Postponement of death around Chinese holidays: a Hong Kong perspective

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ABSTRACT

Introduction: Historical anecdotes suggest human beings can postpone death around important occasions. Some formal studies have claimed that elderly Jewish men and Chinese women in America postponed death around the Passover and Harvest Moon (or Mid-Autumn) Festival (HMF), respectively.

Methods: We examined deaths from cancer, cerebrovascular and heart diseases in the Chinese around four important holidays celebrated in Hong Kong. From computerised data in 1995–2000, the expected weekly deaths for 12 weeks before and after Lunar New Year, Ching Ming, HMF and Chung Yeung holidays were calculated using a polynomial regression model for the three diseases in men and women, under and over the age of 75 years. The differences in the observed deaths one week before and one week after the four holidays were tested by the binomial test.

Results: There were significantly fewer deaths overall in men before the holidays than after (p-value equals 0.0081), with most of the difference being due to cancer deaths, particularly among men over 75 years of age. For women, there were actually more deaths before the holidays than after. The data, stratified according to age, gender, disease and holiday, yielded only five out of 48 variables with a p-value of less than 0.05, which was slightly above chance, considering the large number of comparisons made. In four of the five situations, there were significantly fewer deaths before than after the holidays; but after Bonferroni correction, only the finding of fewer cancer deaths for men aged over 75 years before HMF was significant.

Conclusion: Other than cancer deaths in males, we found little evidence in this dataset of death postponement until after important holidays in the Hong Kong Chinese population.

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INTRODUCTION

Questions concerning death and dying have probably preoccupied the human mind for a long time. Many religions openly talk about a time to live and a time to die,[1] and that a religious lifestyle even prolongs life.[2] Some religions, e.g. Hinduism and Buddhism, even believe that in life after death, i.e. reincarnation. The Chinese believe that life or death involves the presence or absence of *qi* (breath-ether), and that every individual's life span is finite, fixed by the quantum of *qi* (life force), which is given by nature at birth. Death is governed by heaven and occurs at a time dictated by a person's *qi*, which can not be extended, but may be cut short.[3] Notwithstanding these religious cum philosophical arguments, it is believed by some that human beings possess an innate ability to hasten or delay death. This ability probably involves psychosomatic processes, in which the mind acting via bodily systems, such as the nervous, endocrine and immune systems – psychoneuroimmunology, can affect longevity. Some believe that a (sick) person's psychological outlook on life, optimistic or pessimistic, can prolong or shorten life.[4]

Over the last three decades, scientists have tried to study the phenomenon of death postponement. One approach that has been considered is to examine the number of deaths occurring before and after an important occasion.[1] It is believed that an important occasion, such as a religious or cultural festival, a person's or nation's birthday, etc, may motivate a person to live beyond that day. Using this approach, Phillips and colleagues reported that there were significantly fewer deaths than expected from cerebrovascular disease (CVD), heart disease (HD) and cancer in men with Jewish surnames and aged over 65 years, one week before the Passover,[5] and in Chinese women aged over 75 years, one week before the Harvest Moon (or Mid-Autumn) Festival (HMF),[6] and more deaths than expected in the week after the respective holidays. The authors suggested that because only these subgroups of the two communities took the symbolism of their respective holidays seriously, they were motivated

Table 1. The total observed and expected deaths in male and female Chinese according to age group and one-week period before/after the Chinese holidays in 1995–2000.

Gender/age group (years)	Week relative to holiday	No. of observed deaths	No. of expected deaths	Binomial test p-value*
Female				
< 75	−1	1,524	1,536.1	0.8652
	+1	1,534	1,536.4	
≥ 75	−1	1,875	1,870.7	0.2755
	+1	1,839	1,901	
Male				
< 75	−1	2,741	2,875.6	0.1049
	+1	2,859	2,871.3	
≥ 75	−1	1,532	1,613	0.0257
	+1	1,658	1,613	
All ages				
Female	−1	3,406	3,406.8	0.4356
	+1	3,373	3,437.4	
Male	−1	4,273	4,488.6	0.0081
	+1	4,517	4,484.3	

* between observed deaths before vs. after the holidays

(perhaps entering a pact with God) to be allowed to live past the holiday. Furthermore, it has been speculated that John Adams and Thomas Jefferson died on a 4th July because of the symbolism of the day,[5] as both men were among the main architects of the United States' Declaration of Independence.

This retrospective study has emulated the Chinese-American study,[6] and examined the number of deaths from CVD, HD and cancer in Chinese men and women, under and over 75 years of age, one week before and one week after HMF (celebrated around September), and three other Chinese holidays celebrated in Hong Kong (HK): Lunar New Year (LNY), Ching Ming (CM) and Chung Yeung (CY). LNY, celebrated in January or February, is the most important festival in the Chinese lunar calendar. CM, in early April, is observed in the honour of the dead ancestors with visits to family graves. CY, which also involves visits to gravesites, is based on a belief that in order to avoid misfortune, people should spend the day on higher ground, and is celebrated around October/November. The four holidays studied are traditional (rather than religious) festivals and are observed by nearly all Chinese.

METHODS

The mortality statistics data compiled by the Census and Statistics Department of the HK Government for the years 1995–2000 (> 180,000 deaths) included the exact date of death and were thus used for the present study. The ethnicity for the majority (98%) of deaths recorded in the database was Chinese, but their religion was not identified. Since the Chinese holiday dates are based on the lunar calendar, and the details of the deaths recorded were according to the Gregorian calendar, the dates for three of the four holidays fell on different Gregorian calendar dates each year. The earliest to latest dates and the calculated median date for the years 1995–2000 were: LNY: January 28, 1998 to February 19, 1996 (median 6th February); CM: April 4/5 each year (no median calculated); HMF: September 9, 1995 to October 5, 1998 (median 20th September); and CY: October 6, 2000 to November 1, 1995 (median 19th October). For each year, the number of weekly deaths from the three causes were retrieved for both genders, aged under and over 75 years for 12 weeks before, until the eve of a holiday (with one later modification for HMF, see below), and 12 weeks after each of the four holidays. The total deaths for the corresponding 24 weeks were collated for the six years (1995 was excluded for LNY because the 1994 data was unavailable). From the data, the expected death counts were determined for each of the 24 weeks, using a quadratic polynomial regression model in the Statistica software (Statsoft Inc, Tulsa, OK, USA), which adjusted for seasonal variation in deaths from different causes.

Since the seasonality of deaths in HK primarily follow an annual pattern, a quadratic model was considered sufficiently complex to model seasonality over the 12-week periods before and after each holiday. The expected counts obtained from the regression models were used to calculate the expected proportion of the total number of deaths in the two-week period surrounding the holiday, i.e. one week before and one week after the holiday. This expected proportion is the expected number of deaths during the week before the holiday divided by the total expected number during the two weeks surrounding the holiday. The statistical significance of differences between

the observed and expected proportion of deaths occurring before each holiday was then tested using the online interactive binomial test (Simple Interactive Statistical Analysis (SISA). Available at: www.quantitativeskills.com/sisa/distributions/binomial.htm). Recently, Smith[7] argued that because the celebrations for HMF do not begin until midnight on the holiday itself, the day should be included in the week before, and not the week after, as Phillips and Smith had done.[6] Therefore, deaths for HMF were re-analysed by shifting the weekly time frame by one day for all categories studied. The above statistical analyses were also performed for all deaths for all subjects, and for various subgroups, including all deaths from the three causes for all four holidays, stratified by gender; by age and gender; by holiday, age and gender; by cause, age and gender; and by holiday, cause, age and gender.

RESULTS

98% of the deaths in the database were among Chinese. The percentage of deaths recorded in the database according to International Statistical Classification of Diseases, Injuries and Causes of Death, ninth edition (ICD-9) were as follows: cancer 34% (ICD-9 Codes 140–209); CVD 10.5% (ICD-9 Codes 430–438); and HD 14.6% (ICD-9 Codes 390–398, 402, 404–429). Table I summarises the data for all deaths from the three causes for all four holidays, for men and women under and over 75 years of age. The quadratic regression models generally fitted the data quite well. There was no evidence of autocorrelation of the residuals, and the scatterplots of the residuals vs. predicted values showed no evidence of heteroscedasticity. The actual expected proportions obtained were very close to 0.50, since there was not much seasonality effect observed over the two-week periods before and after the holidays. When deaths from all three causes were examined for all the holidays, only men had significantly fewer deaths before, rather than after, the holidays, and was mainly attributable to men over 75 years of age. Further subdivision of mortality before or after the holidays (either for all deaths for each of the four holidays or deaths from the three causes for all four holidays in the four demographic groups), found significantly fewer cancer deaths before all holidays for men overall (2,594 vs. 2,804; $p = 0.0043$) and for all holidays in men aged over 75 years (692 vs. 831; $p = 0.00037$) (other data not shown).

Table II shows the complete breakdown of the observed and the expected deaths from the three causes of death, a week before and a week after the four holidays in male and female Chinese, under and over 75 years of age for the period 1995–2000, as well as the results of the binomial test. There were only five (10.4%) out of the 48 situations with $p < 0.05$, and only one below the Bonferroni-adjusted significance level of 0.00104 (0.05/48). In four situations, the pre-holiday mortality was lower than the post-holiday mortality. These included cancer deaths in older males during CM and HMF, and CVD and HD deaths in younger males during LNY and HMF, respectively. In the fifth situation, older females had a higher HD mortality before HMF. Shifting the time frame by one day for HMF had no significant impact on the pre- and post-holiday mortality, where the cancer deaths in older males changed to 150 vs. 216, and remained significant ($p = 0.0005$).

DISCUSSION

In their rather limited study which collated data over a 25-year period, Phillips and Smith reported quite specifically a dip in deaths from CVD, HD and cancer in Chinese women aged over 75 years a week before HMF, and a peak after the holidays.[6] The authors concluded that only the older women took the holiday, described as "an old woman's holiday", seriously, and were thus motivated to hang on to life until after the holiday. The present study, using a larger sample size, found little evidence for a similar ability in older HK Chinese women to postpone their death until after HMF. In complete contrast, our study found that there were non-significantly more deaths overall in older HK Chinese women before than after this holiday. Phillips and Smith claimed that Chinese women, like the older males with Jewish surnames, postponed cancer deaths, when in fact insignificantly more died before than after the holiday (9 vs. 8) compared to 14 vs. 23 in their Jewish subjects.[6] The present study, however, found fewer cancer deaths in elderly HK Chinese women before the HMF holiday, but these were not accompanied by the expected rise after the holiday, as postulated for the death postponement phenomenon, and the binomial test comparing before- and after-holiday deaths was not significant in this subgroup.

On the other hand, our study found that HK Chinese men, particularly in the older age group, had significantly more cancer deaths after than before the holidays (with p-values, 0.0043 [all men] and 0.00037 [men > 75 years]), which remained significant even after correcting for multiple comparisons. In addition, younger Chinese men had significantly higher post- vs. pre-HMF HD mortality. However, this would not be significant if corrected for multiple comparisons. Deaths from CVD showed no trends for any demographic groups around HMF when the holiday was included as part of the week after. However, re-analysing data with the HMF day

Table II. The total observed and expected deaths from cancer, cerebrovascular disease and heart disease in the Chinese population according to gender, age group and one-week period before/after the four Chinese holidays in 1995–2000.

Chinese holiday/ cause of death/gender	Age group (year)	Week relative to holiday	No. of observed deaths	No. of expected deaths	Binomial test p-value*
Lunar new year†					
Cancer					
Female	< 75	−1	228	213.05	0.1036
		+1	193	211.43	
	≥ 75	−1	168	168.39	0.4828
		+1	155	167.99	
Male	< 75	−1	416	438.92	0.5249
		+1	433	437.43	
	≥ 75	−1	181	179.35	0.8674
		+1	185	180.26	
CVD					
Female	< 75	−1	41	57.28	0.1717
		+1	54	56.90	
	≥ 75	−1	118	139.41	0.6597
		+1	126	140.73	
Male	< 75	−1	78	90.95	0.0412
		+1	105	90.35	
	≥ 75	−1	92	92.27	0.372
		+1	82	94.17	
HD					
Female	< 75	−1	71	72.49	0.2022
		+1	87	72.47	
	≥ 75	−1	195	196.32	0.7748
		+1	191	198.00	
Male	< 75	−1	131	132.83	0.2011
		+1	153	133.25	
	≥ 75	−1	146	137.44	0.755
		+1	141	137.72	
Ching Ming					
Cancer					
Female	< 75	−1	266	261.97	0.6466
		+1	278	263.22	
	≥ 75	−1	193	191.72	0.0817
		+1	159	190.29	
Male	< 75	−1	494	526.39	0.5078
		+1	513	524.26	
	≥ 75	−1	181	217.17	0.0235
		+1	227	217.39	
CVD					
Female	< 75	−1	64	64.92	0.0961
		+1	83	63.89	
	≥ 75	−1	143	155.48	0.1901
		+1	159	148.66	
Male	< 75	−1	100	103.77	0.5084
		+1	88	100.56	
	≥ 75	−1	110	106.03	0.6762
		+1	100	102.12	
HD					
Female	< 75	−1	87	93.15	0.4327
		+1	95	90.55	
	≥ 75	−1	212	211.32	0.9865
		+1	201	200.69	
Male	< 75	−1	149	173.23	0.692
		+1	151	167.73	
	≥ 75	−1	138	149.95	0.2868
		+1	148	141.79	
Harvest Moon Festival					
Cancer					
Female	< 75	−1	261	268.49	0.7837
		+1	256	269.76	
	≥ 75	−1	157	187.94	0.2156
		+1	180	188.26	
Male	< 75	−1	492	513.30	0.6443
		+1	508	514.68	
	≥ 75	−1	148	201.41	0.0005
		+1	214	201.17	
CVD					
Female	< 75	−1	66	52.35	0.1206
		+1	50	53.00	
	≥ 75	−1	122	103.23	0.5035
		+1	112	103.43	
Male	< 75	−1	77	74.48	0.5637
		+1	86	75.98	
	≥ 75	−1	74	62.11	0.4082
		+1	65	62.78	
HD					
Female	< 75	−1	62	65.55	0.7019
		+1	58	65.76	
	≥ 75	−1	151	134.87	0.0403
		+1	117	134.41	
Male	< 75	−1	97	114.93	0.0196
		+1	133	115.55	
	≥ 75	−1	119	101.22	0.5362
		+1	111	102.44	
Chung Yung					
Cancer					
Female	< 75	−1	272	267.13	0.9472
		+1	273	266.62	
	≥ 75	−1	180	185.01	0.6699
		+1	189	185.82	
Male	< 75	−1	500	511.99	0.5908
		+1	519	513.74	
	≥ 75	−1	182	200.42	0.2755
		+1	205	202.01	
CVD					
Female	< 75	−1	43	52.69	0.6437
		+1	49	54.52	
	≥ 75	−1	110	105.48	0.6669
		+1	107	108.77	
Male	< 75	−1	93	78.58	0.0692
		+1	72	80.86	
	≥ 75	−1	56	65.73	0.2549
		+1	71	68.30	
HD					
Female	< 75	−1	63	67.04	0.5829
		+1	58	68.21	
	≥ 75	−1	123	131.03	0.2936
		+1	143	134.03	
Male	< 75	−1	114	115.24	0.2298
		+1	98	116.86	
	≥ 75	−1	105	99.99	0.9429
		+1	109	102.80	

* between observed deaths before vs. after the holidays
† excludes 1995 data

included in the week before the holiday, as argued by Smith, yielded significantly higher than expected CVD mortality in younger women, but only before the holiday (data not shown).[7] Therefore, regarding HMF only, there is no evidence that older Chinese women postponed their death because they revere this holiday more than the other members of the community, as suggested by Phillips and Smith.[6] On the contrary, it was the men who appeared to postpone their death around the HMF holiday, although there was no consistent pattern across age and cause of death groupings.

Phillips and Smith did not study mortality around LNY, citing reasons such as the entire Chinese community being involved, and the holiday having no definite beginning or ending.[6] Symbolically, LNY is the most important holiday for all HK Chinese, whereas HMF is relatively unimportant. Moreover, the pinnacle of LNY is the eve of the holiday, when families gather for a reconciliatory last meal of the year, and this only occurs once during the holiday. Thus the real challenge is to postpone death until after LNY eve. In this regard, while there is some evidence that younger men had fewer CVD deaths before than after this holiday ($p = 0.041$), this would not be significant if correction for multiple comparisons were made. In addition, while younger women had lower CVD mortality before the holiday, this was not followed by a peak after the holiday; hence, the result of the binomial test was not significant. With regard to CM, there was some evidence that older men had fewer deaths before than after the holiday, but the same was not true for older women, who had non-significantly fewer cancer deaths after the holiday than before it. The CY festival passed without any significant trends in mortality from any of the causes.

As far as causes of death are concerned, the most consistent effect by far was seen for cancer deaths in men. For every holiday and age group, there were fewer cancer deaths among men before the holiday than after, although the difference was often small and non-significant. Overall, there were 2,594 male cancer deaths before the holidays and 2,804 after ($p = 0.0043$). No such consistency was seen for female cancer deaths or for deaths due to other causes in either gender. While in agreement with cancer deaths in elderly Jewish males around Passover,[5] but not the Chinese females around HMF in the USA,[6] the findings are in contrast to another large study in Ohio, USA. Young and Hade found no evidence for the postponement of cancer deaths around individuals' birthdays, Thanksgiving and Christmas holidays when all subjects, irrespective of the race or gender, were considered.[8] However, there were more deaths among African Americans and women before Thanksgiving and individuals' birthdays, respectively. The authors did not discuss the reasons for the latter findings, but highlighted the limitations of their study. They looked at cancer deaths only, because they believed the concept of intentional death postponement would be more tenable for this chronic disease.[8] We agree with this concept. Unlike HD or CVD deaths that may occur unexpectedly, cancer patients are usually aware that they are dying and the inevitable day may come sooner or later. Therefore, they may "bargain with the higher authority" to help them spend their last auspicious holiday with their loved ones.[5]

But then, the big question regarding the present findings is, "Why are only the elderly Chinese men being granted that wish and not the women?" Auspicious holidays usually involve elaborate preparations, such as cooking, cleaning and looking after invited guests, tasks usually shouldered by women. Thus, the Chinese women "not getting the wish", may in part be due to altruism or "being worked to death", as reported for Jewish women around Sabbath.[2] While HD or CVD deaths show seasonality, prior studies suggest that cancer death does not.[8,9] Could it be that cancer deaths are more amenable to psychological influences as has been suggested,[4] and cancer patients can override some of the external influences that are responsible for seasonal HD and CVD deaths? Furthermore, cancer is a chronic disease and terminally-ill patients are likely to be under palliative care from relatives and friends. Therefore, if death is imminent around an auspicious holiday, the sick may wish to die after the holiday. However, a recent meta-analysis has provided evidence against the concept that there is an association between psychological coping styles – fighting spirit, helplessness/hopelessness, denial, avoidance, and survival in cancer patients.[10] It must however be mentioned that the type of effect that we may have observed with this data, a postponement of death by only a few days, would unlikely be detected in the type of studies that were reviewed in their paper.

From a psychosocial viewpoint, the four Chinese holidays may have evoked different emotions in people. LNY and HMF are both joyous occasions, and probably evoke a happy feeling as well as a zest for life. While our analysis provides some evidence that younger Chinese men have a lower likelihood of CVD deaths before LNY than after, the younger women also had fewer deaths from the disease before the holiday. While older men had significantly fewer cancer deaths before HMF than after, and younger men had significantly fewer HD deaths before HMF than after, older women did not have significantly fewer HD deaths before than after this holiday. CM

involves ancestral worship with visits to gravesites. The occasion is not necessarily a sad affair, and is celebrated with offerings, such as food and burning of paper mock-ups of worldly possessions to placate the dead relatives. However, sadness may occur in some recently bereaved relatives, which may cause depression in some.[11] In the elderly, major depression increases the risk of death in both men and women, while mild depression increases death only in men.[12] Furthermore, surviving spouses have a two- to 12-fold higher chance of dying within a year after their loved one's death compared to living married couples, and the mortality in widowers is five-fold higher than in widows.[4]

Visits by widowed persons to a spouse's gravesite may thus evoke a desire to join them in the afterlife. It is also possible that a surviving spouse may start to neglect his health by not eating properly, not taking medication and withdrawing from society, which may hasten their death. The festival of CY celebrated on the ninth day of the ninth lunar month is based on a belief that unless a person seeks refuge somewhere high, like a mountain, bad luck will befall him. The latter two holidays could thus be expected to induce psychological distress, and if anything, precipitate cardiac mortality.[13] Our study showed that CY passed without any significant trend in mortality. While the older men had significantly fewer cancer deaths before CM than after, their female counterparts had fewer cancer deaths than expected after the holiday. Cancer is a known cause of psychological distress in afflicted persons.[14] Whether CM added to this burden and influenced cancer mortality through psychosomatic processes is left to conjecture.

We observed a statistically significant deficit in before-holiday deaths vs. after-holiday deaths for men, but few of the subgroup analyses gave significant results for this gender. The observed effect size for males overall was small, 0.4861 of the total deaths occurred before the holidays vs. 0.5002 expected. Most of the sample sizes for the subgroup analyses stratified by gender, age, cause of death and holiday were in the range of 100–1,000. The power of the binomial test to detect a postponement effect of this size is < 10% for sample sizes of < 700, and only 14% for a sample size of 1,000. Even for the sample sizes for analyses stratified by age and gender only (about 3,000–5,600), the power only ranged from 35% to 55%. Thus, it is not surprising that significant results were not obtained for most subgroup analyses.

In this analysis of multiple comparisons, we realise that an inflated type I error rate occurs if we consider any result with a p-value < 0.05 to be statistically significant. While the Bonferroni correction is often applied to correct for multiple comparisons, this correction is overly conservative for this situation due to the high correlation between the results for the pooled analyses and those for the stratified analyses. In interpreting our results, our reasoning was as follows: at the first level of analysis, stratified only by gender (Table I), the corrected significance level is 0.025, since only two comparisons were made, and thus the result for men can be considered significant. Following the same reasoning, none of the comparisons stratified by age and gender would be significant (significance level = 0.0125 [0.05/4]); but for comparisons stratified by gender and cause of death, and stratified by age, gender and cause of death (significance levels = 0.0083 [0.05/6] and 0.0042 [0.05/12], respectively), the results for all male cancer deaths and male cancer deaths of those aged over 75 years would be considered significant. We also provided the actual p-values for each comparison, rather than simple declarations of significance in order to allow the reader to draw their own conclusions regarding the strength of evidence for the associations. The holidays we have discussed in this paper follow the lunar calendar, and thus the regression models with dates chosen to centre around each holiday, do not use exactly the same dates in the Gregorian calendar for each year. However, the seasonal changes in mortality in HK are rather gradual and therefore the shifts in the time frame of 1–3 weeks did not have much effect on the predicted values, which were used to calculate the expected proportions before and after each holiday.

A recent review covering research over the past three decades concluded that there is no convincing evidence to support the notion that death can be postponed.[1] Much of this research was been carried out by Phillips and colleagues, and some of it is now being challenged.[7,15-17] Using the same 1960–1984 American data, Smith showed no significant increase in deaths in older Chinese women after HMF, if the week included the HMF holiday, but an increase resulted if the week excluded the holiday.[7] However, using more recent 1985–2000 American data, Smith found no evidence for the postponement of death, not only in the Chinese, but also in the Koreans and the Vietnamese. Moreover, more young Chinese women died before the HMF holiday,[7] similar to some of the findings in the present study. Although Phillips and Smith considered HMF "an old woman's holiday",[6] the question is, could more deaths in younger Chinese women be representing a "worked to death" altruism as has been suggested for Jewish women before Sabbath?[2] Another study which looked at the postponement of deaths in notable Americans[15] could not replicate Phillips and Feldman's previous finding.[18] It has also been claimed

that ethnic Chinese (and Japanese) Americans had a higher cardiac mortality on the fourth day of a month, because the word 4 is homophonous to that of death in these Oriental languages and it is therefore considered an unlucky number, and thereby caused psychological distress.[19] The authors labelled this phenomenon, "The Baskerville Effect", based on the fictional story by Sir Arthur Conan Doyle. Again, this effect could not be replicated in another study employing a bigger database, as well as examining deaths according to the lunar calendar, which has a greater significance to the Chinese.[16]

The Chinese believe a person's death is predetermined at the time of birth. Although it can occur prematurely, it cannot be extended,[3] which is thus against the idea of postponing death. Notwithstanding this point, there were a few instances in the current dataset of statistically significant differences in deaths before vs. after the holidays in the HK Chinese of a specific age and gender. The number of these occurrences were only slightly higher than would be expected by chance given the large number of comparisons made. However, collating of data for all deaths, irrespective of age, did yield significantly fewer deaths in men before the holidays. If symbolic Chinese holidays do elicit a desire to postpone death, then it is perhaps the Chinese men who are more inclined to hang on to life, rather than the Chinese women.

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