For many years, bottle-feeding has been the primary method of nurturing infants. Social pressures and public health sanctions have continued to foster this trend. Recent evidence suggests, however, that there are distinct advantages to breast-feeding when compared to bottle-feeding. More specifically, the biochemical and immunologic constituents of human milk confer a uniqueness and species-specificity not achieved in commercial milk preparations or cow's milk. Biochemical uniqueness is demonstrated by difference in amino acid levels, such as elevated taurine and cystine and lowered tyrosine and phenylalanine concentrations, the absence of sensitizing proteins such as β-lactoglobulin, and a greater proportion of proteins of high biologic value in the whey fraction of human milk. Not only are protein constituents unique, but lipid fractions also differ from other mammalian milks. Human milk contains greater amounts of 2-monoglycerides, thereby enhancing fat absorption. Human milk also contains a lipase that preferentially liberates fatty acids from the 1- and 3-positions in order to facilitate absorption. Finally, many biochemical constituents of human milk have interdependent interactions. For example, both human and cow's milks contain similar iron and zinc concentrations; however, absorption of both
minerals is more effective in human milk. In addition to these biochemical features, human milk contains many immunologic factors that provide protection against illness in the young infant. Cellular components, particularly the lymphocytes and macrophages, perform essential functions related to bacterial killing and cell-mediated immunity. There are a host of specific antibodies, such as antistaphylococcal antibodies, the lactobacillus factor, and secretory IgA, that promote resistance to infections in the young infant. All of these features in human milk impart a distinct advantage to the human organism compared to that of cow's milk or commercial preparations.

In addition to these biochemical and immunologic factors, there are other aspects of breast-feeding infrequently acknowledged and certainly not well-studied. These are the psychosocial aspects of breast-feeding; they will provide the topic for consideration in this chapter. The term psychosocial has broad implications and encompasses a range of topics beyond the scope of this chapter. For our purposes here, the focus of information will center on three areas of interest: 1) maternal-infant bonding, 2) lactational infertility, and 3) child development.

The material that provides insight into the psychosocial aspects of breast-feeding relies heavily on behavioral studies in both animals and humans. It is important to note that behavioral studies in humans are much more difficult to design and carry out, compared to general behavioral studies in animals, as well as studies that ask basic physiologic and biochemical questions. In addition, human behavioral studies are laden with biases that are difficult either to remove or to control. For example, mothers who breast-feed have a unique set of attitudes concerning child-rearing practices. These attitudes constitute a bias that cannot be duplicated in a control set of mothers. Finally, many of the previously published reports are retrospective studies that have failed to examine or control interactions among multiple environmental factors. Therefore, behavioral studies related to breast-feeding must be interpreted with caution.

**Maternal-Infant Bonding**

From the teleologic point of view, breast-feeding has evolved to meet the nutritional and immunologic needs of the newborn infant. Lactation also provides the natural opportunity for early bonding between the mother and infant. Bonding is an essential element in the mother-child relationship, since this attachment is critical for both the physical survival and the psychologic adjustment of the infant. Because of the complexity of human behavior, however, the nature of this interaction has been characterized in animal models.

The importance of bonding is demonstrated by observations from