GETTING OFF TO A HEALTHY START: AN EDUCATIONAL BROCHURE TO EDUCATE LOW INCOME, LOW EDUCATIONAL STATUS SINGLE MOTHERS ON INTERACTING WITH THEIR INFANT

By

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ABSTRACT

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Many factors, internal and external, can affect a mother's ability to interact with her newborn infant in a developmentally appropriate manner. Lack of knowledge related to parenting may be one factor. Other factors such as, poverty, single parenting, and low educational status exert additional stresses diminishing a mother's ability to interact with the infant. Learning to accurately interpret and respond to an infant's signal's can be challenging for these mothers. Educational interventions aimed at teaching developmentally appropriate methods of interacting with an infant may foster healthy growth within that relationship. One possible method of intervention is the use of an educational brochure distributed within the primary care office. This projects aim is to develop such a brochure.

DEDICATION

This project is dedicated to my family. First to my parents who since a young age told me I could become anything I dreamed of being. Secondly, to my husband who helped those dreams come true.

ACKNOWLEDGMENTS

I would like to express my gratitude to committee members Patty Peek and Linda Spence for their support and encouragement throughout this project. I would especially like to thank committee chair Kathy Dontje. Without her support and guidance, this project would not exist. Thank you all for coming to my rescue, your understanding and dedication to the students at this university helps us all excel.

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INTRODUCTION

Many mothers need help learning how to interact with their infant. At this early stage of development, they may believe their infants only eat, sleep, and cry. The interaction, however, between infant and mother is one of the primary means for the infant to interact with and to learn from the environment (Barnard, Morisset, & Spieker, 1993 and CHILD, first year planner, 1998).

The importance of mother-infant interaction can not be overestimated. Mother-infant interaction has been shown to correlate with a child's later cognitive behavior (Coates & Lewis, 1984), IQ and language skills (Bee et al., 1982), and physical development (Lobo, Barnard, & Coombs, 1992). Multiple variables impact upon the mother-infant relationship. Characteristics or environmental influences such as poverty, single parenting and low parental education levels may decrease parenting abilities (Anderson, 1987; Connelly & Straus, 1992; Halpern, 1990; Sach, Pietrakowicz, & Hall, 1997). Interaction that is developmentally inappropriate or impaired due to intrinsic or extrinsic variables can have detrimental effects on the growth and development of the child as well as cause further demise in the mother-infant relationship.

Today's health care providers are moving away from secondary intervention towards primary prevention. It is important for mothers to understand their infant is competent and capable of interacting with the environment. Educating mothers on infant development may enhance parental ability to interact with their infant in developmentally appropriate ways. One method used for educational purposes is printed educational teaching materials. Starting mothers off with the appropriate knowledge and skills to interact with their infant will help foster a nurturing relationship where both parties can flourish.

Problem Statement

Most mothers need help learning developmentally appropriate methods to interact with their infant. Mothers living in poverty, acting as the sole parent, and having a low educational level may be at-risk for decreased ability to respond to their infants' cues due to the cumulative effect of these stresses. Educating mothers on infant development, infant cues, and communication is one method to increase knowledge regarding appropriate mother-infant interaction. The many books, magazines and programs available are often lengthy and costly. An alternate educational tool to use with mothers is a pamphlet. Pamphlets are concise, easy to read, and can be offered at minimal cost.

Purpose Statement

The purpose of this project is to develop an educational brochure aimed at increasing mother's knowledge of developmentally appropriate methods of interacting with an infant from birth to two months old. The goal of this brochure is to provide health care providers with a quick, easy, and inexpensive tool to use as an educational intervention. The target group includes mothers that may be vulnerable to impaired interaction with their newborn due to environmental stresses and lack of knowledge. Secondary effects include educating mother's to interpret and respond appropriately to the cues of their infant by offering them a resource that is easy to read, brief and available to refer to at any time.

CONCEPTUAL FRAMEWORK

King's (1981) systems framework for nursing provides a conceptual model in which the intervention can be applied. Individuals interacting with other persons, in a variety of social systems, is the focus of her conceptual framework. King describes three systems in her model, the personal, the interpersonal, and the social systems (Figure 1). Concepts within the personal system include self, body image, perception, learning, growth and development, personal space, and time (King, 1992). Concepts related to the interpersonal systems include role, communication, interaction, transaction, interpersonal relations, and stress. Organization, power, authority, status, and

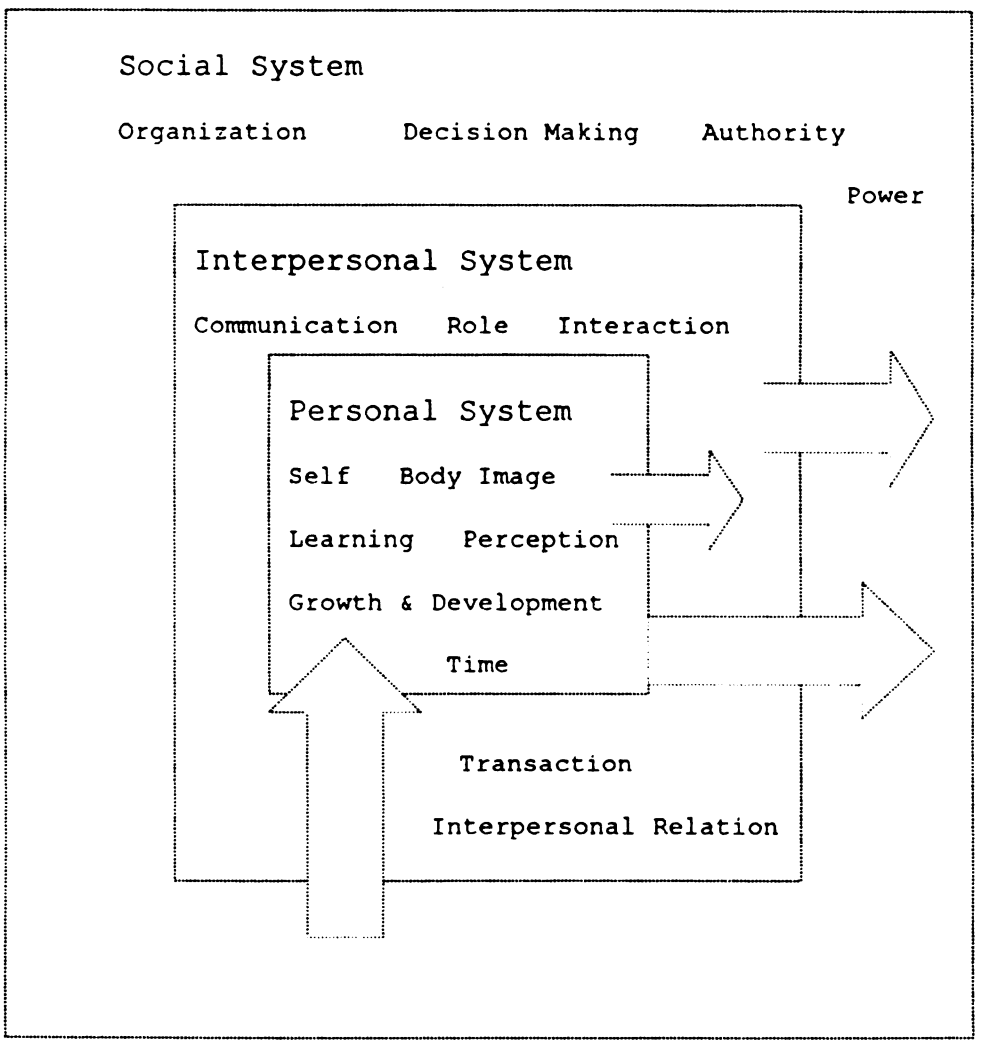

Figure One: A Conceptual Framework for Nursing: Dynamic Interaction Systems (King, 1992).

decision making are concepts within the social systems. Each system interacts with and influences the others. This is depicted within the model by the arrows stemming out from the inner systems, the outer systems feeding back into the inner system, and by the permeable lines between the systems. The goal of nursing according to King (1981) is to maintain, restore, and promote health so the individual can function within their roles. The intervention proposed supports this goal.

The "concept of role requires individuals to communicate with one another and to interact in purposeful ways to achieve goals" (King, 1981, p.91). The person as an open system has permeable boundaries permitting an exchange of matter, energy, and information, such as education. The nurse and mother are both found within the personal system. It is within the interpersonal system, however, that the nurse-patient relationship allows communication to be shared (Figure 2). The communication can be both verbal and non-verbal, as in the form of printed educational material. The nurse and patient interact within the interpersonal system to share educational communication in the form of a brochure. The goal of the brochure is to increase mother's knowledge regarding appropriate interaction with their infant. This learning takes place within the personal system. By increasing knowledge, the mother has improved decision-making skills, which feeds back into the interpersonal system, which supports their role as parents.

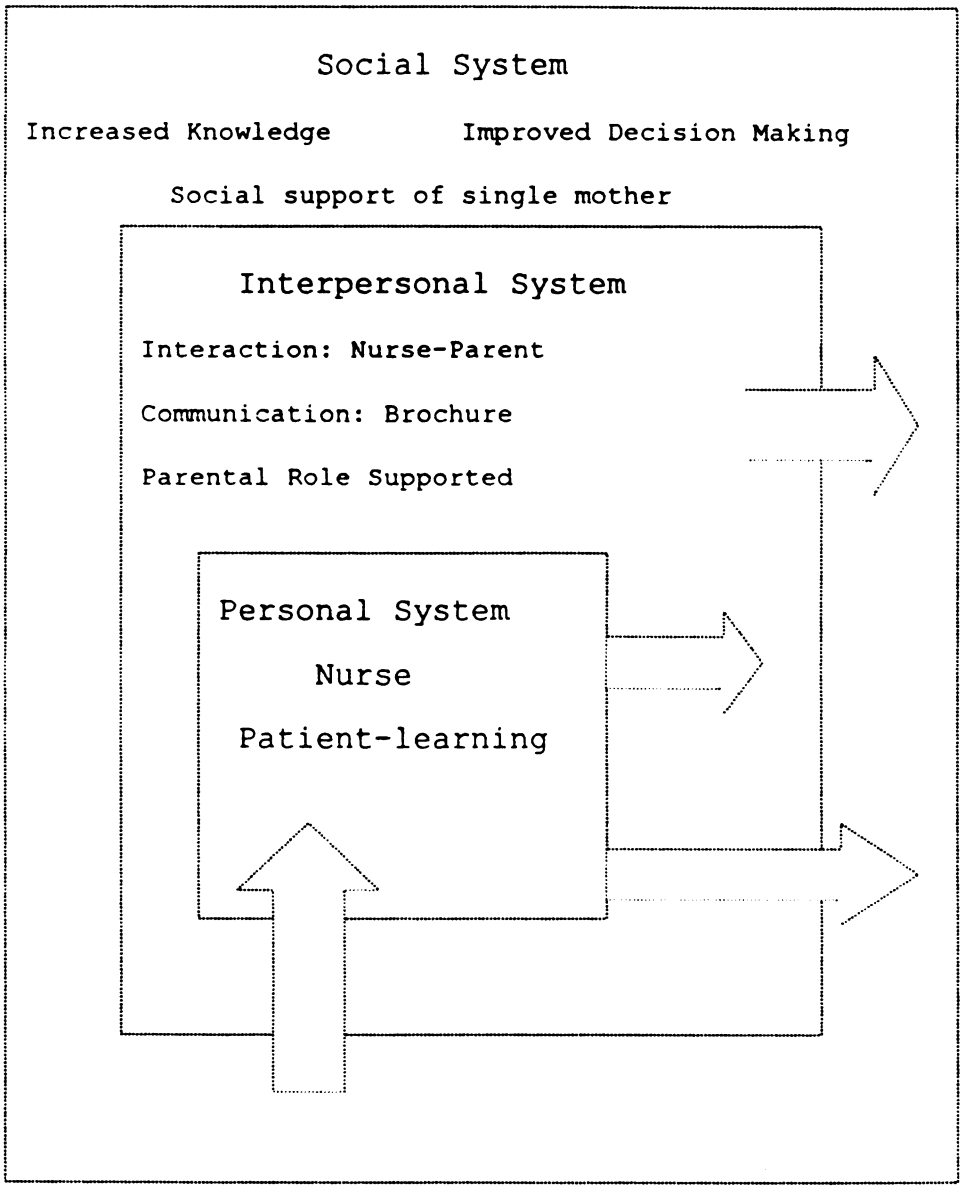

Figure Two: Adaptation of the Conceptual Framework for Nursing: Dynamic Interaction Systems (King, 1992).

Returning to this system, the nurse and patient can once again exchange information, using verbal and non-verbal means. The relationship established between nurse and patient impacts the social system by providing social support to the single mother. Mothers vulnerable to environmental stresses so often need this support.

Conceptual Definitions

Single mothers: For the purpose of this project, women predominately raising their infants without partner support.

Low education: Mothers who have not obtained education after high school.

Poverty/Low income: Annual income below $20,000.00 for a family.

Infant: birth to 2 months.

LITERATURE REVIEW

Background

Acceptance of pregnancy and the transition into parenthood has been studied as a process, not just something that occurs at conception or birth. Maternal role attainment refers to a mother's ability to assume the maternal role (Nester, 1998). Competence within the maternal role contains both cognitive and affective components (Barnard & Martell, 1995). The cognitive component includes the how, why, and what of child care. For some parents the assumption of the parental role is hindered by their lack of knowledge regarding infant development. Inability to interact with an infant in

developmentally appropriate ways can influence future cognitive and physical development of an infant (Coates & Lewis, 1984; Lobo, Barnard, & Coombs, 1992). In addition to lacking knowledge of infant development, parenting can be further compromised by the compounded stresses of single parenting, low educational status, and low income or poverty.

Certain parent populations may be at heightened risk for parenting difficulties and would benefit from additional educational support. Researchers have identified single mother's dealing with poverty or low incomes and having low educational status as characteristics that make mother's vulnerable for impaired abilities to interact with their infant (Anderson, 1987; Connelly & Straus, 1992; Sach, Pietrakowicz, & Hall, 1997). Early parenting education has been recognized by health experts as the key to preventing child abuse and neglect, in addition to a host of parenting difficulties (Cuomo, 1988). Currently many programs, magazines, brochures, and books exist to support parenting efforts. Unfortunately, not all mothers qualify for program aide, and barriers of time, money, and transportation inhibit other parents from accessing these resources. The primary care provider is in a unique position to offer education to these mothers. Nurses "because of their close contact with infants and families are in the ideal position to facilitate parent-infant interaction and plan

interventions to enhance the parent-infant process (Lobo, 1992, p.260).

Once discharged from the hospital, mother and newborn ideally visit the primary care provider at 1 week, 2 weeks, one month, and two months for wellness checks and immunizations. The frequency of these visits provides an optimal opportunity to educate mother's regarding infant interaction and development. Interventions to support adaptive mothering and teach specific nurturing techniques should be implemented early in the building stage of the relationship (Schwartz & Abegglen, 1996). Such behaviors include providing age-appropriate interactions, and recognizing the need for scheduled periods of rest and sleep. During the first few months of life, an infant is learning to regulate all body systems, process the environment, and regulate it (Barnard, Morisset, & Spieker, 1993). The task of parenting in these early months is to recognize and respond to the cues of their infant. In order for mother's to provide experiences and stimulation that facilitate growth and development, they need to have a global idea of what is needed by the infant (Barnard & Martell, 1995).

Researchers have devoted many years studying the interaction between parent and infant/child. Due to the commonality of the mother acting as primary caregiver, a majority of the research focuses on this relationship.

Single Mothers. For most mother's the partner relationship in addition to family support, offers a source of refueling energy (Barnard, 1988). Single mothers, however, raising their children alone, often lack this foundation of support. Facing life's day to day issues independently can leave these mothers feeling hopeless. To explore the perception of single motherhood, Sach, Pietrukowicz, and Hall (1997) did an explorative study of single mother's with an annual income below $10,000. In an unstructured interview, mothers were asked, "tell me what it is like to be a single mother of a preschool-aged child." Mothers expressed feelings of sacrifice, lost opportunities, and lack of appreciation. Researchers noted that at some point every mother complained about her own depression. Mothers also expressed negative perceptions of the children's behaviors and characteristics. Compared to other mothers, these mothers were found to be more critical of their children's behavior. The expressed negativity frequently stemmed from the general sense of frustration and the overwhelming nature of single parenthood. The mother's in this study unanimously agreed that if they could live their lives over, they would delay having children.

Poverty and low education. In the United States, some 1.75 million children under the age of 2 years old live in poverty (Halpern, 1993). Of these, two-thirds live in mother-only families and more than two-thirds of them are supported by welfare. Children born into poverty may

actually be affected from the time of conception. Their mothers may not be able to afford prenatal care, proper nutrition, and may live in unsafe housing. Once born, the effects of poverty can be relentless, acting upon infant and caregiver daily and offering little opportunity for recovery. Like other mother's, poor mother's differ in their personal histories, mental and physical health, and current life situations, all affecting their basic ability to parent (Halpern, 1993). No one study has been able to conclude that mother's living in poverty, are incapable of appropriate parenting. Yet, factors often associated with poverty such as single parenting and low education levels may have a compounded effect placing these mothers at heightened risk for decreased parenting ability.

The HOME scale is an evaluation tool used by researchers to measure the quality and quantity of stimulation and support available to a child within the home environment (Bradley et al., 1994). Lotas, Penticuff, Medoff-Cooper, Brooten, and Brown (1992) used this scale in a study conducted on 118 middle and lower-income mothers. On each of the six subscales, emotional responsivity, restriction punishment, organization of the environment, play, maternal response, and opportunities for stimulation, the lower-income group scored less. The largest differences in scores were seen in maternal response and play. Low-income group scores in maternal response were 3.8. While scores for the higher income group were 5.5. Play scores in

the low-income group were 5.3 and 7.9 in the higher income group. These results were significant at the p.0001 level. The total HOME scores range was 19-41 in the low-income group and 34-45 in the high-income group. Possible score range was 0-45. The narrow range within group scores led researchers to question the HOME scales ability to discriminate within income levels those at risk. A stepwise multiple regression analysis was performed in an attempt to explain the difference in scores that might be due to demographic characteristics. Of the discrepancy, 51.2% could be explained by six variables that included family income and maternal education.

The HOME and Nursing Child Assessment Satellite Training (NCAST) Feeding and Teaching scale were used to evaluate the 37 high-risk dyads within the Farel et al. (1991) study. Using a one-to-one matched case-control study, the researchers sought to determine whether increased risk of impaired mother-infant interaction was associated with case status. The study included 74 infants and their mothers. The mother's mean years of education was 10.9 for case and 11.6 for control. Mean level of income was lower for the mothers of high-risk infants. The Nursing Child Assessment Satellite Training (NCAST) Feeding and Teaching scale score mothers on their ability to respond to infant's cues, alleviate distress, and promote growth-fostering situations. The Feeding scale is used through functional age 1 year, the Teaching scale through age 3. Disturbances

in mother-infant interaction are considered when dyads receive positive responses to fewer then 50 of 76 items on the Feeding scale and fewer then 46 of 73 on the Teaching scale. Twenty-five of the 37 high-risk infant-mother dyads scored below the threshold on one or more NCAST scales. Only 10 of the control dyads received scores below the threshold. Mean scores on the NCAST Feeding scale were 63.3 for the control dyads and 57.8 for the case dyads. The odds of receiving a score below the threshold on the HOME assessment among case dyads was four times greater than of the controls, 6.5 times greater on the Feeding scale and five times greater the odds on the Teaching scale. Test scores for the study were significant at a $p<.01$ value. When the variables of education, income, marital status, age and parity were entered into a backward regression model separately with the HOME assessment and the Teaching scale, only income remained in the model at the .05 level of statistical significance. These results were not seen with the Feeding scale.

The 19 subjects in Karls' (1995) study included mothers whose infants were considered to be of socially high-risk. The study's low-income sample was comprised of 42% single parent, and 53% who had not completed high school. The Maternal Responsiveness Scale was used to code infant elicitation cues and maternal responses via naturalistic videotaping. Infant cues included cry, gaze, smile, vocalization, physical proximity-seeking, activity-

initiating, disengaging, and avoiding behaviors. Maternal responses included no response, ignores cue, responds ineffectively, approaches but is ineffective, responds appropriately, and responds intrusively. Based on the scoring mothers were placed in one of three categories, underresponsive, good enough, and overresponsive. Twelve mothers were rated as underresponsive, six good enough and one overresponsive. Fifty-eight percent (n=7) of the underresponsive mothers were single parents, and 67% of underresponsive mothers had less than a high school education. Fifty percent (n=3) of the good enough mothers were also single parents. Mothers in the underresponsive group underresponded 71% of the time, and adequately only 20% of the time. Underresponsive behaviors included being completely out of the room or not in view of their infants; behaviors commonly avoided with small infants.

The findings within these studies support the premise that certain mothers are at risk for impaired abilities to interact with their infants. A lack of knowledge regarding infant development and parenting skills appropriate to this developmental age, may have contributed to the studies' sample mother's lack of abilities to respond to their infant. The researchers recommend interventions aimed at supporting the existing skills and increasing overall parenting skills within this high-risk population.

The correlates of poverty may preoccupy parents in such a way that they are unable to attend to the needs of their

infant. The accumulated impact of poverty and single parenting can drain a mother's energy, mobilize feelings of exhaustion, irritability, and anger (Halpern, 1993). Physical exhaustion and a reduced sense of control may "undermine the attentiveness that is a key to interpreting and responding appropriately to infants' moods and immediate needs" (Halpern, 1993, p.78). Under conditions of poverty with correlates of low-educational status, and single parenthood it is plausible to argue both infant and mother are at heightened risk for interaction difficulties such as misinterpretation of cues, lack of responsiveness to cues and inappropriate response to cues. Intervention in the form of an educational brochure may be one method to increase a mother's knowledge related to infant development. Educating mother's regarding developmentally, appropriate infant interaction has the potential to increase their ability to respond appropriately to their infants' cues, enhancing mother-infant interaction.

Interventions

Many articles and studies focusing on mother-infant/child interaction recommend interventions aimed at increasing parental knowledge of infant cues and development (Gaudin, Polansky, Kilpatrick, & Shilton, 1996; Higley, & Miller, 1996; Sach, Pietrukowicz, & Hall, 1997; Schwartz, & Abegglen, 1996). Parents with knowledge related to patterns of development, communication skills, infant cues, and the

meaning of crying may have increased abilities to interact with their infant.

Infant Interaction-Infant Cues. Infants use many cues to signal their needs to the environment (Barnard, Morisset, & Spieker, 1993). An understanding of these cues may be a great step toward making infant cargiving easier for parents. The Keys to Cargiving describes infant cues as engaging and disengaging. The nonverbal language of infants has positive and negative communication value in terms of social interaction (Barnard, Morisset, & Spieker, 1993).

"Engaging cues communicate the need or desire to interact; some familiar engaging cues are smiling at, looking at, and reaching out to another. Disengaging cues signal the need or desire for a break in the interaction; these include crying, turning the head away and falling asleep" (Barnard, Morisset, & Spieker, 1993, p. 391).

There is a cluster of cues to signal hunger such as fussiness, mouthing, clenched fists over chest and stomach, hand to mouth, sucking movements/sounds, and turning toward caregiver. Signs of satiation or fullness include falling asleep, extension of arms and legs decreased sucking, and straightening arms along sides. Helping parents understand the nonverbal cues of the newborn is a universal goal for all primary caregivers.

Crying. At this early age, crying is the main form of infant communication, it is not a reflection of their mood (Jacobson & Melvin, 1995). Infants may cry due to hunger,

being wet, over-handled, over-tired, or from bright lights and loud noises. Mothers often feel helpless and frustrated with the amount of infant crying. Teaching parents to recognize their infant's particular cues and respond to them appropriately may prevent excessive crying from occurring (Brazelton & Cramer, 1990). Contrary to popular belief, an infant whose distress is responded to quickly, generally quiets and soothes more easily and are not being "spoiled" (Barnard & Martell, 1995). Recognizing infant cues before the onset of crying will help parents intervene before the infant is distressed.

Attending to the fussy infant is usually easier then calming the infant who is in distress. Signs such as looking away, putting a hand or arm in front of their face, yawning, squirming, and grimacing are early signs of restlessness (Pokorni & Stanga, 1996). Interventions such as playing soothing music, swaddling the infant, using a pacifier or steady rocking may help sooth the infant (Brazelton & Cramer, 1990). Environmental changes may also help. Decreasing the amount of light, sound, and movement by sitting in a quite darkened room while talking calmly to the infant, will additionally sooth the infant (Pokorni & Stanga, 1996). For infants who cry during dressing or diaper changes, several techniques may help. Transition the infant slowly from chest to back keeping the arms and legs close to the body. Use loose fitting clothes with simple snaps to shorten changing times. Lastly, if the infant

seems to be bothered by having clothing removed and being exposed to the open air, using a blanket to cover the infants' bare chest may reduce the infants' sense of insecurity. As parents learn the strategies most effective with their infant, they will become more successful in promoting a calm, alert state in the infant (Pokorni & Stagna, 1996). Such success will contribute to a parent's sense of competency in cargiving.

Education Tool-Brochure. One such teaching intervention is the use of an educational brochure. The goal of patient teaching material is to increase knowledge of information by the patient and their family (Barnes, 1996). Increasing a patient's knowledge base aids in achieving patient outcomes. Achieving patient outcomes, however, is directly related to teaching and education strategies that incorporate appropriate choice of written and printed material (Wilson, 1996).

Printed educational materials (PEM) offer many attractive options. "Printed educational materials (PEM) are among the most economical and frequently used methods for educating individuals about health matters" (Bernier & Yasko, 1991, p.253). They are less costly to produce and easier to update then other teaching products such as audiovisual programs. Pamphlets and brochures have the ability to condense information into manageable amounts. They are brief, yet detailed and do not overwhelm patients with pages and pages of information as books often do. They

have the advantage of being portable and reusable. Once in a patient's possession they can act as a means of permanent reinforcement. They offer the patient the flexibility of referring to them when it most convenient for the patient. Because comprehensive preventive patient care includes a component of patient education (Glazer, Kirk, & Bosler, 1996), PEM offer the health care provider a convenient method to incorporate education.

The study of Hardy and Streett (1989) centered specifically on family support and parenting education. As part of their extension of clinic-based preventive health care services for poor children, community members made home visits to 263 inner-city mothers (Hardy & Streett, 1989). The intervention curriculum was designed to include topics appropriate for the age of the infant visited, thus ensuring that the mother received information required to develop adequate parenting and childcare skills. Issues addressed covered child's well and sick care, feeding, clothing, safety, developmental milestones, and suggestions for enhancing development. Childcare information was given to families using single-issue pamphlets. The booklets covered a variety of topics including language development, toilet training, feeding, and sick childcare. The booklets were written on a fourth-grade level and were used to reinforce discussions and act as a reference parents could later refer to. Evaluation was based upon the number of outpatient clinic visits, the occurrence of abuse or neglect, and

hospital admissions. The study group made fewer outpatient visits than the control group. The average number of emergency department visits was 3.0 for the study group and 4.3 by the control. Eighty-eight percent of the study group had received complete immunizations for age, compared to 69% of the control ($p<0.001$). Chronic or recurrent otitis media was tracked based upon the assumptions this condition is effected by educational components related to compliance. Chronic or recurrent otitis media was present in 21% of study children and 55% of the control group. Researchers conclude that many of the problems faced by these parents may have been preventable if parents had the skill, information, and often the basic resources required for adequate childcare. Within this study, educating parents on child care issues and development had a two-fold effect. It decreased unnecessary care within outpatient, and inpatient care settings, and improved the health status within the study group. Education in the form of written material assisted in accomplishing these effects.

The Keys to Cargiving was designed by the National Child Assessment Satellite Training to educate nurses about newborn behavior to increase their ability to educate parents (Jensen, 1995). The program uses a set of video instructions and handouts. Parents do not watch the videos. The videos are used to teach the nursing staff, while the handouts are distributed to parents during instruction. The five handouts are titled Infant State, Infant Behavior,

Infant Communication, State Modulation, and The Feeding Interaction. Implementation of the Keys to Cargiving program was the focus of Jensen (1995) research. Three groups of nurses (a total of over thirty) were able to complete the program. Feedback was overwhelmingly positive. The nurses expressed increased confidence in educating parents regarding infant care. Further, nurses commented on the benefits of the parent handouts to support parent instruction and act as a future reference for parents.

PROJECT METHODOLOGY

This brochure was developed to serve as an educational tool to be distributed to mother's by Advanced Practice Nurses (APN). It contains information aimed to increase mother's knowledge related to infant development and infant cues. Knowledge related to infant development is identified as a key component effecting parental abilities. Characteristics such as low income, low educational status, and being a single mother may place the mother-infant relationship vulnerable for impaired interaction. Identifying those at risk factors and then implementing an intervention to enhance mother-infant interaction is a common role for the APN. This brochure will complement this role.

Two programs currently used to educate parents regarding infant development and care are the Building Strong Families (Michigan State University, 1992) and the Nursing Child Assessment Satellite Training (Barnard, 1990).

Both programs educate parents on child development, interaction, behavior, and care. Each program uses a variety of instructional materials including lecture and literature. To use the information within these programs, one must be trained regarding instructional use. Training for each program takes 2-4 days and cost an average of $300.00. Once trained to use the material, the material must then be purchased at a cost up to $300.00. Unfortunately, not all practitioners are offered the time and compensation to attend and purchase these materials. In such situations, personal development of teaching materials, remains an economical and practical option. Components chosen to be included within the brochure include interpretation of infant cues, and crying. These elements were selected based on their relevance to early infant development. Crying and cues are the major forms of communication for infants. It is important that parents understand these nonverbal patterns as communication, and learn ways of responding to them.

The brochure will be a bi-fold containing black print on a white background to increase readability (Appendix A). It is designed with a readability level below the fifth grade. This grade level has been identified as an appropriate reading level for the general population. Some studies actually suggest that a patient's comprehension of written material will actual increase if information is provided at a fifth grade level (Vahabi & Ferris, 1995).

The Flesch scoring system that is included in WordPerfect was used to judge the readability level of the brochure. This scale provides readability scores based on word count, characters, sentences, and paragraphs. It averages words per sentences, sentences per paragraphs, and characters per word. Based on these findings a readability score is calculated which includes a reading ease score and a grade level score. The grade level score ranges up to 12th grade. The Flesch-Kincaid grade level of this brochure is 4.4. The reading ease score rates the text on a 100-point scale. The higher the score, the easier the text is to understand. The aim for standard documents is 60-70. The reading ease score for this brochure is 79%. Due to the fact computer calculation does not always accurately match human ability, an evaluation of maternal comprehension is a necessity. After comprehension is assessed, it may be necessary to change some wording within the brochure. A second option may be to break the brochure into two pieces. Detailing crying and behavior as separate issues.

Target Audience

The brochure is designed to be used by the APN within the primary care setting of Livingston County. The 1995 population of Livingston County was 135,550 and projected to be 154,061 in the year 2000 (Livingston County Data Book, 1998). Single female headed households make up 8.5% of the population. Eighty-five percent of the community has a high school diploma, 3.5% have less then a ninth grade education.

The dropout rate is 4.6%, while the percent rises to 6.5% in the surrounding townships. Per capita income is $17,327 and 31,314 families live at or below low/middle income. The poverty threshold is 5.1%.

Though the brochure is developed for mothers with at-risk characteristics of single parenting, poverty/low-income, and low-educational levels, the brochure may be appropriate to dispense to all parents, especially first time parents.

EVALUATION

The proposed intervention will be subjected to three evaluations to determine readability, comprehension, and appropriateness of the content. Initial evaluation will be conducted by peer review. The brochure will then be distributed to ten health care providers within the community who provide care to mothers and their newborns. These providers may be from Family Practice or Pediatric offices. To assess maternal comprehension, these providers will be asked to randomly distribute the brochure to mothers meeting the projects criteria within their practice. Upon return visit to the clinic, the providers will ask the mothers a pre-established set of questions to determine comprehension of the brochure and assess whether they were able to incorporate the ideas within it (Appendix C). The providers will also be asked to evaluate the brochure. Was the brochure appropriate for their practice? Did they use the brochure? Whether it aided them in educating mothers

and the comments they received from the mother's about the brochure (Appendix D). Revision of the brochure will be based upon provider and mother's evaluations. It will then be printed and implemented into practice.

IMPLEMENTATION

This brochure is designed to be implemented within the Family Primary Care office or the Pediatrician office by the Advanced Practice Nurse. To ensure proper implementation, a cover letter will be enclosed explaining the use of the brochure (Appendix B). The letter will detail the importance of identifying mothers at-risk for impaired interaction with their newborn. Once identified, education that supports interaction should be included within the plan of care. Since early identification and intervention can help improve outcomes, this initial assessment should be done at the first or second visit. Distribution of the brochure is appropriate at these same visits, with follow-up and re-assessment occurring at the next visit. Question that can be used by the APN to evaluated the mother will be included (Appendix E).

IMPLICATIONS FOR NURSE PRACTITIONERS

Education

Assessing and evaluating patient's educational needs is a health care provider's best defense in implementing a plan of action for single mothers dealing with poverty, and low educational status. Health care providers dispensing information to patients may include nurses with varying

levels of education. Starting within the BSN program, it is essential students learn methods to evaluate, and implement printed education material (PEM), and then be able to assess patient understanding regarding these materials. At the master's level, the curriculum should include methods to prepare the APN to develop printed education material. This brochure may act as the first within a series to educate mothers on the development of their child. Starting with the infant, the series can be expanded to include toddlers, pre-school, school aged, teenagers and adolescents. The APN can be instrumental in developing this series. The APN is schooled in advanced assessment skills, placing them in a prime position to assess learning needs of parents and develop educational material to meet these needs. Once developed, the APN can use PEM to discuss important health related issues with their patients, while having the ability to tailor the information to meet the needs of the patients within their practice.

Practice

For the APN, this brochure serves as a form of communication to be shared between nurse and patient. Upon its distribution, the APN is opening the channels for discussion related to parenting issues the mother may be facing. Maintaining a supportive and trusting relationship with mothers enables them to discussion concerns related to parenting allowing the APN to make an accurate assessment and plan implementation.

This tool complements other APN intervention's aimed to enrich a mothers knowledge related to infant development. Often it is documented within the progress notes that a dyad may be at-risk for impaired interactions or development. Such dyads are identified by the characteristics already discussed, or based upon prenatal problems, delivery difficulties, or physical impairments of the infant. If the APN documents that a dyad is at possible risk, then an intervention must be planned. This brochure is one possible intervention. Upon its discussion and distribution, the APN can document this within her/his notes. At the next visit, the APN can explore the topics detailed within the brochure by asking a few evaluation questions. Again, this can be documented within the progress notes as an extension intervention. It also allows the APN to evaluate the interaction pattern forming between infant and mother and plan further evaluation or intervention if necessary. Such simple discussion can provide a world of information to both parties and provide a base for building additional knowledge.

Lastly, the prevention of impaired mother-infant interaction has many benefits to both mother and infant. A mother who is unable to soothe their crying infant may view the behavior as a reflection of their inadequacy and consult the health care provider (Jacobson & Melvin, 1995). The APN can help mother's to understand their infant is an active participant in the mother-infant relationship. Teaching

them ways to respond to their infants cues will enhance not only the relationship but can build parental confidence and support infant development.

Research

Researchers have spent many years identifying characteristics that place the mother-infant interaction vulnerable for impairment. Identified risks include, but are not limited to, maternal age and education, low-income, single parenting, history of physical abuse, drug abuse, and maternal depression. Now that these risks have been identified, researchers have begun to study interventions to support these groups.

Interventions presently being implemented include prenatal and parenting classes, post-partum home visits, and Early Head start and Head start programs. This brochure is another example of an intervention. This brief, easy to read and implement brochure can be discussed and dispensed at the first or second office visit following delivery. Often mothers may be fearful of asking question they feel others assume they should know. Distributing and discussing the brochure allows them to express concerns and question. After having time at home to review the information, at the next visit, the APN can again discuss the information with the mother. This allows the APN to evaluate the mother's abilities to interact with their infant as well as the brochure usefulness. Future assessment may include other parties involved in the infant's care.

Recently the mother-infant focus has broadened to include fathers and other primary caregivers such as grandparents, boyfriends, and other extended family. Today infants may actually spend more time with other caregivers than with their parents. Do these caregivers need education on interacting with infant's, toddlers, and children? Are these relationships providing infants/children with the interaction they need to form trusting relationships? As researchers continue to explore the importance these caregivers have on infant/child development, their impact will be of importance to care providers. If infants and children continue to spend long hours outside the home, it may be wise to invest in educating these caregivers on developmentally appropriate interaction with infants and children.

FUTURE STUDY IMPLICATIONS

Further research examining the effect PEM has on patient knowledge is needed. Whether mothers read the brochure, are able to implement the strategies, and which methods provided positive outcomes should be researched.

An experimental study using the brochure as the intervention tool would serve to answer these questions. Using a population of similar demographics, researchers could implement the use of this brochure within the intervention group. Outcome measures could include the number of mothers who read the brochure, and whether they were able to incorporate the ideas into behaviors. Whether

the brochure effected mother-infant interaction could be assessed using an evaluation tool such as the NCAST. Provider evaluation should also be included. Did the providers dispense the brochure, and did they discuss the brochures content with mothers. Other outcome measures could include the number of office visits related to infant behavior, i.e. crying or fussing, the number of urgent care or ER visits, and reports of abuse and or neglect. Such a study would help determine the benefit of PEM in improving mother-infant interaction.

SUMMARY

Certain mother-infant dyads may be at-risk for impaired interaction abilities. Mothers with low educational status, living in poverty and acting as the sole parent may benefit from education regarding infant development. The information within the brochure is aimed to assist the APN in educating these mother's on infant interaction. It also acts as a reminder to health care providers, of the educational need of parents. The proposed educational tool is inexpensive, easy to develop, revise, and implement. It allows the APN to tailor the information to meet the specific need of the patients within their practice, and may be appropriate to use with other populations such as new parents. Providers may chose to expand the brochure to cover development through adolescence. Further studies will need to be conducted to evaluate the effect PEM have on a mother's ability to interact with her infant.

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APPENDIX A

Created by
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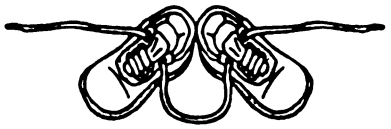
Getting off to a Healthy Start

Helping You Understand Your Infant



Your baby communicates with you in many ways. Recognizing certain behaviors can help you interact with your baby.

*Some behaviors tell you your baby wants attention. These behaviors include smiling, looking at you and reaching out to you. This is a great time to talk and play with your baby.

*Other behaviors signal your baby needs a break; these behaviors include crying, turning their head away and falling asleep.

*Your baby may show you in many ways they are hungry. They may act fussy, put their hand to their mouth, make sucking movements and sounds, and clench their fist over their chest or stomach. It is best to feed your baby before they are upset.

(Adapted from the NCAST Keys to Caregiving Program)

Crying is another way your baby tells you they need something. It does not mean your baby is mad at you, or that your baby is bad. As you get to know your baby you will begin to understand your baby's cries. Here are some tips to help with crying.

*Check to see if they are hungry, wet, over-handled or tired.

*Play soothing music, talk calmly.
*Use a pacifier.
*Wrap or swaddle your baby.
*Steady rocking.
*Decrease the amount of noise, lighting, and movement.
*Keep a blanket over the baby when changing to provide security and warmth.

*Lastly, taking care of a baby is a lot of work. You may become tired. It's o.k. to call a friend for help or put the baby in their crib and take a time-out away from the baby.

APPENDIX B

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on infant development.
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n your practice that have the
-infant interaction is crucial
. Once identified,
This brochure offers one form
I hope you find this tool a
ll take the time to return the
for your time.

Dear Provider,

As you know, the mother-infant relationship can have both a positive and negative effect on infant development. Identifying mothers who may be at-risk for impaired mother-infant interaction is essential in aiding to prevent future complications. Single mothers with low incomes and low educational status have been identified as a group who may need additional education and support. The enclosed brochure is an appropriate educational tool to use with mother at-risk.

The brochure is designed to educate mothers on infant interaction. It is appropriate to distribute at the first or second office visit. The material within the brochure should be discussed with the mothers as you distribute it. At the next office visit, ask the mother a few simple questions regarding the brochure (see enclosed). This will help you assess the mothers understanding of the content and open communication channels that may lead to further exchange of information.

Identifying mothers within your practice that have the potential for impaired mother-infant interaction is crucial to prevent further impairment. Once identified, intervention is a necessity. This brochure offers one form of intervention; education. I hope you find this tool a valuable intervention and will take the time to return the evaluation form. Thank you for your time.

Sincerely,

Carrie Bollmann

APPENDIX C

Mother's evaluation of the brochure:

*Were you able to read the brochure? Yes or No

*Did you understand the information? Yes or No

*Were any words or parts confusing? Yes or No

*Have you noticed that your baby displays any of the behaviors noted when hungry, tired, wet, etc.? Yes or No

*Have you tried any of the techniques mentioned in the brochure? Yes or No

*If so, did they work? Yes or No

*Do you feel this information helped you understand your baby's behavior better? Yes or No

APPENDIX D

Provider evaluation of the brochure:

***Did you dispense the brochure to mothers? Yes No**

***Do you feel the information was appropriate for this population? Yes No**

***Did the content help you in educating mothers regarding infant behavior? Yes No**

***Did use of the brochure help you assess mother-infant interaction? Yes No**

***What were the responses you received from mothers regarding the brochure?**

***Would you use this brochure in your practice? Yes No**

APPENDIX E

Provider assessment questions for Mothers:

***Were you able to read the brochure? Yes No**

***Did you understand the information in the brochure? Yes No**

***Have you noticed any behaviors that signal your baby's needs, i.e., hungry, wet, tired, happy? Yes No**

***Have you tried any of the techniques within the brochure to help with crying? Yes No**

***Did any of these techniques help? Yes No**

***What do you do when you get tired, or frustrated? We all do.**

***Do you have any concerns about your baby's behavior?**