

Conduct Problems, Social Skills, Study Skills, and Home Chaos in School Children: A Correlational Study

Syeda Shamama-tus-Sabah and Nighat Gillani
Quaid-i-Azam University

The present research was designed to examine the relationship between home chaos and conduct problems, social skills, and study skills among primary school children. The research relied on a purposive sample of 203 children inclusive of 91 boys and 112 girls, with ages ranging from 8 to 11 years (4th - 6th grade) recruited from Federal Government schools of Rawalpindi, Lahore, and Karachi, Pakistan. Confusion, Hubbub, and Order Scale-Urdu (Shamama-tus-Sabah & Gillani, 2008) and parent and teacher rating forms of Behavioral Assessment System for Children (Reynolds & Kamphaus, 2004) were used to assess the constructs of the study. Results indicated significant positive relationship between home chaos and conduct problems of children as reported by their parents and teachers. Regression analysis revealed home chaos as a significant predictor of children's conduct problems, social skills, and study skills.

Keywords: home chaos, conduct problems, social skills, study skills, primary school children

Human development is a lifelong process. It consists of various stages and it has been observed that experiences in early stages of life set the stages for the development of the personality. According to Berger (2001) human development can be divided into three domains (1) biosocial domain, (2) cognitive domain, and (3) psychosocial domain. All three domains are important at every stage of human development.

During childhood various factors can affect the optimal development of these domains. From biological inheritance to

Syeda Shamama-tus-Saba, Department of Psychology, Government Degree College for Women, Taxila, Pakistan.

Nighat Gillani, National Institute of Psychology, Quaid-i-Azam University, Islamabad, Pakistan.

Correspondence concerning this article should be addressed to Syeda Shamama-tus-Saba, Department of Psychology, Government Degree College for Women, Taxila, Pakistan. E-mail: barhvi@yahoo.com

environmental experiences, there is a wide range of factors that play important role in child development. Starting from Lewin (1935), Piaget (1952), Vygotsky (1962), Erikson (1968), and Bandura (1986) who explained the interplay of person and environment and emphasized the active role of children in developmental process, recent evidence indicates that human development is a result of interplay of genes and environment. The term G×E refers to the interplay of both genes and environment which can modify the experience of an individual's genetic background. It does so either by strengthening the effects of genes or by weakening the effects of genes on phenotypes (Rutter, Moffit, & Caspi, 2006).

Bronfenbrenner's Bioecological Model (Bronfenbrenner & Cecil, 1994) is one of many theories based on systems view of development which not only recognize genes as an integral part of the system but also gives importance to other systems of the environment (Gottlieb, 1991). According to Bronfenbrenner (Bronfenbrenner & Cecil, 1994) human development results from the evolving interaction between the developing bio-psychological organism and its environment including persons, objects, and symbols in its immediate environment. For healthy development these interaction must occur regularly over extended period of time. Along with various environmental stressors home chaos is an important aspect of physical microenvironment that can produce adverse developmental outcomes by interfering with interactions going on between developing person and its environment (Bronfenbrenner & Evans, 2000; Evans, Hygge, & Bullinger, 1995). Home chaos refers to microsystem contexts such as the home, day care center or school, which are characterized by high noise levels, high levels of density or crowding, high context traffic patterns (many people coming and going), and a lack of physical and temporal structure; few regularities or routines in the environment, little is scheduled, nothing has its place (Matheny et al., 1995; Wachs, 1989; Wachs & Corapci, 2003).

Home chaos is associated with a range of adverse developmental outcomes (McCord & McCord, 1959; Wohlwill & Heft, 1987). It affects children's socioemotional adjustment directly but it can produce negative outcomes by affecting adult emotional well-being (Cheung, Leung, Chan, & Ma, 1998; Evans, Palsane, Lepore, & Martin, 1989; Fuller, Edwards, Vorakitphokatorn, & Sermsri, 1993; Mitchell, 1971; Ruback & Pandey, 1991). Home chaos is also related to poor cognitive

performance (Gottfried & Gottfried, 1984; Wachs, Uzgiris, & Hunt, 1971), altered attention patterns (Cohen, Glass, & Singer, 1973; Heft, 1979), and reduced use of communication to gain adult attention (Wachs & Chan, 1986). Evans, Lepore, Shejwal, and Palsane (1998) have found chronic residential crowding to be associated with behavioral adjustment problems at school, poor academic achievement, vulnerability to the induction of learned helplessness, high blood pressure, and impaired parent-child interpersonal relationships among children of age 10-12 years living in urban India. In addition researches on gender differences in sensitivity to chaos have reported inconsistent findings, indicating age as moderating factors between home chaos and children's adverse developmental outcome. These findings indicate males as more sensitive to chaos in infancy and preschool years. However, these gender differences decline with age (Wachs, 2010).

Ample evidence indicates that home chaos can act as a potential risk factor for children's behavioral problems, poor cognitive performance, and lower academic achievement in western and nonwestern cultures (Brown & Low, 2008; Deater-Deckard et al., 2009; Evans et al., 1998). Regarding Pakistani culture available evidence indicates chaos in the immediate environmental as an important aspect of children's environment interfering with their academic performance (Quid, Khan, Anwar, & Mateen, 2001; Shamama-tus-Sabah & Gillani, 2008, 2010). Extended families experience home chaos as compared to nuclear families. Mother's education was not related to home chaos level, contradictory to western cultures where mother's education have been reported as buffering agent against chaotic conditions (Quid et al., 2001; Shamama-tus-Sabah & Gillani, 2008, 2010). However, to make a significant conclusion more extensive studies are needed to understand the role of home chaos in children's development in Pakistani culture.

Pakistan being a highly populated country is currently facing various economic, political, and security issues which have affected the lives of common people on macro level. The increasing urbanization, crowding, and noise have increased the societal chaos and highlight the need to study chaos at micro level and its impact on children's development (Haider & Badami, 2010). Based on earlier findings our aim was to take initial step in exploring the culture specific patterns regarding the impact of environmental chaos upon children's adjustment and

their social and study skills. To attain the aim and objectives following hypotheses were formulated:

1. Elevated levels of home chaos will be associated with elevated levels of conduct problems.
2. High level of home chaos will be associated with low levels of social skills among school children.
3. High level of home chaos will be associated with low levels of study skills among school children.
4. Home chaos will be a significant predictor of children's conduct problems, their social and study skills.

Method

Sample

Purposive sample of 203 primary school children and their mothers was chosen for the present research. The children (girls = 112, boys = 91) were selected from Federal Government Schools of three cities of Pakistan, including Rawalpindi ($n = 101$), Lahore ($n = 49$), and Karachi ($n = 53$). Children's age ranged from 8-11 years (studying in 4th-6th grade). The selected sample was in accordance to the sampling criteria, including children from intact families (i.e., with no cases of divorce or separation) and with the number of children ranging from 2-7. In addition to that, only those families were selected who had an ability to read and comprehend both Urdu and English language with minimum education up to 12th grade. The parents' age ranged from 22-60 years and education ranged from 12th grade to 16th or equivalent. The average age of the children was 10.22 years ($SD = .83$). The average age of the mothers on the time of testing was 37.09 years ($SD = 5.31$) and they had completed an average of 13.71 years of education ($SD = 1.30$). The class teachers of the children who knew them for the last one year were also contacted. The average income of the families was between Rs. 8,000-15,000 per month. The demographic information of the sample was collected through demographic sheet that was also used to develop socioeconomic index of the families.

Instruments

Confusion, Hubbub, and Order Scale-Urdu Version. Translated version (Shamama-tus-Sabah & Gillani, 2008) of

original Confusion, Hubbub, and Order Scale (CHAOS; Matheny, Wachs, Ludwig, & Phillips, 1995) was used with mothers to assess the level of chaos at home. CHAOS consisted of 15 forced-choice items, with true-false format, that is, “there is very little commotion in our home”, or “we almost always seem to be rushed”. It was designed to measure confusion, disorganization, and noise in home environment. To equalize response-set seven items related to the organization of home were later reversed coded and total score ranged from 0-15. A single score is obtained by simple sum of responses. The total score indicates the extent of home chaos, with higher score reflecting more disorganization, confusion, and noisy home environment. Satisfactory reliability and validity have been reported (Matheny et al., 1995); whereas alpha coefficient of .77 was yielded for the present sample.

Behavioral Assessment System for Children. Parent rating scale of Behavioral Assessment System for Children-2 (BASC-2; Reynolds & Kamphaus, 2004) was used to assess conduct problems, social, and study skills of children. BASC-2 measures various aspects of behavior and personality including externalizing problems, internalizing problems, school problems, and adaptive skills (Reynolds & Kamphaus, 2004). Two subscales from Parent Rating Scales (PRS; conduct problems, social skills) and three subscales from Teacher Rating Scales (TRS; conduct problems, social skills, and study skills) were used to assess children. Parents rate their children on conduct problems and social skills, where as teachers rate them on conduct problems, social skills, and study skills. High scores on these scales indicate adjustment problems and less social and study skills, and vice versa. Satisfactory reliabilities of TRS and PRS have been reported in Manual (Reynolds & Kamphaus, 2004). For the present research, alpha coefficient for parent rating scales were .74 (conduct problems) and .73 (social skills); for teacher rating scales alpha coefficients were .81 (conduct problems), .78 (social skills), and .86 (study skills).

Procedure

The school authorities were contacted to get permission for the research. The acceptance letters were sent to parents through children with a form to collect basic information according to the

criteria of sample selection. After receiving acceptance letters from the parents who agreed to take part in the research the sample of 203 children was selected. Teachers rating scale was given to the class teachers of the children to rate them on behavioral descriptions with 4-point scale. They were given instructions by the researcher and were requested to provide accurate ratings about their conduct problems, social skills, and study skills. Mothers of the children were contacted at their homes. They were briefed about the rationale of the research. Instructions were given to them. They were first given the demographic sheet to provide information (for details of demographics and analyses see Shamama-tus-Sabah & Gillani, 2010). Afterwards they were required to complete CHAOS-Urdu and parent rating form and were requested to provide accurate information. The whole procedure took approximately one hour with each mother. After collecting data results were analyzed.

Results

The present research was conducted to study the relationship between home chaos and children's conduct problems, social skills, and study skills. At first descriptive analysis was done (see Table 1 and 2).

Table 1

Mean, Standard Deviation, and Standard Error of the Variables (N = 203)

| Variables | <i>Min.</i> | <i>Max.</i> | <i>M</i> | <i>SD</i> | <i>SE</i> |
|--------------------|-------------|-------------|----------|-----------|-----------|
| Mothers' Age | 26 | 53 | 37.09 | 5.31 | 0.37 |
| Mothers' Education | 12 | 16 | 13.71 | 1.30 | 0.09 |
| Children's Age | 8 | 11 | 10.22 | 0.83 | 0.06 |

Table 2

Mean, Standard Deviation, and Standard Error of Home Chaos and Children's Scores on All the Measures (N = 203)

| Measures | <i>M</i> | <i>SD</i> | <i>SE</i> |
|------------------------|----------|-----------|-----------|
| Home Chaos | 3.97 | 3.04 | 0.21 |
| Conduct Problems (PRS) | 4.01 | 3.32 | .23 |

Cont...

| Measures | <i>M</i> | <i>SD</i> | <i>SE</i> |
|------------------------|----------|-----------|-----------|
| Social Skills (PRS) | 12.97 | 4.72 | .33 |
| Conduct Problems (TRS) | 3.93 | 3.47 | .24 |
| Social Skills (TRS) | 11.52 | 5.33 | .37 |
| Study Skills (TRS) | 12.04 | 5.16 | .36 |

Note. TRS = Teacher Rating Scale; PRS = Parent Rating Scale.

As preliminary analysis, correlations were calculated between home chaos score and children's conduct problems, social skills, and study skills (see Table 3).

Table 3

Correlations between Home Chaos and Children's Conduct Problem, Social Skills, and Study Skills on PRS and TRS (N = 203)

| Variables | Home Chaos |
|------------------------|------------|
| Conduct Problems (PRS) | .39* |
| Social Skills (PRS) | -.31* |
| Conduct Problems (TRS) | .32* |
| Social Skills (TRS) | -.28* |
| Study Skills (TRS) | -.26* |

* $p < .01$

Note. TRS = Teacher Rating Scale; PRS = Parent Rating Scale.

Results presented in Table 3 support the hypothesis of expected relationship between home chaos and children's behavioral problems indicating significant positive correlations between home chaos and children's conduct problems, and a significant negative correlation between home chaos and children's social and study skills both in home and school settings.

In order to test whether home chaos was predictive of children's conduct problems and social and study skills, a hierarchical multiple regression analysis was carried out for TRS and PRS subscales using the forced entry method. Each hierarchical multiple regression consisted of three steps. First city (dummy coded) and socioeconomic index were entered, in second step gender of the child, and in third step home chaos scores were entered. Home chaos scores were entered last to find out its unique contribution as a predictive of children's conduct

problems, their social and study skills over and above place of living, socioeconomic status, and gender (see Tables 4 and 5).

Table 4

Hierarchical Multiple Regression Predicting Children's Conduct Problems and Social Skill as Reported by Parents (N = 203)

| Variables | Conduct Problems | | Social Skills | |
|-------------|------------------|---------|---------------|---------|
| | ΔR^2 | β | ΔR^2 | B |
| Step 1 | .046 | | .064** | -.04 |
| Lahore | | -.22** | | -.17* |
| Karachi | | -.02 | | .15 |
| SES | | -.04 | | |
| Step 2 | .039** | | .057*** | |
| Lahore | | -.24** | | -.02 |
| Karachi | | -.05 | | -.13 |
| SES | | -.03 | | .13 |
| Gender | | .20** | | -.24*** |
| Step 3 | .129*** | | .084*** | |
| Lahore | | -.22** | | -.04 |
| Karachi | | -.02 | | -.15 |
| SES | | -.04 | | .13 |
| Gender | | .15* | | -.20** |
| CHAOS | | .36*** | | -.29*** |
| Total R^2 | .21*** | | .20*** | |

* $p < .05$; ** $p < .01$; *** $p < .001$

Table 4 indicated the overall p value for PRS outcome measures met the Bonferonni adjusted criteria and indicated significant prediction of children's conduct problems ($R^2 = .21$, $F = 10.73$, $p < .000$), and social skills ($R^2 = .20$, $F = 10.16$, $p < .000$). As shown in Table 3, home chaos was found to be a significant predictor of conduct problems and social skills among children as perceived by their parents. Mothers perceived boys as having high levels of conduct problems and lower levels of social skills as compared to girls.

Findings of Table 5 indicated home chaos as a unique predictor of conduct problems, social skills, and study skills among children as perceived by their teachers over and above

city, SES and gender. In addition, boys were perceived by teachers as high on conduct problems and having low levels of social and study skills as compared to girls.

Table 5
Hierarchical Multiple Regression Predicting Children's Conduct Problems, Social Skills and Study Skills as reported by Teachers (N = 203)

| Variables | Conduct Problems | | Social Skills | | Study Skills | |
|-------------|------------------|---------|---------------|---------|--------------|---------|
| | ΔR^2 | β | ΔR^2 | β | ΔR^2 | B |
| Step 1 | .071** | | .005 | | .022 | |
| Lahore | | -.05 | | .04 | | .08 |
| Karachi | | .17* | | .03 | | -.04 |
| SES | | .24** | | .07 | | .10 |
| Step 2 | .040** | | .079*** | | .057** | |
| Lahore | | -.07 | | .06 | | .09 |
| Karachi | | .14 | | .08 | | -.00 |
| SES | | .25** | | .06 | | .09 |
| Gender | | .20** | | -.29*** | | -.24** |
| Step 3 | .089*** | | .057*** | | .056*** | |
| Lahore | | -.05 | | .05 | | .08 |
| Karachi | | .16 | | .06 | | -.02 |
| SES | | .25** | | .06 | | .09 |
| Gender | | .16* | | -.25*** | | -.21** |
| CHAOS | | .30*** | | -.24*** | | -.24*** |
| Total R^2 | .20*** | | .14*** | | .13*** | |

* $p < .05$; ** $p < .01$; *** $p < .001$

Note. SES = Socio-economic Status

Table 5 indicated that for teacher rating scales the overall p value met the Bonferonni adjusted criteria and showed significant prediction of teacher report conduct problems ($R^2 = .20$, $F = 9.86$, $p < .000$), social skills ($R^2 = .14$, $F = 6.47$, $p < .000$), and study skills ($R^2 = .13$, $F = 6.12$, $p < .000$) of children.

The Bonferonni adjusted p value was used to compute the significance and it was .01 and less for each of the five separate regressions. Results of both TRS and PRS indicate home chaos

as a significant predictor of children's conduct problems, social and study skills on both PRS and TRS over and above place of living (city), socioeconomic status, and gender (see Tables 4 and 5).

Discussion

A healthy child development is dependent on both heredity and environment. Evidence has suggested that environment can have both positive and negative impact in the actualization of genetic potential. Bronfenbrenner (1986) has proposed the concept of 'proximal processes' which refer to the process by which genetic potential gets effective actualization. By strengthening these proximal processes the actualizing potential of genetic material can be increased (Bronfenbrenner & Cecil, 1994). Parent-child interactions do not take place in vacuum. They take place in multidimensional environment and within this multidimensional environment two main aspects, the social microsystem (the family) and the physical microenvironment of the children were the center of attention in the present research (Bronfenbrenner, 1979, 1986). One of the most important aspects of the physical microenvironment is environmental chaos. Research has shown significant effects of environmental chaos on children's adjustment, IQ, and their cognitive abilities (Coldwell, Pike, & Dunn, 2006; Deater-Deckard et al., 2009; Dumas et al., 2005; Hart, Petrill, Deater-Deckard, & Thompson, 2007). The main objective of the present research was to study the relationship between home chaos, children's conduct problems, and their social and study skills. It was also intended to investigate home chaos as predictive of children's conduct problems, social skills, and study skills.

The hypothesis about significant positive relationship between home chaos and children's conduct problems was supported. Children from chaotic families were perceived as high on conduct problems both by parents and teachers. The findings are inline with previous studies showing significant positive relationship between household chaos and children's behavioral and conduct problems (Deater-Deckard et al., 2009; Supplee, Unikel, & Shaw, 2007). Regression analysis showed home chaos as a significant predictor of conduct problems explaining 46.3% and 44.7% variation in conduct problems reported by parents and teachers respectively over and above place of city, socioeconomic status and gender. These findings suggest that lack of routines

and regularities, noise and crowding may interfere with children's adjustment and their social competence by weakening the proximal processes and socially supportive relationships between parents and their children (Bronfenbrenner & Evans, 2000; Evans et al., 1998).

It was hypothesized that children from high chaotic families will exhibit less social skills. This hypothesis was supported as CHAOS score showed statistically significant increase in the proportion of the variance associated with children's social skills as perceived by their parents and teachers. Children from high chaotic families were rated as having less social skills at home and school settings. It suggests that in chaotic environment such children may get fewer opportunities to practice social skills and learn ineffective management skills through modeling. It has been noted in previous research that environmental chaos may lead children to develop strategies that help them filter out unwanted stimulation which might result in filtering out valuable information too (Evan, Kliever, & Martin, 1991). Chaos has also been shown to reduce children's ability to understand and respond to social cues (Dumas et al., 2005). Children's low social skills in school setting support this view. It may be assumed that children not only develop these strategies to cope with chaos but also continue to use them in other contexts.

The finding of the present research has supported the previous evidence which shows negative relationship between home chaos and children's academic achievement (Harold, Aitken, & Shelton, 2007; Quid et al., 2001; Shamama-tus-Sabah & Gillani, 2010). In addition home chaos accounted for 36.7% variance in study skills of children over and above socioeconomic status and gender. In the present research children from high chaotic families were perceived as having less study skills by their teachers. This significant negative relationship might be attributed to children's reduced attention and interest in chaotic living conditions characterized by frenetic activity and lack of structure. These factors could adversely affect the quality of parenting and may indirectly lead to children's deteriorating academic performance.

Limitations and Suggestions

There were few potential limitations of the present study. Inclusion of only educated mothers limited the variability of the sample. Parents with varying demographic characteristics would

be incorporated in the sample to enhance diversity in response patterns. Moreover lack of resources and time limited the researcher's ability to take large sample. Further research with large samples and with families of diverse educational background is suggested.

Implications

Home chaos has the ability to adversely affect children's behavior and academic success. It has provided statistically unique and significant prediction of conduct problem, social skills, and study skills among children in Pakistani culture. The research has three important implications. Firstly maintaining healthy, structured, and predictable environment play vital role in children's adjustment and learning social skills. Secondly, the provision of non-chaotic environment and parental support helps children to develop their study skills (Bolarin, 1992). Thirdly, the inclusion of teachers' rating has shown that home chaos not only affects children's abilities in their home environment but they continue to exhibit such problems in school settings. It highlights the need to boost awareness among parents about the importance of routines and regularities in home, and about interrelationship between different ecological systems like home and school.

References

- Bandura, A. (1986). *Social foundations of thought and action: Social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Berger, K. S. (2001). *The developing person through the life span*. (5th ed.). New York: Worth Publishers.
- Bolarin, T. A. (1992). Support at home and academic achievement of Nigerian pupils. *Journal of Social Psychology, 132*(5), 685-686.
- Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. USA: Harvard University Press.
- Bronfenbrenner, U. (1986). Ecology of the family as a context for human development: Research perspectives. *Developmental Psychology, 22*(6), 723-742.
- Bronfenbrenner, U., & Cecil, S. J. (1994). Nature-nurture reconceptualization in developmental perspective: A bioecological model. *Psychological Review, 101*, 568-586.

- Bronfenbrenner, U., & Evans, G. W. (2000). Developmental science in the 21st century: Emerging questions, theoretical models, research designs, and empirical findings. *Social Development, 9*, 115-125.
- Brown, E. D., & Low, C. M. (2008). Chaotic living conditions and sleep problems associated with children's responses to academic challenge. *Journal of Family Psychology, 22*(6), 920-923.
- Cheung, C., Leung, K., Chan, W., & Ma, K. (1998). Depression, loneliness, and health in an adverse living environment: A study of bed space residents in Honk Kong. *Social Behavior and Personality, 26*, 151-170.
- Cohen, S., Glass, D., & Singer, J. (1973). Apartment noise, auditory discrimination, and reading ability in children. *Journal of Experimental Social Psychology, 9*, 407-422.
- Coldwell, J., Pike, A., & Dunn, J. (2006). Household chaos-links with parenting and child behavior. *Journal of Child Psychology and Psychiatry, 47*(11), 1116-1122
- Deater-Deckard, K., Mullinex, P. Y., Beekman, C., Petrill, S. A., Schatschneider, C., & Thompson, L. A. (2009). Conduct problems, IQ, and household chaos: A longitudinal multi-informant study. *Journal of Child Psychology and Psychiatry, 50*(4), 108.
- Dumas, J. E., Nissley, J., Nordstrom, A., Smith, E. P., Prinz, R. J., & Levine, D. W. (2005). Home chaos: Socio-demographic, parenting, interactional, and child correlates. *Journal of Clinical, Child, and Adolescent Psychology, 34*(1), 93-104.
- Erikson, E. H. (1968). *Identity, youth, and crises*. New York: Norton.
- Evans, G. W., Hygge, S., & Bullinger, M. (1995). Chronic noise and psychological stress. *Psychological Science, 6*, 333-338.
- Evans, G. W., Kliewer, W., & Martin, J. (1991). The role of the physical environment in the health and well-being of children. In H. Schroeder (Ed.), *New directions in health psychology assessment* (p. 127-157). New York: Hemisphere.
- Evans, G. W., Lepore, S. J., Shejwal, B. R., & Palsane, M. N. (1998). Chronic residential crowding and children's well-being: An ecological perspective. *Child Development, 69*, 1514-1523.
- Evans, G. W., Palsane, M., Lepore, S. J., & Martin, J. (1989). Residential density and psychological health. *Journal of Personality and Social Psychology, 57*, 994-999.
- Fuller, T., Edwards, J. N., Vorakitphokatorn, S., & Sermisri, S. (1993). Household crowding and family relations in Bangkok. *Social Problems, 40*, 410-430
- Gottfried, A., & Gottfried, A. (1984). Home environment and cognitive development in young children of middle socio-economic status families. In A. Gottfried (Ed.), *Home environment and early cognitive development* (pp. 57-116). Orlando: Academic Press.

- Gottlieb, G. (1991). Experiential canalization of behavioral development theory. *Developmental Psychology, 27*, 4-13.
- Haider, M., & Badami, M. (2010). Urbanization and local governance challenges in Pakistan. *Environment and Urbanization Asia, 1*, 81-96.
- Harold, G. T., Aitken, J. J., & Shelton, K. H. (2007). Inter-parental conflict and children's academic attainment: A longitudinal analysis. *Journal of Child Psychology and Psychiatry, 48*, 1223-12232.
- Hart, S. A., Petrill, S. A., Deater-Deckard, K., & Thompson, L. A. (2007). SES and CHAOS as environmental mediators of cognitive ability: A longitudinal genetic analysis. *Intelligence, 35*, 233-242.
- Heft, H. (1979). Background and focal environmental conditions of the home and attention in young children. *Journal of Applied Social Psychology, 9*, 47-69.
- Lewin, K. (1935). *A dynamic theory of personality*. New York: Norton.
- Matheny, A. P. Jr., Wachs, T. D., Ludwig, J. L., & Phillips, K. (1995). Bringing order out of chaos: Psychometric characteristics of the confusion, hubbub, and order scale. *Journal of Applied Developmental Psychology, 16*, 429-444.
- McCord, W., & McCord, I. (1959). *Origins of crime*. New York: Columbia University press.
- Mitchell, R. E. (1971). Some social implications of high-density housing. *American Sociological Review, 36*, 18-29.
- Piaget, J. (1952). *The origins of intelligence in children*. Margaret Cook (Trans). New York: International Universities Press.
- Quid, S., Khan, M., Anwar, A., & Mateen, G. (2001). Differences in academic achievement between children in schools situated in quiet and noisy areas. *Pakistan Journal of Psychology, 32*, 29-44.
- Reynolds, C. R., & Kamphaus, R. W. (2004). *Behavior Assessment System for Children: Manual* (2nd ed.). USA: AGS Publishing.
- Ruback, R. B., & Pandey, J. (1991). Crowding, perceived control, and related power: An analysis of households in India. *Journal of Applied Social Psychology, 21*, 315-344.
- Rutter, M., Moffitt, T. E., & Caspi, A. (2006). Gene-environment interplay and psychopathology: Multiple varieties but real effects. *Journal of Child Psychology and Psychiatry, 47*, 226-261.
- Shamama-tus-Sabah, S., & Gillani, N. (2008). Establishing psychometric properties of Confusion, Hubbub, and Order Scale (CHAOS)-Urdu version and couples' perception of home chaos in Pakistani culture. *Pakistan Journal of Psychology, 39*(2), 73-84.
- Shamama-tus-Sabah, S., & Gillani, N. (2010). Household chaos and its association with maternal education, family system, and children's

- academic achievement in Pakistani culture. *Pakistan Journal of Psychological Research*, 25(1), 19-30.
- Supplee, L. H., Unikel, E. B., & Shaw, D. S. (2007). Physical environmental adversity and the protective role of maternal monitoring in relation to early child conduct problems. *Journal of Applied Developmental Psychology*, 28, 166-183.
- Vygotsky, L. S. (1962). *Thought and language*. Cambridge, MA: MIT Press.
- Wachs, T. D. (1989). The nature of physical microenvironment: An expanded classification system. *Merrill Palmer Quarterly*, 35, 399-402.
- Wachs, T. D., & Chan, A. (1986). Specificity of environmental action as seen in physical and social environment correlates of three aspects of twelve-months infants communication performance. *Child Development*, 57, 1464-1475.
- Wachs, T. D., & Corapci, F. (2003). Environmental chaos, development, and parenting across cultures. In C. Raeff & J. Benson (Eds.), *Social and cognitive development in the context of individual, social, and cultural processes* (pp. 54-83). London: Routledge.
- Wachs, T. D., Uzgiris, I., & Hunt, J. M. (1971). Cognitive development in infants of different age levels and different environmental backgrounds: An exploratory study. *Merrill-Palmer Quarterly*, 17, 283-317.
- Wachs, T. D. & Evans, G. (2010). Chaos in Context. In G. Evans & T. D. Wachs (Eds.). *Chaos and its influence on children's development*. (pp. 3-14). Washington DC: American Psychological Association.
- Wohlwill, J., & Heft, H. (1977). Environments fit for the developing child. In H. McGurk (Ed.), *Ecological factors in human development* (pp. 1-22). Amsterdam: North Holland.

Received January 18, 2010

Revision received March 10, 2011