

外国語要旨

Study of overeating late at night among Japanese workers - Focus on stress and dinner time-
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Introduction

It is known that stress is related to overeating and obesity. In addition, recently, the “eating dinner late at night” has been receiving attention in Japan as an unhealthy eating behavior. According to these reasons, two items related to eating dinner late at night were inquired about in a self-report questionnaire as part of specific medical checkups conducted by the Ministry of Health, Labour and Welfare in Japan. However, no evidence for a relationship between eating dinner late at night and adverse health effects was found. Dinner time is often at a late hour, especially among workers, and while working, the period of time they spend without eating can be prolonged. The above observations suggest that eating dinner late results in overeating due to stronger feelings of hunger. The aim of this study was to examine the relationship between overeating at dinner and health among workers, focusing on stress and time of eating dinner.

Study 1: Examination of the relationship between stress response, lifestyle and eating behavior

Study1-1: Relationship between stress response and lifestyle

Study1-1 examined the relationship between stress responses and lifestyle. Questionnaires were completed by 3,017 workers (41.5% male, 58.5% female). This study showed that, among females, stress responses were related to sleeping for shorter periods, whereas among males, they were related to working long hours. In addition, stress responses were related to eating within 2 h of bedtime in the univariate analysis, for both sexes.

Study1-2: Relationship between stress response and eating behavior

Study 1-2 examined the relationship between stress responses and eating behavior, in addition to factors regarding dinner. Self-report web questionnaire were completed by 390 workers (65.4% male, 34.6% female). This study showed that, among male, high stress responses were related to overeating at dinner, and that among females, high stress responses were related to the frequency of snacking. In addition, high stress was related to eating at night in the univariate analysis. This study also showed that 80% of those who eat within 2 h of bedtime eat dinner after 21:00. Therefore, eating within 2 h of bedtime equates to dinner among most workers.

Study2: Relationship between late dinner and poor health

Study 2 examined the relationship between eating behavior (including eating late at night) and long-term weight gain, which is strongly related to obesity and metabolic syndrome. We used cross-sectional data on 3,342 participants (1,614 males, 1,728 females) obtained from specific medical checkups and a self-report questionnaire. This study showed that in the non-obese group long-term weight gain was associated with midnight snacking in males and with late meals in females. In the obese group, long-term weight gain was associated with late meals among both males and females.

Study 3: Examination of the relationship between overeating at dinner, dinner time and stress

Study3-1: Factors related to overeating at dinner

The relationship between late time of eating dinner and obesity is not scientifically valid. It was proposed that overeating at dinner might be a causative factor in the relationship between late dinner time and obesity. Study 3-1 examined the factors relating to overeating at dinner among workers. Self-report web questionnaire were completed by 390 workers (65.4% male, 34.6% female). The factors related to overeating at dinner included response to stress and time of eating dinner in males, but only response to stress in females.

Study3-2: Do perceived stress and time of eating dinner promote overeating at dinner?

Study 3-2 examined whether the combination of a late dinner time and perceived stress reinforced overeating at dinner among men. This study used perceived stress to represent stress response. The target of analysis for this research is 255 male workers. This study showed that no differences in the overeating scores among those who ate dinner before 21:00 according to their level of perceived stress. However, those who ate dinner after 21:00 and reported feeling stressed overeat at dinner. The overeating at dinner was exacerbated by the combination of a late dinner time and perceived stress.

Conclusion

This study provides evidence of a relationship between late dinner time and stress, and that overeating at dinner is increased by the combination of a late dinner time and stress. These results suggest that alterations in mealtimes and stress management may be important to prevent overeating, not only as an individual effort but also at the workplace.