

Impact of Feedback on Self-rated Driving Ability and Self-regulation among Older Adults

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Importance of Driving

- For many older adults, driving is necessary to maintain independence and personal mobility
 - Shopping, socialization, access to healthcare
- Some older drivers adjust their driving habits to feel safer on the road.
 - limit driving to times/places where they feel safe or competent





Self-regulation of Driving

- Older drivers who self-regulate their driving report less involvement in accidents
- Factors related to self-restriction include:
 - health status
 - visual abilities
 - age
 - gender
 - previous crash experience
 - poorer performance on cognitive measures such as MMSE, executive functioning and speed of processing

Self-rated Driving Ability

- Lower self-rating of ability has been associated with fewer days per week driven
- However, some evidence suggests that older adults' self-rating of driving ability may not be realistic
 - Overrate driving abilities and safety
- Overestimation may lead to insufficient risk perception and encourage unsafe driving behaviors



Change in Ratings and Regulation

- Overestimation may be due to lack of awareness or refusal to admit awareness of deficiencies
- Some studies suggest that driving behavior and self-perceptions can be changed through intervention
 - Feedback regarding sensory abilities
 - Educational intervention
 - Accountability (self-ratings compared to ratings by third-party)



State Farm Senior Driver Research

- Collaboration between UAB Roybal Center, State Farm, and Visual Awareness, Inc.
- Began data collection in July 2004 at eleven sites across the state of Alabama (N=2740)
- Participants: Alabama drivers 75 +, insured by State Farm, and designated as the primary driver on their State Farm policy are invited to participate
- 10% discount on automobile insurance rates for the subsequent two years dependent on surpassing a cut-off score on the UFOV[®] test
 - UFOV, demographics, general health and mobility practices

State Farm Senior Driver Research

- Beginning July, 2006, Birmingham site participants were administered an expanded version of the questionnaire
- Includes additional measures such as TICS-M, Driving Avoidance and Exposure Questions, 12-Item Short-Form Health Survey (SF-12), and Medical Conditions Questionnaire.

State Farm Project Telephone Follow-up

- Participants: Limited to those who have only participated once in the study, and who were administered the long-form survey at their baseline interview (n=131)
- Follow-up phone survey administered 2-4 months subsequent to baseline visit
 - Demographics
 - Mobility practices (avoidance/exposure, self-rated driving ability)
 - Feedback perception questions

Purpose

- To examine the association between feedback on a test of driving-related cognitive skills and self-reported driving avoidance, exposure, and ability.



AIM 1

- To examine baseline measures of feedback, cognitive performance, health/physical functioning, and demographic factors to identify predictors of subsequent self-rated driving ability.
 - *It is hypothesized that feedback regarding qualification status at baseline will be predictive of perceived driving ability at follow-up above and beyond demographic, health/physical functioning, or cognitive factors.*

AIM 2

- To examine baseline measures of feedback, cognitive performance, health/physical functioning, and demographic factors to identify predictors of subsequent self-reported driving avoidance.
 - *It is hypothesized that feedback regarding qualification status at baseline will be predictive of driving avoidance at follow-up above and beyond demographic, health/physical functioning, or cognitive factors.*

AIM 3

- To examine baseline measures of feedback, cognitive performance, health/physical functioning, and demographic factors to identify predictors of subsequent self-reported driving exposure.
 - *It is hypothesized that feedback regarding qualification status at baseline will be predictive of driving exposure at follow-up above and beyond demographic, health/physical functioning, or cognitive factors.*

Measures

- Demographics
 - Age, gender, education, marital status
- Health/Physical Functioning
 - Self-reported health status
 - SF-12 Physical Component Score
 - Self-reported Medical Conditions
- Cognition
 - TICS-M
 - SF-12 Mental Component Score
 - Qualification Status (based on UFOV[®] risk category)
- Self-rated Driving Ability
- Driving Avoidance Composite
- Driving Exposure Composite



Table 1. *Sample Description and Indicators of 3-month Driving Measures*

Variables	M	SD	Range
Demographics			
Gender (% female)	45		
Marital Status	1.87	.94	1 - 3
Health/Physical Functioning^a			
SF-12 Physical Component	48.56	8.50	23.15 - 67.84
Asthma (% with diagnosis)	11.5		
Arthritis (% with diagnosis)	58.8		
Cancer (% with diagnosis)	29.8		
High Cholesterol (% with diagnosis)	45.8		
Hypertension (% with diagnosis)	61.1		
Cognition			
TICS-M ^a	24.75	3.41	12 - 34
Feedback			
Qualification status (% qualified)	65.6		
Driving Measures			
Self-rated Driving Ability	4.40	.629	3 - 5
Avoidance Composite	10.95	4.90	6 - 25
Exposure Composite	.000	1.56	-3.16 - 10.01
3-month Self-rated Driving Ability	11.37	5.13	6 - 30
3-month Avoidance Composite	4.20	.66	1 - 5
3-month Exposure Composite	.000	1.65	-2.94 - 7.81

Note. N=131; ^aHigher scores indicate better performance

Table 2. *Correlation Table*

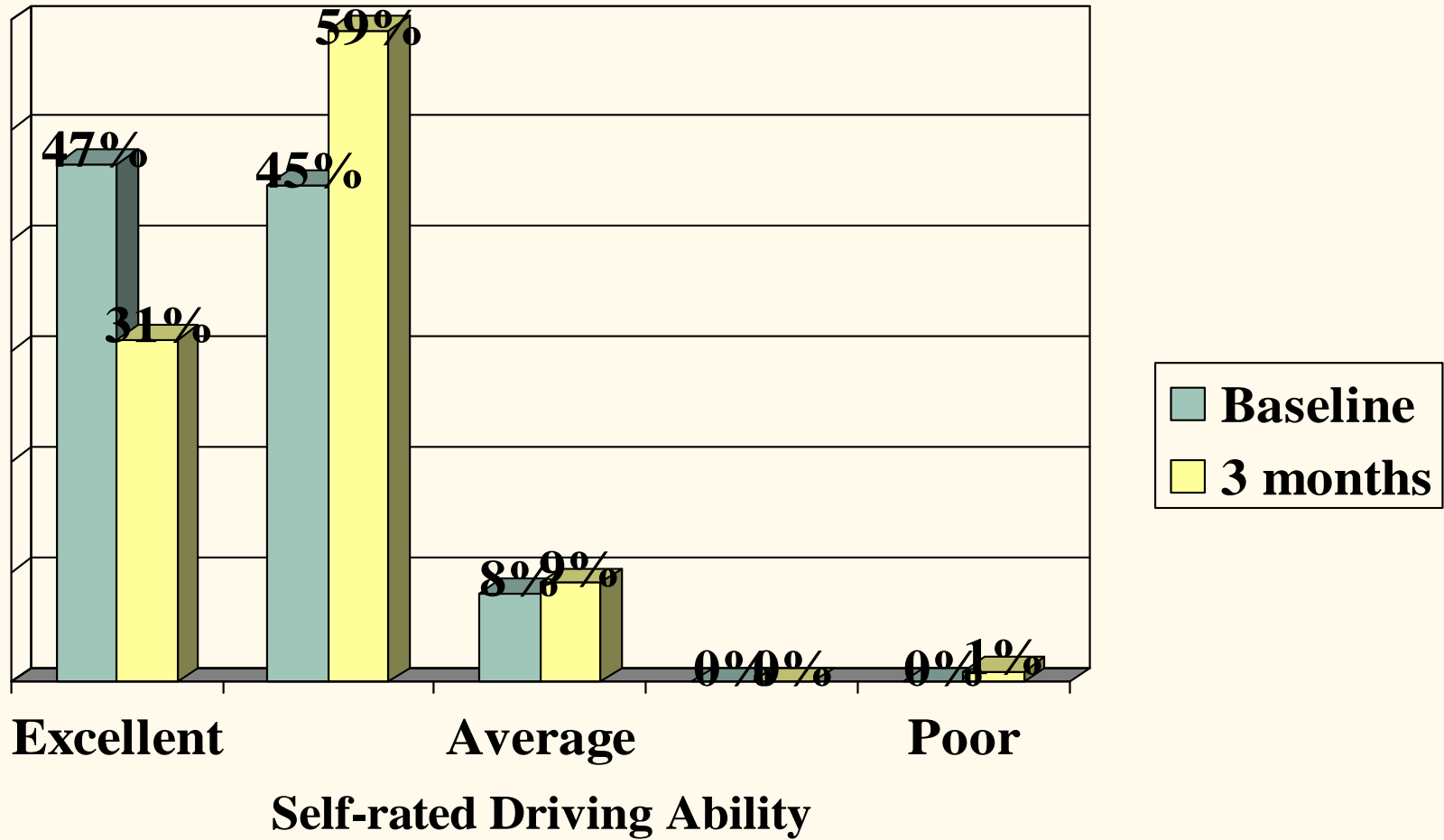
<i>R</i>	3 month Self-Rated Driving	3 month Driving Avoidance	3 month Driving Exposure
Age	-.119	.210*	-.130
Gender	.216*	-.317**	.282**
Education	.137	-.111	.124
Marital Status	-.166	.312**	-.053
TICS-M	.238**	-.227**	.182*
Self-rated Health	.163	-.225**	.134
SF-12 PCS	.186*	-.250**	.120
SF-12 MCS	.095	-.096	.062
Cataracts	-.123	.112	-.006
Diabetic Retinopathy	.117	-.075	-.026
Dry Eye Syndrome	-.173*	.077	.068
Glaucoma	.040	.018	.043
Macular degeneration	-.045	.111	.019
Optic neuritis	.119	-.029	-.114
Retinal detachment	-.013	-.093	.114
Arthritis	-.198*	.139	.071
Asthma	.040	1.72*	-.226**
Cancer	-.004	.186*	.008
Chronic skin problems	-.003	.013	-.032
Diabetes	-.081	-.041	.041
Heart disease	-.047	.137	-.096
Heart problems	.117	-.153	.029
High cholesterol	-.237**	.124	-.001
Hypertension	-.126	.195*	-.067
Multiple sclerosis	.119	-.128	.110
Osteoperosis	.016	.028	-.130
Parkinson's	-.053	.015	-.011
Stroke, mini stroke, TIA	-.037	.101	-.034
Bursitis	-.057	.073	-.039
Persistent back pain	.037	-.066	.139
Qualification status	.181*	-.302**	.207*

Note. $p^* < .05$, $p^{**} < .01$

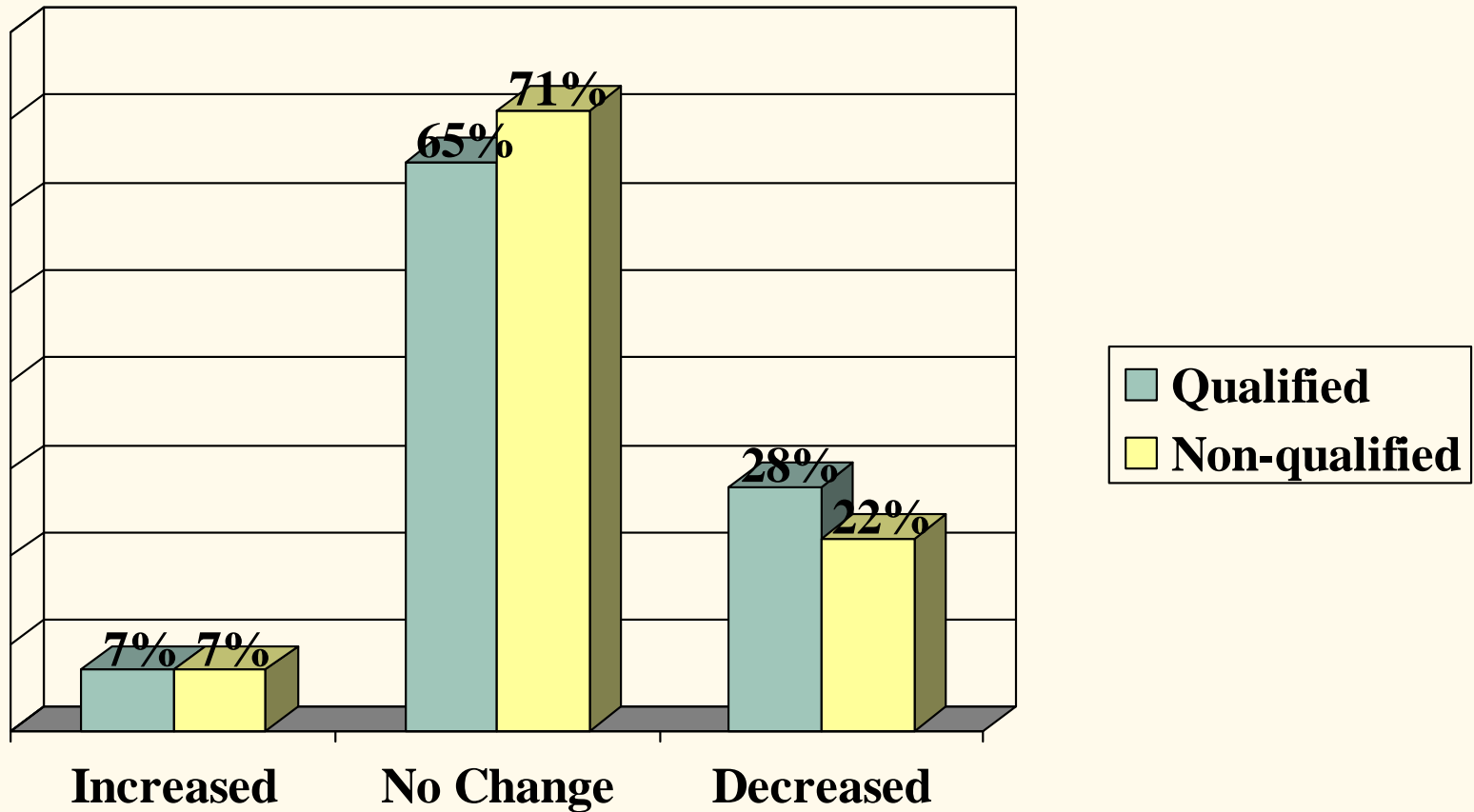
Table 3. *Regression Model Examining Indicators of Self-rated Driving Ability at 3-month Follow-up*

Model	<i>B</i>	<i>SE B</i>	β	<i>p</i>
Step 1				
Baseline Self-rated Driving Ability	.656	.072	.623	.000
Step 2				
Baseline Self-rated Driving Ability	.601	.079	.571	.000
Gender	.142	.096	.107	.140
SF-12 Physical Component	7.29E-005	.005	.001	.989
Arthritis	-.191	.098	-.143	.053
High Cholesterol	.021	.010	.092	.046
Dry Eye Syndrome	-.139	.114	-.088	.223
TICS-M	.010	.014	.049	.490
Step 3				
Baseline Self-rated Driving Ability	.598	.080	.569	.000
Gender	.142	.096	.107	.142
SF-12 Physical Component	.000	.006	-.002	.981
Arthritis	-.188	.099	-.140	.061
High Cholesterol	-.065	.093	-.049	.487
Dry Eye Syndrome	-.140	.114	-.088	.224
Qualification Status	.020	.104	.014	.849
<i>Note.</i> Step 1: $R^2=.389$ ($p<.001$); Step 2: $\Delta R^2=.061$ ($p=.042$); Step 3: $\Delta R^2=.000$ ($p=.849$)				

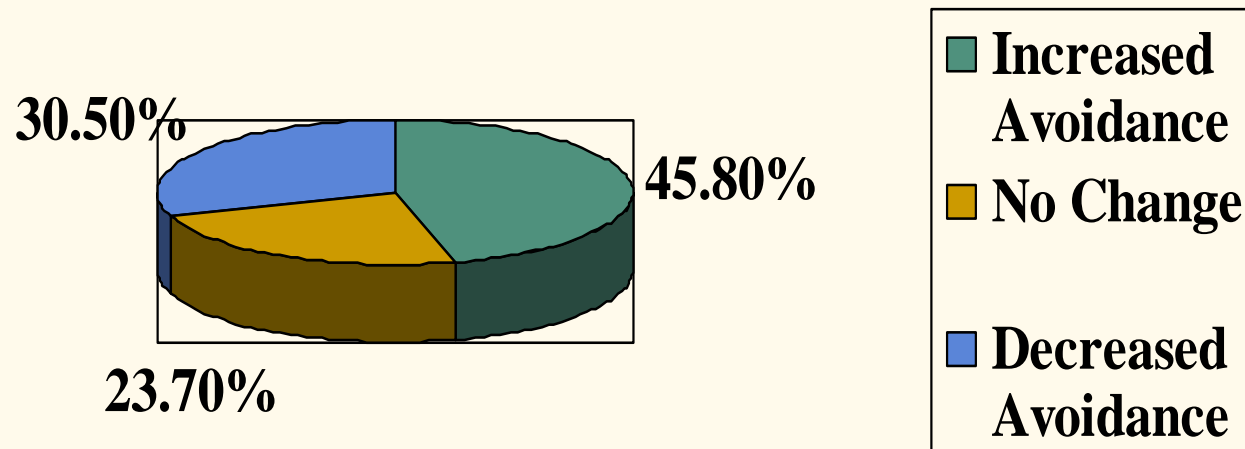
Self-Rated Driving



Self-Ratings by Qualification



Driving Avoidance Composite at Follow-up



Driving Avoidance by Qualification

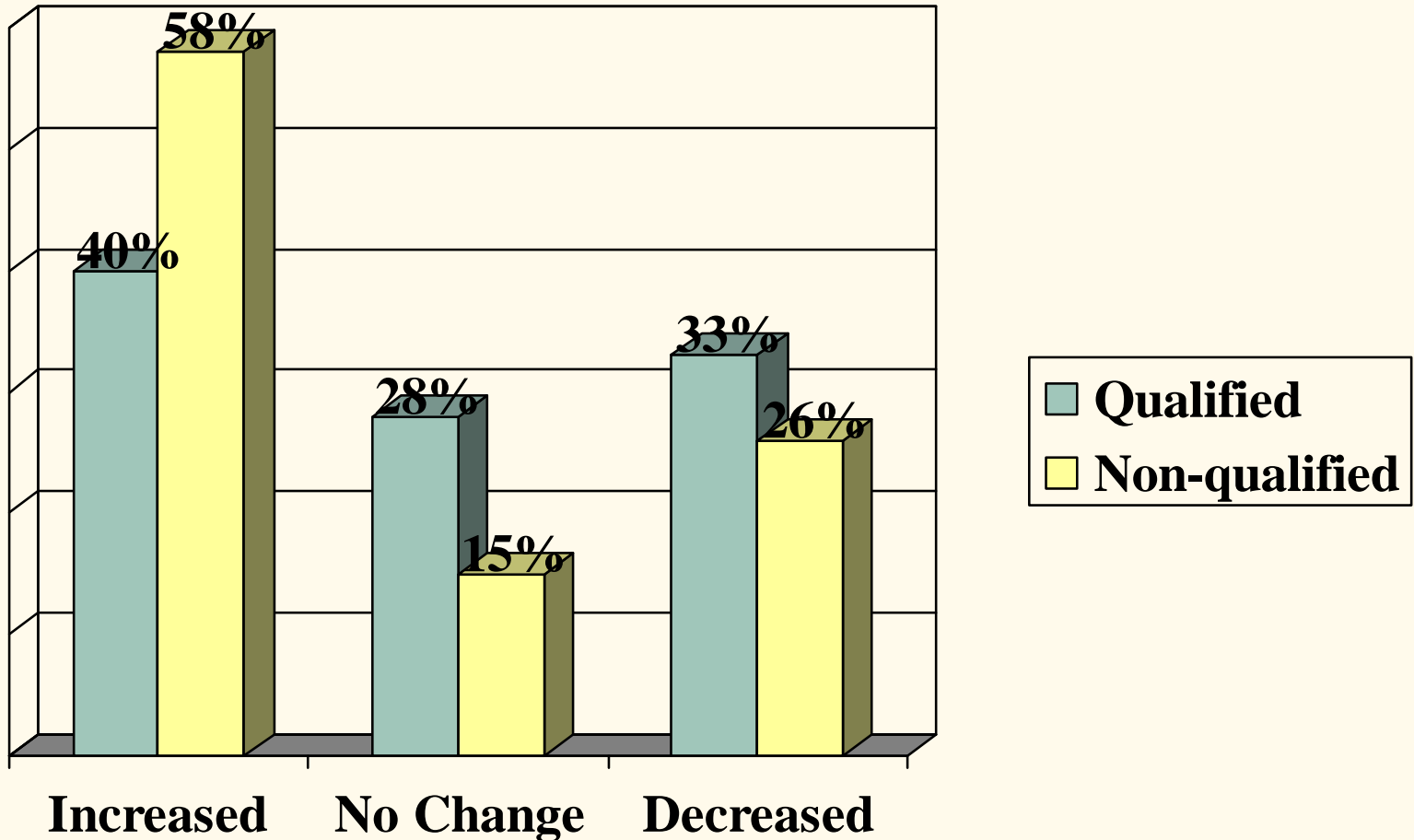


Table 4. *Regression Model Examining Indicators of Driving Avoidance at 3-month Follow-up*

Model	<i>B</i>	<i>SE B</i>	β	<i>p</i>
Step 1				
Baseline Driving Avoidance	.790	.061	.754	.000
_Step 2				
Baseline Driving Avoidance	.692	.064	.661	.000
Age	.146	.079	.114	.068
Gender	-.679	.685	-.066	.324
Marital Status	.444	.361	.081	.221
Self-rated Health	-.033	.028	-.081	.221
SF-12 Physical Component	-.007	.043	-.012	.868
Hypertension	.483	.597	.046	.421
Asthma	1.30	.926	.081	.164
Cancer	1.33	.647	.119	.043
TICS-M	.008	.090	.005	.932
Step 3				
Baseline Driving Avoidance	.679	.064	.649	.000
Age	.131	.078	.102	.098
Gender	-.632	.677	-.062	.352
Marital Status	.399	.357	.073	.265
Self-rated Health	-.030	.028	-.072	.288
SF-12 Physical Component	.002	.042	.003	.964
Hypertension	.670	.596	.064	.263
Asthma	1.23	.914	.077	.180
Cancer	1.10	.648	.099	.092
TICS-M	.063	.093	.042	.498
Qualification Status	-1.38	.668	-.128	.041

Note. Step 1: $R^2 = .569$ ($p < .001$); Step 2: $\Delta R^2 = .070$ ($p = .009$); Step 3: $\Delta R^2 = .013$ ($p = .041$)

Driving Exposure by Qualification

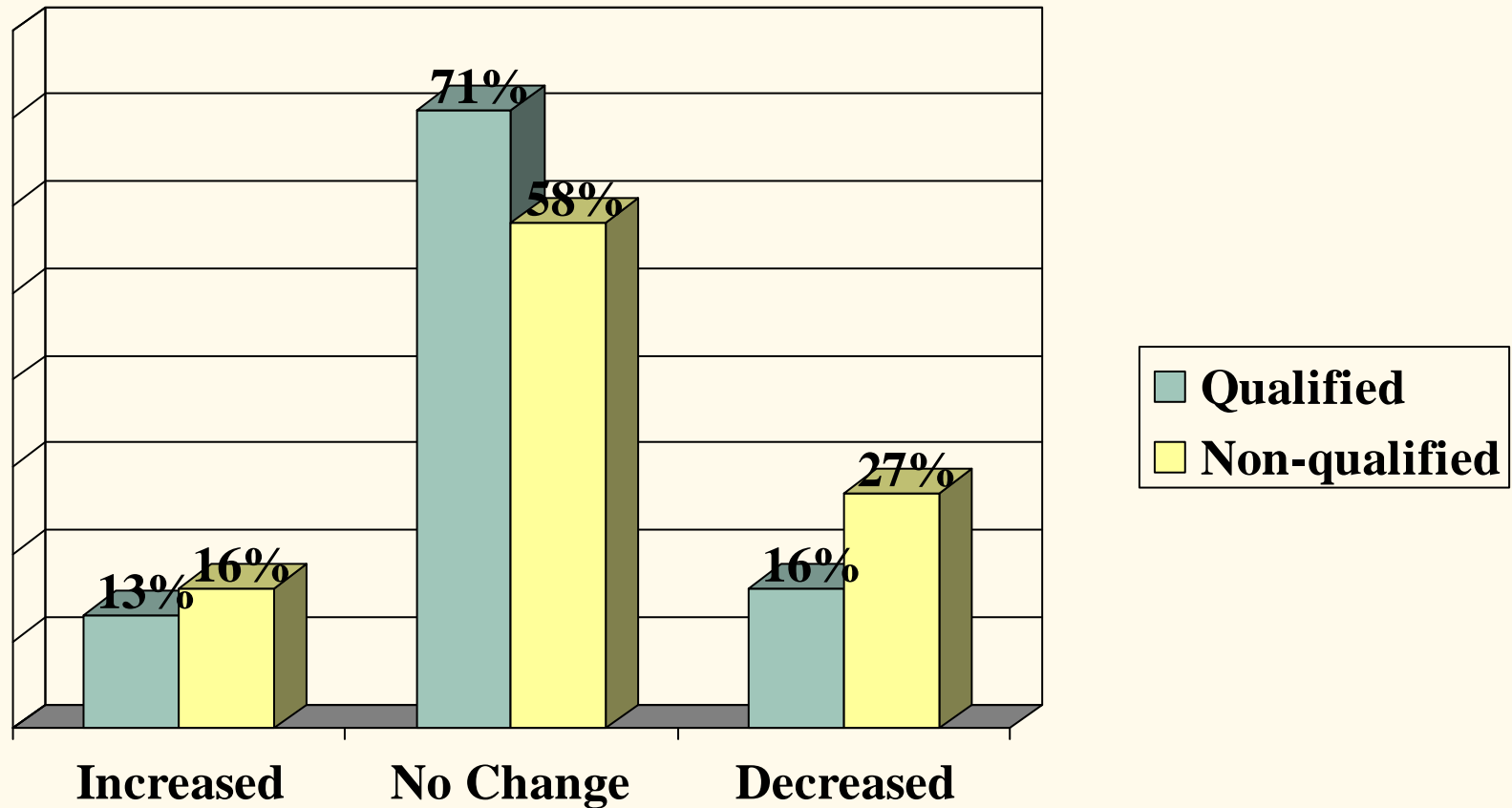


Table 5. *Regression Model Examining Indicators of Driving Exposure at 3-month Follow-up*

Model	<i>B</i>	<i>SE B</i>	β	<i>p</i>
Step 1				
Baseline Driving Exposure	.736	.066	.700	.000
Step 2				
Baseline Driving Exposure	.685	.070	.651	.000
Gender	.237	.216	.072	.275
Asthma	-.565	.323	-.110	.083
TICS-M	.053	.030	.111	.078
Step 3				
Baseline Driving Exposure	.682	.071	.648	.000
Gender	.231	.217	.070	.289
Asthma	-.551	.326	-.107	.093
TICS-M	.049	.032	.101	.113
Qualification Status	.104	.232	.030	.655
<i>Note.</i> Step 1: $R^2=.49$ ($p<.001$); Step 2: $\Delta R^2=.027$ ($p=.079$); Step 3: $\Delta R^2=.001$ ($p=.655$)				

Findings

- Qualification status was predictive of driving avoidance at 3-month follow-up, even after controlling for baseline avoidance
 - Only baseline measures of driving exposure and self-rated ability were significantly associated with subsequent scores

Implications

- Overall, the findings of this study provide some support for the role of feedback in self-regulating of older adults' driving behavior through avoidance of challenging driving situations.
 - Future research needs to examine the relationship between crash incidents and change in self-regulatory practices
 - Those with history of crashes may be more willing to change their driving behavior after receiving feedback
 - Will those who are avoiding more experience reduced crash risk?

“Were you Surprised?”

