DETECTING THE HIGH RISK DRIVER:
THE DEVELOPMENT OF A RISK
QUESTIONNAIRE

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16. Abstract

This report describes the development of a driver risk questionnaire that is intended to be used for the identification of accident-prone drivers from problem drivers in general and from alcoholic drivers in particular. A self-administered questionnaire which assesses drivers' demographic and personality characteristics, life events, general psychological stress, traffic exposure, and drinking was used in two phases of investigation; 532 drivers and 1059 drivers respectively participated in the two phases. The results, based on analysis of the retrospective data of the accidents which were reported by the drivers, showed promising moderate correlations between these accidents and our constructed risk score. However, the most important validating correlation between the risk score and the prospective accidents which appeared on driving records was low and statistically not significant. Since it was shown that recorded accidents are substantially less than those reported by the drivers, other validating criteria should be used in future research.

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INTRODUCTION

Considerable traffic safety research has been devoted to the identification of the risk-prone driver, the driver thought most likely to be involved in serious accidents, incurring property damage, injury and loss of life. Past research has attempted to identify the risk-prone driver on the basis of his attitudes, motivation and personality (1,2) as well as on the basis of general biographical data, (e.g., marital status, age) and previous driving record (3,4). While such research demonstrated the possibility of identifying and predicting the risk-prone driver, it left much to be desired in terms of the accuracy of these predictions as well as the applicability of these tests for general and practical use. Consequently, the major purpose of the proposed project will be the construction and validation of a practical and truly useable questionnaire to detect the high risk driver.

The relationship between alcohol and serious traffic accidents is now well documented as is the major contribution of alcoholics to this type of accident. The Michigan Alcoholism Screening Test (MAST) was devised to provide a rapid and practical means for court and traffic agency personnel to find individuals who are alcoholic (5,6). Although the MAST is proving successful in detecting alcoholism, in its present form it does not distinguish between high and low accident risk alcoholic drivers (7). This is a vital consideration since our own work and that of other investigators indicates that many alcoholics have traffic records indistinguishable from non-alcoholic drivers. Furthermore, alcoholics appear to have high accident and low accident phases in their alcoholic lives.

As a result of the current and projected National Highway Traffic Safety Administration's programs now underway to promote and stimulate programs to reduce drunk driving throughout the country, there is going to be an expansion of and change in the patterns of sanctions imposed on persons apprehended for driving while intoxicated. This will probably include a more rehabilitation-oriented approach which will put an increasing burden on the judgement of motor vehicle department and court examiners as to how much leeway to allow certain alcoholic drivers in the extent of driving they may or may not do, the type of restrictions to place upon their driving privileges, what point in time they may be permitted to drive again and so on. These examiners will obviously need adequate tools to make judgements regarding the risk any given alcoholic or non-alcoholic driver represents. It follows that it is imperative a questionnaire instrument be formulated and tested which will assist in determining relative accident risk for problem drivers as well as for alcoholic drivers.

Theoretical Rationale

Since most traffic accidents are initiated by driver action or inaction (8) it is not surprising that many studies have focused on the various physiological, psychological and social factors affecting drivers and pedestrians responsible for traffic accidents. A new approach to accident precursors will be suggested

that may lead to a better assessment of individual accident risk and ultimately to more rational traffic safety programs. A brief review of earlier approaches is in order because they are contributory to the main theme of this paper.

Many investigators have attempted to identify the characteristics of "accident-prone" drivers (3,8,9,10). These physical or psychological characteristics were viewed as stable phenomena present in certain drivers. It soon became apparent that physical and physiological characteristics (except those related to disease processes) were not a discriminatory factor and research efforts shifted to psychological and social variables (8,9). Typically, the latter studies used personality inventories, projective techniques, or contact with medical or social agencies to assess personality traits, attitudes or social behavior. These variables were then correlated with accidents or compared across high and low accident groups. Several studies demonstrated that many psychological or social factors such as aggressiveness, depression, or social maladjustment were significantly related to traffic accidents (3,8,9,10). Nevertheless, the correlations were usually not high enough to justify the practical use of the various inventories in accident prevention programs.

Much of the earlier research was guided by a concept of high accident liability as a relatively permanent characteristic of problem drivers, a view that must be seriously questioned because of data showing low correlations of accidents, for the same drivers across different time periods (9, 3).

Given the relatively low correlations between personality variables and accidents and accident rate variations for the same drivers during different time periods, one turns to the possibility of transient factors. The work of Holmes and Rahe et al (11-14) linking the onset of illness to measurable life changes provided us with a useful framework to determine if life changes (divorce, job change, financial difficulty, etc.) and the degree of subsequent adjustment they require are meaningfully related to the accident process. Their research indicated that the greater the number of life changes, and the greater the degree of adjustment initiated by the life changes, the higher the risk of illness and the greater the likelihood of major rather than minor illness. (A similar study relating recent life changes to clinical depression is particularly provocative because it provides a potential link between earlier studies that related emotional and personality factors to accidents and our current project (15). If most clinical depressions are indeed triggered by life changes, then depression itself, which in many studies is found to be correlated with accidents, may be regarded as a secondary or intermediary factor between life changes and the accident. Perhaps other personality factors heretofore implicated in traffic accidents will also prove to be a function of life changes.)

If phenomena as abtruse and etiologically diversified as human illness are indeed related to life changes, then these changes could well modify critical emotional and mental functions which very directly influence behavior, including driving behavior. A few earlier papers support the concept that stress and life events are related to traffic accidents. In one study by Selzer of 96 drivers at fault in fatal accidents and a matched control group, an assessment was made of interpersonal and vocational-financial stresses impinging upon both groups (16,17). While 52 percent of the fatal accident group experienced such stresses, only 18 percent of the controls reported similar experiences. (In

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general, the social stresses documented in the fatal accident study were equivalent to the "life changes" used in our project: marital strife or separation, job loss or change, serious indebtedness, etc.) Direct documentation for a link between life changes and accidents was provided by research demonstrating that the accident rate of persons undergoing divorce doubled during the six months before and after the divorce date (18).

No concept of driver-caused accidents would be complete without considering the disproportionate number of accidents, particularly serious and fatal accidents, caused by alcoholic drivers (17, 19). That excessive use of alcohol is itself a response to stress is often ignored. Moreover, dependence on alcohol invariably perpetuates and aggravates the condition of stress. In effect, alcoholism can be regarded as a response to stress which soon develops into a superstress as a consequence of resultant life changes. No doubt excessive consumption of alcohol has an inimical effect on driving. However, it is possible that the most disastrous effects emerge in the presence of both recent life stresses and excessive alcohol consumption. This interaction may make the alcoholic driver exceptionally dangerous at certain times.

Specific Objective of the Project

The purpose of this project is to develop and validate an instrument to identify the risk-prone driver and the alcoholic risk-prone driver. This instrument should separate the risk-prone driver from the general driver population as well as from the population of alcoholic drivers.

The measure will be based on the driver's responses to a short self-administered questionnaire. The questionnaire must be easily administered and scored in order to insure it will be used in prevention programs.

METHOD

Material and Procedures

A self-administered questionnaire was designed, pretested and used for this study. The questionnaire focused on the type and number of life changes and the resultant social and psychological stress experienced by the drivers during the previous twelve months. To assess life changes, we used a modified version of Holmes and Rahe's Life Events Checklist (11) for the previous twelve months. Their scoring method to measure the social and psychological readjustment required by these life events was also used. However, we also utilized a new scoring system based on the subjects personal estimate of the adjustment required of him by each life event.

Also included were a variety of questions to measure physical stress responses and subjective stress emanating from many life contexts including marital and family life, working conditions, financial state, and health concerns. In general, these questions focused on the frequency and intensity of serious disturbances in each life context. These disturbances either reflected conflict with significant others or serious worry, pressure or aggravation related to the context being explored (marriage, job, health, etc.). Questions typical of this aspect of the questionnaire were, "How often do you have problems with

your wife that make you seriously irritated or aggravated?" followed by "How serious and disturbing do you find it?" Each question was followed by a scale with a complete range of responses. Based on previous research findings demonstrating the relationships of certain types of psychopathology to road accidents (16,17,20), the questionnaire included several questions and scales pertaining to aggression, paranoid thinking, depression and suicidal proclivity. The assessment of aggression was based on a selected pool of ten items from the Buss aggression scale (21) and questions regarding physical aggression. Paranoid thinking was based on five questions reflecting ideas of reference, excessive suspiciousness and paranoid thoughts. The assessment of depression was based on a twelve-item version of the Zung scale (22). Suicidal proclivity was evaluated by questions regarding frequency and seriousness of suicidal thoughts or acts.

Questions about drinking included quantity and frequency as well as the use of the Michigan Alcoholism Screening Test (MAST) to determine the effect of drinking upon the driver's life (6).

The questionnaire elicited the subject's driving history during the preceding twelve months (including recent accidents, annual mileage, night driving) as well as a demographic profile (age, education, employment, income).

Samples

In phase I, a total of 532 male drivers above the age of 20 filled out our self-administered questionnaire in four locations in Washtenaw County, Michigan. Data from 102 drivers routinely renewing their driver licenses were collected at the state licensing office with a refusal rate of 50%. Data was collected from 172 drivers who were sent to the Ann Arbor Driver Safety School by the traffic courts following their conviction for moving traffic violations. We also obtained data from two groups of alcoholics: 147 drivers undergoing inpatient treatment for alcoholism at the Brighton Hospital and 111 alcoholic drivers receiving outpatient treatment at the Washtenaw County Council on Alcoholism. In the latter three groups, taking the questionnaire was mandatory.

In phase II, a total of 1059 male drivers above the age of 20 responded to our self-administered questionnaire in nine locations in six Southeastern Michigan counties. These drivers represented three samples. The first sample consisted of 294 general population drivers (50% of those approached) who came to routinely renew their driving license. The second sample consisted of 480 problem drivers attending county safety schools. These drivers were convicted of serious moving traffic violations representing the high risk driving population in our study. Finally, the third sample consisted of 285 alcoholic drivers receiving inpatient or outpatient treatment for alcoholism in hospitals and outpatient rehabilitation programs.

A summary of the above samples in phases I and II along with the percent of drivers that were involved in at least one traffic accident in the previous twelve months is presented in Table 1.

RESULTS

Phase I

Data analysis disclosed essential similarity in the demographic characteristics
of the first two groups (license office and safety school groups) and similarity
of the two groups of alcoholic drivers (Brighton Hospital and Washtenaw Council
on Alcoholism). The data from the first two groups (henceforth referred to as
group G: 274 $\underline{Ss}$) was then combined as were the data of the latter two alcoholic
groups (henceforth referred to as group A: 258 $\underline{Ss}$). All statistical analyses were
then performed separately on the G and A groups. The assessment of the demo-
graphic, personality, life change and subjective stress variables enumerated
above was performed mostly with indices, each of which was constructed by
combining data from several questions relating to the same general context
(i.e. aggression, job, wife, etc.). Table 2 contains a description of the
Phase I variables including those based on combination indices. Product mo-
ment correlations between these variables and accident occurrence during the
prior year were then computed and appear in Table 2.

Examination of the demographic variables in Table 2 discloses that only
income was significantly correlated (negatively) with accidents and in Group
G only. Among the personality variables, aggression alone was significantly
correlated with accidents in both groups. In contrast to these relatively
meager relationships between accidents and the demographic and personality
variables, Table 2 illustrates that there were several significant correlations
between accidents and life change-subjective stress variables. These rela-
tionships appear stronger for the alcoholic drivers (group A).

Among the various drinking practices and alcoholism questions used, only
the average number of drinks per driver per sitting correlated positively with
accidents! (The greater the number of drinks per sitting, the greater the likeli-
hood of an accident.) Strangely enough, this held true for both Group G and
Group A (alcoholic group) although there was a marked difference in alcohol
intake between them. (The average number of drinks per sitting was 2.3 for
group G and 10 for group A.)

In order to better compare the predictive power of the demographic, person-
ality, and life change-subjective stress classes of variables, multiple correla-
tions were computed. In each case, a product moment multiple correlation was
computed between accidents and an additive combination of all of the variables
in Table 2 comprising each of the above three classes of major variables and
are shown in Table 3. Using this method the greater importance of the life
change-subjective stress variables in accident causation becomes even more
apparent. As seen in Table 3, all the multiple correlations between accidents
and demographic or personality variables are very small and none is statistically
significant. In contrast, the multiple correlations between accidents and life
change-stress variables are higher and statistically significant at the .01 level
in both G and A samples. Furthermore, the multiple correlations between acci-
dents and life change-stress variables remains relatively the same after we
controlled for all the demographic and personality variables (partial correlations

of .20 and .24 for group G and A respectively, both significant at the .01 level). In contrast, when the partial multiple correlations between accidents and demographic and personality variables were controlled for life change-stress variables, there was a drop from .21 to .14 in group G and from .19 to .08 in group A!

In order to determine the best combination of predictors of traffic accidents all data was subjected to a stepwise regression analysis. This analysis included all variables in Table 2 plus others including annual mileage and the percent of driving done at night. The results of this analysis appear at the bottom of Table 3. The best combination of predictors of accidents for group G included income (negatively correlated), aggression, disturbance with parents and/or in-laws, disturbance and pressure in school, concern with broad social and ecological issues (negatively correlated), and number of drinks per sitting. The best combination of predictors for group A (alcoholics) included the same variables with the exception of school related disturbance and pressure. Replacing this variable are job disturbance and pressure and financial trouble. The difference in predictors between the two groups is partly due to group G consisting of younger drivers (mean 30 years) with many students, while group A consisted of older drivers (mean 44 years). In both sets of best predictors, several of the variables involved life changes or subjective stress while only one was demographic (income) and only one was a personality variable (aggression). The multiple correlations based on the above best predictors are 0.31 for group G and 0.43 for group A, statistically significant at p < .002 and p < .001 levels, respectively.

On the basis of the above set of predictors each driver was assigned a predicted accident-risk score. The score range was set to include three risk levels: low, medium, and high. The distribution of accident-free and accident-involved drivers in the three risk levels is presented in Tables 4 and 5 for Groups G and A respectively.

As can readily be seen, there is a substantial and signficant relationship between predicted risk score and accident involvement. In both groups G and A, the number of accident-involved drivers in the high risk category is roughly twice their number in the low risk category. Similarly, the number of accident free drivers in the low risk category is roughly twice their number in the high risk category.

Tables 6 and 7 for Groups G and A respectively, demonstrate that the relationship between risk-score and accidents holds equally well when drivers with one accident are compared to drivers with two or more accidents and is very strong when the accident-free drivers are compared to multiple accident drivers (Gammas .58 and .71 for Group G and A respectively).

Phase II

On the basis of extensive item analysis of the data obtained in Phase I and our experience with the interviewing process the questionnaire was modified considerably. We expanded those parts of the questionnaire that proved effective in predicting accidents and at the same time reduced the size of the questionnaire so that it was possible to administer it in thirty to forty minutes.

(The final version of the questionnaire used in Phase II is presented in Appendix A.)

Specifically, the questionnaire was redesigned and additional items were included to measure driver's exposure, (i.e., time spent on the road during the day and night) physical stress responses, anxiety, and cautiousness.

The phase II data analyses were patterned on the analyses done in phase I. Similarly, the data from the License Office and safety school groups were combined (henceforth, Group G: 774 $\underline{Ss}$) as were the data from the various inpatient and outpatient alcoholism groups (henceforth, Group A: 285 $\underline{Ss}$).

The significant product moment correlations that were found in Groups G and A between our independent variables and accident occurrence during the prior year are presented in Table 8. In general, the correlations are of similar magnitude to those found in phase I. In particular, the life events and other variables involving stress are significantly correlated with accidents in <u>both</u> Groups.

In order to determine the best combination of predictors of traffic accidents all these variables were again subjected to a stepwise regression analysis. The results of this analysis appear at the bottom of Table 8. The best combination of predictors for Group G included <u>income</u> (negatively correlated), <u>exposure, physical stress responses, disturbance with parents and/or in-laws</u>, and <u>total subjective readjustment to undesirable life events</u> (R = .26; p <.001). The combination of best predictors for Group A include <u>age, frequency of drinking, night driving, aggression, disturbance with parents and/or in-laws,</u> and <u>total readjustment to undesirable life events</u> (R = .32; p < .001).

Again, predicted accident-risk scores were derived from the regression based on the set of best predictors. The distributions of accident-free and accident-involved drivers in each risk level category were tabulated and are presented in Tables 9 and 10 for Group G and A respectively. These distributions disclose significant moderate relationships between predicted risk scores and accident involvement. The results which appear in Tables 11 and 12 demonstrate again that the above relationship holds equally well when drivers with <u>one</u> accident are compared to drivers with <u>two or more</u> accidents and is stronger when accident-free drivers are compared to drivers with two or more accidents (Gammas .49 and .63 for Groups G and A respectively).

<u>Prospective analysis of the data obtained in phase I</u>

The driving records of drivers who responded to our questionnaire in phase I were obtained from the Secretary of State. We were able to obtain 234 records from Group G (85% of the total) and 181 records from Group A (70% of the total). Information regarding convictions for moving traffic violations and accidents for the 12 months <u>following</u> the completion of the questionnaire was coded.

Two types of information were coded. The first type included the total number of points due to convictions for moving violations and accidents for the 12 months following the completion of the questionnaire. The second type included only the number of accidents that appeared on the record for the above period. These two variables were correlated with our accident-risk score which was constructed from the combination of best predictors (described in Table 3). The correlation between the accident-risk score and violation-

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points was .21 (P <.01) for Group G and .05 for Group A. Most importantly, the correlation between accident-risk score and number of accidents was .08 for Group G and .03 for Group A. These negligible correlations cast serious doubt on the validity of the accident risk-score and its usefulness in predicting future accidents.

It seems possible that the lack of predictive validity for our accident-risk score stems from the fact that the score was based on retrospective rather than prospective evidence. We therefore attempted to construct a new accident risk-score by finding a new combination of variables that predicts the accidents and violation-points which appeared in the driving records. Using a stepwise regression analysis, the best combination of predictors of the accidents which appeared on the driving records was determined. For Group G, these predictors included age, disturbances with parents and/or in-laws, and total undesirable events. For Group A, the predictors included the score on the Michigan Alcoholism Screening Test (MAST), number of drinks per sitting, physical stress symptoms and undesirable life events. The multiple correlation between these variables and the number of accidents on record was .26 for Group G and .28 for Group A, both statistically significant at the .01 level. Although these correlations are statistically significant, they are even smaller than those obtained by using the retrospective data of (self reported) accidents as the dependent measure and certainly cannot serve as a basis for prediction for practical purposes.

It seems to us that the reason for these rather low correlations lies with the rather incomplete, and therefore unreliable, information on accidents in driving records. In order to investigate this hypothesis the mean number of self reported accidents in the questionnaire was compared with the mean number of accidents which appeared on driving records for a 12 month period.

For Group G the mean number of self reported accidents per driver was .47 and the mean number of accidents on records was .18. For Group A the first mean was .26 and the latter mean was .12. Thus, it is clear that less than half the accidents that drivers are involved in are recorded in state driving records!

It is equally obvious then that more research will be needed in order to further develop, improve and demonstrate the validity of our accident-risk-score. Furthermore, if any improvement is to be expected in future research, it is essential to use a vastly improved dependent measure of accidents rather than to rely on either drivers self report or driving records. An improvement in the recording of accidents may also have to include information about the severity of the accident and the driver at fault.

CONCLUSIONS, DISCUSSION, AND IMPLICATIONS FOR FUTURE RESEARCH

The results of the two phases of investigation consistently demonstrate a significant relationship between predicted accident-risk scores based primarily on stress variables and accident occurrence. This relationship proved much stronger when we focused on the predictions of multiple accident drivers. About 80 percent of these drivers can be predicted by the risk score.

In general, our results for Group G demonstrate that whereas 50 percent of the high risk-score drivers had one or more accidents during the one year period under investigation, only 23 percent of the low risk-score drivers had an accident in that period. Similarly, for Group A, 38 percent of the high scorers had one or more accidents compared to only 15 percent of the low scorers. Thus it is clear that those with low risk scores are indeed low risk drivers. Although drivers with high risk scores are certainly higher risk drivers in having better than a 40 percent chance of an accident, they would perhaps require further analytic scrutiny for additional predictive indicators of susceptibility to accidents.

The results of the prospective analysis of accidents which appeared on the drivers record for the 12 month period following the completion of the questionnaire demonstrated no correlation between our accident-risk score and the accidents in either Group. Using a new combination of best predictors only <u>weak</u> correlations could be obtained. Thus, the predictive validity of our risk score hasn't been demonstrated. Consequently, it would be premature and unjustified, at the moment, to use our questionnaire and its accident-risk score for practical use in prevention programs. We therefore reached the conclusion that more intensive research will be needed in order to find out whether our approach and its resultant accident-risk score does indeed lack any validity or that its validity could only be demonstrated with a more reliable and refined measure of accidents as our analysis seems to indicate.

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TABLE I

Number of male drivers in several samples in Phases I and II
and percent of drivers who were involved in at least one
accident in the previous 12 months.

SAMPLE	Phase I		Phase II	
	N	Per cent W/ACC	N	Per cent W/ACC
License Office Renewal	102	16%	294	18%
Safety School	172	47%	480	45%
Group G: Subtotal of License Office & Safety School	274	35%	774	34%
Group A: Alcoholics	258	21%	285	27%
TOTAL	532	29%	1059	32%

TABLE 2

Product moment correlations between occurrence of traffic accidents during the prior twelve months and demographic, personality, and life change subjective stress variables for 532 alcoholic and non-alcoholic drivers.

VARIABLES	Non-alcoholics (Group G) N = 274	Alcoholics (Group A) N = 258
A. Demographic		
1. Age	0.00	-0.08
2. Education	-0.06	-0.04
3. Employment	0.00	0.00
4. Income	-0.12**	-0.06
B. Personality		
5. Aggression	0.14**	0.12**
6. Paranoia	0.08	0.05
7. Depression	0.11	0.05
8. Suicide	0.06	0.08
C. Life events and subjective stress		
9. Total subjective readjustment to life events	0.08	0.11*
10. Physical stress responses: smoking, insomnia, headaches, and/or ulcers	0.17**	0.10*
11. Serious disturbance with <u>wife</u>	0.05	0.12**
12. Serious disturbance with <u>parents and/or in-laws</u>	0.14**	0.24**
13. Serious disturbance or pressure on the <u>job</u>	0.03	0.13**
14. Serious disturbance or pressure in <u>school</u>	0.14**	#
15. Seriously disturbed about <u>financial situation</u>	0.01	0.15**
D. Others		
16. Alcohol use: average number of drinks per sitting	0.13**	0.13**
17. Distressed by broad social-ecological issues	-0.09	-0.10*
18. Michigan Alcoholism Screening Test(MAST)	0.02	0.01

\#   Only 6 <u>Ss</u> were at school
** $p < .05$ (significant)
* $p < .10$

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TABLE 3

Multiple product moment correlations between occurrence of traffic accidents and demographic, personality, and life change-subjective stress variables for 532 alcoholic and non-alcoholic drivers.

PREDICTORS	Non-alcoholics (Group G) N = 274		Alcoholics (Group A) N = 258	
All Demographic variables	.14	(.09)#	.12	(.05)#
All Personality variables	.18	(.15)	.17	(.13)
All Personality and Demographic variables	.21	(.14)	.19	(.09)
All Life Change and Subjective Stress variables	.25*	(.20)	.26*	(.21)
Selected best combination of predictors ##				
For group G using variables as numbered in Table 1: 4, 5, 10, 12, 14, 16, 17	.31**	(.28)		
For group A using variables as numbered in Table 1: 4, 5, 10, 12, 13, 15, 16, 17			.43**	(.40)

\#   Correlations in parentheses are corrected for attenuation for number of cases and number of independent variables (23).

\#\#   Set of best predictors was determined by a stepwise regression procedure.

* $p < .01$

** $p < .002$

TABLE 4

Frequency and percentage of accident-free and accident-involved drivers in Low, Medium and High accident-risk levels

Phase I : Group G

Risk-level :		Low	Med.	High
	TOTAL COL %	99	93	82
Acc. Free	177	76	60	41
	64.6	76.8	64.5	50.0
Acc. Involved	97	23	33	41
	35.4	23.2	35.5	50.0

X^2: p $<$ .006 ; GAMMA = .3748

Frequency and percentage of drivers with no accident, one accident, two accidents, etc., in Low, Medium and High accident-risk levels

Risk-level :		Low	Med.	High
	TOTAL COL %	99	93	82
No. of Accidents				
None	177	76	60	41
	64.6	76.8	64.5	50.0
One	69	19	25	25
	25.2	19.2	26.9	30.5
Two	24	4	8	12
	8.8	4.0	8.6	14.6
Three	3	0	0	3
	1.1			3.7
Four	1	0	0	1
	.4			1.2

X^2: p $<$ .005 ; GAMMA = .3760

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TABLE 5

Frequency and percentage of accident-free and accident-involved
drivers in Low, Medium and High accident-risk levels

Phase I : Group A

Risk-level:	Low	Med.	High
TOTAL COL %	90	99	69
Acc. Free	203		
	78.7	77	82	44
		85.6	82.8	63.8
Acc. Involved	55	13	17	25
	21.3	14.4	17.2	36.2

x^2: p $<$ .002 ; GAMMA = .3778

Frequency and percentage of drivers with no accident, one accident,
two accidents, etc., in Low, Medium and High accident-risk levels

Risk-level:	Low	Med.	High
TOTAL COL %	90	99	69

No. of Accidents

	Low	Med.	High
None	203	77	82	44
	78.7	85.6	82.8	63.8
One	47	12	16	19
	18.2	13.3	16.2	27.5
Two	6	1	1	4
	2.3	1.1	1.0	5.8
Three	2	0	0	2
	.8			2.9

x^2: p $<$ .006 ; GAMMA = .3829

TABLE 6

Frequency and percentage of drivers with <u>one</u> accident and with <u>two or more</u> accidents in Low, Medium and High accident-risk levels

Phase I : Group G

Risk-level:		Low	Med.	High
TOTAL COL %		23	33	41

No. of Accidents

One	69 71.1	19 82.6	25 75.8	25 61.0
Two or More	28 28.9	4 17.4	8 24.2	16 39.0

$$X^2: \quad p < .14 \; ; \quad GAMMA = .3631$$

Frequency and percentage of drivers with <u>no</u> accident and with <u>two or more</u> accidents in Low, Medium and High accident-risk levels

Risk-level:		Low	Med.	High
TOTAL COL %		80	68	57

No. of Accidents

None	177 86.3	76 95.0	60 88.2	41 71.9
Two or More	28 13.7	4 5.0	8 11.8	16 28.1

$$X^2: \quad p < .001 \; ; \quad GAMMA = .5836$$

TABLE 7

Frequency and percentage of drivers with <u>one</u> accident and with <u>two</u> <u>or more</u> accidents in Low, Medium and High accident-risk levels

Phase I : Group A

Risk-level:		Low	Med.	High
TOTAL COL %		13	17	25

No. of Accidents

One	47	12	16	19
	85.5	92.3	94.1	76.0
Two or More	8	1	1	6
	14.5	7.7	5.9	24.0

$$X^2 : \quad p < .18 \; ; \quad GAMMA = .5385$$

Frequency and percentage of drivers with <u>no</u> accident and with <u>two or more</u> accidents in Low, Medium and High accident-risk levels

Risk-level:		Low	Med.	High
TOTAL COL %		78	83	50

No. of Accidents

None	203	77	82	44
	96.2	98.7	98.8	88.0
Two or More	8	1	1	6
	3.8	1.3	1.2	12.0

$$X^2 : \quad p < .002 \; ; \quad GAMMA = .7169$$

TABLE 8

Product moment correlations between occurrence of traffic accidents during the prior 12 months and demographic, personality, and life events and stress variables for two samples of drivers in Phase II.

VARIABLES	Group G N = 774	Group A N = 285
A. Demographic		
1. Age	-.08**	-.17***
2. Income	-.07**	.00
3. Education	-.08**	.12**
B. Personality		
4. Aggression	.05	.17***
5. Paranoia	.06	.11*
6. Suicidal Tendencies	.10***	.09*
C. Life events and stress		
7. Total readjustments and pressure due to undesirable life events	.13***	.25***
8. Physical stress responses: smoking, insomnia, headaches, ulcers, etc.	.16***	.12**
9. Self reported stress and tension	.01	.15**
10. Disturbance with parents and/or in-laws	.10***	.14**
D. Others: Drinking and Exposure		
11. Total exposure: Driving day and night	.18***	.03
12. Night driving	.14***	.11*
13. Frequency of drinking	.04	.16***
Selected best combination of predictors		
For Group G, variables No.: 2, 7, 8, 10, 11	.26***	
For Group A, variables No.: 1, 4, 7, 10, 12, 13		.32***

```
 *    p < .10
 **   p < .05
 ***  p < .01
```

TABLE 9

Frequency and percentage of accident-free and accident-involved drivers in Low, Medium and High accident-risk levels

Phase II : Group G

Risk-level:		Low	Med.	High
	TOTAL COL %	288	243	243
Acc. Free	511	222	153	136
	66.0	77.1	63.0	56.0
Acc. Involved	263	66	90	107
	34.0	22.9	37.0	44.0

$$X^2 : \quad p < .001 \; ; \quad GAMMA = .3149$$

Frequency and percentage of drivers with no accident, one accident, two accidents, etc., in Low, Medium and High accident-risk levels

Risk-level:		Low	Med.	High
	TOTAL COL %	288	243	243
No. of Accidents				
None	507	219	153	135
	65.5	76.0	63.0	55.6
One	215	60	75	80
	27.8	20.8	30.9	32.9
Two	39	7	13	19
	5.0	2.4	5.3	7.8
Three	12	2	2	8
	1.6	.7	.8	3.3
Four	1	0	0	1
	.1			.4

$$X^2: \quad p < .01 \; ; \quad GAMMA = .3020$$

TABLE 10

Frequency and percentage of accident-free and accident-involved drivers in Low, Medium and High accident-risk levels

Phase II : Group A

Risk-level:		Low	Med.	High
	TOTAL COL %	99	112	74
Acc. Free	206	83	80	43
	72.3	83.8	71.4	58.1
Acc. Involved	79	16	32	31
	27.7	16.2	28.6	41.9

X^2: p $<$ .001 ; GAMMA = .3949

Frequency and percentage of drivers with no accident, one accident, two accidents, etc., in Low, Medium and High accident-risk levels

Risk-level:		Low	Med.	High
	TOTAL COL %	99	112	74
No. of Accidents				
None	207	83	80	44
	72.6	83.8	71.4	59.5
One	55	13	26	16
	19.3	13.1	23.2	21.6
Two	21	3	6	12
	7.4	3.0	5.4	16.2
Three	2	0	0	2
	.7			2.7

X^2: p $<$ .001 ; GAMMA = .3876

TABLE 11

Frequency and percentage of drivers with <u>one</u> accident and with <u>two or more</u> accidents in Low, Medium and High accident-risk levels

Phase II : Group G

Risk-level:		Low	Med.	High
	TOTAL COL %	69	90	108
No. of Accidents				
One	215	60	75	80
	80.5	87.0	83.3	74.1
Two or More	52	9	15	28
	19.5	13.0	16.7	25.9

$$x^2 : \quad p < .07 \; ; \quad GAMMA = .2866$$

Frequency and percentage of drivers with <u>no</u> accident and with <u>two or more</u> accidents in Low, Medium and High accident-risk levels

Risk-level:		Low	Med.	High
	TOTAL COL %	228	168	163
No. of Accidents				
None	507	219	153	135
	90.7	96.1	91.1	82.8
Two or More	52	9	15	28
	9.3	3.9	8.9	17.2

$$x^2: \quad p < .001 \; ; \quad GAMMA = .4959$$

TABLE 12

Frequency and percentage of drivers with <u>one</u> accident and with <u>two</u> <u>or more</u> accidents in Low, Medium and High accident-risk levels

Phase II : Group A

Risk-level:	Low	Med.	High
TOTAL COL %	16	32	30
No. of Accidents			
One	13	26	16
55 / 70.5	81.3	81.3	53.3
Two or More	3	6	14
23 / 29.5	18.8	18.8	46.7

x^2: $p < .03$; GAMMA = .4752

Frequency and percentage of drivers with <u>no</u> accident and with <u>two</u> <u>or more</u> accidents in Low, Medium and High accident-risk levels

Risk-level:	Low	Med.	High
TOTAL COL %	86	86	58
No. of Accidents			
None	83	80	44
207 / 90.0	96.5	93.0	75.9
Two or More	3	6	14
23 / 10.0	3.5	7.0	24.1

x^2: $p < .001$; GAMMA = .6276

HIGHWAY SAFETY RESEARCH INSTITUTE

Institute of Science and Technology

Huron Parkway and Baxter Road
Ann Arbor, Michigan 48105
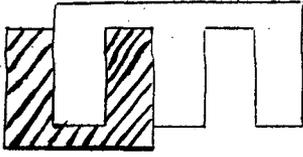
THE UNIVERSITY OF MICHIGAN

Location_____

Interview Number _____

Date of Interview _____
(Mo.)(Day) (Year)

Interviewer _____

Dear Respondent:

This interview is part of a long-range research projec: on driving conducted by the University of Michigan. It is intended to help develop programs that will prevent serious traffic accidents and injuries. We hope to gain a better understanding of what influences driving behavior by asking you about your driving, personal history, and other related areas.

The information gathered in this questionnaire will be used for research purposes only. Your answers will be treated in strictest confidence and will be seen only by our research staff.

Please answer the questions as frankly and accurately as you can. Be sure to read each question carefully before answering it.

If you have any questions now or while working on the questionnaire, please feel free to ask the interviewer for assistance.

We greatly appreciate your help in this research.

Yours sincerely,

Dr. Melvin L. Selzer
Principle Investigator
University of Michigan
Medical School

Dr. Amiram Vinokur
Associate Research Psychologist
Highway Safety Research Institute

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1. Sex: _____1. Male
         _____2. Female

2. When is your birthday?   _____Month   _____Day   _____Year

3. My marital status: _____1. Single
                         _____2. Married
                         _____3. Divorced
                         _____4. Separated
                         _____5. Widowed

4. Are you a student attending high school, college or university?

                    _____1. No
                    _____2. Yes. If yes, _____3. Full time   _____4. Part time

5. Are you   _____1. Unemployed, but seeking a job?
                    _____2. Partially employed (less than 20 hrs/week)
                    _____3. Fully employed (at least 20 hrs/week)
                    _____4. Unemployed, not seeking a job, such as

                                    _____5. Student
                                    _____6. Housewife
                                    _____7. Retired
                                    _____8. Handicapped
                                    _____9. Other? Explain:_____
                                    _____

6. How many years of school did you complete?

   Circle Number: 1   2   3   4   5   6   7   8   9   10

                    11   12   13   14   15   16   17   18   19   20   21+

7. At the present time, about what is your yearly income before taxes--include
   anything you earn yourself plus what your wife earns. Include fellowships
   and summer employment. CHECK ONE.

   _____1. Under 3,000 . . . . Under $250/month
   _____2. $ 3,000 up to $ 6,000 . . . . $ 250 - $ 500/month
   _____3. $ 6,000 up to $ 9,000 . . . . $ 500 - $ 750/month
   _____4. $ 9,000 up to $12,000 . . . . $ 750 - $1,000/month
   _____5. $12,000 up to $15,000 . . . . $1,000 - $1,250/month
   _____6. $15,000 up to $18,000 . . . . $1,250 - $1,500/month
   _____7. $18,000 up to $21,000 . . . . $1,500 - $1,750/month
   _____8. $21,000 or more . . . . $1,750 or more/month

8. How many miles did you drive in the past 12 months?

_____1. up to 5,000 miles
_____2. 5,000 to 10,000
_____3. 10,000 to 15,000
_____4. 15,000 to 20,000
_____5. 20,000 to 25,000
_____6. 25,000 to 30,000
_____7. 30,000 to 35,000
_____8. 35,000 and more

9. How much of your driving was at night? Between--

_____1. 0-- 20%
_____2. 21-- 40%
_____3. 41-- 60%
_____4. 61-- 80%
_____5. 81--100%

10. On an average day (24 hours), how much time do you spend driving?

_____1. up to 1/2 hour per day
_____2. 1/2 hr. to 1 hour
_____3. 1 hr. to 1-1/2 hours
_____4. 1-1/2 hrs. to 2 hours
_____5. 2 hrs. to 2-1/2 hours
_____6. 2-1/2 hrs. to 3 hours
_____7. 3 hours or more

11. On the average, how much time do you spend driving at night?

_____1. up to 1/2 hour per night
_____2. 1/2 hr. to 1 hour
_____3. 1 hr. to 1-1/2 hours
_____4. 1-1/2 hrs. to 2 hours
_____5. 2 hrs. to 2-1/2 hours
_____6. 2-1/2 hrs. to 3 hours
_____7. 3 hours or more

12. In the past 12 months, how many tickets did you receive for moving traffic violations such as speeding, going through a red light, stop sign, etc?

_____Tickets

13. How many of the tickets were because of an accident?

_____Tickets

TRAFFIC ACCIDENTS

The next questions are about any accidents you had in the past year (12 months) while you were driving a car, a truck, or a motorcycle. By accidents we mean any incident involving a motor vehicle where there was some damage to any car or other property or any personal injury.

14. During the past year (12 months) have you been involved in any accidents while being the driver (whether or not you were responsible)?

_____1. NO. If NO, go on to page 5.
_____2. YES.

15. If YES, how many accidents altogether have you had in the past 12 months? (Include any accidents while you were in the driver's seat.)

_____Accidents in the past 12 months

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List the following information about each accident (those in the past 12 months)

16. Accident A (the most recent one): DATE:_____Month _____Year

    Location:_____

17. Property Damage: _____1. No damage
                        _____2. Minor damage (under $200)
                        _____3. Moderate or major damage (needing much repair:
                                $200 up to value of any car involved)
                        _____4. Total damage (repairs would cost as much as the
                                car is worth, including other cars involved)

18. Injuries: _____1. No injuries
                        _____2. Minor injuries (requiring no medical attention or
                                only one treatment)
                        _____3. Major injuries (requiring hospitalization or
                                repeated treatment)
                        _____4. Death - fatality

19. Accident B (the second recent one): DATE:_____Month _____Year

    Location:_____

20. Property Damage: _____1. No damage
                        _____2. Minor damage (under $200)
                        _____3. Moderate or major damage (needing much repair:
                                $200 up to value of any car involved)
                        _____4. Total damage (repairs would cost as much as the
                                car is worth, including other cars involved)

21. Injuries: _____1. No injuries
                        _____2. Minor injuries (requiring no medical attention or
                                only one treatment)
                        _____3. Major injuries (requiring hospitalization or
                                repeated treatment)
                        _____4. Death - fatality

22. <u>Accident C (the third recent one)</u>: DATE:_____Month _____Year

Location:_____

23. Property Damage: ____ 1. <u>No</u> damage
                                     ____ 2. <u>Minor</u> damage (under $200)
                                     ____ 3. <u>Moderate</u> or <u>major</u> damage (needing much repair:
                                               $200 up to value of any car involved)
                                     ____ 4. <u>Total</u> damage (repairs would cost as much as the
                                               car is worth, including other cars involved)

24. Injuries: ____ 1. <u>No</u> injuries
                                     ____ 2. <u>Minor</u> injuries (requiring nc medical attention
                                          or only one treatment)
                                     ____ 3. <u>Major</u> injuries (requiring hospitalization or
                                          repeated treatment)
                                     ____ 4. <u>Death</u> - fatality

25. <u>Accident D (the fourth recent one)</u>: DATE_____Month _____Year

Location:_____

26. Property Damage: ____ 1. <u>No</u> damage
                                     ____ 2. <u>Minor</u> damage (under $200)
                                     ____ 3. <u>Moderate</u> or <u>major</u> damage (needing much repair:
                                               $200 up to value of any car involved)
                                     ____ 4. <u>Total</u> damage (repairs would cost as much as the
                                               car is worth, including other cars involved)

27. Injuries: ____ 1. <u>No</u> injuries
                                   ____ 2. <u>Minor</u> injuries (requiring no medical attention or
                                         only one treatment)
                                   ____ 3. <u>Major</u> injuries (requiring hospitalization or
                                   repeated treatment)
                                 ____ 4. <u>Death</u> - fatality

Following are a number of statements. Read each statement and check whether it is <u>true as applied to you</u> or <u>false as applied to you</u>.

Remember to give your own opinion of yourself.

                                                                    TRUE   FALSE

28. People who continuously pester you are asking for a punch
    in the nose . . . . _____   _____

29. Before voting I thoroughly investigate the qualifications
    of all the candidates . . . . _____   _____

30. I have known people who pushed me so far that we came
    to blows. . . . . _____   _____

31. I can remember being so angry that I picked up the nearest
    thing and broke it. . . . . _____   _____

32. On occasion I have had doubts about my ability to succeed
    in life . . . . _____   _____

33. It makes my blood boil to have somebody make fun of me. . . . _____   _____

34. My table manners at home are as good as when I eat out
    in a restaurant . . . . _____   _____

35. At times I have really insisted on having things my own
    way . . . . _____   _____

36. I can't help getting into arguments when people disagree
    with me . . . . _____   _____

37. I have never deliberately said something that hurt someone's
    feelings. . . . . _____   _____

38. I never hesitate to go out of my way to help someone in
    trouble . . . . _____   _____

39. I sometimes feel resentful when I don't get my way. . . . . . _____   _____

40. No matter who I'm talking to, I'm always a good listener. . . _____   _____

41. There are a number of people who seem to dislike me very
    much. . . . . _____   _____

42. There have been occasions when I felt like smashing
    things. . . . . _____   _____

43. If somebody annoys me, I am apt to tell him what I think
    of him. . . . . _____   _____

The following questions are concerned with your family, occupation, financial situation, and health.

YOUR FAMILY

44. How often do you have problems with your wife that make you seriously irritated, angry or aggravated?

_____0. Not relevant or not appropriate
          (single, divorced, etc.)
_____1. About every day or every other day
_____2. About once or twice a week
_____3. About once to three times a month
_____4. About once to several times a year
_____5. Never

45. How serious and disturbing do you find it?

_____0. Not relevant
_____1. Extremely disturbing
_____2. Considerably disturbing
_____3. Moderately disturbing
_____4. A little disturbing
_____5. Not at all disturbing

46. How often do you have problems with your children that make you seriously angry, aggravated or worried?

_____0. Not relevant or not appropriate
          (no children)
_____1. About every day or every other day
_____2. About once or twice a week
_____3. About once to three times a month
_____4. About once to several times a year
_____5. Never

47. How disturbing do you find it?

_____0. Not relevant
_____1. Extremely disturbing
_____2. Considerably disturbing
_____3. Moderately disturbing
_____4. A little disturbing
_____5. Not at all disturbing

48. How often do you have problems with your parents and/or in-laws that make you seriously angry, worried or aggravated?

_____0. Not relevant or not appropriate
_____1. About every day or every other day
_____2. About once or twice a week
_____3. About once to three times a month
_____4. About once to several times a year
_____5. Never

49. How serious and disturbing do you find it?

_____0. Not relevant
_____1. Extremely disturbing
_____2. Considerably disturbing
_____3. Moderately disturbing
_____4. A little disturbing
_____5. Not at all disturbing

50. How satisfied are you with your family life (whether you are single, married, divorced, or widowed)?

_____1. Completely dissatisfied
_____2. Very dissatisfied
_____3. Dissatisfied
_____4. Satisfied
_____5. Very satisfied
_____6. Completely satisfied

FINANCIAL SITUATION

51. How often are you worried that you will never be able to catch up financially?

_____ 1. All the time
_____ 2. Often
_____ 3. Sometimes
_____ 4. Seldom
_____ 5. Never

52. How often are you concerned about not making as much money as you need or want to?

_____ 1. All the time
_____ 2. Often
_____ 3. Sometimes
_____ 4. Seldom
_____ 5. Never

YOUR JOB   (If you do not have a job, go to page number 8.)

53. How often do you find yourself tense while at your job, having no time to relax for a while?

_____ 1. About every day or every other day
_____ 2. About once or twice a week
_____ 3. About once to three times a month
_____ 4. About once to several times a year
_____ 5. Never

54. How serious and disturbing do you find it?

_____ 1. Extremely disturbing
_____ 2. Considerably disturbing
_____ 3. Moderately disturbing
_____ 4. A little disturbing
_____ 5. Not at all disturbing

---

55. How often do you have problems with your bosses, subordinates or co-workers that make you seriously irritated, angry, or aggravated?

_____ 1. About every day or every other day
_____ 2. About once or twice a week
_____ 3. About once to three times a month
_____ 4. About once to several times a year
_____ 5. Never

56. How serious and disturbing do you find it?

_____ 1. Extremely disturbing
_____ 2. Considerably disturbing
_____ 3. Moderately disturbing
_____ 4. A little disturbing
_____ 5. Not at all disturbing

57. How often do you feel that you are being torn by conflicting demands in your school work?

      ____ 1. About every day or every other day
      ____ 2. About once or twice a week
      ____ 3. About once to three times a month
      ____ 4. About once to several times a year
      ____ 5. Never

58. How serious and disturbing do you find it?

      ____ 1. Extremely disturbing
      ____ 2. Considerably disturbing
      ____ 3. Moderately disturbing
      ____ 4. A little disturbing
      ____ 5. Not at all disturbing

59. How often do you feel overwhelmed by your work load, with too many things needing to be done?

      ____ 1. About every day or every other day
      ____ 2. About once or twice a week
      ____ 3. About once to three times a month
      ____ 4. About once to several times a year
      ____ 5. Never

60. How serious and disturbing do you find it?

      ____ 1. Extremely disturbing
      ____ 2. Considerably disturbing
      ____ 3. Moderately disturbing
      ____ 4. A little disturbing
      ____ 5. Not at all disturbing

61. How often do you have problems with teachers or students that make you seriously irritated, angry, or aggravated?

      ____ 1. About every day or every other day
      ____ 2. About once or twice a week
      ____ 3. About once to three times a month
      ____ 4. About once to several times a year
      ____ 5. Never

62. How serious and disturbing do you find it?

      ____ 1. Extremely disturbing
      ____ 2. Considerably disturbing
      ____ 3. Moderately disturbing
      ____ 4. A little disturbing
      ____ 5. Not at all disturbing

63. How satisfied are you with your achievement in school?

      ____ 1. Completely dissatisfied
      ____ 2. Very dissatisfied
      ____ 3. Dissatisfied
      ____ 4. Satisfied
      ____ 5. Very satisfied
      ____ 6. Completely satisfied

YOUR HEALTH

During the past year or at the present time, have you suffered from any of the following?

	YES	NO
64. Ulcers	_____	_____
65. Frequent headaches	_____	_____
66. Trouble falling asleep at night.	_____	_____
67. Upset stomach, acid stomach, indigestion, gasses, heartburn, etc.	_____	_____
68. Fainting spells or dizziness	_____	_____
69. Frequent loss of memory.	_____	_____
70. Attacks of nausea or vomiting.	_____	_____
71. I sweat very easily even on cool days. . .	_____	_____
72. My sleep is fitful and disturbed	_____	_____
73. There seems to be a lump in my throat much of the time.	_____	_____
74. My skin seems to be unusually sensitive or itchy	_____	_____

75. How often do you take tranquilizers (prescription or non-prescription)?

    _____ 1. About every day or every other day
    _____ 2. About once or twice a week
    _____ 3. About once to three times a month
    _____ 4. About once to several times a year
    _____ 5. Never

76. How many cigarettes do you smoke on an average day? _____Cigarettes

77. How often did you have a drink of any alcoholic beverage during the past year?

    _____ 1. About every day
    _____ 2. About every other day
    _____ 3. About twice a week
    _____ 4. About once a week
    _____ 5. About once to three times a month
    _____ 6. About once to several times a year
    _____ 7. Never

78. How many drinks did you usually have on those days or on those occasions when you drank? (By "one drink," we mean one 12-ounce bottle of beer; one cocktail or highball; one 4-ounce glass of wine, etc.)

    On an average day when I drank, I drank about _____ drinks per day.

79. How many times have you been sick or injured during the past 12 months?

_____Times. If you were not injured or sick go to question 83.

80. If injured, was it because of a traffic accident you were involved in as a driver?

___1. Yes   ___2. No

---

81. How disturbing to your life were these sicknesses or injuries?

_____1. Extremely disturbing
_____2. Considerably disturbing
_____3. Moderately disturbing
_____4. A little disturbing
_____5. Not at all disturbing

82. How serious were these sicknesses or injuries?

_____1. Extremely serious
       (my life was in danger)
_____2. Very serious
_____3. Moderately serious
_____4. Not serious at all
       (like common cold, minor
       infections)

---

83. How often are you seriously worried or aggravated by your health?

_____1. About every day or every other day
_____2. About once or twice a week
_____3. About once to three times a month
_____4. About once to several times a year
_____5. Never

84. How disturbing do you find it?

_____1. Extremely disturbing
_____2. Considerably disturbing
_____3. Moderately disturbing
_____4. A little disturbing
_____5. Not at all disturbing

Read each of the following statements and check as it applies to you.

85. I feel that I have a number of good qualities.

_____1. Strongly agree
_____2. Somewhat agree
_____3. Somewhat disagree
_____4. Strongly disagree

86. I feel I do not have much to be proud of.

_____1. Strongly agree
_____2. Somewhat agree
_____3. Somewhat disagree
_____4. Strongly disagree

---

87. All in all, I am inclined to feel that I am a failure.

_____1. Strongly agree
_____2. Somewhat agree
_____3. Somewhat disagree
_____4. Strongly disagree

88. On the whole, I am satisfied with myself.

_____1. Strongly agree
_____2. Somewhat agree
_____3. Somewhat disagree
_____4. Strongly disagree

89. At times I think I am no good at all.

    ____1. Strongly agree
    ____2. Somewhat agree
    ____3. Somewhat disagree
    ____4. Strongly disagree

90. I am able to do things as well as most other people.

    ____1. Strongly agree
    ____2. Somewhat agree
    ____3. Somewhat disagree
    ____4. Strongly disagree

91. How often do you feel that life is not worth living?

    ____1. Always
    ____2. Often
    ____3. Sometimes
    ____4. Seldom
    ____5. Never

92. Have there been occasions where life seemed to you so bad that you felt like taking your life (committing suicide)?

    ____1. On many occasions (often)
    ____2. On several occasions
    ____3. On a few occasions
    ____4. Once only
    ____5. Never

93. In the past year, have you thought of committing suicide?

    ____1. YES   ____2. NO

94. If YES, how seriously did you consider it?

    ____1. Very seriously
    ____2. Somewhat seriously
    ____3. Not seriously

95. Have you ever attempted to commit suicide?

    ____1. Yes
    ____2. No

96. If YES, was it during the past 12 months?

    ____1. Yes
    ____2. No

97. How many times during the past year have you become so angry that you threw or broke things?

    ____1. None
    ____2. Once only
    ____3. Twice only
    ____4. Three times only
    ____5. Four times or more

98. How many times during the past year have you been involved in a fist fight?

    ____1. None
    ____2. Once only
    ____3. Twice only
    ____4. Three times only
    ____5. Four times or more

99,100 <u>ABOUT YOUR DRINKING BEHAVIOR</u>

Below is a series of questions related to your drinking in the past four years.
Please answer each question by checking the appropriate column.

	YES	NO

101. Do you feel you are a normal drinker?
(By normal we mean you drink less than or as much
as most other people.) . . . . _____ _____

102. Do friends or relatives think you are a normal
drinker? . . . . _____ _____

103. Have you ever attended a meeting of Alcoholics
Anonymous? . . . . _____ _____

104. Have you ever lost friends or girl friends because
of your drinking?. . . . . _____ _____

105. Have you ever lost your job or gotten into trouble
at work because of drinking? . . . . _____ _____

106. Have you ever neglected your obligations, your
family, or your work for two or more days in a row
because you were drinking? . . . . _____ _____

107. After heavy drinking have you ever had Delirium
Tremens (D.T.'s) or severe shaking, or heard voices
or seen things that weren't really there?. . . . . . _____ _____

108. Have you ever gone to anyone for help about your
drinking?. . . . . _____ _____

109. Have you ever been in a hospital because of
drinking?. . . . . _____ _____

110. Have you ever been arrested for drunk driving, driving
while intoxicated, or driving under the influence of
alcoholic beverages? . . . . _____ _____

(If YES, how many times? _____)

The following questions are concerned with you and your feelings about the world around you.

111. How often are you disturbed by events that are suddenly developing like violent demonstrations, riots, rise in crime, increasing levels of noise and pollution, etc?

_____ 1. About <u>every day</u> or <u>every other day</u>
_____ 2. About <u>once</u> or <u>twice a week</u>
_____ 3. About <u>once</u> to <u>three times a month</u>
_____ 4. About <u>once</u> to <u>several times a year</u>
_____ 5. <u>Never</u>

112. How disturbing do you find it?

_____ 1. <u>Extremely</u> disturbing
_____ 2. <u>Considerably</u> disturbing
_____ 3. <u>Moderately</u> disturbing
_____ 4. <u>A little</u> disturbing
_____ 5. <u>Not at all</u> disturbing

113. How often do you feel that someone holds a grudge (resentment) against you?

_____ 1. Always
_____ 2. Often
_____ 3. Sometimes
_____ 4. Seldom
_____ 5. Never

114. How often do you feel that someone is trying to spoil things for you?

_____ 1. Always
_____ 2. Often
_____ 3. Sometimes
_____ 4. Seldom
_____ 5. Never

115. As compared to the tension and stress I had two years ago, now I feel...

_____ 1. <u>Much more</u> tension and stress
_____ 2. <u>Somewhat more</u> tension and stress
_____ 3. <u>About the same</u> tension and stress
_____ 4. <u>Somewhat less</u> tension and stress
_____ 5. <u>Much less</u> tension and stress

116. How often do you feel that things are rigged (arranged) against you?

      ____ 1. Always
      ____ 2. Often
      ____ 3. Sometimes
      ____ 4. Seldom
      ____ 5. Never

117. How often do you feel envious of other people?

      ____ 1. Always
      ____ 2. Often
      ____ 3. Sometimes
      ____ 4. Seldom
      ____ 5. Never

118. How often do you feel that your life is full of unnecessary, annoying stress and tension?

      ____ 1. About every day or every other day
      ____ 2. About once or twice a week
      ____ 3. About once to three times a month
      ____ 4. About once to several times a year
      ____ 5. Never

119. How disturbing do you find it?

      ____ 1. Extremely disturbing
      ____ 2. Considerably disturbing
      ____ 3. Moderately disturbing
      ____ 4. A little disturbing
      ____ 5. Not at all disturbing

Following are a number of statements. Read each statement and check YES if it generally applies to you or NO if it generally does not apply to you. If you find it absolutely impossible to decide check the line headed (?), but use this answer as little as possible.

	YES	(?)	NO
120. Do you sometimes feel happy, sometimes depressed, without any apparent reason? . .	____	____	____
121. Do you have frequent ups and downs in mood, either with or without apparent cause?.	____	____	____
122. Are you inclined to be moody?	____	____	____
123. Does your mind often wander while you are trying to concentrate?.	____	____	____
124. Are you frequently "lost in thought" even when supposed to be taking part in a conversation?.	____	____	____
125. Are you sometimes bubbling over with energy and sometimes very sluggish?	____	____	____

Below is a list of statements. Please read each statement carefully and check the appropriate column for each one <u>as it applies to you</u>.

	None of the time (1)	A little of the time (2)	Some of the time (3)	Good part of the time (4)	Most of the time (5)
126. I enjoy the things I'm doing . . .					
127. I am restless and can't keep still					
128. I feel down-hearted and blue . . .					
129. My life is pretty full					
130. I am irritable					
131. I have crying spells or feel like it.					
132. I feel that I am useful and needed					
133. My appetite is poor.					
134. I get tired for no reason.					
135. I feel hopeful about the future. .					
136. I have trouble sleeping at night .					
137. I feel that others would be better off if I were dead.					
138. I feel tense					
139. I don't seem to get what's coming to me					
140. I feel I get a raw deal out of life.					
141. I feel nervous					
142. I feel other people always seem to get the breaks.					
143. These days I am pretty calm. . . .					
144. I am a tense or "highly-strung" individual					
145. I am worried					

Check <u>true</u> or <u>false</u> as applies to you   TRUE   FALSE

146. I am sometimes irritated by people who ask favors of me. . . . _____   _____

147. Whoever insults me or my family is asking for some kind
     of a fight . . . . _____   _____

148. When I really lose my temper, I am capable of slapping
     someone. . . . . _____   _____

149. I am always careful about my manner of dress . . . . _____   _____

150. I sometimes try to get even, rather than forgive and
     forget . . . . _____   _____

151. I often feel like a powder keg ready to explode. . . . . . . _____   _____

152. I am always courteous, even to people who are disagreeable . . _____   _____

153. If somebody hits me first I let him have it. . . . . _____   _____

154. There have been times when I was quite jealous of the good
     fortune of others. . . . . _____   _____

---

155. Do you get upset by the difficulties   156. When you drive, how often do
     in obtaining medical care?   you wear seat belts?

     _____ 1. Extremely upset   _____ 1. Always
     _____ 2. Considerably upset   _____ 2. Often
     _____ 3. Moderately upset   _____ 3. Sometimes
     _____ 4. A little upset   _____ 4. Seldom
     _____ 5. Not at all upset   _____ 5. Never

---

157. From time to time we hear about
     various products that are found to be
     unsafe or even dangerous, such as
     certain foods, medicine or cars. How
     disturbing do you find it?

     _____ 1. Extremely disturbing
     _____ 2. Considerably disturbing
     _____ 3. Moderately disturbing
     _____ 4. A little disturbing
     _____ 5. Not at all disturbing

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Please read the description of each event and check the column NO if it did not happen to you in the past 12 months and check the column YES if it did happen to you. If you check YES continue to answer the questions along the line.

If Yes, continue below along the line

Check the correct box in terms of impact and pressure on you or adjustment it required

Events in the past 12 months:	No	Yes	how many times? or Continuous (check below)		Was the event Desirable or Undesirable		Little	Some	Consider-able	Great Deal
1. Got married.................................										
2. Got separated from wife or husband..........										
3. Marital reconciliation (got back together) with husband or wife........................										
4. Got divorced................................										
5. Wife (or girlfriend) became pregnant.........										
6. Gained a new family member (e.g., a new baby, a relative moving in, etc.)............										
7. Loss of wife or husband through death........										
8. Death of a close family member..............										
9. Son or daughter leaving or returning home....										
10. Son or daughter married......................										
11. Had disturbing troubles with my wife.........										
12. Had disturbing troubles with my children....										
13. Had disturbing troubles with parents, in-laws, or other family members............										
14. Wife started or stopped working outside the home....................................										
15. Major changes in family get-togethers.......										

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Again, check either YES or NO for the following events.

If Yes, continue below along the line

Check the correct box in terms of impact and pressure on you or adjustment it required

Events in the past 12 months:	No	Yes	how many times? or Continuous (check below)	Was the event Desirable or Undesirable	Little	Some	Consider- able	Great Deal
16. Job promotion (moved to higher position at work)..........................								
17. Job demotion (moved to lower position at work)...								
18. Troubles with the boss or with co-workers at my work...............................								
19. Fired or laid off from a job................								
20. Quit a job............................								
21. Had problems finding a job.................								
22. Started a new type of work, change to a different line of work or to a new job......								
23. Change in responsibilities at work..........								
24. Considerable improvement in working conditions..................................								
25. Considerable deterioration (worsening) in working conditions.........................								
26. Retired from a job or major life occupation.								
27. Personal injury or illness or else being hospitalized. (Did it result from a traffic accident while you were the driver? ___ Yes or ___ No)......................								
28. Serious illness or behavior changes of an immediate family member.................								
29. Marked changes in sleeping pattern: sleeping difficulties, a lot less or a lot more sleep or change in part of da when asle								

Again, check either YES or NO for the following events. If Yes, continue below along the line. Check the correct box in terms of __impact__ and __pressure__ on you or __adjustment__ it required

Events in the past 12 months:	No	Yes	how many times? or Continuous (check below)		Was the event Desirable or Undesirable	Little	Some	Consider-able	Great Deal
30. Sexual problems or difficulties............									
31. Involved in a lawsuit other than in connection with traffic violations or accident.....................................									
32. Involved in a lawsuit in connection with traffic violations or accidents.............									
33. Arrested or convicted of violations of the law other than those related to traffic problems..................................									
34. Arrested or convicted of violations of the law related to traffic problems.............									
35. Held in jail for more than 48 hours.........									
36. Considerable improvement in financial situation.................................									
37. Considerable problems in financial situation.									
38. Took a new mortgage or loan.................									
39. Falling behind mortgage or loan payments; receiving notification of a foreclosure on a mortgage or a loan, receiving a letter of indebtedness, or property repossessed or wages garnisheed.......................									
40. Started going with someone steadily.........									
41. Became engaged...............................									
42. Broke up an engagement or broke up with someone I dated steadily....................									

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Again, check either YES or NO for the following events. Events in the past 12 months:	No	Yes	how many times? or Continuous (check below)	If Yes, continue below along the line Was the event Desirable or Undesirable		Check the correct box in terms of impact and pressure on you or adjustment it required Little	Some	Consider- able	Great Deal
43. Change in place of residence.................									
44. Began new school, graduated or quit school, or changed school......................									
45. Outstanding personal honor or achievement....									
46. Had disturbing troubles with close friends...									
47. Death of a close friend.....................									
48. Other (explain):_____									

Generally speaking, how much "pressure" did all these new adjustments together put on you? By pressure, we mean how much thought and attention you had to give.   CHECK ONE.

____0. Not relevant, I had no new adjust-
ments within the past 12 months.

____1. No pressure at all -- never thought about them

____2. A little

____3. Moderate amount

____4. A lot

____5. Very great pressure -- thought about them all
the time

For the purpose of this research only we need your name and driving license number in order to obtain your driving record from the Secretary of State. Again we guarantee that your answers to this questionnaire will be kept confidential. This page will be separated from the rest of the questionnaire. This questionnaire will be identified only by the interview number. Anonymity will thus be assured.

My Name:_____
       (First)   (Full Middle Name)   (Last)

My Driver's License Number: _____/_____/_____/_____/_____/_____
                                                              (State)