Background Emerging research shows a high prevalence of fatigue and sleep problems among university students.Each session included a 10 min warm–up (marching, top–to–bottom movements), 35 min of basic aerobic exercises (10 min combined exercises, 20 min of mental activity, 5 min mat exercise), and a 15 min cool–down.They were not enrolled or later dropped out based on the following criteria: a presence of physical or mental illness or surgical history, unwillingness to continue the study, absent for three consecutive or five non–consecutive exercise sessions, involvement in daily physical activity beyond the study protocol, the use of complementary medicines or herbal therapy that influences sleep or fatigue level (i.e., energy–enhancing drugs and/or sleeping medications).This tool consists of seven areas including: subjective sleep quality, sleep latency, sleep duration, sleep efficiency (the percentage of sleeping time during the time in bed), sleep disturbances (night time waking), use of sleeping medications, and daytime dysfunction (distress and impaired daytime functioning).This instrument consists of a 20–item survey that covers the following five dimensions: general fatigue (impairment of overall daytime functioning), physical fatigue (body tiredness), mental fatigue (fatigue related to cognition), reduced activity, and reduced motivation.Participants were Iranian females between 18 and 26 years of age who met the following criteria: BMI29 (kg/m2), non–smoking, no use of acupuncture or other complementary medicines over the last 6 months, and no exposure to stressful events over the past 3 months.Peer Review reports Background Sleep is a biological process that is necessary for optimal neurologic function, as well as systematic biology, including metabolism, appetite regulation, immunity, hormonal balance, and cardiovascular system [1, 2].Although numerous studies reported the effectiveness of exercise on sleep quality of people in different age ranges across various chronic conditions [12,13,14,15,16,17,18,19], there are contradictory results regarding the impact of exercise on the sleep quality of university students, especially those that reside in dormitories [20,21,22,23,24].Study procedure Following a discussion of the research objectives and informed consent, the participants in both experimental and control groups individually filled out a demographic questionnaire, the PSQI, and the MFI– 20.Participants in the experimental group received three one–hour sessions aerobic exercise weekly ranging from mild to moderate intensity for eight–week.Sleep quality and fatigue level were evaluated using the Pittsburgh Sleep Quality Index (PSQI) and standard Multidimensional Fatigue Inventory (MFI–20), respectively.The schedule was from 17:00 to 18:00 pm. The subjects performed the exercises at 45–50% of maximum heart rate (mild intensity) during the first 4 weeks of intervention and at 65–70% of maximum heart rate (moderate intensity) during the second 4 weeks of the intervention [16].Methods This quasi–experimental study involving 67 participants consisted of one experimental group (i.e., assigned aerobic exercise) and one control group (i.e., not assigned aerobic exercise).It was hypothesized that regular aerobic exercise with increasing intensity would improve sleep quality and decrease fatigue level among female students living in dormitories.Results After four and 8 weeks of the intervention, participants in the aerobic group showed improvement in the score of sleep quality (p0.001 and p0.0001, respectively) and its components (except for sleep duration after 4 weeks intervention).Trial registration The study was registered on 6/2/2015 in the Iranian Registry of Clinical Trials (IRCT) with number IRCT201412282324N15.A non–probability sampling method was used to enroll participants in each of the two selected dormitories.The use of quasi–experimental design

minimized the influence of confounding covariates such as students' interactions regarding the intervention and the process of the study.In one Iranian study, the reliability of the Persian version of the PSQI had a Cronbach's alpha coefficient of 0.77 [33].Also, aerobic exercise resulted in a significant reduction of the total score of fatigue and its dimensions in weeks four and eight, compared to the control group (p0.001).It appears that residency in dormitories has been cited as an influential factor that affects sleep quality in students [7].Results of a survey from 23 countries revealed that physical activity was below the recommended levels for the majority of university students.In our sample, the PSQI Cronbach's alpha coefficient was 0.80.1).