
Stress and Coping Among Mothers of Twins in Rural Southwestern Nigeria

Kabiru K. Salami, William R. Brieger, and Lanre Olutayo

Department of Sociology, University of Ibadan, Ibadan, Nigeria

High rates of twinning have been reported in Africa. This study sought to learn whether mothers of twins experience different stress levels than those who have only singletons. Both twin mothers (101) and singleton mothers (101) were interviewed. Using a scale of 15 stressors the researchers found that the mean stress score was significantly higher for twin mothers than singleton mothers. Higher stress scores were also associated with parity and perceptions of problems in caring for children and inversely related to perceived levels of social support. Confronting stressors or simply accepting them were the two main ways that mothers coped with their problems.

Background

Interest in the study of twin births in Africa, particularly West Africa, has generated attention for over a century (World Health Organization [WHO], 1966). Rates of twinning per 1000 maternities in western Europe and the USA have ranged from 11.1–12.5 (Dalveit et al., 1999; Nylander, 1981; Pollack et al., 2000) in contrast to rates over four times higher in Africa (Nylander, 1981). Reported rates specific to southwestern Nigeria and the Yoruba, where this study took place, range from 24–57 per 1000 maternities (Fakeye, 1986; Nylander, 1967; 1971; Marinho et al., 1986). Other studies in West Africa have reported rates ranging from 35–56 per 1000 maternities (Azubike, 1982; Cox, 1963; Guo & Grummer-Strawn, 1993; Rehan & Tafida, 1980). Outside of West Africa, Van Roosmalen (1988) reported a range of 15–20 twin births per 1000 in Tanzania, and Nkata (1999) documented 40 per thousand in Zambia.

Thorpe et al. (1991) found that having young twins had a detrimental effect on the emotional wellbeing of mothers in Britain. Mothers must adapt to a “triadic motherhood process” that involves both individualized and collective child-care strategies (Robin et al., 1996). The question arises as to whether the experience of raising twins exerts additional stress on mothers in Africa and how they cope. Mothers normally experience a number of stressors in their efforts to care for their children. Devault (1993) explored how even the ordinary demands of household labor and nurturing place stress on women. In Africa disabling parasitic diseases like guinea worm can prevent a mother from taking her child for immunisations or treatment and may reduce her income so that she finds it hard to feed her child (Brieger et al., 1989). It has also been

documented in Nigeria that children with special needs such as sickle cell disease and birth defects such as cleft palate (Nwanze & Sowemimo, 1987) create more stress for their mothers. Enwemeka and Adeghe (1982) observed that the presence of a handicapped child was the source of family squabbles in Nigeria.

The extra financial demands of such children are major contributors to stress (Olley et al., 1997). In this context it should be noted that African women are working women and provide a major proportion of the resources needed to raise their children through a variety of small trades and large businesses (Avotri & Walters, 1999; Watts et al., 1989). Avotri and Walters (1999) demonstrated that Ghanaian women’s perceptions of their health problems was “woven into their descriptions of their day-to-day activities and show how their understanding of their health is rooted in the social and material conditions of their lives.” Much of their worry centred around their responsibility for the welfare of their children in relation to financial insecurity and heavy workloads. It is hypothesized that having twins would heighten such worries and stress among African mothers.

Although no studies on the stress associated with raising twins in Africa were found, research in other parts of the world document the stressful experiences of mothers of twins. Yokoyama et al. (1997) reported that Japanese mothers who give birth to twins, triplets and quadruplets may experience severe fatigue and have less time to take care of their other children. Yokoyama (2002) also found that anxiety during pregnancy was higher in mothers of twins than of singletons, and that after delivery, twin mothers felt they had less time for child care and showed more fatigue. Mothers of twins may also face obstacles in starting and maintaining successful exclusive breastfeeding (Hattori & Hattori, 1999). Factors such as lack of social support may be a greater hindrance to successful breastfeeding of twins than the mother’s ability to produce milk (Gromada, 1992), and in fact, malnutrition is a frequent cause of perinatal mortality among twins (Jaffar et al., 1998). In Britain, Thorpe et al. (1991) found that a significantly higher proportion of mothers of twins at 5 years had malaise scores indicative of depression than mothers

Address for correspondence: William R. Brieger, P.O. Box 1090, Bel Air, MD 21014, USA. Email: bbbrieger@yahoo.com

of singletons at the same age, and were more likely to experience depression.

Practical help and support from within a woman's social network has been found to be an important factor in coping with and reducing stress for mothers of multiple births (Yokoyama et al., 1997). Social support has also been shown to help mothers generally in coping with childhood chronic disease (Adams & Deveau, 1984). The availability of such support is mediated by the proximity of kin (Campbell & Barret, 1990). The stress of economic hardship can force mothers to cope by entering the workforce (Tolbert, 1990). This is an example of the confrontational approach to coping with stress, which is a common response to financial stressors (Olley et al., 1997). For mothers of children with sickle cell disease, social stressors from within the family are often denied/ignored or accepted/tolerated, while complaining is a common coping strategy for child growth/development stressors and general fears about the child's future (Olley et al., 1997).

It is not surprising that with the incidence of twin births being relatively high in Africa, cultural responses have evolved to cope with the event. In Tanzania, the Nyakyusa Kinship group viewed the birth of twins as a fearful event that necessitated rituals to protect both family members, neighbors and even cattle (Wilson, 1975). Prior to colonization, it was documented that twins were killed or they and their mothers were exiled to the bush (Talbot, 1968). Similarly, Buchan (1980) and Ward (1981) reported that twins were thrown into the bush or river to die. This was based on a belief that twins came from the devil and were a punishment for sinfulness (Asinde et al., 1993). Okeahialam (1984) explained that there are still life-threatening traditional child rearing practices in some rural areas of Nigeria such as purposeful neglect or abandonment of severely handicapped children, and twins or triplets. Such overt responses to the stress of raising twins may be only qualitatively different from findings in the United States where families with twins experienced a significantly higher incidence of child abuse and neglect than did those with single births (Robarge et al., 1982).

Oruene (1983) observed that the Yoruba of southwestern Nigeria see twins as an omen. A special divinity, *orisa ibeji*, or the deity of twins, must be appeased or the mother may die if the twins are female or likewise, the father is at risk if the twins are male (Simpson, 1980). The deity also specifies the occupation of the mother, which may include selling palm oil, beans or cloth or begging in the street (Oruene, 1983; Simpson, 1980). Non-compliance may result in death and illness of both mother and the twins. When twins fall ill, a mother is expected to visit the *orisa ibeji* shrine and use palm oil found there to rub the body of the sick one (Simpson, 1980). If one of the twins dies, an event that is not uncommon since the perinatal mortality rate of twins is four times higher than that of singletons (Nylander, 1971), the family makes a wooden doll replica of the deceased twin so that the remaining one will not try to follow (Leroy et al., 2002; Simpson, 1980). This indigenous practice appears somewhat similar to what Bryan (1986) recommended in the event of the death of one twin;

that is counseling that encourages talk about the dead twin and reviewing photographs of the two twins together.

Materials and Methods

The study took place in Igbo-Ora, the headquarters of Ibarapa Central Local Government Area (LGA) in the southwestern part of Oyo State, Nigeria. Igbo-Ora has an estimated population of approximately 60,000 — most of whom depend on producing and trading agricultural products as their source of income. Others are artisans and civil servants. Settlement patterns are based around extended family compounds grouped into quarters associated with different founding ancestors. Compounds average 150 residents.

Igbo-Ora is unique in that it is the base of the University of Ibadan's Ibarapa Community Health Program which provides training and research opportunities for medical and other health science students at undergraduate and postgraduate levels. The University has maintained a birth and death register in the community since 1963 based on a system of family visitors assigned to the various quarters of the town (Ayeni & Olayinka, 1979). This facilitated previous research on the incidence of twinning (Nylander, 1967).

It was with the same birth register that the present study began. The register includes name, age, occupation and address of both parents as well as sex, status (i.e., live or stillbirth) and birthweight of the child. A list of all twin births recorded between 1994 and 1998 was extracted. A random sample of 100 mothers was selected excluding those for whom one or both children was stillborn. During that 5-year period 4907 births had been recorded of which 147 (3.0%) were twin births. Since the study took place in 2000, the twins themselves ranged in age between 2–6 years. Interviews were conducted by one of the authors (KS) and an assistant who herself is a mother in the community and had experience in previous social research projects. On reaching the home, the interviewers politely ascertained whether both twins were still alive. If not, a substitute mother was selected from the list. A mother in the same compound and of approximately the same age (within 5 years) who had given birth only to singletons was located as a match for interview.

A questionnaire was used that addressed mothers' demographic characteristics, their beliefs about twins, their rating of common stress factors, their reported coping mechanisms and their perceived levels of social support. A stress factor scale was developed with input from mothers of twins and a review of the literature. In-depth interviews were held with 10 mothers of twins in the study community. They were asked to discuss the various factors in child-rearing that gave them stress. The 15 most commonly mentioned items were included in a stress factor scale. Women were asked whether each factor was very stressful (4 points), stressful (3 points), not certain (2 points), not stressful (1 point) or did not occur in their lives (0 points). The resulting 15-item scale could therefore range from 0–60 points.

An 8-point social support scale was also constructed. One point each was given if the woman responded that she received social support in informational, material/instrumental,

emotional and/or appraisal/feedback forms (Gottlieb, 1985) from her family, her husband, her husband's family, her friends, her social club, her religious group, her neighbors, or her colleagues at work.

Concerning coping, for each stressor that a mother acknowledged, she was asked how she responded to it. Although a wide variety of coping strategies have been proposed (Manke & Gurklis, 1988; Han, 1990; Selye, 1976), a simplified four-category option was used in this study. Mothers' open-ended coping responses were coded into one of the following: 1) acceptance of the problem, 2) confrontation or taking action, 3) complaining, including worrying, and 4) avoidance (Olley et al., 1997).

Results

At the end of fieldwork, 101 mothers of twins and the same number of mothers who had never had twins were interviewed. Although the mean ages of twin mothers (32.8 years) and singleton mothers (29.4) were within a 5-year difference, the twin mothers were significantly older ($t = 3.418$, $p < 0.008$). Overall, the mean parity was 3.0, but was higher for twin mothers (3.4) than for those who never had twins (2.6), a significant difference ($t = 4.310$, $p < 0.00003$).

The occupational distribution of the two groups was similar with petty traders comprising 56.4% of the twin mothers and 57.4% of the singleton mothers. Major traders (e.g., those with large shops or who transported large loads of agricultural produce for sale) accounted for 19.8% of twin mothers and 13.9% of singleton mothers. A greater proportion of singleton mothers (14.9%) were artisans than were mothers of twins (4.0%). Slightly more twin mothers (11.9%) were farmers than mothers of singletons (6.9%). Six mothers of twins and five mothers of singletons were professionals such as teachers. One mother in each group was a housewife.

A greater proportion of twin mothers (30.7%) had no education than did singleton mothers (20.8%). A greater proportion of singleton mothers had primary education (45.5%) than did twin mothers (31.7%). Similar proportions had at least some secondary education, 37.6% and 33.7% for twins and singleton mothers respectively.

Women shared their beliefs about why some mothers have twins. Most (68.8%) of the 202 respondents thought that the birth of twins was "the work of God" or "the destiny of an individual from God". More (83.2%) of the 101 twin mothers had this belief than did the mothers of singletons (54.5% of 101). Another common view was that some sort of hereditary process was at work as 25.7% of twin mothers and 9.9% of singleton mothers gave answers like, "The twins were already in her body", and "She herself came from a family that had twins". Ten (9.9%) of singleton mothers believed eating foods like okra leaf and cassava flour led to twin births, but only one mother of twins gave this answer. Other ideas expressed by singleton mothers (5.9%) were either scientific, "Two eggs of the mother were met by the father's sperm", or dietary, "Because they eat well", and "A hungry person cannot bear twins". Nine (8.9%) singleton mothers and 21 (20.8%) twin mothers said that they do not know the reason, while four (3.9%) singleton mothers and one (0.9%) twins mother gave no response.

Prior to asking about specific problems/stressors, mothers were asked whether they had problems caring for their children. More of the twin mothers (47.5%) said they had problems than singleton mothers (38.5%) (OR = 2.15; 95% CI: 1.15–4.01). The overall score from the 15 stressor items ranged from 3 to 55 points with a mean of 23.8 points. The mean for singleton mothers was 20.5 compared to 27.1 for twin mothers. Table 1 looks at each of the 15 stressors. Concerns about costs of feeding children and buying materials they needed were experienced by all mothers and had mean scores of 1.9 points each. Two other high scoring items were problems of sibling rivalry/jealousy (98.5% affected with a mean of 2.01) and fear of the child becoming ill at an inconvenient time (99.5% affected, 2.04 mean score).

Six factors were tested in multiple regression to test relationship with stress levels. A dummy variable for twins was created with 1 = twins mother and 0 = singleton mother. The variable, "problem caring for children" was coded 1 = yes and 0 = no. The reports of social support received ranged from 1–8 points with a mean of 6.5. The mean for singleton mothers was slightly higher (6.7) than that of twins mother (6.3). Parity has been reported above. Other variables included the mothers' ages and their educational level scores as 0 = none, 1 = primary and 2 = post-primary.

Tables 2a and b show that four of these factors were associated with stress levels. Social support was negatively related to stress. Positive associations were found with parity, perceiving a problem caring for children and being a mother of twins.

Finally, Table 3 presents information on coping mechanisms for the most common and/or highest scoring stressor in each of four categories. It can be observed that more singleton mothers either did not think that the stressor affected them or did not respond to the question. The most common response by twin mothers (52.9%) and singleton mothers (48.6%) to the cost of feeding their children was to confront the problem. Such responses included, "I try hard to get the means", and "I just struggle to get the money". Acceptance was the next most common coping mechanism for both twin (25.5%) and singleton (43.2%) mothers as evidenced in responses like, "I can only provide whatever is available", and "I accept it since we cannot do more than our capacity".

Most twin (75.4%) and singleton (84.6%) mothers also tried to confront the problem of sibling rivalry. For example, mothers said, "I shout on them to stop doing that", and "I find ways to satisfy them all". Again, acceptance was the second most common way of coping for twin (23.0%) and singleton (19.3%) mothers who may "take patience" or note that, "There is nothing I can do". Worries about child illness are confronted by the majority of twin (79.6%) and singleton (77.5%) mothers. Mothers would, "use native medicine", "buy drugs and keep them on hand", or "take them to the hospital". An example of avoidance was, "I just forget about it until it happens". Complaining was exemplified in the statement that, "I complain bitterly as there is no money to care for them".

Those mothers who perceive not having enough time for their own needs primarily confront the problem

Table 1
Summary of Problems and Concerns Causing Stress in Mothers

Problem Factors/Concerns	Percent for Whom the Concern Exists	Mean Stress Score (range 0–4)
<i>Resource Factors</i>		
Cost of feeding children with good diet.	100.00	1.99
Buying of materials generally	100.00	1.90
Not enough support from family members and husband	97.50	1.53
<i>Social Factors</i>		
Facing Sibling rivalry/jealousy	98.50	2.01
Marital Discord	98.50	1.34
<i>Child Factors</i>		
Potential of having twins in the future	77.70	1.17
Fear of child's illness at inconvenient time	99.50	2.04
Thinking of child's future survival	98.00	1.66
Performance and characters of child	99.50	1.48
Poor growth and physical features	97.00	1.11
Child's demand and rejection of certain things (e.g., food).	99.00	1.67
<i>Personal Time Factors</i>		
Not enough time to take care of my own needs like bathing, eating	99.00	1.46
Not enough time to perform my usual chores around the house like cleaning, washing, marketing, and cooking.	99.50	1.46
Not enough time to carry out my trade/job	97.00	1.56
Not enough time to carry out my social obligations such as visiting friends, attending meetings, visiting relatives, attending ceremonies	94.50	1.42
Number	202.00	202.00

Table 2a
Factors Associated with Stress Scores

Correlation Coefficient Source	r ² = 0.42 df	ra ² = 0.41 Sum of Squares	Mean Square	F statistic
Regression	4	8091.3833	2022.8458	35.27
Residuals	197	11299.884	57.3598	
Total	201	19391.2673		

Table 2b
Factors Associated with Stress Scores (continued)

Variable	B Mean	Coefficient	95% Confidence Interval		Std Error	Partial F test
			Lower	Upper		
Support	6.5297	-0.84559	-1.58801	-0.10318	0.376456	5.0453
Parity	2.9752	0.7995424	0.02276	1.576321	0.393881	4.1205
Twin	0.5	3.7638714	1.536045	5.991698	1.129663	11.1012
Problem	0.3861	10.195973	7.977454	12.41449	1.124944	82.1478
Y-intercept		21.1157				

Notes: Support = social support a scale from 0–9 points
Twin = have twins = 1, only singletons = 0
Problem = perceived problem raising children: yes = 1, no = 0

(65.8% twins, 75.0% singletons), as also seen in Table 3. As one mother explained, “I find the time to take care of myself and prepare food. I may leave them crying to do all these things”. Another reported that, “After caring for the children, I try to do all the necessary things for myself”. A fair number (55.3%) of twin mothers would also simply

accept the situation observing that, “I just have to accept it as it comes”, or “There is little I can do as they occupy me”.

Discussion

The rate of twin maternities in Igbo-Ora fell in a middle range of that reported in other African studies (Azubuike,

Table 3

Coping Mechanisms

Coping Mechanism	Problem/Concern (% responding)							
	Cost of Feeding		Sibling Rivalry		Fear of Child's Illness		No Time for Own Needs	
	Twin	Single	Twin	Single	Twin	Single	Twin	Single
Acceptance	25.5	43.2	23.0	19.3	9.3	7.5	55.3	0.0
Confrontation	52.9	48.6	75.4	84.6	79.6	77.5	65.8	75.0
Complaining	11.8	5.4	1.6	3.8	3.7	7.5	2.6	0.0
Avoidance	23.5	18.8	18.0	0.0	7.4	7.5	5.3	25.0
Number*	51.0	37.0	61.0	26.0	54.0	40.0	38.0	5.0

Note: *Those who indicated that the problem applies to them and also responded to the question

1982; Marinho et al., 1986; Nylander, 1981). Also the results conform to findings that parity is higher among mothers of twins (Fakeye, 1986; Rehan & Tafida, 1980). The relationship between stress and both higher parity and twinning is likely to have common roots since in both cases a mother is under pressure to care for more children. Twinning, of course, focuses this pressure with more immediacy even in meeting such basic needs as breastfeeding (Hattori & Hattori, 1999). Thomas (1996) observed that the raising of twins in itself is stressful, and this stress may lead to ambivalence, anxiety and unequal attachment to one infant. Local culture also exerts pressure on the mother to take special care of the twins including sacrifices and the fears associated with the wrath of local divinities should one of the twins die (Leroy et al., 2002; Oruene, 1983; Simpson, 1980).

This study showed that mothers of twins experience more stress than mothers of singletons, and therefore, further study is needed on the possible health effects in this environment. Stress in fact is a strong predictor of depressive symptoms (Hall, 1990). Stress among women, especially working class women, has been linked with coronary heart disease (Hall et al., 1993) and mental health problems including depression (Ilfield, 1977; Jessop et al., 1988; Thorpe et al., 1991; Weissman et al., 1987). Fortunately, the health information system in Igbo-Ora makes it easy to identify them for necessary follow-up and counseling (Ayeni & Olayinka, 1979). Even in communities without a birth register, the Yoruba culture aids identification as all twins are named *Taiwo* (the firstborn) and *Kehinde* (the second), and their mothers are referred to as *iya ibeji* (mother of twins) (Oruene, 1983).

Two important sources of stressors need to be addressed, economic concerns and family problems. The relatively larger role played by economic or resource stressors in this study reflect the daily life problems of women in developing countries. Twin mothers in this study have been found to confront their stressors and women generally in this community engage actively in economic pursuits, which could be one of the solutions to their problems. One long-term solution may be efforts to improve women's access to financial resources such as through micro-credit. This is not a simple solution, because as Nirschl and Sticker (1994) noted, "Borrowers must be counselled and cared for in their investment in small businesses, and in their train-

ing in financial planning and management". Unless care is taken, other family members may take advantage of women's access to credit (Rahman, 1999).

Coping could also include drawing on extended families and social networks as a means of enhancing social support. A closer examination of such networks is needed in order to develop strategies. The important role of social support in mediating stress has been observed in other studies (Coffman & Levitt, 1993; Hall et al., 1993), and specifically in the case of twin mothers the lack of support has been linked to both mental and physical fatigue (Yokayama et al., 1997). It has been reported that nearby kin can be an important source of social support (Campbell & Barrett, 1990), and therefore, one would expect that the extended family environment of an indigenous Yoruba community might offer most of the social support needed by a mother of twins.

Studies in neighboring communities have shown that in reality, and especially in times of economic hardship and high levels of endemic disease, other family members are not always able to provide assistance to women in need (Watts et al., 1989). Marriages, which traditionally were once the union between two extended (and supportive) families in Nigeria, are becoming more unstable in modern times as the contract is today more often between two individuals (Odujinrin, 1995). The result is more divorce and separation where most small children live with their mothers in contrast to custom that links the child with its father's ancestral line (Odujinrin, 1995).

Of particular concern is the fact that mothers in this study saw marital discord and lack of support from husbands and their families as causes of stress. This raises questions about the role of fathers in child-care and deserves a separate study. Sear et al. (2002) found that having a living mother, maternal grandmother or elder sisters reduces child mortality, while having a living father, paternal grandmother, grandfather or elder brothers had no effect. Several sociologically oriented studies, as described below, helped shed light on why this may be the case. Observations of infant-caregiver interactions in a West African village showed that while children were not in the direct care of the mother, they were left in the charge of young nursemaids for up to 40% of the day while the mothers tended the crops, but grandmothers and fathers were both relatively unimportant caregivers (Lawrence et al., 1985).

Although fathers are generally expected to take responsibility for children they do not always fulfil this role. A study of malnourished children in southwestern Nigeria reported that most fathers felt the problem should be handled in the hospital, and over one-third were of the view that child welfare was mainly the responsibility of the mother (Ojofeitimi & Adelekan, 1984). Renne (1993) found that in Ekiti State, Nigeria, both men and women subscribe to the prevailing gender ideology of male authority in fertility matters and hence large family size, they differ in perceptions of who actually makes the decisions, largely because the ideal of fathers' financial support of their children is sometimes belied by practice. Even where the prevailing household structure favours male decision-making, mothers have evolved strategies to circumvent what they see as inappropriate choices for example in the case of treating childhood illnesses (Molyneux et al., 2002). In a crosscultural context, less than 40% of mothers of twins in a Taiwanese study reported receiving "useful" support from their husbands (Chang, 1990).

The stress associated with raising twins may not be so different for mothers in rural Nigeria as those in industrialized countries. It also appears nearly universal that extended family members do not always live up to expectations for support, but here the similarities stop. In an environment with limited economic resources, no formal social services, weakening family ties, and strong gender role restrictions on women's decision-making, coping by mothers of twins is more difficult. The forgoing shows that mothers generally must rely primarily on their own resources and social networks to cope with childcare needs. The twin mother's knowledge that she may not readily depend on her husband or others in his extended family may explain why confronting problems directly was their most common coping approach with stressors, and further study is needed on how mothers use their own extended families and social networks to cope and how these networks can be strengthened.

Author Note

William R Brieger is formerly of the African Regional Health Education Centre, College of Medicine, University of Ibadan, Ibadan, Nigeria.

References

- Adams, D. D., & Deveau, J. E. (1984). *Coping with childhood cancer — Where do we go from here*. Reston, Virginia: Reston Publishing Co. Inc.
- Asindi, A. A., Young, M., Etuk, I., & Udo, J. J. (1993). Brutality to twins in southern Nigeria: What is the existing situation? *West African Journal of Medicine*, 12(3), 148–152.
- Avotri, J. Y., & Walters, V. (1999). "You just look at our work and see if you have any freedom on earth": Ghanaian women's accounts of their work and their health. *Social Science and Medicine*, 48(9), 1123–1133.
- Ayeni, O., & Olayinka, I. A. (1979). An evaluation of a special-type vital statistics registration system in a rural area of Nigeria. *International Journal of Epidemiology*, 8(1), 61–68.
- Azubuike, J. C. (1982). Multiple births in Igbo women. *Journal of Obstetrics and Gynaecology*, 89(1), 77–79.
- Brieger, W. R., Watts, S., & Yacoob, M. (1989). Guineaworm, maternal morbidity and child health. *Journal of Tropical Pediatrics*, 35, 285–288.
- Bryan, E. M. (1986). The death of a newborn twin: How can support for parents be improved? *Acta Geneticae Medicae et Gemellologiae (Roma)*, 35(1–2), 115–118.
- Buchan, J. (1980). *The expendable Mary Slessor* (1st ed.). Edinburgh: St. Andrews Press.
- Campbell, K., & Barret, L. (1990). Gender differences in urban neighbouring. *Sociological Quarterly*, 31, 495–515.
- Chang, C. (1990). Raising twin babies and problems in the family. *Acta Geneticae Medicae et Gemellologiae (Roma)* 39(4), 501–505.
- Coffman, S., & Levitt, M. J. (1993). Mothers' stress and close relationships: Correlates with infant health status. *Pediatric Nursing*, 19, 135–140.
- Cox, M. L. (1963). Incidence and aetiology of multiple births in Nigeria. *Journal of Obstetrics and Gynaecology*, 70, 878–884.
- Daltveit, A. K., Vollset, S. E., Skjaerven, R., & Irgens, L. M. (1999). Impact of multiple births and elective deliveries on the trends in low birth weight in Norway, 1967–1995. *American Journal of Epidemiology*, 149(12), 1128–1133.
- Devault, M. (1993). Feeding the family: The social organization of caring as gendered work. *American Journal of Sociology*, 98(4), 950.
- Enwemeka, C. S., & Adeghe, N. U. (1982). Some family problems associated with the presence of a child with handicap in Nigeria. *Child Care and Health Development*, 8(3), 133–140.
- Fakeye, O. (1986). Perinatal factors in twin mortality in Nigeria. *International Journal of Gynaecology and Obstetrics*, 24(4), 309–314.
- Gottlieb, B. H. (1985). Social networks and social support: An overview of research, practice, and policy implications. *Health Education Quarterly*, 12(1), 5–22.
- Gromada, K. K. (1992). Breastfeeding more than one: Multiples and tandem breastfeeding. *NAACOGS Clinical Issues in Perinatal Womens Health & Nursing*, 3(4), 656–666.
- Guo, G., & Grummer-Strawn, L. M. (1993). Child mortality among twins in less developed countries. *Population Studies*, 47, 495–510.
- Hall, L. A. Prevalence and correlates of depressive symptoms in mothers of young children. *Public Health Nursing*, 7(2), 71–79.
- Hall, E. M., Johnson, J. V., & Tsou, T. S. (1993). Women, occupation and risk of cardiovascular morbidity and mortality. *Occupational Medicine*, 8, 709–719.
- Han, J. S. (1990). Chronically ill child. *Taehan-Kantio*, 29(4), 73–88.
- Hattori, R., & Hattori, H. (1999). Breastfeeding twins: Guidelines for success. *Birth*, 26(1), 37–42.
- Ilfield, F. W. (1977). Current social stressors and symptoms of depression. *American Journal of Psychiatry*, 134, 161–166.
- Jaffar, S., Jepson, A., Leach, A., Greenwood, A., Whittle, H., & Greenwood, B. (1998). Causes of mortality in twins in a rural region of The Gambia, West Africa. *Annals of Tropical Paediatrics*, 18(3), 231–238.

- Jessop, D. J., Riessman, C. K., & Stein, R. E. (1988). Behavioural paediatrics. *Journal of Development*, 9, 147–156.
- Lawrence, F., Lamb, W. H., Lamb, C., & Lawrence, M. (1985). A quantification of child care and infant-caregiver interaction in a West-African village. *Early Human Development*, 12(1), 71–80.
- Leroy, F., Olaley-Oruene, T., Koepfen-Schomerus, G., & Bryan, E. (2002). Yoruba customs and beliefs pertaining to twins. *Twin Research*, 5(2), 132–136.
- Manke, E., & Gurklis, J. (1988). Coping scale. *Nursing Research*, 37(4), 18–26.
- Marinho, A. O., Ilesanmi, A. O., Ladele, O. A., Asuni, O. H., Omigbodun, A., & Oyejide, C. O. (1986). A fall in the rate of multiple births in Ibadan and Igbo Ora, Nigeria. *Acta Geneticae Medicae et Gemellologiae*, 35(3–4), 201–204.
- Molyneux, C. S., Murira, G., Masha, J., & Snow, R. W. (200). Intra-household relations and treatment decision-making for childhood illness: A Kenyan case study. *Journal of Biosocial Science*, 34(1), 109–131.
- Nirschl, H., & Sticker, G. (1994). *PennyWise: Credit programmes for small businesses*. Köln: Arbeitsgemeinschaft für Entwicklungshilfe (AGEH/Association for Development and Cooperation).
- Nkata, M. (1999). Perinatal mortality in twin deliveries in a general hospital in Zambia. *Journal of Tropical Pediatrics*, 45(6), 365–367.
- Nwanze, H. O., & Sowemimo, G. O. (1987). Maternal stress, superstition and communicative behaviour with Nigerian cleft lip and palate children. *Scandinavian Journal of Plastic and Reconstructive Surgery and Hand Surgery*, 21(1), 15–18.
- Nylander, P. P. (1967). Twinning in West Africa. *World Medical Journal*, 14(6), 178.
- Nylander, P. P. (1971). The incidence of triplets and higher multiple births in some rural and urban populations in Western Nigeria. *Annals of Human Genetics (Lond)*, 34, 409–415.
- Nylander, P. P. (1981). The factors that influence twinning rates. *Acta Geneticae Medicae et Gemellologiae (Roma)*, 30(3), 189–202.
- Odujinrin, O. M. (1995). Marital disruption—the welfare of the children thereafter in Nigeria. *Child Abuse & Neglect*, 19(10), 1233–44.
- Ojofeitimi, E. O., & Adelekan, M. O. (1984). Partnership with fathers in combating malnutrition: Their views as to causes and treatment of protein energy malnutrition. *Child Care and Health Development*, 10(2), 61–66.
- Okeahialam, T. C. (1984). Child abuse in Nigeria. *Child Abuse & Neglect*, 8(1), 69–73.
- Olley, L. B., Brieger, W. R., & Olley, B. O. (1997). Perceived stress factors and coping mechanisms among mothers of children with sickle cell disease in Western Nigeria. *Health Education Research*, 12(2), 161–170.
- Oruene, T. O. (1983). Cultic powers of Yoruba twins: Manifestation of traditional and religious beliefs of the Yoruba. *Acta Geneticae Medicae et Gemellologiae (Roma)*, 32(3–4), 221–228.
- Pollack, H., Lantz, P. M., & Frohna, J. G. (2000). Maternal smoking and adverse birth outcomes among singletons and twins. *American Journal of Public Health*, 90(3), 395–400.
- Rahman, A. (1999). Micro-credit initiatives for equitable and sustainable development: Who pays? *World Development*, 27(1), 67–82.
- Rehan, N., & Tafida, D. S. (1980). Multiple births in Hausa women. *Journal of Obstetrics Gynaecology*, 87, 799–1004.
- Renne, E. P. (1993). Gender ideology and fertility strategies in an Ekiti Yoruba village. *Studies in Family Planning*, 24(6 Pt 1), 343–353.
- Robarge, J. P., Reynolds, Z. B., & Groothuis, J. R. (1982). Increased child abuse in families with twins. *Research in Nursing & Health*, 5(4), 199–203.
- Robin, M., Corroyer, D., & Casati, I. (1996). Childcare patterns of mothers of twins during the first year. *Journal of Child Psychology & Psychiatry*, 37(4), 453–460.
- Sear, R., Steele, F., McGregor, I. A., & Mace, R. (2002). The effects of kin on child mortality in rural Gambia. *Demography*, 39(1), 43–63.
- Selye, H. (1976). *The stress of life* (rev. ed.). New York: MacGraw-Hill.
- Simpson, G. E. (1980). *Yoruba religion and medicine in Ibadan* (pp. 44–47). Ibadan, Nigeria: Ibadan University Press.
- Talbot, P. A. (1968). *The Ibibio of Southern Nigeria* (pp. 23–28, 177–215). London: Frank Cass and Co., Ltd.
- Thomas, J. G. (1996). The early parenting of twins. *Military Medicine*, 161(4), 233–235.
- Thorpe, K., Golding, J., MacGillivray, I., & Greenwood, R. (1991). Comparison of prevalence of depression in mothers of twins and mothers of singletons. *British Medical Journal*, 302(6781), 875–878.
- Tolbert, K. (1990). *Availability and needs for day-care services in Mexico City*, (Report to the Ford Foundation (Mexico City) by The Population Council). Mexico City: The Population Council.
- Van Roosmalen, J. (1988). Multiple pregnancy as a risk factor in rural Tanzania. *Tropical and Geographical Medicine*, 40(3), 196–200.
- Ward, W. E. F. (1981). The colonial phase in British West Africa. In J. F. A. Ajayi, & I. Espie (Eds.), *A thousand years of West African history* (pp. 389–390). Nigeria: Thomas Nelson Ltd.
- Watts, S. J., Brieger, W. R., & Yacoob, M. (1989). Guinea worm: An in-depth study of what happens to mothers, families and communities. *Social Science and Medicine*, 29, 1043–1049.
- Weissman, M. M., Gammon, D., & John, K. (1987). Children of depressed parents: Increased psychopathology and early onset of major depression. *Archives of General Psychiatry*, 44, 847–853.
- WHO (1966). The use of twins in epidemiological studies. *Chronicle of the World Health Organisation*, 20(4), 121–128.
- Wilson, M. (1975). Nyakyusa kinship. In A. R. Radcliffe-Brown, & D. Forde (Eds.), *African systems of kinship and marriage*, (pp. 126–130; 11th Impression). London: Published for the International African Institute by the Oxford University Press.
- Yokoyama, Y., Shimizu, T., Yura, A., & Hayakawa, K. (1997). Actual conditions of help and support of childcare in families with multiple birth children (original in Japanese). *Nippon Kosbu Eisei Zasshi*, 44(2), 81–88.
- Yokoyama, Y. (2002). Childcare problems in mothers with twins as compared with children born singly (Article in Japanese). *Nippon Kosbu Eisei Zasshi*, 49(3), 229–235.