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Date Printed:

10-Jan-2012 10:50

Date Submitted:

09-Jan-2012 16:03

8318.157000

TITLE: SOCIAL SCIENCE AND MEDICINE

YEAR: 1994

VOLUME/PART: 39(12)

PAGES:

AUTHOR:

ARTICLE TITLE:

SHELFMARK: 8318.157000

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RZSTMREQ-32012 COPYRT SED99 SL|SOCIAL SCIENCE & MEDICINE|1994|ONYANGO A ET AL.
|HOUSEHOLD HEADSHIP AND CHILD...|39(12)|1633-9



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HOUSEHOLD HEADSHIP AND CHILD NUTRITION: A
CASE STUDY IN WESTERN KENYAADELHEID ONYANGO,¹ KATHERINE TUCKER^{1*} and THOMAS EISEMON^{2†}¹School of Dietetics and Human Nutrition, McGill University, Ste. Anne de Bellevue, Quebec, Canada
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Abstract—The effect of female household headship on child nutrition has been hypothesized by some to be negative, based on the assumption that mothers alone will be poorer and will have greater demands on their time and resources. On the other hand, there is some evidence in Kenya that the nutritional status of children of female heads may be better than that of children of male heads, suggesting that when women have more control over resources, more goes to the children. In Kenya, *de facto* female headship is common due to male labor migration. This study examines the relationship between child nutrition and *de facto* female vs male household headship in western Kenya through the examination of family income and decision making patterns. Women in male-headed households had greater financial responsibility for household maintenance. Female heads assumed more farming responsibilities and had higher remittances from husbands. Husbands of female heads purchased food and other goods in the city for use by the household. Male headed households produced more food crops and used a larger proportion of them for home consumption. In this study, children of female heads consumed a greater variety of foods. Despite a greater prevalence of stunting, there was a lower prevalence of low weight for age among children of female heads. However, in statistical analyses, headship did not relate significantly to nutritional intake or status. In attempting to understand the possible factors influencing the relationship between headship and nutritional status, we found trade-offs in the ways families were coping, which appeared to balance some of the negative and positive effects of each situation.

Key words—Kenya, female headed households, nutrition, diet, preschoolers

INTRODUCTION

De facto female household headship is common in Kenya. While husbands work in the city, women remain at home to manage the farm and to care for the family. The husbands may or may not remit cash regularly to off-set the deficit in their input to the farm. The result of this male migration on child nutrition is unclear, although it has been hypothesized to have conflicting effects—negative, through increased demands on the mother; and positive, through increased maternal decision making power.

Several studies on rural female-headed households have found them to be poor [1–3]. It has been argued that husbands and wives manage their monies independently [4] and that migrant husbands may not send any remittances home. When they do send a remittance, it may be earmarked for specific purposes, such as school fees, that pre-empt the women's decisions in its allocation to household needs [5].

Safilios-Rothschild [6] found that Kenyan women had full control over the portions of land allocated to them for food production, and some influence over

their husbands' portions—particularly when the latter were resident. Rather than increase, this influence was diminished somewhat when husbands lived elsewhere.

World Bank analyses suggest that diminishing returns to land due to population pressure is the major reason for migration [6]. Households of migrant labourers may own less land and are, therefore, likely to be poor. Kenyan women are reported to have more limited access than men to land, capital, information and credit [6–9]. This and the increased demands placed on women's time and energy when husbands migrate are major constraints to their agricultural productivity [6, 10]. Still, Kenya's agriculture and the welfare of rural families continues to shift into women's hands [10, 11]. To the extent that female headed households are poorer and less productive, their children's nutritional status may suffer.

On the other hand, it has been suggested that women allocate resources more favourably for their families' food needs [12]. In a recent review of the literature on female headed families, Bruce and Lloyd suggest that the authority structure in female-headed households may be more 'cohesive', and the internal distribution of resources more 'child-oriented' [13]. If this is the case, female headed households would be expected to allocate more land to food production and to also spend a higher percentage of family

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income to obtain food. The assumption is that men are less involved than women in providing for their families' food needs, and that when a man is present, he takes charge of resource management to such an extent that his wife's decision making in the domains of food production, purchasing and consumption is significantly reduced. Thus, children in female headed households may, in fact, have better nutritional status. There is increasing evidence to support this hypothesis [13, 14].

Few studies have directly examined the relationship between household headship and nutritional status. Two studies were conducted in Kenya in which the relationship between household headship and nutrition was examined, but was not the main research question. Both reported that children in female headed households had better nutrition than those in male headed households. Greer and Thorbecke [15] used data from two Integrated Rural Surveys. Their findings are in agreement with those of Kennedy and Cogill [16] whose survey was carried out in one district of Kenya's Nyanza Province. The conclusion given by Greer and Thorbecke is as follows:

This can be interpreted as signifying that female headed households, *ceteris paribus* allocate household income in such a way as to obtain more calories per adult equivalent than male headed households (by an amount estimated at between 110 and 140 calories).

The implication is that women exercise more control over income in their husbands' absence. Unfortunately, detail on control and decision making was not measured in their study. The present study examines the associations between household headship and child nutrition through a closer look at division of power in decision making and control of income.

For the purposes of this study, a household refers to a nuclear family in which the respondent was the oldest female member with a child between the ages of 12 and 36 months, along with those who were living with her and who were dependent on her and her husband. If the latter was 'permanently' resident, the household was categorized as male headed. The woman was considered *de facto* head of household if her husband was not currently present in the household and had spent more than 6 months away from home in the year preceding commencement of the study. *De jure* female headed households with young children (single mothers, widows and divorced/separated women) are very unusual in these communities and are not included in this analysis. For the purposes of this study the term 'female head' refers to a *de facto* female head of household.

METHODS

The study was conducted between July and November 1988 in six villages within Busia District of western Kenya by a door-to-door survey. The two

sub-locations from which the sample was drawn are inhabited by the Marachi sub-tribe of the Luhya. Criteria for entry included: (1) the presence in the household of a mother with a child not less than 12 months or more than 36 months of age; and (2) a household where the child's father was alive and considered to be a member of the family. 194 households met these criteria. Forty of these failed to complete the study. Eighteen of these were female heads of household who went away to join their husbands in town. Sixteen could not be traced for at least one interview. Two children died before data collection began and mothers of two others were widowed. One child was malformed from polio and there was one refusal.

Data collection

Data were collected during three home visits to each of the study households during September, October and November 1988. At each visit, the mother was asked to recall the child's diet on the previous day. Height, weight, mid-upper arm circumference and triceps skinfold measurements were taken from the children during the second visit. Short questionnaires were administered at each visit to gather information on the household demographic structure, maternal and child characteristics, decision making practices and income. An attempt was made to quantify income earned by the husband and by the wife, and amounts remitted to the wife by the husband. Most women were unsure of their husbands' actual incomes, but could provide estimates. Additionally, many of their own earnings were irregular, and thus difficult to estimate on a yearly basis. Therefore, the income data presented here should be viewed as approximate.

Questions on maternal characteristics included age, education, language ability and information-seeking behaviour. A short test was administered to measure mothers' knowledge of basic nutrition and health care. Most children's birth dates were obtained from their clinic attendance cards, which were also studied for records of post-natal care. Three mothers did not have clinic cards; for one, the child's father had a written record of the birth date. For the other two children, older school going siblings provided this information. On each visit the mother was asked to recall the type and duration of illness suffered by the study child in the month preceding the first visit, and thereafter, in the time since the previous visit. Particular care was given to the collection of information on the incidence of diarrhoea and malaria.

Dietary data

The 24 hr dietary recall method was used to determine the study child's dietary intake for the day preceding each of the interviews, for a total of three recalls for every child. Mothers were asked to describe recipes, with proportions used to prepare the dish for the entire household, and then the amount

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consumed by the child. Special care was taken to probe for foods the children consumed between meals. Siblings were particularly helpful in reporting foods eaten while at play. Intake of breast milk was not recorded as children are fed on demand and it was not possible in this study to keep a count of feeding frequency or quantities taken. With the information from the recall interviews, estimates of nutrient intake were calculated by the CANDAT nutrient analysis programme [17] with supplemental information included for Kenyan foods from West *et al.* [18]. Data from the 3 days of intake were averaged to provide an estimate of usual intake over the 3 month period.

Anthropometry

Children's weight, length or stature, mid-upper arm circumference and triceps skinfold were measured during the second visit. Supine length was measured if children had not reached their second birthday. A height-length measuring board was constructed at the village polytechnic school in Busia, following United Nations [19] specifications. Skin-folds were measured using Lange calipers, and arm circumferences with a standard arm-band provided by Ross Laboratories. Weights were measured on a hanging Salter scale. Weight, height and length data were interpreted using the CASP software package prepared by the Centres for Disease Control [20].

RESULTS

Results reveal several socio-demographic differences between headship groups. Husbands of female headed households tended to have higher levels of education ($\chi^2 P < 0.05$). Fewer husbands of female heads than male heads were without any formal education (10 vs 24%) and conversely, more husbands of female heads than male heads completed at least primary school (65 vs 40%). Two-thirds of men in male headed households worked on their own farms, and were not engaged in wage earning employment. Most husbands in female headed households (75%) were employed in unskilled and semi-skilled occupations in urban centres. Similar jobs were held in the local area by only 17% of men in male headed households. Those employed in formal jobs (teaching and skilled civil service) were 14 and 16% of male and female headed households, respectively.

The average household size, including those who lived under the same roof, was larger in the male vs female headed households by approximately one and one half persons (Table 1). More of the male headed households had other wives, although this difference was not statistically significant. Resident male heads did have significantly more dependent children due to these polygamous relationships, however.

Maternal characteristics expected to influence the women's decision making ability and power are listed in Table 2. Women in female headed households were

Table 1. Demographic characteristics of households

	Male headed (n = 85)	Female headed (n = 69)
Household size (mean \pm SD)	7.2 \pm 2.3	5.6 \pm 1.9**
Polygamous households (%)	42%	32%
Children under 5 yr in household	2.1 \pm 0.8	1.9 \pm 0.7
Dependent children of other wives, not in study household	1.9 \pm 3.2	1.1 \pm 1.9*

t-test level of significance for means or χ^2 test for percentages:
*P < 0.05; **P < 0.01.

younger by an average of almost 5 yr ($P < 0.001$). They had married later than did women in male headed households ($P < 0.05$) and had a history of fewer pregnancies (4 vs 7; $P < 0.001$). They had a higher mean score on language ability ($P < 0.05$), but there were no significant differences on information seeking and nutrition knowledge scores.

The average farm size was small (2.8 acres) and did not differ by headship category. However, the number of food crops grown and percentage of them consumed at home did differ. Male headed households produced a greater variety of foods and consumed significantly higher proportions of their produce at home (Table 3). They were also more likely to have cash crops and to raise livestock.

Income

Cash income estimates include income from the sale of farm produce but do not include the value of that production for home consumption (Table 4). Migrants' wages made significant contributions to total household income and also appeared to influence intra-household income transfers. In addition to direct monetary transfers, it was common for husbands to pay for food and other household purchases. Where there were no cash transfers to women in male headed households, women appeared to make more efforts to generate their own income. Female heads of households with large remittances from their husbands were more likely to invest in business or a cooperative.

Despite tremendous variation within each group, the t-test comparison of means revealed significantly higher total household incomes, husbands' earnings

Table 2. Maternal characteristics (mean \pm SD)

	Male headed (n = 85)	Female headed (n = 69)
Mother's age	30.4 \pm 6.7	25.9 \pm 5.5***
Age at marriage	16.4 \pm 2.5	17.4 \pm 2.9*
Total number of pregnancies	6.8 \pm 3.2	4.1 \pm 2.2***
Years in school	3.1 \pm 3.7	4.0 \pm 3.4
Language ability†	5.9 \pm 5.7	8.1 \pm 5.7*
Information seeking score‡	3.0 \pm 2.6	3.5 \pm 3.1
Score on nutrition and health test (%)	39.6 \pm 18.8	43.4 \pm 19.2

t-test level of significance: *P < 0.05; ***P < 0.001.

†Ability to read and write English, Kiswahili and a local language other than mother tongue.

‡Frequency of listening to news bulletins on radio and use of other sources of information.

Table 3. Agricultural characteristics of households

	Male headed (n = 85)	Female headed (n = 69)
Landholding size (acres)	2.9 ± 2.1	2.7 ± 2.7
Number of food crops grown	6.6 ± 2.2	5.5 ± 2.5*
Percentage of food crops used for home consumption	64.2 ± 21	53.8 ± 24*
Percent with cash crops	67%	26%**
Percent keeping chickens	95%	71%*
Percent keeping other livestock	67%	41%*

t-test level of significance for mean or χ^2 test for percentages:

* $P < 0.01$; ** $P < 0.001$.

and monthly allowances to women by husbands in female headed households (each at $P < 0.0001$). Women's total incomes, including the husbands' remittance, were also higher in female headed households ($P < 0.05$). On the other hand, women's own earnings were greater among those in male headed households ($P < 0.02$).

Decision making and control of income

It was necessary to re-interpret decision making power in the socio-economic and cultural setting of this study. For this community, it was appropriate to examine the division of farming and financial responsibilities. Men and women did not usually pool their earnings. Rather, it was common to find that certain financial responsibilities were assumed by one or the other of the spouses. A positive correlation ($r = 0.23$, $P < 0.01$) was found between the total financial responsibilities of a woman and her independent earnings.

Information in Table 5 shows the division of farming responsibilities between spouses. The purchase of farm equipment was the responsibility of men in the majority of households, regardless of headship status. The use of hired labour was more common in female headed (71%) than in male headed (61%) households, and more non-resident husbands (53%) arranged for such labour—compared to 46% of the men in male headed households.

In the majority of female headed households (69%), women were responsible for land allocation, compared with only one-fourth (27%) of those whose husbands were permanently resident. 39% of resident

husbands, but only 9% of husbands in female headed households maintained sole control over the allocation of land. In both types of households, husbands tended to assume responsibility for the majority of the family's expenses (Table 6). Surprisingly, this was more clearly evident in female headed households.

The responsibility which was shared by the largest proportion of couples was medical care (59% male headed and 55% female headed households). In many households the women took care of simple recurrent ailments while their husbands dealt with major illnesses. Where there were school-going children, fees were usually paid by the father and this did not differ by headship type. Only in about 10% of the sample was payment of school fees left entirely to the woman. Housing construction and repairs are also managed mainly by men in this society.

Nutrition and health

The diets of non-breastfed children in female vs male headed households did not differ significantly in energy, carbohydrate, protein or fat (Table 7). However, the score of dietary diversity was significantly higher in female headed households as was the monthly *per capita* expenditure on food. Average *per capita* expenditures were very low for both headship types; male headed households spent a mean of only Ksh. 24.50 compared to Ksh. 40.70 in female headed households ($P < 0.001$). As presented earlier (Table 3), male headed households consumed more of their crops at home.

There were no significant variations by household type for child's weight, height, triceps skinfold or mid-upper arm circumference. Table 8 presents the proportion of children who fell below -1, -2 and -3 standard deviation scores from the standard reference median. A lower proportion of children from female headed households appear to be low weight for age than from male headed households. However, results for height for age and weight for age are less clear. Overall, large proportions of these children appear to be stunted but few are wasted, suggesting more chronic rather than acute nutritional stress in the population.

Diet (kilocalorie and nutrient intakes among non-breastfed children) and nutritional status measures (WA, HA and WH z-scores) were regressed on headship (0, 1) along with several household and maternal variables—income, number of preschoolers, age of mother and child, and paternal education. Headship did not relate significantly to any measure of dietary intake or nutritional status in these regression analyses.

There was also no significant variation in the incidence of either diarrhoea or malaria over the approx. 3-month period recalled by the mothers of the two household types at three points in time. On average, children in the sample were ill with diarrhoea for approx. 6% of days observed and with malaria for 8% of this time.

Table 4. Monthly household cash income (KSh): sources and distribution

	Male headed (n = 85)			Female headed (n = 69)		
	Percentiles					
	25th	50th	75th	25th	50th	75th
Husband to wife remittance*	0	0	20	42	100	180
Wife's own earnings**	41	110	205	19	74	154
Wife's total income**	78	123	237	112	200	277
Husband's earnings*	0	150	646	900	1300	1800
Household income*	148	298	680	928	1436	1908

* $P < 0.0001$; t-test with log transformed variables; ** $P < 0.05$; t-test with log transformed variables.

†In 1988, U.S.\$1.00 equalled approx. 20 Kenya shillings.

Table 5. Division of farming responsibility: percent responsible by household headship

	Male headed				Female headed			
	Joint	Husband	Wife	n*	Joint	Husband	Wife	n*
Purchase of farm equipment	15.4	74.5	10.2	78	6.7	81.7	11.7	60
Farm inputs	14.5	31.3	54.2	83	12.9	16.1	70.1	62
Hiring labour	28.8	46.2	25.0	52	10.2	53.1	36.7	49
Land allocation	34.2	39.0	26.8	82	21.5	9.2	69.2	65
Sale of cash crops	35.2	29.6	35.2	54	22.2	14.8	63.0	27
Sale of food crops	22.3	7.5	70.2	67	10.0	5.0	85.0	40

*n is the number of households for which this responsibility was applicable.

DISCUSSION

The relationship between household headship and child nutrition is clearly complex. Increased likelihood of poverty and heavy demands on women's time may increase risk of malnutrition, while increased control over resources may decrease the risk. In this population, we examine the differing socio-economic circumstances and patterns of production between families with *de facto* female household heads and those with resident male household heads. Some reports have suggested that *de facto* household heads may resemble *de jure* household heads in that the absent husband earns little and sends little back [4]. In this study, we found that remittances from the husband are common and that *de facto* female headed households have greater cash resources than do male headed households. It is therefore important to emphasize that the results seen here do not represent what one might see with *de jure* female household heads and that these two types of female headed households should be examined separately.

In this sample, nutritional status did not differ significantly with male labour migration. Chronic malnutrition is evident from the fact that nearly half (43%) of the study children fall below the -2 z-score in comparison to the reference population's height for age. Fewer children of female heads were low weight for age, while more were low height for age, suggesting lower rates of current, but higher rates of past or chronic malnutrition. In attempting to understand the possible factors influencing the relationship between headship and nutritional status, we found trade-offs in the ways families were coping, which appeared to balance some of the negative and positive effects of each situation.

It has been suggested that low land holdings encourage male migration [6]. We did not see differences in land holdings between household types. While cash income is higher in households with female heads, higher agricultural production was seen in male headed households, and their families did not appear to have less food. The fact that they produced a wider variety of subsistence crops and that they retained a higher proportion of produce for home consumption strengthens this observation. On the other hand, female headed households produced less food, but had significantly higher *per capita* cash expenditures on food. Children in the two household categories had similar macronutrient intakes. Dietary diversity was higher in children of female headed households, reflecting their greater use of purchased food, thereby greater variety.

As expected, female heads did appear to have greater decision making control over their farms. They had surprisingly less control over household purchases. The absent husband continued to make many of the financial decisions for the family. While they had more day-to-day autonomy in decision making, which might influence their children, they had less actual control of funds than expected. On the other hand, women in male headed households worked for most of the cash they controlled. Patterns of decision making power and control of income differed between male headed and female headed households, but overall levels of control did not appear to differ greatly.

In contrast to much of the literature on this topic [1-3, 21-23], we found that these female headed households were not poorer than their male headed counterparts. They did not have less land, and the husbands did usually send regular remittances. There were some socio-demographic differences; the female

Table 6. Division of financial responsibilities: percent responsible by household headship

	Male headed				Female headed			
	Joint	Husband	Wife	n*	Joint	Husband	Wife	n*
Buys clothing	18.5	47.1	34.1	85	7.2	81.2	11.6	69
Personal care items	34.1	17.6	48.2	85	21.7	36.2	42.0	69
Household utensils	23.8	36.9	39.3	84	15.2	60.6	24.2	66
Home improvement	8.4	83.1	8.4	83	2.9	91.2	5.9	68
Medical care	58.8	20.0	21.2	85	55.1	27.5	17.4	69
School fees	21.2	68.2	10.6	66	25.0	66.7	8.3	36
House repairs	2.4	95.1	2.4	82	6.8	84.7	8.5	59
New buildings	12.0	86.7	1.3	75	6.1	91.8	2.0	49

*n is the number of households for which this responsibility was applicable.

Table 7. Dietary characteristics and intakes of non-breastfeeding children by household headship (mean \pm SD)

	Sample (n = 98)	Male headed (n = 53)	Female headed (n = 45)
Energy (kcal)	1187 \pm 417	1205 \pm 469	1165 \pm 350
Protein (g)	34 \pm 18	34 \pm 20	34 \pm 15
Protein of total energy (%)	10.8 \pm 2.9	10.6 \pm 2.8	11.2 \pm 3.1
Fat of total energy (%)	10.6 \pm 5.5	10.4 \pm 5.7	10.7 \pm 5.4
Carbohydrate of total energy (%)	82.0 \pm 8.1	82.5 \pm 8.1	81.4 \pm 8.2
Diet diversity*	6.2 \pm 1.7	5.9 \pm 1.4	6.5 \pm 1.9

*Mean number of different foods consumed per day—average of three 24 hr dietary recall days.

heads tended to be younger and their husbands were somewhat better educated. Female heads had more control over the day to day activities of the farm, but grew fewer food crops and used less of their total food production for home consumption. Female heads were much less likely to take responsibility for the purchase of clothing and household items, probably because the husbands had better options and better prices for such goods in the towns.

Wives in male headed households, on the other hand, had much lower remittances from their husbands for household expenses, and apparently less control over the use of income from the farm. They had more input into many home purchases, including medical care. Although they reported less control over the sale of cash and food crops, they produced more types of food crops and retained more for their families' consumption.

CONCLUSION

Nutritional status did not differ significantly between the two family types although malnutrition, particularly stunting, is a large problem in this population. The sample size in this study is relatively small and therefore significant differences would be difficult to detect. Children of female heads tend to be more stunted (past malnutrition) and, with the exception of two children, less wasted (present malnutrition) than the children of male headed households. This would be consistent with the idea that male migration was a rational decision resulting from past stresses on

Table 8. Cumulative frequency (%) of negative z-scores compared to reference population by household type

	< -3	< -2	< -1	< 0
Height for age				
Male headed (85)	18.8	38.8	77.6	96.5
Female headed (69)	15.9	47.8	76.8	98.6
Sample (154)	17.5	42.9	77.3	97.4
Weight for age				
Male headed	7.1	28.2	67.1	91.8
Female headed	4.3	18.8	59.4	88.4
Sample	5.8	24.0	63.6	90.3
Weight for height				
Male headed	0	0	24.7	62.4
Female headed	0	2.9	17.4	56.5
Sample	0	1.3	21.4	59.7

resource availability. The lack of clear differences between the two groups suggests that families are making decisions which balance the possible positive and negative effects on their children given their different situations.

The nutritional status of children from both types of families in this community is of concern and efforts to improve access to adequate nutritional intake, and to reduce the relatively heavy disease burden are needed for all low income families. However, the differences in means of livelihood and coping used by these dominant family forms requires that development efforts involve careful consideration of effects that such interventions may have on the complex mechanisms for livelihood which each have developed. In this part of Kenya, *de jure* female heads are very unusual and thus, were not included in this study. In areas where *de jure* female heads are more prevalent, it will be important to clarify the differences in situation and nutritional effects of *de jure* vs *de facto* female heads. As pointed out by Bruce and Lloyd [13], the definitions of headship and household can be complex. They state "the strength of family links, rather than arrangements, may be the more important determinant of women's and children's welfare and the viability of households" [13, p. 3]. In this study, absent males made a large contribution to the families economic wellbeing. Other studies with larger sample sizes, which allow examination of situational sub-groups, will be important to furthering our understanding of the effects of differing family arrangements on nutritional intake and status.

Acknowledgements—This work was supported in part by a fellowship from the Canadian International Development Agency (CIDA) and by a grant from the McGill University Social Science Research Grants program.

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Course of Study: **MBBS/BSc Medicine Year 4 BSc Global Health Module 3**

Name of Designated Person authorising scanning: P.Hatch (Central Library)

Title: **Social Science and Medicine Vol 39 (12), 1994**

Name of Author: Adelheid Onyango, Katherine Tucker and Thomas Eisemon

Name of Publisher: **Elsevier**

Name of Visual Creator (as appropriate): N/A