Journal of Chemical Health Risks

www.jchr.org

JCHR (2026) 16(2), 4513-4522 | ISSN:2251-6727

Assessment of Awareness of Parents about Pediatric visual problems by KAP survey in Thanjavur district – A Cross-sectional study

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(Received: 16 February 2026 Revised: 14 March 2026 Accepted: 25 April 2026)

KEYWORDS

Knowledge, Attitude, Practice, Pediatric visual problems.

ABSTRACT:

Background: In India, about 42.9% to 49.9% of childhood blindness is avoidable, with refractive error being the major cause of preventable blindness. This condition can be eliminated through parental education, early intervention, and treatment. This study was aimed to evaluate the knowledge, attitude and practice (KAP) about pediatric visual problems and to determine whether the demographic factors may influence KAP.

Methodology: A cross-sectional study was carried out in three schools within the Thanjavur district. A total of 276 parents of children studying in these schools were randomly selected. A survey was done using a validated questionnaire on KAP of pediatric eye diseases.

Results: The mean (SD) age of the 276 participants was 40.05 (6.32) years, with a majority being female (n = 159, 57.6%). Only 9% of parents demonstrated excellent knowledge of visual problems and 35% had positive attitude. Excellent practice was noted in 3% and good practice in 22% of participants. Knowledge and attitude were significantly correlated with the educational qualifications and occupation of the head of the family. Practice was significantly linked to income. KAP levels were notably higher among parents who already had ocular issues and those with children suffering from ocular problems.

Conclusion: The understanding of pediatric eye diseases and the preventive practices adopted by parents to address visual problems in children were found to be inadequate, which was significantly influenced by the family's education, occupation, and income.

1. INTRODUCTION

The Global prevalence of blindness in children is estimated as approximately one – tenth than that of adults, at around 0.7 per 1000[1, 2]. The prevalence was less in children as compared to adults, but 19 million children have visual impairment around the world and 1.4 million of them were blind[3]. About 42.9% to 49.9% of childhood blindness in India is avoidable and remarkably the major cause for preventive blindness is refractive error [4, 5]. This can be prevented by educating the parents, early intervention and treatment. [3]Vision 2020- The Right to Sight, launched by WHO in India in 2004, made an agenda of "Control of childhood Blindness" and aimed to eliminate avoidable childhood blindness and visual impairment by 2020[3]. Over the past 2 decades, the strategies and intervention of this helped to reduce the incidence of infectious paediatric eye diseases [6]. Improvement in health services resulted in early detection of eye disease and reduces child mortality. However, the burden of eye disease varied by region and the prevalence of vision loss in children inversely correlates with the socio-economic

Journal of Chemical Health Risks
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JCHR (2026) 16(2), 4513-4522 | ISSN:2251-6727

status and determined by accessibility of the effective primary health care [7].Low- middle income countries still encounter the challenge of congenital glaucoma, cataract, premature retinopathy, retinoblastoma, corneal scaring, xerophthalmia, trachoma, uncorrected refractive error and onchocerciasis [8]. Uncorrected Refractive Error (URE), especially myopia is an emerging epidemic and the leading cause of visual impairment in children associated with increased computer use [9, 10] and other electronic gadgets like mobile phone, laptop and television etc. Increased screen time and reduced outdoor activities aggravated URE among school-going children after the COVID- 19 pandemic [11].

NPCB (National Programme for Control of Blindness) aimed to reduce the backlog of childhood blindness and visual impairment by early detection and treatment, development of comprehensive eye care facilities in every district, increased human resources for providing eye care services, improvement in quality of service and enhance community awareness on eye care, by conducting orientation training to government medical and paramedical staff, school teachers and community link workers, school eye health initiative for detection of URE[12].The existing school eye health services have a narrow focus that only detects and refers URE in school children. Thus eye health of children with other disabilities and the children not in school is not addressed yet [13]. Even-though increase in the literacy rate of Tamil Nadu by 7% in the past decade and the government program focuses on addressing the barriers such as, improving the parental understanding of paediatric eye health, enhancing organised referral communication pathways for parents, improvement in coordination pathways between community services and hospitals[13].A study conducted on assessment of parental awareness on paediatric visual problems in tertiary eye care hospitals in south India revealed that knowledge of parents about paediatric eye disease was of good grade only in 9% of parents and the attitude of parents was positive only in 17% and their practice in presence of ocular problem in their children was excellent in 46.5% and good in 26.5% [14].

Hence, this study was carried out to assess the knowledge of parents about paediatric visual problems, their attitude regarding the need for vision screening, glasses and routine ophthalmic evaluation and to assess the practices followed by the parents in presence of ocular problems in their children and the pattern of practices adopted by them to prevent ocular problems in Thanjavur district.

2. OBJECTIVES

The objective of the study was to assess the Knowledge of parents about various paediatric visual problems, attitude of the parents regarding the need for vision screening, glasses and routine ophthalmic evaluation, and the practices followed by the parents in the presence of ocular problems in their children and the pattern of traditional practices adopted by them to prevent ocular problems.

3. METHODS

A community-based cross-sectional study was conducted on June - September 2024 among parents of 276 school children below 15 years of age in Thanjavur district. The study was initiated after obtaining ethical approval from the Institutional Ethical Committee (IEC No: NIS/26/IEC/2024/M.P/20) and CTRI registration (CTRI/2024/07/070070). It was carried out in three schools: Arignar Anna Model Higher Secondary School, Sri Kumbeshwarar Thirumanjanavethi Aided High School, and CP Vidhyamandir Matriculation Higher Secondary School. Participants were included based on their willingness to participate, and informed consent was obtained from them after explaining the study through an information sheet. Parents of children with multiple disabilities or special needs, as well as professionals related to eye health care, were excluded from the study. Data were collected using a standardized, pre-tested questionnaire prepared in bilingual format (Tamil and English) to ensure easy understanding. The questionnaire consisted of three sections: demographic details, the PEPC-KAPQ scale to assess parent's knowledge, attitude, and practices regarding pediatric visual problems, and questions related to traditional preventive practices adopted by parents to prevent ocular problems.

Statistical Analysis

All collected data were entered into a computer using MS Excel software, organised and analysed using SPSS software 29. Descriptive statistics of the study participants were presented using frequency distribution and percentage distribution for the qualitative variables and mean with standard deviation for quantitative variables. The Chi-Square test, trend chi-square test and Binary logistic regression were used to assess the association between the knowledge, attitude, practice of parents and the potential predictor variables. The P value of <0.05 was considered statistically significant.

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JCHR (2026) 16(2), 4513-4522 | ISSN:2251-6727

4. RESULTS

The mean (SD) age of 276 participants was 40.05(6.32) years, with the majority of them being female (n = 159, 57.6%). About 75.4% of participants (n= 208) had 2 children. Nearly half (52.6%) of the participants were aged between 36 and 45 years. In the surveyed population, only 26.4% were had a bachelor's degree or diploma. Overall, 23.9% of participants had ocular problem and the majority of them were affected by hypermetropia (11.2%). In children about 18.8% were affected by an ocular problem and the majority of them had myopia (13.4%). The demographic characteristics of the participants are described in Table 1.

Among various signs of eye disease the knowledge of squint and Nystagmus was correctly stated by 39.1% and 43.1% of participants, respectively. Only 13.4% respondent accepts that children didn't like close activities like reading, drawing etc., is a sign of vision problem. 55.1% of participants accept that blindness is an effect of a vision problem and only 11.6% of participants accept that learning difficulty in children is an effect of a vision problem. 51.4%, 47.5% and 42.4% of participants knew that cataract, myopia and amblyopia can occur in children respectively.

Positive attitude towards buying glasses for their children if needed was present in 58.7% and 53.7% only allow their children to undergo surgery if it is necessary. Nearly 40.2% of participants got information about eye disease in children through the internet and 40.6% of participants got information from doctors. 71.8% stated that they took their children for an eye test, only 24.6% among them took their children for an eye test even though they didn't have any signs or symptoms of eye disease. 81.3% of participants gave proper supplements to their children regularly to prevent eye disease.

Apart from practices mentioned above, 42.4% of participants prevent their children from excessive usage of electrical gadgets like mobile phone, laptop and television. Among various traditional practices to prevent ocular problems, eye exercises and yoga was followed by only 45.7% of participants. Only 34.4% of participants made their children do pranayama regularly to enhance their vision power and to prevent eye diseases, 18.1% of participants advised their children to wear a hat while going out, 5.1% of participants use medicated kajal, 63.8% of participants stated that they took oil-bath and 38.8% of participants made their children to take purgation to prevent ocular problems.

The level of knowledge, attitude and practice of parents regarding the children visual problems is visualized in fig.1. Knowledge of visual problem was of an excellent grade in only 9% of participants. The attitude of parents towards the visual problems was positive in 34.7%. The response regarding practices was of a good grade in 25.4%.

Good grade of knowledge, attitude and practice towards the pediatric visual problems among parents was evaluated for association with the demographic factors like gender, age, educational qualification of the head of the family, family's monthly income, parents and children having visual problems by Chi-square analysis and the results are reported in Table 2.

The chi- square test of independence showed that the knowledge of parents about visual problems in children was significantly associated with the educational qualification and occupation of the head of the family, parents and children affected by ocular problems. The linear trend was assessed for educational qualification of the head of the family using trend chi-square (x^2 =20.559). It was also found to be significant with p<.001. Thus, Knowledge of pediatric visual problems was higher among well-educated parents compared to less educated one. It was also greater in parents with ocular issues or affected children than in those without such conditions.

The chi-square test of significance showed that the attitude of parents was significantly associated with educational qualification and occupation of the head of the family, family's income, and number of children in the family, parents and children affected by ocular problem. The linear trend was assessed for educational qualification of the head of the family using trend chi-square (x^2 = 17.769). It was also found to be significant with p<.001. Thus, attitude of parents towards children's eye disease was more positive in highly educated parents than in less educated one. The linear trend was assessed for family's income using trend chi-square (x^2 = 17.130). It was also found to be significant with p<.001. Thus the attitude of parents was more positive in participants with high income than in participants with lower income.

The chi-square test of significance showed that the practices followed by parents to prevent ocular problems in children were significantly associated with occupation of the head of the family, family's income and whether the parents and children affected by ocular problem. The linear trend was assessed using the trend chi-square(x2 = 7.703) for the family's income and It was also found to be

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significant with p<.006. Thus, practice of parents to prevent eye disease in children was more common among participants with high income than those with low income. The knowledge, attitude and practice were of good grade in parents having ocular problems and parents of children having ocular problems than in parents without those conditions.

Chi-square test and trend chi-square test were analysed for association between dependent variables and independent variables. The factors which were significantly associated with knowledge, attitude and practice of the parents regarding pediatric visual problems were further analysed for the strength of relationship using Binary Logistic regression analysis.

Table 3 describes predictor variables of knowledge of parents about pediatric visual problems. The educational qualification of the head of the family, number of children in the family, parents and children affected by ocular problem were used in the Binary logistic regression model to predict the probability of Knowledge about pediatric visual problem among parents. It indicates that the educational qualification of the head of the family – high school and higher secondary school (OR 2.216; 95% CI; p .015) and graduate/diploma (OR 4.383; 95% CI; p <.001) were significant predictors of knowledge of parents about pediatric visual problem. The coefficient of 2.216 for educational qualification indicates that the predicted logged odds of knowledge are 2.2 times higher for parents with educational qualification of high school and higher secondary, than parents studied up to middle school. The coefficient of 4.383 for educational qualification of graduation/diploma indicates that the predicted logged odds of knowledge are nearly 4.4 higher for parents with educational qualification of graduation/diploma than parents studied up to middle school.

Table 4 describes predictor variables of attitude of parents towards visual problems in children. The educational qualification and occupation of the head of the family, number of children in the family, family's income, parents and children affected by ocular problem were used in the Binary logistic regression model to predict the probability of attitude of parents towards visual problem in children. The presence of ocular problem in parents (OR 2.152; 95% CI; p .012), presence of ocular problem in children (OR 3.723; 95% CI; p .001), occupation of head of the family - semi-professional worker (OR 5.267; 95% CI; p .015) and professional worker (OR 35.821; 95% CI; p .011) were significant predictors of attitude of parents towards visual problem in children. The coefficient of 2.152 for parent with ocular problems indicates that the predicted logged odds of attitude are nearly 2.2 times higher in parents with ocular problems than parents without ocular problems. The coefficient of 3.723 for parent having children affected by ocular problems indicates that the predicted logged odds of attitude are 3.7 times higher in parents with affected children than parents with unaffected children. The coefficient of 5.267 for semi-professional (occupation of the head of the family) indicates that the predicted logged odds of attitude are nearly 5.3 times higher in semi-professional than unskilled worker. The coefficient of 35.821 for professionals (occupation of the head of the family) indicates that the predicted logged odds of attitude are 35.8 times higher in professional than unskilled worker.

Table 5 describes predictor variables of practices adopted by parents to prevent visual problem in children. The occupation of the head of the family, family's income, parents and children affected by ocular problem were used in the Binary logistic regression model to predict the probability of practices followed by parents to prevent ocular problem in children. It indicates that presence of ocular problem in children (OR 2.228; 95% CI; p .043) occupation of head of the family –semi-professional (OR .161; 95% CI; p .034) and professional (OR 5.618; 95% CI; p .049) were significant predictors of practice of parents to prevent visual problem in children. The coefficient of 2.228 for parent having children with ocular problem indicates that the predicted logged odds of practice to prevent ocular problem in children are 2.2 times higher in parents having children with ocular problem than parents having children without ocular problem. The coefficient of .161 for semi-professional (occupation of head of the family) indicates that the predicted logged odds of practice are .16 times higher in semi-professional than unskilled worker. The coefficient of 5.618 for professional (occupation of head of the family) indicates that the predicted logged odds of practice are 5.6 times higher in professional than unskilled worker.

DISCUSSION:

The current study evaluated the level of knowledge, attitude and practice of parents in Thanjavur district, regarding eye disease in children. In the study, the prevalence of visual impairment in children was 18.8% with refractive error being the most common cause (86.5%) which was comparable to 77.2% of children with refractive error in the study conducted by Yekta et al. [29]

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JCHR (2026) 16(2), 4513-4522 | ISSN:2251-6727

The knowledge of the parents about children's eye disease was poor in 66% of parents, comparable to the study conducted by Pawan N et al., in which the knowledge of parents was poor in 78.2% of parents [14]. Similarly, a study conducted in Madinah by Amal M.Surrati et al., stated that the knowledge was poor in 78.2% of parents, the parents with high income had better knowledge about eye disease and eye care. Income may be an indicator of a higher level of education and access to health services in the private sector. [30]

Our data showed that higher education was significantly associated with higher knowledge and high income was significantly associated with a higher level of practice. Hence poor level of knowledge in the study may be attributed to the absence of campaigns related to eye health care and lack of public eye care facilities in the study area. The practice level can be improved by promoting proactive vision screening initiatives in the study area including eye screening at birth, amblyopia screening and school screening with the help of both NGO's and the government sector.

A cross-sectional study conducted by Mazrou et al. in Saudi reported that 91.9% of parents had poor knowledge and parents with higher educational status had the highest mean knowledge score. [31] Nasir et al. [32] conducted an awareness study in an underdeveloped area of Baluchistan, which included the literacy level of the parents and concluded that literacy level is important for perception of disease and most of the illiterate participants used self- medication.

Parents who already have eye disease and parents with children having eye disease had better level of knowledge, positive attitude and practice towards eye disease in children than parents without these features. Most of these parents stated that they get information about eye disease through the internet and interaction with doctors. Thus, frequent interaction with health professionals regarding eye disease and trying to understand their eye problem and their children's eye problem using the internet and social media contributes to the improved level of knowledge.

It was noted that 48.6% and 58.6% of parents did not know that cataract and amblyopia can affect children. Most of them believe that only refractive error and squint will affect the children. It is similar to the study conducted by Pawan N et al.[14] , in which 25% of the parents may had good knowledge but were not aware of timely intervention and regular eye check-up. This indicates the increased need for health education programs among parents to increase awareness.

Positive point regarding the attitude of the parents is that 58.7% of parents stated that they will support their children wearing glasses at an early stage if necessary. This is in accordance with a study performed by Bashaar et al. [31], which showed an acceptance rate of 42.3% among parents. Regarding ophthalmic surgery 53.7% of parents in the present study accepted that in case of necessity. This positive attitude of parents regarding both spectacles and surgery reflects their cooperation for improving the eye health of their future generation and their trust in the existing eye care in the region.

CONCLUSION:

The level of knowledge of parents about signs and symptoms of eye disease, causative factors, its effects and treatment for eye disease in children, as well as their practice regarding eye disease of children in Thanjavur district is considered unsatisfactory. The level of knowledge was significantly associated with the educational level of parents and their practice was significantly associated with the income of the family. As parents are unaware about paediatric eye disease, they should be educated about the symptoms of common eye diseases like refractive error, amblyopia, conjunctivitis etc. Mass media communication, newspapers and increased community-based educational program increases awareness among parents. Thus, the present study reveals the necessity in educating the parents about paediatric eye disease by public health care providers and paediatricians for early detection and timely intervention of eye disease in children.

Acknowledgments:

We are grateful to all our study participants who join the study. We are grateful to CEO of Thanjavur district for providing permission for conducting the study.

Conflict of interests:

The authors declare that they have no conflict of interests

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TABLES AND GRAPHS:

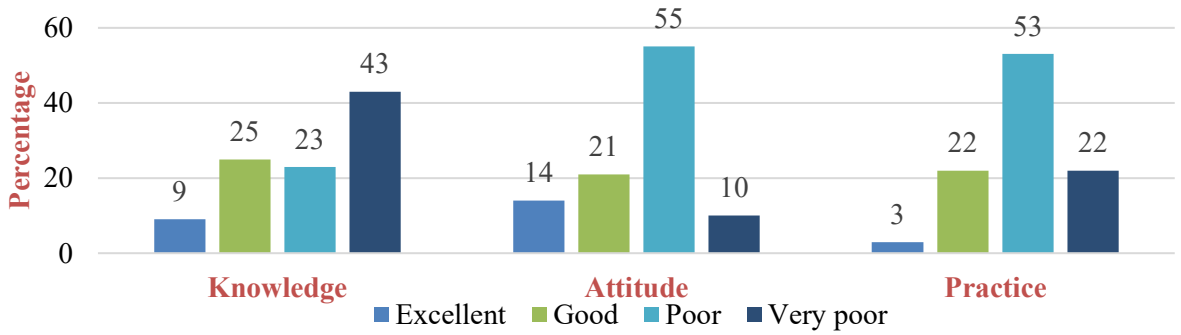

Figure 1: Level of Knowledge, Attitude and Practice of parents about Pediatric visual problems

Table 1- Demographic characteristics of participants		
		Frequency (100.0%)
Age	Mean (SD) Min – Max (years)	40.05(6.32) 28 – 55(years)
Age distribution (in years)	25 – 35	78(28.3)
	36 - 45	145(52.5)
	46 – 55	53(19.2)
Gender	Male	117(42.4)
	Female	159(57.6)
Educational qualification of head of the family	Graduate and post Graduate	47(17.0)
	Diploma	26(9.4)

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	Higher secondary	100(36.2)
	Middle school	60(21.7)
	Primary school	33(12.0)
	Uneducated	10(3.7)
Occupation of head of the family	Professional	10(3.6)
	Semi- professional	24(8.7)
	Clerical/ shop	38(13.8)
	Skilled worker	74(26.8)
	Semi-skilled worker	36(13.0)
	Unskilled worker	94(34.1)
Family's monthly income	<10,000	131(47.5)
	10,001 – 30,000	95(34.4)
	30,001 – 50,000	37(13.4)
	>50,001	13(4.7)
Number of children	1	36(13.0)
	2	208(75.4)
	3 or more	32(11.6)
Parents affected by ocular problem	Yes	66(23.9)
	No	210(76.1)
Distribution of ocular problem of parents.	Myopia	26(9.4)
	Hypermetropia	31(11.2)
	Amblyopia	1(0.4)
	Strabismus	1(0.4)
	Astigmatism	1(0.4)
	Cataract	6(2.2)
Children affected by ocular problem	Yes	52(18.8)
	No	224(81.2)
Distribution of ocular problem in children	Myopia	37(13.4)
	Hypermetropia	10(3.6)
	Amblyopia	4(1.4)
	Strabismus	1(0.4)
	Cataract	1(0.4)

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Table 2 - Association between Good grade of knowledge, attitude, practice and demographic factors.

Factors	Knowledge			Attitude			Practice		
	Chi-square value	*df*	*P – value*	*Chi-square value*	*df*	*P – value*	*Chi-square value*	*df*	*P – value*
Gender	1.442	1	.230	1.442	1	.230	0.560	1	.454
Age	0.6103	2	.737	1.377	2	.502	0.749	2	.687
Number of children	2.532	2	.639	10.681	2	.030	7.017	2	.132
Educational qualification of head of the family	20.657	2	< .001	18.252	2	< .001	1.208	2	.547
Occupation of head of the family	19.045	5	.004	36.723	5	< .001	30.672	5	< .001
Family's monthly income	5.525	3	.137	17.711	3	< .001	10.923	3	.012
Parents having ocular problem	4.355	1	.037	28.580	1	< .001	11.076	1	< .001
Children having ocular problem	4.992	1	.025	29.880	1	< .001	17.463	1	< .001

Table 3 – Factors associated with knowledge of parents about pediatric visual problems

	N	Exp(B)	95% C.I. for EXP(B)		Sig.
			Lower	Upper	
Educational qualification of head of the family (up to middle school)	103	Ref			
Educational qualification of head of the family (high school and higher secondary)	100	2.216	1.169	4.201	.015
Educational qualification head of the family (graduate and diploma)	73	4.383	2.231	8.608	<.001
Number of children (1)	36	Ref			
Number of children(2)	208	1.437	.638	3.235	.382
Number of children(3 or more)	32	1.539	.533	4.446	.426
Parents having ocular problem(no)	210	Ref			
Parents having ocular problem (yes)	66	1.326	.674	2.608	.414
Children having ocular problem (no)	224	Ref			
Children having ocular problem (yes)	52	1.727	.822	3.626	.149
Constant		.155			<.001

Table 4– Factors associated with attitude of parents towards visual problem in children

	N	Exp(B)	95% C.I. for EXP(B)		Sig
			Lower	Upper	
Educational qualification of head of the family (up to middle school)	103	Ref			
Educational qualification of head of the family (high school and higher secondary)	100	1.809	.887	3.686	.103

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Educational qualification of head of the family (graduate and diploma)	73	1.814	.746	4.414	.189
Number of children (1)	36	Ref			
Number of children(2)	208	.664	.278	1.586	.357
Number of children(3 or more)	32	.927	.287	2.995	.899
Parents having ocular problem(no)	210	Ref			
Parents having ocular problem (yes)	66	2.512	1.225	5.152	.012
Children having ocular problem (no)	224	Ref			
Children having ocular problem (yes)	52	3.723	1.668	8.312	.001
Occupation – unskilled worker	94	Ref			
Semi skilled worker	36	1.038	.401	2.684	.939
Skilled worker	74	.663	.291	1.514	.329
Clerical / shop	38	1.221	.444	3.353	.699
Semi professional	24	5.267	1.383	20.059	.015
Professional	10	35.821	2.246	571.270	.011
Income - < 10,000	131	Ref			
10,000 – 30,000	95	1.673	.803	3.486	.170
30,001 – 50,000	37	2.079	.795	5.431	.135
> 50,000	13	.216	.029	1.597	.133
Constant		6.784			.191

Table 5 – Factors associated with practice adopted by parents to prevent eye disease in children.

	N	Exp(B)	95% C.I. for EXP(B)		
			Lower	Upper	Sig.
Parents having ocular problem (no)	210	Ref			
Parents having ocular problem (yes)	66	1.651	.792	3.440	.181
Children having ocular problem (No)	224	Ref			
Children having ocular problem (Yes)	52	2.228	1.024	4.851	.043
Occupation – unskilled worker	94	Ref			
Semi-skilled worker	36	1.748	.734	4.162	.207
Skilled worker	74	.500	.211	1.188	.116
Clerical / shop	38	1.036	.391	2.745	.943
Semi professional	24	.161	.030	.871	.034
Professional	10	5.618	.875	36.066	.049
Income - < 10,000	131	Ref			
10,000 – 30,000	95	1.203	.575	2.516	.624
30,001 – 50,000	37	2.213	.844	5.803	.106
> 50,000	13	4.538	.849	24.260	.077
Constant		1.191			.854