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Effectiveness of a Brief Parent-Directed Teen Driver Safety Intervention (Checkpoints) Delivered by Driver Education Instructors

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Abstract

Background—The Checkpoints program (Checkpoints) uses a Parent-Teen Driving Agreement (PTDA) to help parents monitor teens' driving, and has shown efficacy in increasing parental restrictions on teens' driving and decreasing teens' risky driving. In previous trials, research staff administered Checkpoints. This study examined the effectiveness of Checkpoints when delivered by driver educators. It was hypothesized that Checkpoints would result in more PTDA use, greater PTDA limits on higher risk driving situations, and less high-risk driving.

Methods—Eight trained driving instructors were randomly assigned to intervention or control groups in a group randomized trial. Instructors enrolled 148 parent-teen dyads (intervention = 99, control = 49); 35% of those eligible. Intervention parents joined teens for a 30-minute Checkpoints session during driver education. The session included a video, persuasive messages, discussion, and PTDA initiation. Teens completed four surveys: baseline, licensure, and 3- and 6-months post-licensure.

Results—Intervention teens were more likely to report that they used a PTDA (OR= 15.92, p = .004) and had restrictions on driving with teen passengers (OR = 8.52, p = .009), on weekend nights (OR = 8.71, p = .021), on high-speed roads (OR = 3.56, p = .02), and in bad weather (b = .51, p = .05) during the first six months of licensure. There were no differences in offenses or crashes at six months, but intervention teens reported less high-risk driving (p = .04).

Conclusions—Although challenges remain to encourage greater parent participation, Checkpoints conducted by driver education instructors resulted in more use of PTDAs, greater

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restrictions on high-risk driving, and less high-risk driving. Including Checkpoints in driver education parent meetings/classes has potential to enhance teen driver safety.

Keywords

Checkpoints; Driver education; Driving restrictions; Parent management practices; Teen driving risk; Brief group intervention

Motor vehicle crash rates are higher for adolescent drivers than for any other age group [1], attributable to young age, driving inexperience, and risky behavior [2]. Crash risk is greatest during the first two driving years, is particularly elevated the first months of independent driving [3], and is higher at night and with adolescent passengers [2,4–6]. Effective prevention approaches are lacking. Graduated Driver Licensing (GDL), the most widely available prevention approach for new drivers under age 18 in U.S. states, includes three phases: prolonged practice-driving, intermediate/restricted license with limits on unsupervised driving (e.g., at night or with adolescent passengers), and full license. Programs vary by state, but most have modest requirements with none as strict as recommended [7].

Checkpoints complements GDL, encouraging parents to set stricter limits than GDL's when adolescents begin driving independently. Checkpoints is based on Protection Motivation Theory [8]; an early evaluation found the cognitive mediators of treatment effects consistent with the Theory's constructs [9]. Checkpoints was implemented successfully in different settings and at different points in the licensing process with significant, positive effects on Parent-Teen Driving Agreement (PTDA) adoption, stricter high-risk driving condition limits, and fewer traffic offenses [9–12]. The original program used persuasive communication techniques delivered via video, newsletters, and written PTDA [13]. The PTDA facilitates clear rule-setting regarding driving privileges during the first independent licensure year. Parents and adolescents negotiate agreement on limits for night driving, passengers, high-speed roads, and inclement weather. The PTDA includes four time periods, gradually increasing driving privileges as adolescents gain driving experience and ability.

Checkpoints, adapted in Michigan for administration by trained health educators in driver education (DE) classes was evaluated for efficacy in a randomized-controlled trial [14]. The results were parents' and adolescents' increased awareness of adolescent driving risks, higher PTDA use (among the highest in Checkpoints trials), and stricter limit-setting for high-risk roads and inclement weather. Administering Checkpoints in DE proved feasible, however, participation rates were low, with 30% of eligible parents at the classroom session [14]. Despite this challenge, DE remains appealing for promoting parent management, given the outcomes observed and potential for improvement. A logical next step along the research translation process is to train DE instructors to deliver Checkpoints to students/parents in their DE curriculum. Professional driver educators' credibility/expertise could lead to more participation and stronger effects than when Checkpoints was administered by health educators.

This study's purpose was to test effectiveness of Checkpoints delivered to parents/adolescents by Michigan DE instructors in brief group interventions during teens' DE. Three

hypotheses were tested comparing Checkpoints participants to a control group: (1) Parent-teen dyads exposed to Checkpoints will be more likely to adopt and use a PTDA; (2) Parents exposed to Checkpoints will be more likely to impose stricter teen driving restrictions; and (3) Teens exposed to Checkpoints will report fewer risky driving outcomes.

Methods

Driver education instructors

Eight DE instructors (from different schools) were recruited at a DE conference and randomly assigned to intervention or control groups. Intervention instructor training included institutional review board -approved procedures for recruiting parents/teens, instructor guide with classroom session protocol and sample script, video of sample classroom session, and a 2-hour, in-person training with practice, led by researchers. Control instructors received institutional review board -approved procedures for recruiting parents/teens and training about study procedures via telephone. They were offered program materials upon study completion. Each instructor was asked to recruit/enroll three classes of at least eight parent-teen dyads. If not possible, they could recruit/enroll twenty dyads from any number of classes. Instructors received $60 for participation, plus $40 if they enrolled at least eight dyads in their first three classes.

Sample

Under Michigan's GDL, DE is required of all drivers under age 18: Segment 1 before supervised driving, and Segment 2 before road testing for an intermediate/restricted license. Instructors recruited parents of Segment 2 students. Intervention recruitment packets included invitations to the Checkpoints classroom session and for study enrollment, instructions for completing/returning paperwork, consent/assent forms, baseline surveys, and separate (for confidentiality) teen and parent return envelopes. Control group parents received similar packets without the classroom session invitation. Enrollment required completed materials from both parent and teen.

Eligible parent-teen dyads met these inclusion criteria: teen's expected restricted license date was within 3 months of completing DE and teen would be age 16 then; teen lived with participating parent at least half-time; dyads could read, understand, and speak English; and enrollment paperwork and baseline surveys were completed before the Checkpoints classroom session (intervention) or before Segment 2 classes ended (control). These criteria ensured that teens would become licensed and complete follow-up surveys within study period; teens would be age 16 at licensure (representative of the normative licensing age and driver age at greatest risk for violations/crashes); teens would remain under age 18 and GDL during the study; parents had a role in teens' supervision; and participants understood study activities. Parents and teens each received $10 for each completed survey.

Study design

All study procedures were reviewed and approved by the University of Michigan's Health Sciences and Behavioral Sciences Institutional Review Board. Participants enrolled into the group-randomized trial (Figure 1) May 2007 to January 2009. During the classroom session,

intervention parent-teen dyads were exposed to Checkpoints, while the control group received only each driving school's standard Segment 2 curriculum. Four surveys were collected from teens: baseline/preintervention, licensure, 3 months post-licensure (Month3), and 6 months post-licensure (Month6). Parents only completed the first two surveys. The baseline survey was a self-administered written questionnaire, while subsequent surveys were telephone interviews. Interviewers used expected licensure dates to determine licensure survey dates and confirmed with parents/teens that a license was obtained before starting that interview; if licensure had been delayed, interviewers asked for a new expected licensure date and postponed the licensure survey. Although the intervention was parent-directed, the results presented focus on teen surveys, baseline through Month6, because teens' perceptions are most relevant regarding PTDA use and teens' driving.

Intervention group—Checkpoints was previously adapted for Michigan's GDL and delivery to parent/teen groups in DE classrooms [14]; this study followed that protocol with two revisions. First, a visual-aid chart was added (data from Mayhew et al., 2003), demonstrating the dramatic increase in crash risk when teens move from supervised to unsupervised driving; this was shown at the session's beginning to encourage parents to maintain an active role in their teens' early months of driving independently. Second, a booklet that reviewed the session's key concepts (including charts) and included an extra PTDA was given to parents at the session's end. The booklet replaced the previous trial's extra PTDA copy and newsletter mailed to parents after the session [14].

A unique aspect of the Checkpoints session was the opportunity for parents/teens to begin discussing and completing their own PTDAs. Instructors guided parent-teen dyads to complete the first checkpoint (e.g., covering the first 3 months of licensure), using persuasive messages to explicitly present Checkpoints recommendations for four risky driving conditions: night, teen passengers, high-speed roads, and bad weather. For example, a recommendation might state, “I recommend that teens only be allowed to drive unsupervised during the first Checkpoint if they don't have any teen passengers.” For each section/condition, instructors displayed posters (figures/charts) demonstrating the teen driving risk and presented Checkpoints recommendations for each PTDA section/condition. Instructors then allowed dyads time to discuss, negotiate, establish, and record their agreed-upon restrictions on their own written PTDA. That process was repeated until each section/condition of the first checkpoint was discussed and an agreement reached and recorded. Instructors encouraged dyads to complete any other expectations for the first checkpoint at home, and to complete subsequent checkpoints later. At session's end, to show group support, instructors asked the group to raise their hands if they included restrictions on each condition.

Instructors were asked to follow the classroom protocol completely, and to add anecdotes/encouragement from their experience and familiarity with the dyads and communities. Instructors conducted 34, 30-minute Checkpoints sessions. Protocol fidelity was excellent, assessed via postsession written reports, site visits by researchers, and phone calls after session not visited. Instructors successfully completed the protocol and met study objectives in every session.

Control group—Control group dyads completed consents and surveys only; control instructors did not conduct parent sessions. Teens completed the standard Segment 2 DE curriculum provided by their driving school and received no materials/intervention beyond standard Segment 2 DE and parent resources.

Measures

Primary study outcomes were: PTDA use and parent-imposed driving restrictions from licensure through Month6, and teen driving outcomes at Month6. All measures were used in previous Checkpoints studies [9,12,14].

PTDA use was measured with a single item asking, “Are you and your parent using a written parent-teen driving contract or agreement?”

Parent-imposed driving restrictions were measured by asking about restrictions on unsupervised driving with teen passengers, at night (weekday, weekend), on certain road types, and in bad weather (heavy rain, snow, ice, or fog) [9].

Teen driving outcomes were measured only at Month6 using the Checkpoints Risky Driving Scale (C-RDS), a 19-item high-risk driving scale, self-reported offenses (number of times pulled over by law enforcement), and crashes (number of crashes). The C-RDS asked how many times in the past week teens engaged in each of 19 driving behaviors (e.g., sped in residential or school zone, drove 10–19 mph over speed limit, drove 20 or more mph over limit, drove too close behind another vehicle, drove through an intersection when light was yellow (and red), raced another vehicle, drove to show off, etc.) [12]. Elsewhere, the C-RDS has shown high consistency over time, correlations of $r > .70$ with another standard self-report measure, and $r = .45$ with elevated g-force event rates, an objective measure of risky driving [15–17].

Baseline survey demographic items captured participants' characteristics. Teen measures included sex, race/ethnicity, grade in school, and marks in school. Parent measures included sex, relationship to teen, race/ethnicity, age, marital status, work status, education, and household income.

Data analysis

Chi-square analyses and t-tests examined differences between groups on demographics, and initial, unadjusted comparisons between restrictions reported by intervention and control groups, including comparisons within waves of the strength of restrictions and percentages of teens reporting restrictions that met Checkpoints recommendations.

Given the hierarchical structure of data in this group-randomized design, a series of three-level mixed models were conducted, with time (level 1) nested in individuals (level 2) and individuals nested within instructors (level 3). Because observations from teens with the same instructor tend to be positively correlated, an additional component of variance attributable to instructors is reflected in the analysis (level 3). For the instructor level (level 3), an intraclass correlation coefficient (ICC) and the corresponding design effect measured the effect of the group-randomized trial design [18]. Because repeated observations from the

same individuals were expected to be highly correlated, high ICCs were expected for level 2 and used in the analyses.

To test whether the program effect differed over time by intervention group, an interaction term of group by time was tested for all models. Analyses were conducted in SAS Version 9.1 (SAS Institute Inc., Cary, NC) [19]. PROC MIXED was used for analyses of continuous outcome variables, assuming Gaussian distribution of residual errors. For binary outcomes, the GLIMMIX macro was used with a log link and binomial distribution [20]. The main independent variable was random assignment to intervention or control group. Covariates included teens' sex and grade in school.

Results

Overall, 148 parent-teen dyads (99 intervention; 49 control) enrolled and completed baseline surveys (35% of those eligible). Among these, 139 teens (93.9%) became licensed during the study and completed licensure surveys; 127 teens (85.8%) completed Month3surveys;and 110teens(74.3%)completedMonth6surveys. There were no differences between intervention and control teens' time-to-licensure or demographics (Table 1). For each survey, demographic analyses were conducted to compare those who completed with those who did not. Only two differences were found: girls and older teens were less likely to complete all surveys.

Hypothesis #1

Compared with control parent-teen dyads, Checkpoints dyads will be more likely to use a PTDA from licensure through Month6—Figure 2 shows percentages of teens reporting PTDA use at each survey without cluster design adjustment. Results of mixed-model logistic regression indicated that intervention teens were more likely to report PTDA use than control teens (OR = 15.92, $p = .004$). Of intervention teens reporting PTDA use at licensure, 74% continued through Month6. There were no sex differences in initial agreement use or maintenance.

Hypothesis #2

Compared with control teens, Checkpoints teens will be more likely to report stricter parental restrictions at levels meeting Checkpoints recommendations from licensure through Month6. Table 2 shows percentages of teens reporting recommended restrictions at each survey without cluster design adjustment. The extent to which families adopted recommended restrictions varied by type. Higher percentages of intervention teens reported recommended teen passenger and weeknight restrictions at all three surveys. More intervention teens reported recommended weekend-night limits at licensure and Month3, but there was no difference between groups at Month6. More intervention teens reported recommended road-type limits at licensure, but there were no group differences at Months 3 or 6. There were no group differences in the low percentages of teens reporting bad-weather limits at any survey.

Table 3 shows the mean, unadjusted restrictions reported at each survey for teen passenger and nighttime limits, emphasized in Checkpoints sessions. Although teen passenger

allowances exceeded the recommendation, intervention teens were allowed one passenger fewer than controls at each wave. Intervention teens' mean nighttime limit met the recommendation on weeknights, but exceeded it on weekends. Limits, however, for intervention teens were significantly earlier than controls' at all surveys on weekends, and at licensure and Month3 on week-nights. The largest difference between groups was 53 minutes on weekend nights at licensure. Mean nighttime limits for both intervention and control teens at each survey were earlier than GDL's midnight limit during this study.

Mixed-model logistic regression analyses were conducted separately for each high-risk driving condition. Intervention teens were more likely than controls to report greater restrictions on teen passengers (OR = 8.52, $p = .009$), weekend nights (OR = 8.71, $p = .021$), and high-speed roads (OR = 3.56, $p = .02$). Intervention teens were marginally more likely to report greater restrictions on bad weather (b = .15, $p = .052$), examined via a composite measure of restrictions for light/heavy rain, snow, and fog. There were no significant group differences in restrictions on weeknights. There were no significant group-by-time interactions for passenger, weeknight, weekend night, or weather restrictions. There was a significant group-by-time interaction for restrictions on high-speed roads. The percentage of intervention teens reporting this restriction was greater than controls at baseline and Month3, but there was no group difference at Month6. Further, the percentage of intervention teens reporting this restriction decreased from licensure to Month3, and from Month3 to Month6, while the control percentages did not change over time. There were no significant sex differences for passengers or high-speed roads. Female teens, compared with male teens, reported greater restrictions on weeknights (OR = 2.91, $p = .020$), weekend nights (OR = 3.83, $p = .009$), and bad weather (b = .13, $p = .035$).

Hypothesis #3

Compared with control teens, Checkpoints teens will report fewer high-risk driving outcomes at Month6—Intervention teens reported less overall risky driving (high-risk behaviors/trip: intervention = .50 ± .5; control = .82 ± .9; $p = .04$), lower mean frequencies of driving 20 or more mph over the speed limit (intervention = .02 ± .1; control = .28 ± .7; $p = .02$), and driving through intersections during yellow lights (intervention = 1.79 ± 2.2; control = 3.15 ± 3.9; $p = .04$). There were no group differences in percentages reporting being pulled over by law enforcement (intervention = 15%; control = 16%), or being the driver in a crash (intervention = 12%; control = 9%).

Discussion

This study tested effectiveness of an adapted Checkpoints Program delivered to Michigan parent-teen dyads by DE instructors within the curriculum. Results suggest that Checkpoints teens were more likely than controls to report: using a PTDA; having restrictions for night driving, teen passengers, and high-speed roads; and driving more safely. These findings not only confirm effectiveness of Checkpoints delivered in DE by health educators [14], but extend those earlier findings, demonstrating feasibility of having trained DE instructors deliver Checkpoints. DE instructors successfully administered Checkpoints, maintained program fidelity, and obtained results surpassing those obtained previously. The previous

study found several significant effects reported by parents, but the only significant differences reported by teens were: being more restricted from driving in heavy rain and having limits on road types [14]. In this current study, teens also reported significantly greater restrictions on driving with teen passengers and on weekend nights. DE instructors may be viewed as credible, professional experts, resulting in greater follow-through by parents/teens.

Checkpoints teens were nearly 16 times more likely to report PTDA use than controls, and among those using PTDAs, 74% reported still using them 6 months later. The current study demonstrates higher PTDA use with Checkpoints delivered by driver educators than by health educators [14]. The sustained PTDA use is impressive. A previous state-wide Checkpoints study found only about half the Checkpoints adolescents reported PTDA use at licensure, and use declined over time [21]. The current study results suggest that when Checkpoints is delivered within DE, instead of as an isolated program, PTDA use may be more acceptable. It seems, therefore, that DE is a promising venue for Checkpoints administration.

Parental restrictions decreased over time, as expected, while adolescents gained experience. Checkpoints participation, however, was associated with restrictions more consistent with recommendations for the first 6 months of teens' licensure. Checkpoints teens were nearly nine times more likely than controls to have restrictions on driving with teen passengers and on weekend nights. The difference between intervention and control passenger restrictions was about one passenger at each survey—a difference with important fatal-crash safety implications [4]. During the study, Michigan's nighttime GDL restriction began at midnight, but both intervention and control parents established earlier restrictions. Michigan's law has since changed, restricting nighttime driving after 10 P.M., similar to parents' requirements. Checkpoints teens were also three-and-a-half times more likely to report restrictions on roads with speed limits over 55 mph.

Previous work found that adolescents with stricter parental limits on teen passengers and nighttime driving reported fewer traffic citations and crashes during their first licensure year [11]. Adolescents' traffic citation and crash differences are difficult to detect in small numbers over short time periods, yet it is encouraging that in this study, Checkpoints teens reported less risky driving than controls, further supporting protective effects of Checkpoints PTDAs.

Some study limitations are noteworthy. Although group randomization apparently accomplished equivalence, preventing systematic bias, only 35% of eligible families participated, so self-selection bias was not controlled. Demographics were unavailable for eligible-but-nonparticipating families; therefore it is unknown how they might have differed from participants. The control group was smaller than the intervention group (perhaps because of instructors' differential recruiting or lack of programmatic benefits), but analytic adjustments accounted for that. An inexplicably smaller percentage of intervention teens than control teens were reached for the 6-month survey. There were no differences between male and female teens in PTDA uptake or maintenance, but the few participating fathers precluded including parent's sex in analyses. A generalizability consideration is that

Michigan has a unique two-phase driver education requirement that allows an opportunity to reach parents through DE just prior to teens being licensed to drive unsupervised. It is unknown if that timing is essential to Checkpoints uptake, or if the parent-directed brief intervention would work as well if it were delivered in DE prior to the GDL learner phase. In other work, the authors have learned that some parents want information as early as possible in teens' learning-to-drive process, suggesting that delivering Checkpoints through DE earlier in GDL could be explored. Finally, high-risk driving was assessed using the C-RDS, which has been shown to be reliable and valid, but it is impossible to rule out potential reporting bias. There is a need to combine Checkpoints with feedback systems such as in-vehicle cameras and data acquisition systems to fully evaluate the self-report measures. Such work is ongoing and preliminary results indicate reliability and validity of self-report measures [15].

Parents and adolescents often report discrepant driving rules, with parents reporting stricter limits on their adolescents' driving than the adolescents, implying poor communication [22]. Completing PTDAs provides opportunities for parents/adolescents to communicate and discuss parents' expectations for adolescents' driving, delineating in writing, clear agreed-upon rules that can be updated as adolescents gain driving experience. Although several challenges remain to help parents monitor their adolescents' driving effectively, Checkpoints may be an effective parent-directed intervention. Remaining challenges include increasing parents' participation, encouraging parents to sustain PTDA use, and enforcing GDL and parental restrictions until adolescents are ready for more privileges. Busy parents of adolescents are sometimes unaware of risks their adolescents face, so effective solutions are needed.

Several states now require parents of young licensees to attend meetings. The evidence-based Checkpoints program could be an excellent component of such meetings, whether or not adolescents are present. For parents who do not or cannot attend, or for follow-up encouragement of parents who do attend, a Web-based Checkpoints program may be ideal. Such an online program is being tested by the authors in two translation studies—one with statewide promotion, and one with primary-care-provider promotion. Although the results of these studies and others are needed to determine the best delivery system, Checkpoints is an evidence-based, feasible, and acceptable parent-directed program that protects adolescents beginning to drive independently.

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Implications and Contribution

The Checkpoints program was shown in several previous studies to help parents adopt an agreement and set and monitor limits on teens' early driving, reducing high-risk driving by teens. In the first practice-based Checkpoints trial, Checkpoints was successfully administered by driver education instructors within their curriculum, resulting in increased parent limits on high- risk teen driving and reduced teen risky driving.

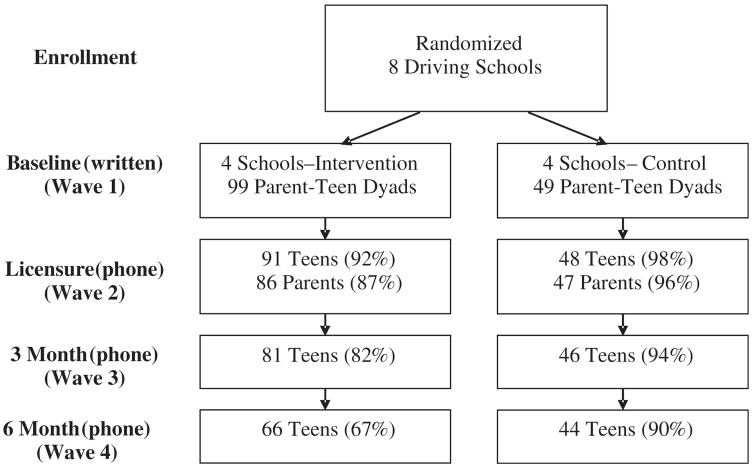

Figure 1.
Study design.

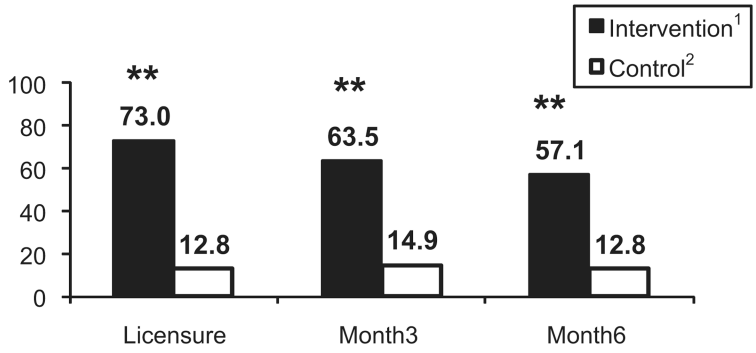

Figure 2.

Percentage of teens reporting using a written parent-teen driving agreement by group.[1]

**Difference between groups significant at $p < .0001$.

[1] Intervention n's: Licensure = 91, Month3 = 81, Month6 = 66.

[2] Control n's: Licensure = 48, Month3 = 46, Month6 = 44.

Table 1

Teen and parent characteristics

	Total N = 148		Intervention N= 99		Control N=49	
	N	%	N	%	N	%
Teens:						
Sex						
Male	64	43.2	43	43.4	21	42.9
Female	84	53.8	56	56.6	28	57.1
Race/ethnicity (n = 147)						
White	129	87.8	85	86.7	44	89.8
Non-white	18	12.2	13	13.3	5	10.2
Grade (n = 146)						
9th–10th	117	80.1	75	76.5	42	87.5
11th and above	29	19.9	23	23.5	6	12.5
Marks in School (n = 146)						
A	24	16.4	15	15.3	9	18.8
B	54	37	36	36.7	18	37.5
C or lower	68	46.6	47	48.8	21	43.7
Parents:						
Sex						
Male	30	20.3	23	23.2	7	14.3
Female	118	79.7	76	76.8	42	85.7
Relationship to teen						
Mother	114	77.6	73	74.5	41	83.7
Father	29	19.7	22	22.4	7	14.3
Other	4	2.7	3	3.1	1	2
Race/ethnicity						
White	135	91.8	88	89.8	47	95.9
Non-white	12	8.2	10	10.2	2	4.1
Age, years						
< 39	21	14.3	15	15.3	6	12.2

	Total N = 148		Intervention N= 99		Control N=49	
	N	%	N	%	N	%
40–44	46	31.3	28	28.6	18	36.7
v45–49	49	33.3	30	30.6	19	38.8
≥ 50	31	21.1	25	25.5	6	12.2
Marital status						
Married	122	83	79	80.6	43	87.8
Divorced	10	6.8	6	6.1	4	8.2
Other	15	10.2	13	13.3	2	4
Work status						
Full-time	89	60.5	65	66.3	24	49
Part-time	34	23.1	19	19.4	15	30.6
Homemaker	19	12.9	11	11.2	8	16.3
Other	5	3.4	3	3.1	2	4.1
Education						
Less than college degree	78	53.4	53	54.6	25	51
College degree or higher	68	46.6	44	45.4	24	49
Income						
< $50,000	34	25	25	28.4	9	18.8
$50,000–$69,999	27	19.8	15	17	12	25
$70,000–$99,999	36	26.5	22	25	14	29.2
$100,000–$149,999	24	17.7	14	15.9	10	20.8
$150,000+	15	11	12	13.6	3	6.2

Table 2

Percentages of teens reporting driving restrictions that met Checkpoints recommendations by group

	Licensure		Month3		Month6	
	Intervention (n = 86)	**Control (n = 47)**	**Intervention (n = 81)**	**Control (n = 46)**	**Intervention (n = 66)**	**Control (n = 44)**
Teen passengers[a]	55.5**	21.3	28.6**	8.5	28.6*	8.7
Weeknight[b]	47.6*	27.7	61.9*	42.6	87.3*	68.1
Weekend night[b]	33.3**	6.4	39.7*	21.3	60.3	46.8
Road type[c]	28.6**	2.1	12.7	6.4	14.3	10.6
Weather[d]	0	0	1.6	2.1	25.4	14.9

*Difference between groups significant at $p < .05$.

**Difference between groups significant at $p < .01$.

[a]Teen passenger recommendations: licensure = none; month3 = 1 with permission; month6 = 1 / 2 with permission.

[b]Nighttime recommendations: licensure = until dark or before 10 P.M.; month3 = before 11P.M.; month6 = before midnight.

[c]Road type recommendations: licensure = neighborhood; month3 = broader local / familiar; month6 = most with permission.

[d]Weather recommendations: licensure = dry only; month3 = dry and light rain only; month6 = heavy rain, snow, fog with permission.

Table 3

Restrictions on the number of passengers and nighttime (P.M.) restrictions reported by teens – Mean(SD)

	Licensure		Month3		Month6	
	Intervention (n = 86)	**Control (n = 47)**	**Intervention (n = 81)**	**Control (n = 46)**	**Intervention (n = 66)**	**Control (n = 44)**
Teen passengers allowed[a]	1.9 (1.7)**	2.9 (1.7)	2.6 (1.7)**	3.6 (1.5)	2.7 (1.7)**	3.7 (1.5)
Weeknight time limit[b]	9:40 (78)*	10:20 (75)	10:06 (108)*	10:47 (98)	10:26 (120)	10:57 (96)
Weekend nighttime limit[b]	10:00 (92)**	10:53 (60)	10:42 (104)*	11:25 (80)	10:59 (90)**	11:50 (100)

*Difference between groups significant at $p < .05$.

**Difference between groups significant at $p < .01$.

[a]State did not have a teen passenger restriction.

[b]State's nighttime driving restriction started at midnight/12:00 A.M.; all times are P.M.; SD = minutes.