

# Measurement of parental occupation: Agreement between parents and their children

by

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*A validation study has been carried out to examine the extent to which children aged 11-12 years are valid reporters of their parents' occupational activity.*

*Two hundred and sixteen pupils (92% response) of three schools together with 200 parents (85% response) completed a questionnaire on parental occupational activity.*

*Criterion validity was assessed by measuring conformity between pupils' and parents' report. Kappa values were good, conformity percentages were acceptable as most misclassifications were in the adjacent categories. Percentage of disagreement was acceptable and no response bias on socio-economic position of children with unclassifiable answers was found.*

*Our findings suggest that children aged 11-12 years are able to describe their parents' occupational activity in sufficient detail in a survey setting to be useful for research on socio-economic differences.*

## Keywords

Children, social class, validity.

## Introduction

Socio-economic differences in health and lifestyle behaviour are an important public health concern. To measure these differences in large-scale surveys, research should attend to both the measurement of health and lifestyle behaviour and the measurement of the socio-economic variables.

Several socio-economic variables determine a person's place in the social hierarchy. The classic three core variables are level of education, occupational class and income level (1). Adolescents and younger children are conventionally classified according to the status of the head of the household. Some authors (2, 3) suggest that if at all possible socio-economic measures should be obtained from the parents.

As however many surveys of young people do not include parents as respondents, it is important to assess how accurate older children and adolescents are in reporting information about their social background.

The study of West et al. (4) shows that children as young as 11 and from varying social backgrounds can be good proxy reporters of parental occupation and economic activity in a mini-interview. According to Lien et al. (5), an open ended question about parental occupation in a questionnaire answered by adolescents of 13-15 also provides valid data among the 85-90% who gave classifiable answers. Currie et al. on the other hand argued that over 20% of responses to the questions asking for job descriptions in the Scottish HBSC-survey 1986 could not be coded to give occupational categories and therefore decided that in order to classify a greater proportion of the sample in terms of SES, a family affluence scale (FAS) should be developed additionally (6). Although these measures may be easily obtainable, some authors argue that the problem of comparing results over time and across cultures may be even greater than the problem of comparing results based on the more traditional measures of social class (5, 7).

The purpose of the present paper is to examine to what extent children at the age of 11-12 can be seen as valid reporters of their parents' occupational activity in a written questionnaire.

## Subjects and methods

Data were collected in the frame of a test-retest study on determinants of the consumption of fruits and vegetables. Three primary schools in Flanders were approached. None of the principals refused to participate. All pupils of the final two years (years 5 and 6) ( $n = 235$ ) were invited to participate. The questionnaires were completed anonymously in a class setting in the presence of one researcher and one teacher. Consent forms, explaining the survey, were sent with the children to the parents/guardians and at the same time they were asked to complete identical questions as their children.

Five pupils were ill on the day of testing. Written consents from parents were obtained from 216 pupils (92% response rate). Two hundred parents (85%) completed the questionnaire.

Questionnaires of pupils whose parents did not provide written consent, were destroyed.

The mean age of the participants was 11.22 (st.dev. 0.64). 56% were girls.

### *Measurements*

Pupils and their parents were asked the same series of questions.

First they were asked whether the mother was (a) working, (b) a housewife, (c) "retired or ill" or (d) looking for work. If their mother had died or there was scarce or no contact, this could also been indicated. For those who really had no idea there was a response option "don't know".

Secondly, those who indicated that the mother had a job, were asked where she worked (e.g. in a hospital, bank, restaurant ...) and to describe as well as possible what kind of job she did (e.g. a hairdresser, a dentist, teacher in primary school, cleaning lady, house-decorator ...).

Thirdly, they were asked whether (a) she had her own business, shop, café ... or whether (b) she worked for a boss. An additional (c) "don't know"-option was provided for those who really had no idea.

Finally, they were asked if the mother was in charge of other people (yes, no, don't know) and if yes, of how many people (less than 10, 10 or more, don't know).

Parallel questions were asked for their fathers' occupations.

Occupational status was derived by coding the job descriptions according to the classification of the Central Bureau for Statistics of the Netherlands (8). These nominal codes correspond with the international standard classification of occupations. These codes were however summarized into five categories according to the level of skills necessary to do the job (1 = elementary; 2 = low; 3 = medium; 4 = high; 5 = scientific).

Where mother/father had no job, an additional category “economically inactive” was created, and finally a category “missing” was used for unclear or wasted responses.

For the analysis, different categorization models were used as indicated in figure 1. Model 1a represents a 6-fold classification (economically inactive, elementary, low, medium, high, scientific), in model 1b the economically inactive were excluded for analysis.

Model 2a represents a 4-fold classification, in which elementary and low level were joined as well as high and scientific level. As in model 1b, the economically inactive were excluded from model 2b. In model 3 the economically inactive were categorized into the lowest category.

Model 1a	Inactive	Elementary	Low	Medium	High	Scientific
Model 1b		Elementary	Low	Medium	High	Scientific
Model 2a	Inactive	Low		Medium	High	
Model 2b		Low		Medium	High	
Model 3		Low		Medium	High	

Fig. 1: Different categorization models of occupational activity.

A new variable was created to indicate the socio-economic status of the head of the family. This person was defined in terms of who had the dominant occupational position. If data of one of both parents was incomplete or missing, the occupational status of the head of the household was not categorised (= missing).

## Analysis

Criterion validity was tested by comparing the pupils' answers with their parents' answers. Kappa statistics were computed for variables at

the categorical level (models including a separate category of economically inactive), weighted kappas for variables at the ordinal level. Weighted kappa values were computed as described by Kramer and Feinstein (9). Percentage agreements were reported as an index of accuracy. The Wilcoxon signed rank test was used to measure systematic differences between parent and child for the different occupational categories.

Mann-Whitney U tests were carried out to determine whether pupils with incomplete or missing answers had the same distribution of socio-economic status (based on model 3) as those with classifiable responses. To analyse the missing values of the pupils, responses of the parents were used and vice versa.

## Results

Tables 1 and 2 compare data of parental occupation and economic activity derived from the questions on occupational status as reported by the pupils and their parents.

TABLE 1  
*Economic activity mother*

		data from parents									
		Inactive	Elementary	Low	Medium	High	Scientific	No mother	Missing	Total	
data from pupils	Inactive	31			1				3	35	16%
	Elementary	1	8	1	1		1		5	17	8%
	Low	2	1	20	10	4			3	40	19%
	Medium			5	55	6	1		5	72	33%
	High					28			2	30	14%
	Scientific						3			3	1%
	No mother	3						1		4	2%
	Missing	1	1	2	5	2			4	15	7%
Total		38	10	28	72	40	5	1	22	216	100%
		18%	5%	13%	33%	19%	2%	0%	10%	100	

TABLE 2  
Economic activity father

		data from parents										
		Inactive	Elementary	Low	Medium	High	Scientific	No father	Missing	Total		
data from pupils	Inactive	6		1					1	8	4%	
	Elementary		27	8		1		2	8	46	21%	
	Low		7	21	4	2		1	3	38	18%	
	Medium			1	5	36	15	3		5	65	30%
	High				4	13	1			3	21	10%
	Scientific			1	1	2	10			2	16	7%
	No father				1			6		7	3%	
	Missing	1	4	2	1	3	1	1	2	15	7%	
Total		7	39	38	47	36	15	10	24	216	100%	
		3%	18%	18%	22%	17%	7%	5%	11%	100		

TABLE 3  
Economic activity head of the family

		data from parents									
		Inactive	Elementary	Low	Medium	High	Scientific	Missing	Total		
data from pupils	Inactive	4							4	2%	
	Elementary	1	6	3			1	8	19	9%	
	Low		3	17	7	1		5	33	15%	
	Medium		1	7	46	16		9	79	37%	
	High				2	27	3		3	35	16%
	Scientific				2	2	10	2	16	7%	
	Missing		2	3	6	7	4	8	30	14%	
	Total		5	12	30	63	53	18	35	216	100%
		2%	6%	14%	29%	25%	8%	16%	100		

For 15 (7%) pupils it was not possible to categorize their mothers into one of the parental occupation/activity groups on the basis of their answers. Regarding parents, data on 22 (10%) mothers were missing. So, asking parental occupation questions to the parents results in a higher percentage of incomplete answers, mainly caused by those (8%) who did not complete any question of the questionnaire.

A similar picture appeared regarding the fathers' economic activity, with incomplete or missing data from 15 (7%) children and 24 (11%) parents. Table 3 compares the data of the occupational/economic activity of the head of the family. It was not possible to classify 30 (14%) children, based on their reports and 35 (16%) of the children, based on their parents' reports, due to missing data on one or both parents.

Table 4 shows the kappa values for child-parent agreement and percentage agreement for the different categorizations.

TABLE 4  
*Child-parent agreement for different categorization models*

	N	% agreement	kappa	(st err)	P Wilcoxon signed rank
<b>Economic activity mother</b>					
model 1a (6 cat)	179	81%	0.75	(0.04) <sup>k</sup>	
model 2a (4 cat)	179	82%	0.76	(0.04) <sup>k</sup>	
model 1b (5 cat)	144	79%	0.72	(0.07) <sup>w</sup>	<0.001
model 2b (3 cat)	144	81%	0.71	(0.07) <sup>w</sup>	<0.001
model 3 (3' cat)	179	84%	0.77 0.75	(0.06) <sup>w</sup> (0.06) <sup>k</sup>	
<b>Economic activity father</b>					
model 1a (6 cat)	169	67%	0.58	(0.04) <sup>k</sup>	
model 2a (4 cat)	169	78%	0.67	(0.05) <sup>k</sup>	
model 1b (5 cat)	162	66%	0.70	(0.06) <sup>w</sup>	0.082
model 2b (3 cat)	162	77%	0.71	(0.07) <sup>w</sup>	0.033
model 3 (3' cat)	169	78%	0.72 0.66	(0.07) <sup>w</sup> (0.06) <sup>k</sup>	
<b>Economic activity head household</b>					
model 1a (6 cat)	159	69%	0.58	(0.05) <sup>k</sup>	
model 2a (4 cat)		76%	0.65	(0.05) <sup>k</sup>	
model 1b (5 cat)	154	69%	0.68	(0.07) <sup>w</sup>	0.105
model 2b (3 cat)		76%	0.69	(0.07) <sup>w</sup>	0.020
model 3 (3' cat)	159	77%	0.71 0.65	(0.07) <sup>w</sup> (0.06) <sup>k</sup>	

6 cat = ec.inactive, elementary, low, medium, high, scientific; 5 cat = elementary, low, medium, high, scientific; 4 cat = ec.inactive, elementary + low, medium, high + scientific; 3 cat = elementary + low, medium, high + scientific; 3' cat = ec.inactive + elementary + low, medium, high + scientific; k = kappa; w = weighted kappa.

All but two kappa values were higher than 0.60 indicating a substantial agreement between parents' and children's reports. Only for the 6-fold model for the father and the head of the family a kappa value lower than 0.60 was found.

In general the mothers are slightly better classified than the fathers when the economically inactive are taken into account.

Percentage agreements are lowest for model 1b, ranging between 66% and 79%, and highest for model 3, ranging between 77% and 84%. Gross misclassifications are exceptional. When there were discrepancies, children tended to give descriptions that lead to lower classifications than their parents, mainly due to different interpretations during coding of the more simple explanations of the pupils in comparison with the more official job descriptions of the parents. However, most of these discrepancies lead to categorization in adjacent categories.

Comparing pupils with incomplete or missing answers to their counterparts did not result in any significant difference on socio-economic position based on their parents' responses (data not shown). Also for the parents no difference is found for fathers' or mothers' occupation, however for the head of the household more incomplete or missing responses were found among families of lower social background ( $p = 0.045$ ).

## **Discussion and conclusion**

The study of West et al. (4) shows that children as young as 11 can provide reliable data about parental economic activity and occupation. However, the authors believe that in their study the high level of agreement between children's and parents' reports was due to the facility of conducting a mini-interview with the children. As, however, self-administered questionnaires are frequently used to collect data from adolescents and older children a written format was employed in this study. Following the guidelines of West et al. (4) and Lien et al. (5), detailed questions about parental occupation and economic status were added to prompt the children to provide the necessary information for classification purposes.

The kappa values of this study indicated a good agreement between parents and children. Percentage of perfect agreement for the different models varied between 66% and 84%. The highest percentage of perfect agreement for the head of the household (77%) was found for a model with 3 categories (high, medium, low). This means that the information of parent and child leads to a different categorization in 23% of the cases. First, however, one must consider that most of these misclassifications



are placed in an adjacent category and secondly that parents are not by definition better reporters of their economic activities than their children (10). They may be reluctant to mention some (informal) work (4) or it might occur that they phrase it in a more attractive perspective. The slightly higher classification of parental occupation based on parental reports might be an indication of the latter.

Further attrition analysis of our (rather small) study sample showed not only a higher percentage of incomplete or missing data among the parents but also selection bias in those dropping out of the analyses, with more incomplete or missing answers of parents of lower socio-economic background. Comparing pupils providing classifiable answers with pupils providing unclassifiable answers did not result in significant difference in social background.

The findings from this study indicate that children of 11-12 years old know their parents' occupations and are able to describe them in sufficient detail in a written questionnaire format useful in a study on socio-economic differences in health and lifestyle behaviour.

## References

1. Kunst AE, Bos V, Mackenbach JP. The EU Working Group on Socio-economic inequalities in Health. Monitoring Socio-economic inequalities in health in the European Union: guidelines and illustrations. A report for the Health Monitoring Program of the European Commission. Rotterdam: Erasmus University; 2001.
2. Entwisle DR, Astone NM. Some Practical Guidelines for Measuring Youth's Race/Ethnicity and Socioeconomic Status. *Child Dev* 1994; 65: 1521-40.
3. Hauser RM. Measuring Socioeconomic Status in Studies of Child Development. *Child Dev* 1994; 65(6): 1541-5.
4. West P, Sweeting H, Speed E. We Really Do Know What You Do: A Comparison of Reports From 11 Year Olds and Their Parents in Respect of Parental Economic Activity and Occupation. *Sociology* 2001; 35(2): 539-59.
5. Lien N, Friestad C, and Klepp KI. Adolescents' Proxy Reports of Parents' Socioeconomic Status: How Valid Are They? *J Epidemiol Community Health* 2001; 55(10): 731-7.
6. Currie CE, Elton RA, Todd J, Platt S. Indicators of Socioeconomic Status for Adolescents: The WHO Health Behaviour in School-Aged Children Survey. *Health Educ Res* 1997; 12(3): 385-97.
7. Van Den Bosch K, Meulemans B. Armoede een meetbaar begrip? Een vergelijking van verschillende armoedematen. Paper voor de Vlaams-Nederlandse studiedagen voor Sociologen en Antropologen. Antwerpen: UFSIA; 1988.
8. Centraal Bureau voor de Statistiek. De Standaard beroepenclassificatie 1992. Voorburg/Heerlen: 1997.
9. Kramer MS, Feinstein AR. Clinical Biostatistics. LIV. The Biostatistics of Concordance. *Clin Pharmacol Ther* 1981; 29(1): 111-23.
10. Looker ED. Accuracy of proxy reports of parental status characteristics. *Sociol Educ* 1989; 62, 257-276.