

## **Work Schedules and Sleep Patterns of Railroad Train & Engine Service Employees in Passenger Operations: Description of the Survey Data**

The Federal Railroad Administration (FRA) sponsored a study of the work schedules and sleep patterns of railroad train and engine service (T&E) employees in passenger operations. The purpose of this document is to describe the study's data files that are available at [www.fra.dot.gov](http://www.fra.dot.gov). A separate technical report describes the study methods and findings in detail (see reference below). The Office of Management and Budget (OMB) approved this collection of information under OMB control number 2130-0588 on December 2, 2009. Data collection for this study occurred in January/February 2010. These data were collected *exclusively* for statistical purposes and may not be used for any other purpose.

### **Survey Methodology**

The study collected data from a random sample of actively working U.S. railroad T&E personnel in passenger operations. The study used two survey instruments, a background survey and a daily log. Copies of both instruments are a part of this document. The background survey gathered demographic information, descriptive data for the passenger T&E worker's job type and work schedule, and a self-assessment of overall well-being. Study participants used the daily log to record sleep and work periods on both regular workdays and non-workdays for a 2-week period.

The response rate for the survey was 21 percent. The accompanying files contain data for the 256 usable responses.

### **Data File and Description of Data Organization**

Data from each participant's background survey and daily log are available in a single Excel workbook named "Passenger T&E Worker Data.xlsx." The background survey data is in one worksheet of the Excel workbook while the sleep and alertness ratings as well as the daily log data are in two additional worksheets. A unique participant identification number appears in all three worksheets providing a common reference among the different worksheets. Another worksheet in the data file describes the contents and format of each data field.

### **Adjustments to the Data**

Protecting the identity of the survey participants necessitated some modifications to the original dataset. A few categories of data are reported as ranges rather than as the raw reported data; an example of this is the age data. Some fields were recoded as yes or no fields. This is true for the marriage and children under 2 years fields. For others, such as years of experience, top coding was used to prevent identification of respondents; values were top coded for respondents with over 40 total years of experience and 35 years working with their present employer. Two data fields relating to sleep disorders were excluded to protect the respondents' anonymity: fields indicating if the diagnosed sleep disorder was a disorder other than sleep apnea and if the sleep disorder was being treated medically. Comparison of the survey instruments, which appear on the following pages, with the data file will reveal where these adjustments were made. Blank fields indicate no response from the participant.

### **Use of the Data**

These data files are the property of the FRA. The data is being made available for researchers and others who are interested in the safety and health of the study population and in the

relationship between work schedules and fatigue. Use of the data in books, journal articles, dissertations, theses and other publications (print or electronic) is authorized provided that the data is cited as “Federal Railroad Administration. (2011). *Work schedules and sleep patterns of railroad train and engine service employees in passenger operations: Data file*. (Report No. DOT/FRA/ORD-xx/xx). Washington, DC: U.S. Department of Transportation.” and that the FRA is notified of the publication (ATTN: Thomas G. Raslear, Federal Railroad Administration, Mail Stop 20, 1200 New Jersey Avenue, SE, Washington, DC 20590).

Gertler, J. & DiFiore, A. (2011). *Work schedules and sleep patterns of railroad train and engine service employees in passenger operations*. (Report No. DOT/FRA/ORD-11/05). Washington, DC: Federal Railroad Administration.

## Survey of Work Schedules and Sleep Patterns of Train and Engine Passenger Service Employees

**\*\*Please Read Before Making Entries in Daily Log\*\***

**Note** You must complete the daily log exactly as explained in the instructions. If you don't, you will not receive compensation (gift card), as the information cannot be included in our analysis and recommendations.

### Using the Daily Log

The log has 14 sections. Start a new section for each new day. Starting with Day 1, write the date on the first page of each section. Begin your log on a day you will be working. **You must provide data for 14 consecutive days.** If you have scheduled vacation or holiday time, do not begin the log until after these days.

Complete the log for every day of the study, not just the days you work. **We need a record of your sleep for all 14 days.**

Rate your sleep quality after waking up and your alertness before and after each work period. To accurately capture this information, make your log entries as soon as possible after waking and immediately at the start and end of each work period. **If you work a split assignment,** rate your alertness at the start and end of each of the two segments of your assignment. If for any reason you do not record data at the appointed time, fill out your log as soon as possible to the best of your ability. The study results will not be meaningful without complete log entries from you.

Log your daily activities in the appropriate row (sleep, work, etc.) by marking the start and end times with two vertical lines connected by a horizontal line (e.g., |—|). In the Start/End Times row for each activity or sleep period, write the exact start and end times. **Please use military time, 0-24 hr.**

The log contains two sample entries for 2 days, one for a split assignment and the other for a straight-through assignment. Please review these examples to make sure that you understand how to make entries in the log.

### Sleep Periods (complete daily)

Record your main sleep periods as well as any supplementary sleep periods or naps. Enter quality ratings for your longest sleep period ending on each day. If your sleep is interrupted (for any reason) for more than 15 minutes, please record this on the log by showing two separate periods. Treat interruptions of less than 15 minutes as continuous sleep. In the Location row, under the vertical lines in the sleep row, write an "A" to indicate that you slept away from home or "H" to indicate that you slept at home.

**You should report all naps that you take during on-duty time, break, interim release, or limbo time. Sleep can overlap with work, break, interim release, or limbo.**

Explain anything unusual about your sleep on the comments page.

Please turn page over→

<b>Work Periods</b>	<p>Make entries on the activity page to record your travel to/from your reporting point (Commute), your on-duty period (Work), and limbo time or period of interim release or break, if any. Record as Commute the period from leaving home or lodging until you arrived at your reporting location. <b>If you arrive at your reporting point in advance of your sign-on time, record this time as commute. Similarly, if you do not leave company property immediately following the end of your service, record the time as commute.</b></p> <p><b>If you work a split assignment, please provide two sets of alertness ratings.</b> Rate the first part of the work assignment as well as the second part following interim release.</p> <p>Explain anything unusual about your work period on the comments page.</p>
<b>Study Compensation</b>	<p><b>You must return a completed background survey and 14 consecutive days of sleep and work schedule information to receive compensation.</b> You will receive a \$75 gift card to a retail establishment as compensation for your participation in this study. Complete the last page of the log to indicate your preference. You should receive the card within 4 weeks of returning your materials.</p>
<b>Returning Study Materials</b>	<p>Return your Background Survey and Daily Log in the postage-paid envelope by <b>February 15</b>. If you lose it, contact Talin Chaparian, <a href="mailto:talin.chaparian@QinetiQ-NA.com">talin.chaparian@QinetiQ-NA.com</a> or 781-684-4160, for a replacement.</p>
<b>Questions or Problems?</b>	<p>If you have questions on any aspect of these instructions, are not sure how to report specific work or sleep information, or need additional survey materials, please contact Amanda DiFiore, <a href="mailto:amanda.difiore@QinetiQ-NA.com">amanda.difiore@QinetiQ-NA.com</a>, 781-684-3978, or Judy Gertler, <a href="mailto:judy.gertler@QinetiQ-NA.com">judy.gertler@QinetiQ-NA.com</a>, 781-684-4270.</p>



# T&E PASSENGER SERVICE EMPLOYEE DAILY LOG

*Important: Be sure to read the instructions before entering your responses.*

ID \_\_\_\_\_

If you have questions, please contact:

Amanda DiFiore	or	Judy Gertler
781.684.3978		781.684.4270
amanda.difiore@QinetiQ-NA.com		judy.gertler@QinetiQ-NA.com

Return survey materials by February 15, 2010, to:

Talin Chaparian  
QinetiQ North America  
350 Second Avenue  
Waltham, MA 02451

FRA F6180.131 (07/09)

## Instructions for T&E Passenger Service Employee Log

This log is in 14 sections, one for each day you will be recording data. Each section has a page for recording your assessments of your sleep. A table for recording sleep, personal time, commute to / from work, work periods, breaks / interim release, and limbo time follows the sleep ratings.

Please assign the time in each day to one of the six categories. Draw a horizontal line in the appropriate row to indicate the time you spent in that activity. Put a vertical bar at each end of the horizontal line to indicate the beginning and end of the activity. Enter the actual start and stop time of each activity period. Below the horizontal line in the "Sleep" row, write "A" if you slept away from home or "H" if you slept at home. Be sure to record all sleep periods, including naps. You should report all naps that you take during work, break / interim release, and limbo.

For the purpose of the survey, a **break** is a period less than 4 hours long when you are not operating the train but are still considered on duty. **Interim release** is a period of 4 hours or more at a designated terminal. Record breaks and interim release in the same row. Place a "T" below a period of interim release or break if the time is spent on a train. Place an "O" below these periods if the time is spent off a train.

**Limbo time** is time that is neither on-duty nor off-duty. It is the time after which you stop operating the train until you're released from duty. A common example of limbo time is waiting for a taxicab or van, or deadheading to the point of final release, including time spent traveling to it.

If you like, you may use the blank page following each daily entry for comments about the day's activities.

The following pages contain sample entries for two consecutive days, to illustrate how to record information. The first example is for a straight-through assignment. The second is an example that shows how to log a split assignment.

### **Study Compensation**

Complete the last page of this log to indicate your preference for compensation.

### **Sample Entry 1 - Straight-Through Assignment**

Sunday night you go to sleep sometime before midnight, and you wake up at 6:30 a.m. Monday morning. You are scheduled to begin work today at 5 p.m. During the day, you work around the house, run errands, and interact with your kids, until you have to get ready for work. You prepare for work, get in your car at 4:15 p.m., and arrive at work at 4:50 p.m. You report for duty at 5 p.m.

You proceed to work through the night into Tuesday morning. Your shift ends at 1:45 a.m. You drive home and watch television for a half an hour before you go to bed at 2:50 a.m. At 7 a.m. you are awakened by your family leaving for work and school. You go back to sleep and finally wake up at 10:30 a.m.

During the day you mow the lawn and go to a doctor's appointment. Before you pick up your kids from school, you take a short nap from 2 to 3 p.m. After you pick the kids up, you have an early dinner and then leave the house once again at 4:15 p.m. arriving at work at 4:45 p.m. You report for work at 5 p.m.; however, the train is delayed by 10 minutes. You work through midnight.

## Activity Page

For all activities, mark the start and end times with two vertical lines connected by a horizontal line (eg., (|—|)). Then write the actual start and end times on the next line.

**Sleep can overlap with work, break, interim, or limbo.**

Indicate the location of your sleep on the Location row by writing "A" for sleep away from home or "H" for sleep at home.

### Sample Entry 1 - Day 1

	Midnight	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	Midnight
<b>Sleep</b> ( — )													
Start/End Times	0630												
Location (A=away, H=home)	H												
<b>Personal</b> ( — )													
Start/End Times	0630 1615												
<b>Commute</b> ( — )													
Start/End Times	1615 1700												

For **work**, write your alertness ratings number in the line labeled Alertness Ratings. Rate your alertness at the start and end of each duty period using the following scale:

<b>1</b> Falling Asleep	<b>2</b> Sleepy	<b>3</b> Neither Alert Nor Sleepy	<b>4</b> Alert	<b>5</b> Very Alert
----------------------------	--------------------	---	-------------------	------------------------

For **break** or **interim** release, indicate your location during this time by writing "T" if you are on a train or "O" if you are not on a train.

**Sample Entry 1 - Day 1**

	Midnight	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	Midnight
<b>Work</b> ( — )													
Start/End Times	1700												
Start/End Alertness Ratings	4												
<b>Break/ Interim Release</b> ( — )													
Start/End Times													
Location (T=on train, O=off train)													
<b>Limbo</b> ( — )													
Start/End Times													

## Activity Page

For all activities, mark the start and end times with two vertical lines connected by a horizontal line (eg., (|—|)). Then write the actual start and end times on the next line.

**Sleep can overlap with work, break, interim, or limbo.**

Indicate the location of your sleep on the Location row by writing "A" for sleep away from home or "H" for sleep at home.

### Sample Entry 1 - Day 2

	Midnight	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	Midnight	
<b>Sleep</b> ( — )		—							—					
Start/End Times		0250				1030		1400 1500						
Location (A=away, H=home)		H							H					
<b>Personal</b> ( — )		—					—	—	—					
Start/End Times		0220	0250			1030	1400	1500	1615					
<b>Commute</b> ( — )		—							—					
Start/End Times		0145 0220							1615 1700					

For **work**, write your alertness ratings number in the line labeled Alertness Ratings. Rate your alertness at the start and end of each duty period using the following scale:

<b>1</b> Falling Asleep	<b>2</b> Sleepy	<b>3</b> Neither Alert Nor Sleepy	<b>4</b> Alert	<b>5</b> Very Alert
----------------------------	--------------------	---	-------------------	------------------------

For **break** or **interim** release, indicate your location during this time by writing "T" if you are on a train or "O" if you are not on a train.

**Sample Entry 1 - Day 2**

	Midnight	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	Midnight
<b>Work</b> ( — )													
Start/End Times	0145 1700 0000												
Start/End Alertness Ratings	2 4 2												
<b>Break/ Interim Release</b> ( — )													
Start/End Times													
Location (T=on train, O=off train)													
<b>Limbo</b> ( — )													
Start/End Times													

## Sample Entry 2 - Split Assignment

It's Thursday night and your last day of work for the week is tomorrow. You go to sleep sometime before midnight and you wake up at 4 a.m. Friday morning. You have breakfast, get ready, and depart from your home at 5:15 a.m. You arrive at work at 5:45 a.m. and report for duty at 5:50 a.m. At 10:30 a.m. you have interim release and report to the company-provided quiet room. You read for a short while before you take a nap from noon to 2 p.m. Before returning to duty, you take a short walk. After a 4.5 hour interim release, you work from 3 p.m. to 7:40 p.m.

After work you immediately drive home arriving at 8:10 p.m. You shower, get ready, and go out for a late dinner and a movie. You get back home, go to bed at midnight and wake up at 8 a.m.

During the day you visit your family and then run errands. You spend the rest of the day with friends, returning home at 10 p.m. You go to bed at 10:30 p.m.

## Activity Page

For all activities, mark the start and end times with two vertical lines connected by a horizontal line (eg., (|—|)). Then write the actual start and end times on the next line.

**Sleep can overlap with work, break, interim, or limbo.**

Indicate the location of your sleep on the Location row by writing "A" for sleep away from home or "H" for sleep at home.

### Sample Entry 2 - Day 1

	Midnight	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	Midnight		
<b>Sleep</b> ( — )			—				—								
Start/End Times			0400					1200		1400					
Location (A=away, H=home)	H			A											
<b>Personal</b> ( — )			—								—				
Start/End Times			0400		0515							2010		0000	
<b>Commute</b> ( — )			—								—				
Start/End Times			0515		0550								1940		2010

For **work**, write your alertness ratings number in the line labeled Alertness Ratings. Rate your alertness at the start and end of each duty period using the following scale:

<b>1</b> Falling Asleep	<b>2</b> Sleepy	<b>3</b> Neither Alert Nor Sleepy	<b>4</b> Alert	<b>5</b> Very Alert
----------------------------	--------------------	---	-------------------	------------------------

For **break** or **interim** release, indicate your location during this time by writing "T" if you are on a train or "O" if you are not on a train.

**Sample Entry 2 - Day 1**

	Midnight	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	Midnight
<b>Work</b> ( — )						—					—		
Start/End Times	0550                      1030                      1500                      1940												
Start/End Alertness Ratings	3                      4                      5                      3												
<b>Break/ Interim Release</b> ( — )								—					
Start/End Times	1030                      1500												
Location (T=on train, O=off train)	O												
<b>Limbo</b> ( — )													
Start/End Times													



For **work**, write your alertness ratings number in the line labeled Alertness Ratings. Rate your alertness at the start and end of each duty period using the following scale:

<b>1</b> Falling Asleep	<b>2</b> Sleepy	<b>3</b> Neither Alert Nor Sleepy	<b>4</b> Alert	<b>5</b> Very Alert
----------------------------	--------------------	---	-------------------	------------------------

For **break** or **interim** release, indicate your location during this time by writing "T" if you are on a train or "O" if you are not on a train.

**Sample Entry 2 - Day 2**

	Midnight	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	Midnight
<b>Work</b> ( — )													
Start/End Times													
Start/End Alertness Ratings													
<b>Break/ Interim Release</b> ( — )													
Start/End Times													
Location (T=on train, O=off train)													
<b>Limbo</b> ( — )													
Start/End Times													

**Day 1**

Date \_\_\_/\_\_\_/2010

**Sleep Quality Assessments**

Rate your sleep upon rising from longest sleep period.

<b>Ease of falling asleep</b>				
1	2	3	4	5
Very difficult				Very easy

<b>Ease of getting up</b>				
1	2	3	4	5
Very difficult				Very easy

<b>Length of sleep</b>				
1	2	3	4	5
Wholly insufficient				More than sufficient

<b>Quality of sleep</b>				
1	2	3	4	5
Very poor				Very good

<b>Indicate how you feel now</b>				
1	2	3	4	5
Very sleepy				Very alert

## Activity Page

For all activities, mark the start and end times with two vertical lines connected by a horizontal line (eg., (|—|)). Then write the actual start and end times on the next line.

**Sleep can overlap with work, break, interim, or limbo.**

Indicate the location of your sleep on the Location row by writing "A" for sleep away from home or "H" for sleep at home.

	Midnight	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	Midnight
<b>Sleep</b> ( — )													
Start/End Times													
Location (A=away, H=home)													
<b>Personal</b> ( — )													
Start/End Times													
<b>Commute</b> ( — )													
Start/End Times													

For **work**, write your alertness ratings number in the line labeled Alertness Ratings. Rate your alertness at the start and end of each duty period using the following scale:

<b>1</b> Falling Asleep	<b>2</b> Sleepy	<b>3</b> Neither Alert Nor Sleepy	<b>4</b> Alert	<b>5</b> Very Alert
----------------------------	--------------------	---	-------------------	------------------------

For **break** or **interim** release, indicate your location during this time by writing "T" if you are on a train or "O" if you are not on a train.

	Midnight	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	Midnight
<b>Work</b> ( — )													
Start/End Times													
Start/End Alertness Ratings													
<b>Break/ Interim Release</b> ( — )													
Start/End Times													
Location (T=on train, O=off train)													
<b>Limbo</b> ( — )													
Start/End Times													



OMB No. 2130-0585

ID Number \_\_\_\_\_

## **T&E Passenger Service Employee Background Survey**



*The Federal Railroad Administration (FRA) is conducting a study of the work schedules and sleep patterns of railroad operating crews. The purpose of the study is to develop an understanding of the issue of work schedule-related fatigue of train and engine (T&E) passenger service employees. The study results will inform possible future FRA policy and regulatory actions in passenger service, will assist the railroad industry in addressing any work-schedule related fatigue issues of passenger service employees, and, in general, will contribute to overall railroad operational safety.*

*The data collected from this study will be used primarily for statistical purposes, and is authorized by law (49 U.S.C. 20901). Your participation in this study is completely voluntary. Your personal information will be kept private to the extent permitted by law, and will not be disclosed to anyone other than employees and contractors who work on this study.*

*Public reporting burden for this information collection is estimated to average 15 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Please note that an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The OMB control number for this information collection is OMB No. 2130-0585 and the expiration date is December 31, 2012.*

Form FRA 6180.130 (07/09)

**About Yourself**

1. Age: \_\_\_\_ years
2. Sex: \_\_\_\_ male \_\_\_\_ female
3. How long have you worked in commuter/passenger service?  
\_\_\_\_ years and \_\_\_\_ months
4. How long have you worked in commuter/passenger service at your current railroad?  
\_\_\_\_ years and \_\_\_\_ months
5. What type of work do you currently do?  
\_\_\_\_ commuter service  
\_\_\_\_ intercity service  
\_\_\_\_ long haul  
\_\_\_\_ other (please explain) \_\_\_\_\_
6. My current position is  
\_\_\_\_ conductor \_\_\_\_ locomotive engineer  
\_\_\_\_ asst. conductor/ticket collector  
\_\_\_\_ yard foreman \_\_\_\_ switchman  
\_\_\_\_ trainee  
\_\_\_\_ other (please explain) \_\_\_\_\_
7. What is your marital status?  
\_\_\_\_ single \_\_\_\_ divorced \_\_\_\_ other  
\_\_\_\_ married \_\_\_\_ widowed
8. How many children or other dependents do you have (not including your spouse)? \_\_\_\_\_
9. How many of your dependents are under the age of 2 years? \_\_\_\_\_
10. a) Do you drink caffeinated beverages?  
\_\_\_\_ yes \_\_\_\_ no  
b) On average, how many cups and/or cans of these beverages do you drink per day? \_\_\_\_\_

### **Your Health**

1. How many times have you marked off sick in the last year? \_\_\_ days
2. In general, how would you rate your health? Circle one:  
Poor      Fair      Good      Excellent
3. Some people feel younger or older than their biological age. How old do you feel? \_\_\_ years
4. What type of educational materials or training has your railroad provided you on fatigue, sleep hygiene, napping, or sleep disorders?  
\_\_\_ videotape              \_\_\_ safety briefing  
\_\_\_ brochure              \_\_\_ none  
\_\_\_ other (please explain) \_\_\_\_\_
5. Have you been diagnosed as having a sleep disorder?  
\_\_\_ yes      \_\_\_ no (skip questions 6 and 7)
6. Do you have sleep apnea?  
\_\_\_ yes      \_\_\_ no
7. Are you receiving medical treatment for your condition?  
\_\_\_ yes      \_\_\_ no

### **Sleep/Rest Arrangements**

Please complete this section *only* if your job requires you to spend time at an away terminal or interim release point.

1. When held at the away-from-home terminal or point of interim release, most times:  
\_\_\_ I share a hotel room with one or more other workers.  
\_\_\_ I sleep in an individual room, not shared with anyone.  
\_\_\_ I use the company-provided quiet room.  
\_\_\_ I go home to sleep.

2. When at an away terminal or point of interim release, the company:

\_\_\_ Provides me with sleeping accommodations.

\_\_\_ Provides a daily per diem and I must find my own accommodations.

\_\_\_ Provides me with a quiet room.

\_\_\_ Does not provide either sleep/rest accommodations or daily per diem.

**Your Work Schedule**

1. a) If you work a job that has a regular schedule, please describe your work schedule using this table. Leave rest days blank and use military time.

	S	M	T	W	Th	F	S
On-duty time							
Off-duty time							
Break/interim release length							

b) If you work a job that does not have a regular schedule, please answer the following:

call time \_\_\_\_\_(hr:min)

call window \_\_\_ 24 hr *or* from \_\_\_\_\_ to \_\_\_\_\_

On average, how many times a day do you check the line up? \_\_\_\_\_

2. On average, how many on-duty hours do you work per week, not including interim release? \_\_\_\_\_

3. How does your job provide for rest days?
- no guaranteed rest days     2 consecutive days per week  
 2 days per week                     1 day per week  
 other (Please explain. For example, 7 on/2 off, 8 on/2 off)
- 

4. How many times in the past month did you work on your rest day?

5. How often do you feel well rested and alert over the course of your work period? Circle one:

Never    Occasionally    Frequently    Always

**Stress at Work**

Use the following scale to rate how much each factor below contributes to your stress at work:

No Stress	A Little Stress	Stressful	Very Stressful
1	2	3	4

Please assign a rating to *each* of the following items:

- Lack of control over work schedule
- Loss of sleep
- Lack of guaranteed uninterrupted rest
- Coordination with other departments
- Ambiguous operating rules or procedures
- Management policies and decisions
- Job security
- Communication problems
- Inadequate staffing
- Crew management
- Responsibility for safety of others
- Lack of break time
- Inadequate time off
- Oversight of new hires
- Other (please specify) \_\_\_\_\_

### **Life Events**

Please indicate with a ✓ whether any of the events listed below has occurred to you in the last 6 months:

- Personal illness or injury
- Marital/relationship difficulties
- Birth of a child
- Death of a spouse
- Change in sleeping habits
- Difficulty with the law
- Illness/injury of family member or friend
- Financial difficulties
- Change in living conditions
- Change in social activities
- Death of a close family member