



AOTA Critically Appraised Topics and Papers Series
**Driving and Community Mobility
for Older Adults**

**A product of the American Occupational Therapy Association's
Evidence-Based Literature Review Project*

CRITICALLY APPRAISED PAPER (CAP)

Focused Question

What is the evidence for the effect of interventions to address cognitive and visual function, motor function, driving skills intervention, self-regulation/self-awareness, and the role of passengers and family involvement in the driving ability, performance, and safety of the older adult? Intervention approaches include adaptation, remediation, prevention, and maintenance.

Vollrath, M., Melinger, T., & Kruger, H. (2002). How the presence of passengers influences the risk of a collision with another vehicle. *Accident Analysis & Prevention*, 34, 649–654.

PROBLEM STATEMENT (JUSTIFICATION OF THE NEED FOR THE STUDY)

State the problem the authors are investigating in this study.

Studies on cell-phone use when driving indicate that the negative effect of using a phone may not result from handling the phone but mainly from talking on the phone. In order to contribute to better understanding these possible effects of communicating on driving, this study analyzes the influence of the presence of passengers. According to the authors, the presence of passengers is different from telephoning, because the partner in the conversation is not in the car, and thus cannot react to the driving situation.

RESEARCH OBJECTIVE(S)

List study objectives.

To determine whether the presence of passengers in a vehicle increases the risk of a collision with another vehicle.

DESIGN TYPE:

Population-based cohort study

Level of Evidence:

II

Limitations (appropriateness of study design):

Was the study design type appropriate for the knowledge level about this topic? *If no, explain.*

Yes

No

SAMPLE SELECTION

How were subjects selected to participate? Please describe.

Study was an analysis of information related to motor vehicle crashes.

Inclusion Criteria

Severe or fatal accidents (or a material damage of \$1700) recorded by police of the German governmental district of Mittelfranken from 1984 to 1987 (281,611)

Exclusion Criteria

- Missing information about number of passengers, age and sex of the driver (80,655)
- Single vehicle accidents (40,720)
- Accidents where 1 of the 2 vehicles was not a private car (106,894)

Sample Selection Biases: *If yes, explain.*

Volunteers/Referrals

Yes

No N/A

Attention

Yes

No N/A

Others (list and explain):

SAMPLE CHARACTERISTICS

N = 112,847 (62,946, age 18–14; 117,086, age 25–49; 45,662, age 50 and older)

% Dropouts	<input type="text" value="N/A"/>		
#/(%) Male	<input type="text" value="NR"/>	#/(%) Female	<input type="text" value="NR"/>
Ethnicity	<input type="text" value="NR"/>		
Disease/disability diagnosis	<input type="text" value="N/A"/>		

NR = Not reported.

In the statistical analyses, the dependent variable was the categorization of each driver as being responsible for the accident or just being involved in it. Modifying factors included sex, time of day, traffic density, scene of accident, and cause of accident.

Check appropriate group:

<20/study group	20–50/study group	51–100/study group	101–149/study group	150–200/study group ✓
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Sample Characteristics Bias: If no, explain. N/A

If there is more than one study group, was there a similarity between the groups?

Yes	<input type="text"/>
No	<input type="text"/>
N/A	<input checked="" type="text"/>

Were the reasons for the dropouts reported? N/A

Yes	<input type="text"/>
No	<input type="text"/>
N/A	<input checked="" type="text"/>

INTERVENTION(S)—Included are only those interventions relevant to answering the evidence-based question.

Add groups if necessary.

Group 1—N/A, not an intervention study

Brief Description	
Setting	
Who Delivered?	
Frequency?	
Duration?	

Intervention Biases: *Explain, if needed. N/A*

Contamination

Yes

No

Co-intervention

Yes

No

Timing

Yes

No

Site

Yes

No

Use of different therapists to provide intervention

Yes

No

MEASURES AND OUTCOMES—Included are measures relevant to answering the focused question.

Name of measure:

Presence or absence of passenger

Outcome(s) measured (what was measured?):

Whether or not passengers were present in a motor vehicle at the scene of a crash

Is the measure reliable (as reported in article)?

Yes

No

NR

Is the measure valid (as reported in article)?

Yes

No

NR

How frequently was the measure used for each group in the study?

Once

Measurement Biases—N/A

Were the evaluators blinded to treatment status? *If no, explain.*

Yes

No

Recall or memory bias? *If yes, explain.* N/A

Yes

No

Others (list and explain):

Limitations (appropriateness of outcomes and measures) If no, explain.

Did the measures adequately measure the outcome(s)?

Yes

No

RESULTS

List results of outcomes relevant to answering the focused question.

Include statistical significance where appropriate ($p < 0.05$).

Include effect size if reported.

Although the presence of passengers is protective at all ages, passengers decrease accident risk more strongly for passengers 25 and 49 years of age and strongest for older drivers of 50 years and above. The least protective social influence is seen for the youngest drivers.

Was this study adequately powered (large enough to show a difference)? *If no, explain.*

Yes

No

Were appropriate analytic methods used? *If no, explain.*

Yes

No

Were statistics appropriately reported (in written or table format)? *If no, explain.*

Yes

No

CONCLUSIONS

State the authors' conclusions that are applicable to answering the evidence-based question.

Study reports that passengers decrease some driver accident risk, but not in all conditions. For some conditions, passengers may increase crashes.

Were the conclusions appropriate for the Study Design (Level of Evidence)? *If no, explain.*

Yes

No

Were the conclusions appropriate for the statistical results? *If no, explain.*

Yes

No

Were the conclusions appropriate given the study limitation and biases? *If no, explain.*

Yes

No

IMPLICATIONS FOR OCCUPATIONAL THERAPY

This section provides guidance about clinical practice, program development, and other implications of the study findings as they relate to the focused question.

It would be difficult to advise clients on whether passengers increase or decrease the risk of crash. The key information is that passengers may distract a driver, and that is where clinical educators may want to focus.

This work is based on the evidence-based literature review completed by Linda Hunt, PhD OTR.

CAP Worksheet adapted from: Critical Review Form – Quantitative Studies ©Law, M., Stewart, D., Pollack, N., Letts, L., Bosch, J., & Westmorland, M., 1998, McMaster University. Used with permission.

For more information about the Evidence-Based Literature Review Project, contact the American Occupational Therapy Association, 301-652-6611, x 2052.



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