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| **Table 1**: Characteristics of the Included Cohort Studies | | | | | | | | |
| Author, year,  Country/area | Study design | Types of cancers | No. of cases | Sample sizes (n) | Sleep Duration | Adjusted OR/RR/HR(95%CI) | Author Conclusions | NOS Score |
| Gu *et al*., 2016,  USA | Cohort study | Head and  neck cancer | 292 | 123858 | <5  5–6  7–8  ≥9 | 1.16 (0.65–2.07)  0.92 (0.71–1.19)  1.00  1.28 (0.74–2.21) | “In conclusion, we observed potential increased risks of several cancer sites among men of  short sleep duration, and changed risks of several cancer sites in women of both short and long  sleep duration in older population. Only the association of stomach cancer achieved overall statistical significance and no association survives multiple comparison adjustment. Further studies  are warranted to replicate these findings.” | 7 |
| Esophageal cancer | 66 | 123858 | <5  5–6  7–8  ≥9 | 0.78 (0.18–3.35)  1.22 (0.72–2.04)  1.00  0.78 (0.19–3.24) |
| Stomach cancer | 113 | 123858 | <5  5–6  7–8  ≥9 | 0.58 (0.18–1.88)  1.05 (0.7–1.55)  1.00  0.49 (0.12–2.00) |
| Colorectal cancer | 1507 | 123858 | <5  5–6  7–8  ≥9 | 0.86 (0.64–1.15) 0.99 (0.89–1.11)  1.00  1.13 (0.87–1.47) |
| Liver cancer | 83 | 123858 | <5  5–6  7–8  ≥9 | 1.22 (0.43–3.49)  1.41 (0.89–2.22)  1.00  0.79 (0.19–3.29) |
| Pancreatic cancer | 408 | 123858 | <5  5–6  7–8  ≥9 | 0.97 (0.58–1.63)  0.97 (0.78–1.2)  1.00  0.97 (0.57–1.67) |
| Lung cancer | 3454 | 123858 | <5  5–6  7–8  ≥9 | 0.91 (0.73–1.15)  1.05 (0.96–1.15)  1.00  0.91 (0.71–1.16) |
| Breast cancer | 5919 | 123858 | <5  5–6  7–8  ≥9 | 0.84 (0.71–0.98)  1.00 (0.94–1.05) 1.00  0.89 (0.77–1.03) |
| Ovarian cancer | 515 | 123858 | <5  5–6  7–8  ≥9 | 0.78 (0.45–1.37)  1.05 (0.87–1.27)  1.00  0.50 (0.26–0.97) |
| Endometrial cancer | 1030 | 123858 | <5  5–6  7–8  ≥9 | 1.20 (0.88–1.62)  0.88 (0.76–1.01)  1.00  1.11 (0.82–1.52) |
| Bladder cancer | 382 | 123858 | <5  5–6  7–8  ≥9 | 1.03 (0.60–1.75)  0.88 (0.70–1.10)  1.00  1.09 (0.64–1.84) |
| Kidney cancer | 337 | 123858 | <5  5–6  7–8  ≥9 | 0.73 (0.39–1.35)  1.06 (0.84–1.33)  1.00  0.85 (0.45–1.62) |
| Thyroid cancer | 192 | 123858 | <5  5–6  7–8  ≥9 | 1.11 (0.55–2.22)  0.87 (0.63–1.19)  1.00  1.05 (0.49–2.25) |
| Brain cancer | 158 | 123858 | <5  5–6  7–8  ≥9 | 0.80 (0.29–2.21)  1.29 (0.92–1.79)  1.00  1.24 (0.54–2.86) |
| Non-Hodgkin Lymphoma | 628 | 123858 | <5  5–6  7–8  ≥9 | 0.64 (0.37–1.10)  0.98 (0.82–1.16)  1.00  1.45 (1.00–2.11) |
| Leukemia | 256 | 123858 | <5  5–6  7–8  ≥9 | 1.00 (0.50–1.99)  1.14 (0.87–1.49)  1.00  1.42 (0.79–2.57) |
| Myeloma | 170 | 123858 | <5  5–6  7–8  ≥9 | 1.18 (0.58–2.36)  0.83 (0.59–1.16)  1.00  0.45 (0.14–1.43) |
| Hurley *et al*.,  2015, USA | Cohort study | Breast cancer | 4381 | 101609 | 3–6  7–9  ≥10 | 0.98 (0.92–1.05)  1.00  1.25 (0.93–1.68) | “These analyses suggest that longer sleep  may be associated with increased risks of estrogen-mediated  cancers. Further studies with more refined measures of  sleep duration and quality are warranted.” | 6 |
| Colorectal cancer | 873 | 101609 | 3–6  7–9  ≥10 | 1.02 (0.88–1.19)  1.00  1.42 (0.85–2.38) |
| Endometrial cancer | 821 | 101609 | 3–6  7–9  ≥10 | 0.86 (0.73–1.01)  1.00  1.22 (0.67–2.23) |
| Melanoma | 661 | 101609 | 3–6  7–9  ≥10 | 0.95 (0.79–1.14)  1.00  1.70 (0.87–3.32) |
| Lung cancer | 728 | 101609 | 3–6  7–9  ≥10 | 1.07 (0.91–1.26)  1.00  0.84 (0.42–1.70) |
| Ovarian cancer | 374 | 101609 | 3–6  7–9  ≥10 | 1.00 (0.79–1.27)  1.00  1.66 (0.74–3.75) |
| Qian *et al*.,  2015, USA | Cohort study | Breast cancer | 1553 | 40013 | <6  6–<7  7–<8  8–<9  ≥9 | 0.87 (0.64–1.18)  1.04 (0.90–1.20)  0.93 (0.82–1.05)  1.00  1.00 (0.84–1.19) | “Our finding does not support an association between sleep duration and overall breast cancer risk. However,  the effect of sleep on different subtypes of breast cancer deserves further investigation.” | 8 |
| Wu *et al*., 2008,  Singapore | Cohort study | Breast cancer | 525 | 33528 | ≤6  7  8  ≥9 | 1.00  1.03 (0.8–1.3)  0.90 (0.7–1.1)  0.81 (0.6–1.2) | “Sleep duration may influence breast cancer risk, possibly via its effect on melatonin levels.” | 8 |
| Vogtmann *et al*.,  2013, USA | Cohort study | Breast cancer | 5149 | 110011 | ≤5  6  7  8  ≥9 | 0.95 (0.85–1.07)  0.94 (0.87–1.00)  1.00  0.99 (0.92–1.06)  1.03 (0.90–1.18) | “In conclusion, this large study from the WHI does not provide  support for an association between self-reported sleep duration,  sleep quality, insomnia, or sleep disturbance with the risk of  breast cancer in postmenopausal women. The observed association  between insomnia and the risk of breast cancer among  women who do not use sleep aides warrants further investigation.  Consideration of the association between sleep measures  and different breast cancer subtypes could also be considered.” | 8 |
| Kakizaki *et al*.,  2008, Japan | Cohort study | Breast cancer | 143 | 28515 | ≤6  7  8  ≥9 | 1.67 (1.00–2.78)  1.00  0.99 (0.59–1.65)  0.29 (0.09–0.98) | “In conclusion, we have found a significant inverse association  between sleep duration and breast cancer risk in Japanese women,  those who slept 6 h or less having a significantly increased risk.” | 8 |
| Pinheiro *et al*.,  2006, USA | Cohort study | Breast cancer | 4223 | 77418 | ≤5  6  7  8  ≥9 | 0.93 (0.79–1.09)  0.98 (0.91–1.06)  1.00  1.05 (0.97–1.13)  0.95 (0.82–1.11) | “In this prospective study, we found no  convincing evidence for an association between sleep duration  and the incidence of breast cancer.” | 6 |
| Verkasalo *et al*.,  2005, Finland | Cohort study | Breast cancer | 242 | 12222 | ≤6  7–8  ≥9 | 0.85 (0.54–1.34)  1.00  0.69 (0.45–1.06) | “This study provides some support for a decreased risk of breast cancer in long sleepers.” | 8 |