

Results of Cognitive Testing of Questions on Injury for the National Health Interview Survey

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I. Introduction

This report summarizes the findings of a cognitive interview study conducted by the National Center for Health Statistics' (NCHS) Collaborating Center for Questionnaire Design and Evaluation Research (CCQDER) to test injury-screening questions for the National Health Interview Survey (NHIS)¹ sample adult injury module. The main objective of the NHIS is to monitor the health of the United States population through the collection and analysis of survey data on a broad range of health topics.

The purpose of the current study was to evaluate a new injury module for the NHIS. In particular, two general injury questions (one with examples and one without) were evaluated. A secondary objective was to understand the extent to which respondents with repetitive strain injuries could separate those injuries from acute ones. The instrument evaluated in this study is located in the appendix of this report.

Background

From 1997-2017, the National Health Interview Survey (NHIS) collected data on all medically attended injuries and poisonings occurring to any family member during the 3-month period prior to the interview. The new injury module, undertaken as part of the NHIS redesign, is intended to collect information about the cause of the injury, the activity the person was doing at the time of the injury, and the place of occurrence. One of the main objectives for this new injury module is to create a person-based measure of injury that provides meaningful information on injuries in the U.S. population. The NHIS plans to field the redesigned injury module two out of every three years beginning in 2020.

The National Center for Health Statistics (NCHS) has undertaken several steps to develop this new injury module. First, NCHS consulted with the Bureau of Labor Statistics (BLS) regarding their 2016 testing of the Household Survey of Injuries and Illnesses. Discussions with BLS highlighted the importance of separating repetitive strain type injuries from more acute injuries. NCHS also conducted expert review of international approaches to measuring injury, and conducted three panels with subject matter experts from universities and government agencies, including the National Institute for Occupational Safety and Health (NIOSH) and the National Center for Injury Prevention and Control (NCIPC). From this expert review, the NHIS was identified as an important data source for capturing information about injuries that do not lead to visits to an emergency department but are severe enough to result in activity limitation, additional medical needs, or the loss of a day of work or school. Although data on emergency department visits are captured elsewhere, there is no other source of data on injuries of lesser severity.

¹ CDC – National Center for Health Statistics – National Health Interview Survey Homepage. <https://www.cdc.gov/nchs/>. June 11, 2019.

II. Methods

This section details the methodology for this question evaluation study.

Cognitive Interviewing: As a question evaluation method, cognitive interview studies investigate how respondents answer survey questions. Cognitive interviewing studies typically involve semi-structured interviews with a small sample of approximately twenty respondents to understand the cognitive processes of question response: comprehension, retrieval, judgment and response.² Findings from cognitive interviewing projects often lead to recommendations for question improvement, provide an evidence basis for question validity, and help to inform research by providing an understanding of the range of patterns of interpretation that underlie survey data.

Through these interviews, respondents are asked each of the survey items and then are asked a series of follow-up probe questions to reveal how they arrived at their particular response choices. These probes can be either concurrent – asked with each survey item – or retrospective – asked after answering a set of survey items.

Sample selection for cognitive interview projects is purposive. Respondents are selected for particular characteristics to address the questions being evaluated in context to the objectives of the study. Ideally, a diverse set of respondents with different experiences related to the goals of the study are sought after to get a full picture of the phenomena captured in the questions being tested. For example, the purposive sample selected for this study included respondents with a wide range of injuries. Additional effort was made for selecting demographically diverse samples to understand potential differences in experience across respondent characteristics like age, race, or education.

Analysis for a cognitive interviewing study is conducted through a process of data synthesis and reduction.³ An interview is conducted with a respondent, collecting their answer to a question as well as the reasoning behind that answer. Researchers then make summaries to document respondent answers and note any difficulties experienced when answering the question, including any emerging themes or possible patterns in how respondents may be interpreting the question. Then, comparisons are made across respondents to fully understand the phenomena captured by each question.

Sample: For this study, the CCQDER research team recruited a purposive sample of 20 adults over age 18 years through newspaper advertisements, e-mail list contacts and flyers. Inclusion criteria for the study included being aged 18 years or older and having an injury within the last 12 months. A screening process over the telephone helped to determine the eligibility for study participation. Once the interview was scheduled, sample respondents were randomly assigned into two groups: one group asking the general injury question with examples and the other without examples.

Most respondents identified as Black or African American, aged 50 years or older, male, and had at least some college. Demographics for the full and split sample of respondents are shown in Table 1.

² Tourangeau, R. (1984). Cognitive sciences and survey methods. *Cognitive aspects of survey methodology: Building a bridge between disciplines*, 15, 73-100.

³ Miller, K., Chepp, V., Willson, S., & Padilla, J. L. (Eds.). (2014). *Cognitive interviewing methodology*. John Wiley & Sons.

Table 1. Respondent Demographics

Characteristic		Injury Question with example	Injury Question without example	Total Respondents
		n =10	n =10	n =20
Race	American Indian/Alaska Native	1	0	1
	Black	6	7	13
	Multiple	1	0	1
	White	2	3	5
Ethnicity	Hispanic	0	1	1
	Non-Hispanic	10	9	19
Age	18-29	0	1	1
	30-49	4	2	6
	50-64	6	6	12
	65+	0	1	1
Gender	Male	8	6	14
	Female	2	4	6
Education	Less than High School	1	1	2
	High School or Equivalent	2	3	5
	Some college	5	3	8
	Bachelors/Graduate Degree	2	3	5

Interviewing procedures: At the time their interview was scheduled, respondents were randomly selected to receive one of two questionnaires that only differed by the general injury question being tested (INJ1). One version asked the general injury question with examples and the other version did not include examples.

The remaining questions were exactly the same for both sets of respondents, including ones on repetitive strain injury and injury severity. The full set of questions appear in the Appendix at the end of this report. After answering each question, respondents were then asked a series of intensive probe questions to reveal how they understood each question and why they answered the survey question as they did.

All interviews were conducted face-to-face by CCQDER staff in the Questionnaire Design Research Laboratory. Interviews lasted up to 60 minutes, and respondents were given \$40 once the interviews were completed.

Data Analysis: Interviewers used video recordings and written notes taken during the interviews as the basis for analysis. After completing each interview, researchers entered question summaries for each cognitive interview. Summary notes were then compared across interviews to identify common patterns of interpretation or themes, as well as any response difficulties observed for each question. Analysis was conducted using Q-Notes, a CCQDER data entry and analysis tool.⁴Q-Notes provides a systematic and transparent way to document each stage of data synthesis and reduction described earlier. Q-Notes also provides analysts with an audit trail to demonstrate how findings were generated from the raw interview data.

III. Overall Findings

Use of examples in general injury question: The two versions of the general injury question captured similar types of injuries. The general injury question with examples specifically asked about broken bones, burns, sprains, wounds, cuts, bruises, concussions, animal bites, or any other type of injury, and largely captured this diverse set of injuries in participants' responses. The injury question without examples captured a more limited set of injuries, including several broken bones, bruises, cuts, and back strain. Asking the question with examples may limit respondents' answers to only injuries that match the examples. On the other hand, asking the question without examples may not trigger respondents to think of specific injury types. Further testing of these questions may be required to determine which version of the question is preferable.

Framing the general injury question with the repetitive strain question: Results suggest that asking questions on repetitive strain before the general injury question inhibits respondents from including repetitive-type injuries in their responses to the general injury question. That is, respondents who reported having repetitive strain injuries did not include those injuries in their responses to the general injury question.

However, some respondents didn't understand the term "repetitive strain" and others used a broad interpretation of the concept. Thus, in addition to typical repetitive strain injuries such as carpal tunnel and muscle fatigue, respondents also included hernias, groin pulls, and re-injuries when answering the question. For example, one respondent answered "yes" to the repetitive strain question because she had re-injured a previously broken shoulder. This respondent went on to answer "yes" to the general injury question based on a different injury and not the injured shoulder. When respondents mis-categorized general injuries as "repetitive strain," these injuries were not included in their responses to the general injury question.

Multiple injuries: When answering, respondents with multiple injuries considered only the particular injury that was most salient, recent, or relevant at the time. In some cases, respondents with a variety of injuries switched between injuries as they answered the various questions. For example, one respondent who had answered the first injury question thinking about her "cervical disk disorder," then answered the next question thinking about a "knee bruise" injury. During the follow-up probing, this respondent revealed even more injuries including several falls, a bus accident and others that were within the specified time frame. She had not considered these additional injuries when answering the questions

⁴ www.cdc.gov/qnotes

because they were not as recent and had not caused her as much pain. Respondents with multiple injuries also had difficulty identifying whether their injuries occurred within the specified timeframe.

IV. Question by Question Review

REPETITIVE STRAIN INJURY

RS1. The first question is about repetitive strain injuries. By this we mean injuries caused by repeating the same movement over an extended period. Examples include carpal tunnel syndrome, tennis elbow, or tendonitis. DURING THE PAST 3 MONTHS, did you have any injuries due to repetitive strain? Yes (Go to RS2A) No (Skip to INJ1)

All respondents were asked this question. Most respondents were able to answer without hesitation. However, a few respondents were not familiar with the term “repetitive strain,” and hesitated or asked for clarification before they were able to provide their answers.

Repetitive Strain: Respondents understood the question in four ways:

Medical Diagnosis: Some responded based on having an actual medical diagnosis of a repetitive strain injury. For example, one respondent answered “yes” because she had been “diagnosed with carpal tunnel.” Another answered “yes” because he had a diagnosis of tendonitis. Several respondents answered “no” because they did not have a medical diagnosis. These respondents often mentioned knowing someone who did have a medical diagnosis. For example, one respondent who answered “no” contrasted his lack of diagnosis to his ex-wife’s diagnosis. He said, “My ex-wife got carpal tunnel syndrome from years of working as a hair stylist...”

Repetitive motion: Others respondents answered based on an injury caused from repeating the same movement or from straining a muscle over time. For example, one respondent who answered “yes” said that a groin injury he got from basketball was due to “doing the same moves (side-to-side).” Similarly, another respondent answered “yes” because of the repetitive motion of lifting heavy boxes at work and doing squats at the gym, which regularly caused muscle spasms. He said, “The exercises I do (at the gym) are repetitive... Some functions I perform at work are repetitive...lifting, pushing, picking up boxes, stocking, unloading-loading trucks, which requires me to be very physical, a lot of repetitive movements.” Another respondent considered a cyst on his foot a repetitive strain injury, “because of the repetitiveness of walking far distances.” Another respondent who also answered “yes” described a knee injury sustained from holding a modelling pose for an extended amount of time. This respondent focused on the sustained nature of the specific hold that led to the injury. He explained the nature of his modelling work, saying, “...especially when modeling for artists and you’re staying for a long time in one pose. Or holding the same (pose) at another different time interval.”

Re-injury: A few respondents considered repetitive strain injuries as either a re-injury, or a repeated injury to a body part. One respondent answered “yes” thinking about a re-injury of her shoulder. This respondent explained that she had re-injured her previously broken shoulder by slipping and falling. Another respondent, who also answered “yes,” described repetitive strain as, “First you hurt a body part, and then you reinjure it from repeating movements that caused the first injury.” Another respondent answered “no” but had a similar definition of repetitive strain, describing it as “like re-hurting the finger on a constant basis... If I was playing sports, did I reinjure the finger...it’s reinjuring it.”

Repetitive pain: Finally, a single respondent who answered “yes” described his answer in terms of “repetitive pain” and not “repetitive strain.” This respondent continued to say “repetitive pain” and even explained his answer thinking about a painful experience of walking around on a collapsed lung as an example of “repetitive pain injury.” The pain was bad enough that he was “crying due to the pain.”

Uncertainty: A few respondents who answered “no” were uncertain about the meaning of the term “repetitive strain.” For example, one respondent asked, “What is that action, repetitive strain? What does that entail? I’m not sure how to determine that.” Another indicated unfamiliarity by confirming if he had heard the phrase correctly by restating “repetitive strain?” These respondents were not familiar with the term “repetitive strain” nor any of the examples provided. Additionally, they did not know anyone with repetitive strain injuries. Although these respondents did not know what the term “repetitive strain” meant, there was no response error identified. That is, in follow up discussion, respondents described not having any of these kinds of injuries.

Timeframe: There were several ways that respondents referenced the 3-month timeframe. Some respondents thought about the occurrence of a particular repetitive strain injury within the 3-month timeframe. For example, one respondent answering “yes” thought about lifting a heavy box at work within the 3-month period that resulted in his repetitive strain injury. However, some respondents thought about the presence of symptoms, rather than the specific occurrence of the injury. For example, one respondent who answered “yes” thought about her carpal tunnel symptoms that had bothered her within the previous 3 months and elaborated that she was not considering when she received the formal diagnosis of carpal tunnel (4 months ago) or when the symptoms first started (years ago). For this respondent, she was just thinking about the presence of symptoms within the past 3 months. Another respondent similarly answered “yes” and thought about the ongoing symptoms of tendonitis in his elbow from holding a tablet device at work over past 12 months. He described it as “more as a nagging thing than an urgent fix.”

RS2A. Were any repetitive strain injuries serious enough to limit your usual activities for at least 24 hours? YES; NO;

The question was asked of the 13 respondents who answered “yes” to RSA1, having a repetitive strain injury in the last 3 months. Respondents generally interpreted this question as asking about whether their repetitive strain injuries had affected their activities for at least a day.

When answering, respondents thought about how their injuries impacted various activities such as daily chores, work and exercise. Respondents described two ways their activities were limited by injury:

Modifying activities: Some respondents described modifying certain activities, such as their work or exercise routines, due to their injuries. In some cases, such restrictions were based on a doctor’s advice while in other cases, they were self-imposed. In one instance, a respondent who answered “yes” indicated that his doctor gave him a note to get out of lifting heavy boxes at work to “rest up and heal.” Another respondent who answered “yes” had a self-diagnosed tendonitis injury flare-up and indicated that he “would just avoid doing certain movements and workouts at the gym until [his elbow] feels better.” Another respondent who answered “yes” discussed how she modified her online shopping after a carpal tunnel flare-up; instead of typing on her computer, the respondent would use voice-activated technology (e.g., Siri, Alexa) to shop online.

Inability to do activities: Another set of respondents were completely unable to continue with certain activities due to their injuries. For example, one respondent who had injured his back from lifting a heavy package, answered “yes” and described how his injury left him physically limited. He said that he “just couldn’t do them...could not drive, play basketball, or go to the gym.” Similarly, another respondent with severe tendonitis in her hands said that she was physically unable to use her hands at all to do specific activities such as routine chores and work when her tendonitis flared up.

RS2B. DURING THE PAST 3 MONTHS, did you miss any days of work or school because of repetitive strain injuries? YES; NO;DON'T KNOW;

This question was asked of the 13 respondents who answered “yes” to having a repetitive strain injury in the last 3 months. One respondent had difficulty providing a response, answering, “I don’t know” because he was retired.

Almost all respondents understood this question as asking about whether they had missed work or school due to their injuries. For example, one respondent who answered “yes” indicated that “sometimes [I take off] 2 days in a row...when it's so inflamed. I'm given anti-inflammatory pills to calm it down. I don't want to go to work after that." Another respondent who experienced an injury due to lifting heavy boxes answered “no” to missing work, and described how he was able to keep working. He said, "Work knew and I didn't want to deal with any of these [heavy] boxes, so I wanted to be switched [to a different position which didn't involve heavy lifting]. Now no package is over 20 pounds." A different respondent also answered “no” because she had flexibility with setting her own hours at work; so whenever her knee injury flared-up, the respondent could recover without taking any time off.

Response Error: A single respondent had a slightly different understanding of the question. This respondent answered “no” because he had to stop working at this job altogether due to his repetitive strain injury. For this respondent, leaving his job meant that he was not “missing” any days of work; therefore, he answered “no.”

RS2C. Did you talk to or see a doctor or other health professional about any repetitive strain injuries? YES; NO;

This question was asked of the 13 respondents answering “yes” to having a repetitive strain injury. Most respondents interpreted the question as asking about whether they had seen a health professional about their repetitive strain injuries in the previous 3 months.

Respondents answering “yes” described seeing multiple types of health professionals for their repetitive strain injuries, including primary care physicians, physical therapists, surgeons and emergency room staff.

Nearly all respondents described seeing a doctor for symptoms, such as pain or “tingling numbness,” that they attributed to repetitive strain injuries. Some respondents described seeking medical care for new repetitive strain injuries. For example, one respondent who answered “yes” went to the Emergency Department after experiencing pain in her arm and was treated for a new case of tendonitis. Other respondents answered “yes” thinking about seeing health professionals for ongoing repetitive strain injuries or flare-ups. For example, one respondent answered “yes” and described seeing his doctor for a re-occurrence of muscle spasms in his lower back. These spasms originated with an injury from repetitive lifting at work, and occasionally reoccurred when he played sports.

Recall error: One respondent answered “no” to talking to a health professional, yet recalled later on within the interview that he had spoken to a nurse about his hernia which he classified as a repetitive strain injury.

Timeframe: No timeframe was specified in this question, so while most respondents answered based on speaking to a health professional about repetitive strain injuries in the previous three months, some respondents answered based whether they had *ever* spoken to a doctor about their injury. For example, one respondent with repetitive strain injuries answered “yes” because she had spoken with her doctor 4 months prior to the interview.

GENERAL INJURY

Two versions of the general injury question were tested. One version of the injury question refers to accidents or injuries without providing any specific examples whereas the other version provides examples of accidents and injuries to help clarify the nature of injuries being asked. Respondents were randomly selected to receive one of the two general injury questions at the time their interview was scheduled. For those who answered “yes” to the repetitive strain injury question, the general injury question was prefaced with the phrase “Not including any of the repetitive strain injuries you just told me about...”

INJ1(without examples). [READ IF RS1 = YES, “Not including any of the repetitive strain injuries you just told me about...”] **DURING THE PAST 3 MONTHS, did you have an accident or an injury where any part of your body was hurt? YES (SKIP TO INJ3A); NO (GO TO INJ2A); Don’t know; Refused;**

Ten respondents randomly received the injury question without examples. Most respondents understood this question as asking about whether they were injured or hurt in the previous three months.

Respondents who answered “yes” thought about several different types of injuries such as broken bones, bruises, deep cuts, and sprains. For example, one respondent who answered “yes” described breaking several ribs when having to climb through a window. Another respondent answering “yes” thought about a breaking his collar bone from a fall. Other respondents mentioned breaking a toe, bruises from a car accident, bruises due to poor circulation and a sprained back.

Specificity: For at least one respondent, the general injury question was not specific enough to trigger recall of a particular injury which lead to response error. This respondent answered “no” to this version of the general injury question (INJ1) but later answered “yes” to the sports/exercise injury follow-up question (INJ2D). For this respondent, the follow-up question identified an exercise related knee injury which resulted from running with too much weight. When asked why she had not included this injury when answering the general injury question the respondent said, “...because you weren’t specific. I wasn’t thinking of that type of activity.” That is, to this respondent the general injury question did not trigger her recall of her exercise injury whereas the more specific follow-up question did.

INJ1(with examples): [READ IF RS1 = YES, “Not including any of the repetitive strain injuries you just told me about...”] **DURING THE PAST 3 MONTHS, did you have a broken bone,**

**sprain, burn, wound, cut, bruise, concussion, animal bite, or any other type of injury?
YES (SKIP TO INJ3A); NO (GO TO INJ2A); Don't know; Refused**

Ten respondents randomly received the injury question with examples. Most respondents understood this question as asking about incidents of injury within the previous 3 months.

Among those who answered “yes” to the injury question with examples, nearly all respondents thought of injuries that matched one of the examples mentioned. For example, one respondent who answered “yes,” described a burn from splashing oil on his hand. Other respondents answering “yes” described injuries that included spider bites, cuts, and plantar fasciitis.

A single respondent was hesitant and asked, “Does pink eye count?” This respondent answered “yes” describing an intense experience of discomfort, itching, and burning in his eye due to an infection.

Three-month timeframe: Regardless of the question version, respondents were not consistent in how they thought about the 3-month reference period. Some respondents thought about the 3-month period as when the injury occurred. For example, one respondent who answered “no” explained, “I mean, during the last 3 months, I ain’t had no injuries. But, I’m injured! But not in the last 3 months, no.” In this way, he clearly answered “no” to the occurrence of an injury in the past 3 months but still described himself as injured. Other respondents thought about injuries that had occurred more than three months prior to the interview but answered “yes” thinking about their ongoing injury management, or chronic pain from the injuries. For example, one respondent broke her toe about 6 months prior the injury but answered “yes” due to ongoing difficulty walking and need for orthotics.

Repetitive Strain: Respondents did not describe any repetitive strain injuries (i.e., carpal tunnel syndrome, tennis elbow, or tendonitis) in their responses to either version of the general injury question.

These results suggest that asking questions on repetitive strain-type injuries before the general injury question effectively inhibits respondents from including repetitive strain injuries in their responses to the general injury question. For example, one respondent answered “no” to the general injury question omitting his hernia injuries, carpal tunnel, and ruptured disc, which he had already accounted for in his “yes” answer to the repetitive strain question.

However, the possibility of respondents’ broadly interpreting repetitive strain injury has implications for the framing of the general injury question. If respondents broadly include other types of injury as repetitive strain injuries like the re-injury of a broken shoulder, a groin pull, hernia, or ruptured disc injuries from repetitive tasks, this may inadvertently result exclusion of appropriate injuries from the general injury question.

SPECIFIC INJURY QUESTIONS:

The injury follow-up questions (INJ2A-INJ2G) were administered to the five respondents who answered “no” to the general injury question (INJ1). The intent of these questions was to identify potential false-negative responses to the general injury questions. With only five respondents, there is not enough data to fully understand how these questions perform or how they function in relation to the main injury question (INJ1).

Only two respondents answered “yes” to any of these six follow-up questions. One respondent answered “yes” to INJ2D and another answered “yes” to INJ2E. Both instances are described below.

INJ2D. DURING THE PAST 3 MONTHS, did you have any injuries while you were playing sports or exercising, including walking, biking, or running for exercise? Please also include recreational sports such as skating, skiing, tennis, golf, bowling, or fishing. YES;NO

One respondent answered “yes” to this question and described a re-occurring running injury resulting from training by running with too much weight. The respondent describes this exercise-related injury as her “knee going out” from an aggravated nerve that “causes a shooting pain up [her] leg.” When asked why she had not included this injury in her response to the general injury question, the respondent explained that the general injury question was not specific enough. It is also worth noting that this respondent answered “no” across all injury severity questions (INJ3A, INJ3B, and INJ3C) indicating that this injury was not serious enough to limit her activities in any way.

INJ2E. DURING THE PAST 3 MONTHS, did you have any injuries while you were working at a job or business? YES;NO

One respondent answered “yes” to this question thinking about the repetitive strain injuries he had already accounted for in his response to the repetitive strain question (RS1). This respondent described his work related injuries as “the injuries related to my strained my back, wrist, hands, and fingers.” This respondent had answered “no” to the general injury question (INJ1) because it instructs respondents to exclude any repetitive strain injuries already mentioned.

INJURY FOLLOW-UP QUESTIONS:

This set of questions (INJ3A-C) was asked to all respondents who answered “yes” to either INJ or to any of the specific injury follow-up questions. These questions were intended to gauge injury severity.

INJ3A. Were any of these injuries serious enough to limit your usual activities for at least 24 hours after the injury occurred?

This question was asked of the 15 respondents who answered “yes” to either INJ or answered “yes” to any one of the follow-up injury questions. Nearly all respondents indicated that their injuries were serious enough to limit usual activities for at least a 24-hour period.

Respondents who answered “yes” described their answers in terms of significant modifications to at least one of their usual activities. For example, one respondent answering “yes” decided to avoid using his injured foot for 5 to 7 days to allow his toe puncture wound to recover. Another respondent who answered “yes” chose to avoid participating in social activities due to severe back pain. This respondent

went on to describe her self-imposed limitation, saying, "[due to] the entire pain situation, I couldn't give it my all [to participate in] recreational, family time."

Respondents who answered "no" thought their injuries had a minimal impact on their overall activities. For example, one respondent with a knee injury described her "no" saying the injury wasn't serious enough to prevent her from going to the gym. She said she could just "avoid specific exercises...or...could just reduce the amount of weight used at the gym."

INJ3B. Were any of these injuries serious enough that you missed at least one day of work or school?

All respondents who answered "yes" to INJ1, the general injury question, or answered "yes" to any one of the injury follow-up questions, were asked this question, and generally interpreted it as asking whether they had missed any work or school due to their injuries.

Most respondents who answered "yes" thought about the amount of time they were out of work or school. For example, one respondent said, "I missed 2 weeks of work." Another respondent provided a bit more context about why he missed school, saying, "I missed 5 days of school. I wouldn't be able to focus."

Respondents answered "no" for a variety of reasons. Most respondents answered "no" because they did not need to miss school or work due to their injuries. For example, one respondent said his injury was "not severe enough to not work." Other respondents answered "no" because they were able to modify their work schedules or environment to accommodate their injuries. For example, one respondent was able to answer phones instead of her usual, more active duties, and another respondent was able to incorporate recovery time in between scheduled work appointments. Other respondents who answered "no" indicated that they had to keep working despite their injuries. As one respondent said, "I need to pay bills."

INJ3C. Did you see or talk to a doctor or other health professional about any of these injuries?

All respondents who answered "yes" to INJ1, the general injury question, or answered "yes" to any one of the injury follow-up questions, were asked this question. Most respondents interpreted the question as asking about whether they had seen a health professional about their injuries in the previous 3 months.

Generally, respondents who answered "yes" thought about seeing health care professionals such as surgeons, triage nurses, emergency room providers or urgent care staff for their injuries. Respondents who answered "yes" thought about both in person visits and phone consultations.

Several respondents had seen multiple health care professionals for their injuries at different times. For example, one respondent answering "yes" described seeing multiple surgeons for consults about his leg injury before he finally received his needed surgery. Another respondent who answered "yes" cut his finger, and went to the emergency department for stitches and then saw his primary care doctor to get a note to get permission to go back to work. Another respondent saw 3 different sets of doctors before his lung injuries were diagnosed and adequately treated.

Respondents who answered "no" had not seen or talked to health professionals about their injuries for several reasons including cost, a dislike of doctors, lack of time or preference for home remedies. For

example, one respondent who answered “no” decided not to go to a doctor because he had “no medical insurance.” Another respondent who had muscle strain from lifting too much weight said he didn’t consult a health professional because he just “didn’t have time.” Another respondent suffering from plantar fasciitis explained that he preferred to just use “a home remedy” instead of seeing the doctor.

APPENDIX: VERSION 1. ASK ABOUT INJURY WITH NO EXAMPLES.

INTRO. The next set of questions asks about injuries.

RS1. The first question is about repetitive strain injuries. By this, we mean injuries caused by repeating the same movement over an extended period. Examples include carpal tunnel syndrome, tennis elbow, or tendonitis. DURING THE PAST 3 MONTHS, did you have any injuries due to repetitive strain?

- 1. YES – GO TO RS2A
- 2. NO – GO TO INJ1
- 7. DON'T KNOW – GO TO INJ1
- 9. REFUSE GO TO INJ1

RS2A. Were any repetitive strain injuries serious enough to limit your usual activities for at least 24 hours?

- 1. YES
- 2. NO
- 7. DON'T KNOW
- 9. REFUSE

RS2B. DURING THE PAST 3 MONTHS, did you miss any days of work or school because of repetitive strain injuries?

- 1. YES
- 2. NO
- 7. DON'T KNOW
- 9. REFUSE

RS2C. Did you talk to or see a doctor or other health professional about any repetitive strain injuries?

- 1. YES
- 2. NO
- 7. DON'T KNOW
- 9. REFUSE

RS2D. On a scale from 1 to 10 where 1 means no pain at all and 10 means the pain was as bad as it could be, what was the worst amount of pain that you had from your repetitive strain injuries?

_____ [ENTER NUMBER 1-10]

RS2E. On a scale from 1 to 10 where 1 means no pain at all and 10 means the pain was as bad as it could be, overall during the last 3 months how much pain did you have on average from your repetitive strain injuries?

_____ [ENTER NUMBER 1-10]

INTRO. The next set of questions asks about other injuries. People can be injured accidentally, or on purpose. They may hurt themselves or others may cause them to be hurt.

INJ1. [READ IF RS1 = YES, “Not including any of the repetitive strain injuries you just told me about...”] DURING THE PAST 3 MONTHS, did you have an accident or an injury where any part of your body was hurt?

1. YES – GO TO INJ3A
2. NO – GO TO INJ2A
7. DON’T KNOW – GO TO INJ2A
9. REFUSE – GO TO INJ2A

INJ2A. Some people may forget about common injuries. So, even though you just told me that you have not had any injuries, I would like to ask a few more questions just to be sure. DURING THE PAST 3 MONTHS, did you have any injuries as a result of a fall or falling?

1. YES
2. NO
7. DON’T KNOW
9. REFUSE

INJ2B. DURING THE PAST 3 MONTHS, did you have any injuries as a result of a collision involving a motor vehicle?

1. YES
2. NO
7. DON’T KNOW
9. REFUSE

INJ2C. DURING THE PAST 3 MONTHS, did you have any injuries as a result of hitting or being hit by a person or object?

1. YES
2. NO
7. DON’T KNOW
9. REFUSE

INJ2D. DURING THE PAST 3 MONTHS, did you have any injuries while you were playing sports or exercising, including walking, biking, or running for exercise? Please also include recreational sports such as skating, skiing, tennis, golf, bowling, or fishing.

1. YES
2. NO
7. DON'T KNOW
9. REFUSE

INJ2E. DURING THE PAST 3 MONTHS, did you have any injuries while you were working at a job or business?

1. YES
2. NO
7. DON'T KNOW
9. REFUSE

INJ2F. DURING THE PAST 3 MONTHS, did you have any injuries while you were at home?

1. YES
2. NO
7. DON'T KNOW
9. REFUSE

INJ2G. DURING THE PAST 3 MONTHS did you have any injuries while you were in a public place such as a park or school?

1. YES
2. NO
7. DON'T KNOW
9. REFUSE

(IF ALL INJ2A-INJ2G = NO, end interview. IF ANY INJ2A-INJ2G = YES, go to "INJ3A.)

INJ3A. Were any of these injuries serious enough to limit your usual activities for at least 24 hours after the injury occurred?

1. YES
2. NO
7. DON'T KNOW
9. REFUSE

INJ3B. Were any of these injuries serious enough that you missed at least one day of work or school?

- 1. YES
- 2. NO
- 7. DON'T KNOW
- 9. REFUSE

INJ3C. Did you see or talk to a doctor or other health professional about any of these injuries?

- 1. YES
- 2. NO
- 7. DON'T KNOW
- 9. REFUSE

INJ3D. On a scale from 1 to 10 where 1 means no pain at all and 10 means the pain was as bad as it could be, what was the worst amount of pain that you had from your injuries?

_____ [ENTER NUMBER 1-10]

INJ3E. On a scale from 1 to 10 where 1 means no pain at all and 10 means the pain was as bad as it could be, overall during the last 3 months how much pain did you have on average from your injuries?

_____ [ENTER NUMBER 1-10]

VERSION 2. USE EXAMPLES OF INJURIES.

INTRO. The next set of questions asks about injuries.

RS1. The first question is about repetitive strain injuries. By this, we mean injuries caused by repeating the same movement over an extended period. Examples include carpal tunnel syndrome, tennis elbow, or tendonitis. DURING THE PAST 3 MONTHS, did you have any injuries due to repetitive strain?

- 1. YES – GO TO RS2A
- 2. NO – GO TO INJ1
- 7. DON'T KNOW – GO TO INJ1
- 9. REFUSE GO TO INJ1

RS2A. Were any repetitive strain injuries serious enough to limit your usual activities for at least 24 hours?

- 1. YES
- 2. NO
- 7. DON'T KNOW
- 9. REFUSE

RS2B. DURING THE PAST 3 MONTHS, did you miss any days of work or school because of repetitive strain injuries?

- 1. YES
- 2. NO
- 7. DON'T KNOW
- 9. REFUSE

RS2C. Did you talk to or see a doctor or other health professional about any repetitive strain injuries?

- 1. YES
- 2. NO
- 7. DON'T KNOW
- 9. REFUSE

RS2D. On a scale from 1 to 10 where 1 means no pain at all and 10 means the pain was as bad as it could be, what was the worst amount of pain that you had from your repetitive strain injuries?

_____ [ENTER NUMBER 1-10]

RS2E. On a scale from 1 to 10 where 1 means no pain at all and 10 means the pain was as bad as it could be, overall during the last 3 months how much pain did you have on average from your repetitive strain injuries?

_____ [ENTER NUMBER 1-10]

INTRO. The next set of questions asks about other injuries. People can be injured accidentally, or on purpose. They may hurt themselves or others may cause them to be hurt.

INJ1. [READ IF RS1 = YES, “Not including any of the repetitive strain injuries you just told me about...”] DURING THE PAST 3 MONTHS, did you have a broken bone, sprain, burn, wound, cut, bruise, concussion, animal bite, or any other type of injury?

1. YES – GO TO INJ3A
2. NO – GO TO INJ2A
7. DON’T KNOW – GO TO INJ2A
9. REFUSE – GO TO INJ2A

INJ2A. Some people may forget about common injuries. So, even though you just told me that you have not had any injuries, I would like to ask a few more questions just to be sure. DURING THE PAST 3 MONTHS, did you have any injuries as a result of a fall or falling?

1. YES
2. NO
7. DON’T KNOW
9. REFUSE

INJ2B. DURING THE PAST 3 MONTHS, did you have any injuries as a result of a collision involving a motor vehicle?

1. YES
2. NO
7. DON’T KNOW
9. REFUSE

INJ2C. DURING THE PAST 3 MONTHS, did you have any injuries as a result of hitting or being hit by a person or object?

1. YES
2. NO
7. DON’T KNOW
9. REFUSE

INJ2D. DURING THE PAST 3 MONTHS, did you have any injuries while you were playing sports or exercising, including walking, biking, or running for exercise? Please also include recreational sports such as skating, skiing, tennis, golf, bowling, or fishing.

1. YES
2. NO
7. DON'T KNOW
9. REFUSE

INJ2E. DURING THE PAST 3 MONTHS, did you have any injuries while you were working at a job or business?

1. YES
2. NO
7. DON'T KNOW
9. REFUSE

INJ2F. DURING THE PAST 3 MONTHS, did you have any injuries while you were at home?

1. YES
2. NO
7. DON'T KNOW
9. REFUSE

INJ2G. DURING THE PAST 3 MONTHS did you have any injuries while you were in a public place such as a park or school?

1. YES
2. NO
7. DON'T KNOW
9. REFUSE

(IF ALL INJ2A-INJ2G = NO, end interview. IF ANY INJ2A-INJ2G = YES, go to "INJ3A.)

INJ3A. Were any of these injuries serious enough to limit your usual activities for at least 24 hours after the injury occurred?

1. YES
2. NO
7. DON'T KNOW
9. REFUSE

INJ3B. Were any of these injuries serious enough that you missed at least one day of work or school?

- 1. YES
- 2. NO
- 7. DON'T KNOW
- 9. REFUSE

INJ3C. Did you see or talk to a doctor or other health professional about any of these injuries?

- 1. YES
- 2. NO
- 7. DON'T KNOW
- 9. REFUSE

INJ3D. On a scale from 1 to 10 where 1 means no pain at all and 10 means the pain was as bad as it could be, what was the worst amount of pain that you had from your injuries?

_____ [ENTER NUMBER 1-10]

INJ3E. On a scale from 1 to 10 where 1 means no pain at all and 10 means the pain was as bad as it could be, overall during the last 3 months how much pain did you have on average from your injuries?

_____ [ENTER NUMBER 1-10]