减少压力[64-65], 促进邻里凝聚力[66], 减少暴力和犯罪[67-70], 降低多种疾病的发病率[71-73]。COHEN-CLINE等[74]以威斯康星健康调查(the Survey of the Health of Wisconsin, SHOW)数据库为基础, 对威斯康星州居民进行社区绿地和心理健康之间的关系的横断面研究, 在控制了多种混杂因素后, 结果表明社区绿地水平越高, 抑郁、焦虑和压力等症状的水平就越低。维生素D缺乏通常与不良的肌肉骨骼健康状况(高转化性骨病、骨折风险增加、骨软化、骨质疏松)有关[75-76]。它还与抑郁症状的增加有关, 对于抑郁症来说维生素D缺乏是潜在的可改变的风险因素[77]。一项针对青年(年龄15到39岁)的研究发现, 患有抑郁症的人也有较高的维生素D缺乏症患病率(OR=1.85, P=0.021)[78]。MILANESCHI等[79]还发现, 在18岁至65岁的成年人中, 血清中25-羟基维生素D(25OHD)低水平与抑郁症的严重程度相关。

睡眠是决定人类健康的重要因素, 健康的睡眠对于正常的衰老至关重要。美国睡眠医学学会和睡眠研究学将健康的睡眠定义为持续时间充足, 质量好, 节律合适, 没有睡眠障碍或睡眠紊乱[80]。既往的研究表明, 从儿童到老年人, 睡眠问题与较差的心理健康状况有关, 包括抑郁、焦虑、攻击性和犯罪行为等增加[81-93]。本研究发现充足的睡眠削弱了长时间看电视对心理健康带来的影响, 进一步说明睡眠对心理健康的重要性, 这与WERNECK等[94]的结果一致, 睡眠质量差部分介导了长时间看电视与心理问题的关系。

本研究中未发现社交活动对看电视时间和精神健康之间的关系有影响, 这可能是由于本研究中以拜访家人朋友将受试者分层后病例数较少, 同时本研究中团体社交活动的统计较粗糙, 只统计了参与活动的数量, 没有参与的时长和频率的数据, 故结果无明显意义。

本研究的优势在于大规模、基于人群的队列设计, 在招募的年龄范围内, UK生物样本库在性别、种族和社会经济方面相对具有代表性。结局数据主要是通过英国国家医疗服务体系获得, 不是自评量表的得分, 数据具有可靠性。本研究为纵向研究, 使用Landmark分析, 强调长时间观看电视是心理问题的先决条件。在分析中广泛控制了潜在的混杂变量, 这些因素包括社会经济因素(教育、家庭年收入、TDI)、抽烟、饮酒、体力活动强度等。

本研究存在一些局限性, 首先看电视时间、户外时间、睡眠时长等是采用自我报告的方法进行评估, 而错误报告时长可能降低了生活方式暴露与心理疾病之间的相关性, 导致潜在的偏差。

综上, 本研究通过建立电视观看队列, 发现长时间看电视增加患心理疾病的风险, 是心理问题的独立危险因素, 户外时间和睡眠时间会削弱长时间看电视对心理健康的负面影响, 体力活动强度并未影响看电视与心理健康的关系。本研究为中老年人的心理疾病的预防提供证据支持。

*　　*　　*

作者贡献声明　胡越论文构思、数据审编、正式分析和初稿写作, 张伟负责论文构思、经费获取和监督指导。所有作者已经同意将文章提交给本刊, 且对将要发表的版本进行最终定稿, 并同意对工作的所有方面负责。

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