

Effectiveness of parent- focused interventions to increase novice driver safety

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Background

Parents can have powerful influence on child developmental trajectory

- ▶ Shared genetic and environmental factors
- ▶ Parental modeling of behavior
- ▶ Parenting style and knowledge
- ▶ Monitoring of teen driving behaviors

Gaps

Parent success related to influencing safe teen driving

- ▶ Poor monitoring and control
- ▶ Failure to clearly define driving rules and expectations
- ▶ Varying level of engagement
- ▶ Lack of knowledge on how to best influence safe driving behavior

Knowledge about parent attributes and parent-teen interactions related to teen driver safety

Aims

- ▶ Describe and critically review recent teen driving-related interventions that included a parent component
- ▶ Identify promising intervention components and knowledge gaps
- ▶ Provide guidance on research needs
- ▶ Inform the development of future parent-involved driving interventions

Inclusion criteria

- ▶ Teen driving-related intervention
- ▶ Included a direct parent component
- ▶ Explicitly stated outcomes related to teen driver and/or parents
- ▶ Evaluated for parent and teen outcomes
- ▶ Targeted drivers under age 21
- ▶ Published since 1990 and in English language

Methods

- ▶ Searched peer-reviewed, grey literature, and conference proceedings
- ▶ Contacted known experts in field to identify under review and in press
- ▶ Search included 27 databases and online sources
- ▶ All articles were reviewed by three authors and inclusion was by consensus.

Search Results

- ▶ 219 studies identified
- ▶ 34 studies met inclusion criteria
 - ▶ Equates to 19 interventions

Intervention Categories

- ▶ Process evaluations only
- ▶ Passive dissemination of media
- ▶ Dissemination of media plus direct engagement with parents
- ▶ Utilization of in-vehicle data recorders

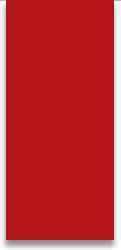
Intervention descriptions

- ▶ Intervention and implementation
- ▶ Sample derivation
- ▶ Study design
- ▶ Main findings

Study approaches and phases

		PHASE		
		Learner	Intermediate	No Specific Phase
	Print	2	0	2
	Video and Print	1	2	0
APPROACH	Online w/ Phone	1	0	0
	In-person w/ Media	4	3	1
	In-Vehicle	0	3	0

Methodological Considerations



Recruitment, sample size, and retention

- ▶ Parent-teen dyads
- ▶ Locations: DMVs, High schools, Driving schools, Driver education programs, Pediatric care network, Traffic court
- ▶ Challenging and low participation rates selection bias, but high retention
- ▶ Passive recruitment
- ▶ Selection bias

Evaluation study design

- ▶ Randomization and control or comparison groups
- ▶ Clear statement of underlying behavioral science theory and hypothesized causal pathway
- ▶ Stricter adherence to CONSORT reporting
- ▶ Reporting of effect measures and confidence intervals
- ▶ Process evaluation
- ▶ Account for clustering

Intervention intensity and approach

Frequency of parent contact varied considerably

- ▶ Passive dissemination of materials, active parent contact, in-home sessions, phone calls, series of in-person sessions

In-person interventions

- ▶ Can be individually tailored
- ▶ May be able to better ensure uptake or completion
- ▶ Require trainer fidelity, costly, resource intensive
- ▶ May not be possible or appropriate to broadly disseminate

Passive dissemination of materials

- ▶ Higher parent *recall* of receiving information with higher frequency of mailings
- ▶ Active engagement higher with >2 mailings

Selection bias and study validity

- ▶ Participation by families who already prioritize safe driving
- ▶ Demands resulting from study design
 - ▶ Access to Internet, primary access to a vehicle, etc.
- ▶ Convenience sampling
 - ▶ Middle to upper household income
 - ▶ Non-Latino and White
 - ▶ Educated
 - ▶ Healthy children
- ▶ Direction and magnitude of this bias is not clear

Discussion



Intervention Design

- ▶ Most aimed to reduce risky driving behaviors or increase skill of novice teen drivers to reduce crashes, injuries, and fatalities
- ▶ Most went beyond knowledge and attitudes
- ▶ Some evidence for proximal impact, but less support for more distal outcomes

Intervention evaluation concerns

- ▶ Implementation quality and impact theories need to be assessed
 - ▶ Allows for better interpretation of null results
- ▶ Measures of effect
- ▶ Practical contextualization of results
- ▶ Multiple comparisons with no adjustment
- ▶ Lack of appropriate longitudinal analysis
- ▶ Examination of interactions
- ▶ Replication studies extremely rare

Desired characteristics of effective parent-involved teen driving interventions

- ▶ Theory-based
- ▶ Parental engagement
- ▶ Mindful about intensity and scalability
- ▶ Clearly identified target audience

Desired characteristics of effective parent-involved teen driving intervention evaluation studies

- ▶ Formative research
- ▶ Process and outcome level evaluations
- ▶ Participants randomized
- ▶ Objective collection of data
- ▶ Specific reporting of results
- ▶ Trials should be registered

Where do we go from here?

- ▶ Recruitment of non-biased samples with ample power
- ▶ Multi-site designs
- ▶ Comprehensive evaluation
 - ▶ Formative, process, intended impact, and impact on driving safety outcomes
 - ▶ Sub-sample effectiveness (e.g., high-risk or low-risk)
- ▶ Optimal timing, target audiences, and integration of approaches and messages
- ▶ Well defined conceptual goals
- ▶ Research on translation and dissemination
- ▶ Cost benefit or cost effectiveness studies
- ▶ Multi-tiered approaches (educational, environmental, policy)

Where to go from here (cont.)?

Identify most important messages and actions at different stages of development

- ▶ Cognitions, skills, parenting factors related to desired behaviors, feasible to change, room to change
- ▶ Safety as part of family culture
- ▶ Parental supervision and historical parenting patterns

Tailoring intervention messages to optimal audiences (who are the high risk audiences and how do we reach them?)

- ▶ Vulnerable and difficult-to-access populations
- ▶ Sub-populations
- ▶ Marketing strategies

Scalability and sustainability

- ▶ Web, expensive equipment, in-person contact
- ▶ Considerations for frequency and intensity of the intervention

Establish safety as a priority; address importance as a role model

Establish identity as responsible, independent, integrated, and engaged

Teach skills and mechanics of driving, establish expectations

Transition to motivate safe behaviors as an independent driver



AGE



Identify high-risk youth for selected intervention