Assessment of Functioning in New Mothers

Jennifer L. Barkin, Ph.D.,¹ Katherine L. Wisner, M.D.,¹ Joyce T. Bromberger, Ph.D.,²
Scott R. Beach, Ph.D.,³ and Stephen R. Wisniewski, Ph.D.²

Abstract

Background: Assessment of mothers in the year after childbirth is important for a number of reasons, including the well-being of the mother and healthy development of the child. There exists a body of instruments that measure a range of maternal characteristics, such as maternal confidence and self-efficacy. It remains unclear if any of these assessments can be used to measure maternal functioning, which may be a direct indication of potential hazards to the offspring. Accurate assessment of functioning would also aid in identifying women who are struggling in the maternal role. In order to assess whether commonly used maternal assessments extend into the realm of functioning, it is necessary to have an appropriate definition. Therefore, the aims of this analysis are to (1) present a new, patient-centered definition of maternal functional status and (2) evaluate select maternal assessments against this definition.

Methods: Three new mother focus groups were held in order to understand women's experiences in the year after childbirth. These experiences informed the definition of maternal functional status, which was used to evaluate select instruments for their capacity to assess maternal functioning.

Results: None of the instruments covered all seven domains, and all of the instruments covered at least one domain.

Conclusions: Although there are means of assessing depression status in the postpartum, there is no comprehensive way of capturing a woman's quality of life. A new measure is required in order to capture this multifaceted, patient-defined construct of maternal functioning.

Introduction

A NUMBER OF SELF-REPORT INSTRUMENTS exist with the primary purpose of assessing characteristics of new mothers. The term "new mother" does not imply first birth (for the purposes of this review) but rather refers to the 12-month window after childbirth. During this critical time frame, the infant is particularly affected by the "quality of maternal interaction."¹ Additionally, classic work by Mercer² proposes that maternal role attainment occurs in the year after childbirth. Recognizing the importance of this time frame, researchers have collectively created a body of instruments that measure a range of maternal characteristics. Maternal confidence, maternal competence and feelings, expectations, gratifications, perceived self-efficacy, and attachment are all constructs that have been measured by at least one instrument.

The primary aim of this article is to evaluate a select group of maternal assessments against a novel, patient-centered definition of maternal functional status. More succinctly, the

question of interest is: Do any of the commonly used assessments adequately measure maternal functional status in the first postpartum year either intentionally or unintentionally? This content analysis may also serve as a guide for researchers looking for appropriate study assessments. It is important to note that ability to measure function is not an indicator of overall usefulness. An instrument may not measure functional status in its entirety and may still achieve its intended primary purpose.

The most widely used maternal instruments have been critiqued in terms of their length, applicability, and psychometric properties. It is, therefore, possible to ascertain from the literature which of the existing instruments might be practically applied to a clinical or research setting.^{1,3} What remains unclear is whether any of these instruments can be used to measure maternal functioning in the first postpartum year. Maternal functional status has yet to be adequately explored despite advances in the understanding of postpartum depression. It is possible that a mother's functional status is a more direct measure of deleterious effects on infant

¹University of Pittsburgh Medical Center, Western Psychiatric Institute and Clinic, Pittsburgh, Pennsylvania.

²Graduate School of Public Health and ³University Center for Social and Urban Research, University of Pittsburgh, Pennsylvania.

development than is depression status. Assessment of functioning could also serve to identify women who are struggling in the maternal role absent a depression diagnosis.

Ware and Sherbourne state, "the goal of medical care for most patients today is to obtain a more 'effective life' and to preserve functioning and well-being."⁴ Therefore, postpartum depression status alone is an insufficient as indicator of maternal health. It is also important to be able to characterize the mother's level of functioning. It is likely that instruments created to measure concepts, such as maternal competency and self-efficacy, also afford some coverage of functioning. However, whether or not any of the instruments provide a comprehensive assessment of functioning in addition to their stated purpose is unknown.

Subjects and Methods

Development of new definition of maternal functioning

In order to judge an instrument's fitness for measuring maternal functional status, it is necessary to first establish a definition of maternal functioning. The new definition of maternal functioning emerged as a result of three new mother focus groups, each comprised of 10 or 11 women. In order to be eligible to participate, women had to (1) have given birth in the year before enrollment and (2) be at least 18 years of age. Approval for the study was granted by the University of Pittsburgh's Institutional Review Board (IRB), and the subjects were informed that statements made during the focus group discussions would remain anonymous.

This qualitative approach to defining maternal functional status was chosen over the more traditional top-down method of relying primarily on the literature and clinician input.⁵ An advantage of this approach is that the resultant qualitative data are based on observations of those experiencing the condition of interest.⁵ In this case, mothers were consulted directly about their experiences with functioning in the year after childbirth. An additional strength of focus groups as a vehicle for data collection lies in their semistructured nature. The participants could venture into uncharted topical territories, but the discussions were guided by the research questions of interest. It was the facilitator's responsibility to ensure that the research questions were answered within the course of the discussion. The facilitator achieved this by redirecting when the conversation strayed substantially. Probing was employed by the facilitator when more information was desired on a particular topic.

Mothers were initially asked to discuss the responsibilities associated with new motherhood and the changes that occurred since birth. These questions allowed for factual answers even if the mother chose to reveal more in her response. The third question: Describe what a good mom looks like, was an attempt to access the women's conceptualization of a highly functioning mother. For the last two questions, mothers were asked to describe the circumstances surrounding high-functioning and low-functioning time periods. In posing these questions, the facilitator substituted informal language for the more academic terms, "high functioning" and "low functioning." The discussions were fluid and robust as women welcomed the opportunity to share their experiences with other new mothers.

The audio-recorded conversations were professionally transcribed and returned to the study team in the form of text

files. Initially, codes were created to characterize the major themes of the discussions. Each piece of conversation was assigned a code based on emotive tone and content. Seven codes that translated directly into functional domains were identified in the text analysis. Social support, management, mother-child interaction, infant care, self-care, adjustment, and psychological well-being (of mother) were both analysis codes and maternal functional domains.

According to the new mothers, a woman who (1) has adequate social support (social support) and is able to (2) take care of her own physical (self-care) and mental needs (psychological well-being), (3) take care of her infant (infant care), (4) attach to her infant (mother-child interaction), (5) juggle her various responsibilities (management), and (6) adapt over time (adjustment) is functioning optimally.

Defining the domains

The mothers identified the key facets of social support as being (1) help from friends and family with infant care tasks (e.g., babysitting), (2) adult interaction (for the mother), and (3) verbal encouragement from other adults. The early stages of motherhood can be lonely, and the women emphasized the importance of adult interaction. They also described a particularly helpful interaction to them as one where they were praised for their parenting skills.

Self-care refers to the mother's ability to care for her own physical and emotional needs. Proper nourishment, attention to hygiene and physical appearance, adequate sleep, and willingness to delegate are all examples of self-care.

The psychological well-being component of motherhood includes the mother's ability to delegate, take care of her own needs (including the need for social support), and "manage the worry" related to caring for a newborn. It also encompasses the woman's state of mind in general and feelings about being a new parent. Psychological well-being is built on the premise that in order to have a healthy baby, the mother must also be healthy. The women also identified the ability to trust one's own instincts as being essential to successful parenting and maternal mental health. This requires the mother to judiciously sort through the advice of others and decide what makes sense for her and her child.

Infant care encompasses all of the physical needs of the infant as well as the decision making required to ensure a healthy future for the baby. Making medical appointments when necessary is an example of decision making related to infant care.

The interaction component of motherhood is defined by the quality of communication between mother and child. Focus group participants identified (1) a mutual understanding between themselves and their infants and (2) a routine with their baby as being closely linked to their sense of maternal self-confidence. The ability to be "present in the moment" with their child was also mentioned repeatedly as being an indicator of good parenting and maternal satisfaction.

Management was one of the most prominent themes in the group discussions. The addition of a child requires the mother to incorporate new responsibilities into her existing set of responsibilities.² Several women referred to themselves as "the CEO of the household", a role that required them to manage all things related to the household and infant care. Management can also include the willingness to accept trustworthy

help and delegate responsibly. Another aspect of this component is the emotional piece, which requires a mother to manage her own anxiety about her new role. Many women described an inability to relax or "manage the worry" of being a new mom. They also articulated an understanding of the negative consequences associated with pervasive anxiety, which included a diminished sex life and difficulty enjoying time alone with the infant.

Adjustment, the last component of maternal functioning, refers to the mother's ability to both adapt to her new responsibilities and adjust as those responsibilities change over the infant's first year of life. These domains, comprising the new definition of maternal functioning, provide a basis of comparison for instruments currently in use.

Instrument selection

In an effort to find the maternal assessments most relevant in the literature and also in clinical settings, "Maternal Instrument," "Maternal Measure," "Maternal Questionnaire," and "Maternal Survey" were all used as search terms (databases used: Health and Psychosocial Instruments, 1985–March 2008; CINAHL, 1982–May 2008; PsycINFO, 1967–May 2008; MEDLINE, 1970 to date). The terms "Postpartum" and "Infant" were used in conjunction with the four main search terms to eliminate instruments intended for older children, and only self-report measures were considered. An instrument was eliminated from consideration if its source article or development article was not available.

The title of the source article for each of the selected instruments was then entered into SCOPUS™, a citation database for research literature that includes references dating back to 1996. The purpose of this process was to ascertain the number of times the instrument's source article was referenced in the literature. Instruments with source articles referenced ≥ 17 times from 1996 to July 31, 2008, were retained; 17 was determined to be the threshold for inclusion after the instruments were sorted by citation frequency. This is because the instruments clustered at and around 17 citations were also featured in articles that systematically identified commonly used maternal assessments. Additionally, the Inventory of Functional Status After Childbirth,⁶ which boasts 17 citations, is the only instrument purported to measure functional status

explicitly. Therefore, this instrument could not reasonably be excluded.

Eleven instruments resulted from this process and 8 were identified in systematic searches performed by Fowles and Horowitz¹ or Beck.³ These reviews identified instruments with published psychometric properties employed in research and primary care settings, respectively. The majority ($n = 6$) of the final 8 instruments were covered by both review articles. In summary, the final 8 selected instruments (Table 1) were referenced at least 17 times in the research literature, have published psychometric properties, and have been used in research studies, primary care settings, or both. It is important to note that whereas these review articles also employed systematic searches to identify prominent instruments, the substance of their review was different. The reviews focus on applicability, reliability, and validity. Their purpose was not to provide a content analysis of each instrument.

Results

Subsequently, the aforementioned instruments were evaluated in light of the new definition of functioning. Table 1 indicates the maternal functioning domains addressed by the 8 selected instruments. A greater number of domains addressed indicates more thorough coverage of maternal functioning. Adequacy of coverage within each domain cannot be determined from Table 1 alone but is discussed in the review of each instrument.

What Being the Parent of a New Baby Is Like—Revised

The 25-item questionnaire, What Being the Parent of a Baby Is Like—Revised (WPL-R),⁷ evolved from its predecessor, the 7-item, What Being the Parent of a Baby Is Like self-report instrument.¹³ The additional 18 items added to the original WPL were conceived from open-ended questions answered by 49 mothers.⁷ The instrument employs a 9-point graphic rating scale¹⁴ with such anchors as: not easy at all and very easy. Of the maternal functioning domains presented, five of seven (self-care, infant care, mother-child interaction, psychological well-being, and management) are addressed to varying degrees by the WPL-R. Such questions as: When you

TABLE 1. COVERAGE OF FUNCTIONAL DOMAINS BY SELECTED INSTRUMENTS

<i>Instrument</i>	<i>Maternal functioning domains</i>					
	<i>Self-care</i>	<i>Infant care</i>	<i>Mother-child interaction</i>	<i>Psychological well-being</i>	<i>Social support</i>	<i>Adjustment</i>
What Being the Parent of a New Baby Is Like—revised ⁷	X	X	X	X		X
Gratification Checklist ^{2,8}			X	X	X	
Infant Care Survey ⁹		X				
Myself as Mother ¹⁰			X	X		X
My Baby ¹⁰			X			
Feelings About the Baby/How I Feel About My Baby Now ¹¹			X	X		
Inventory of Functional Status After Childbirth ⁶	X	X	X		X	X
Parenting Sense of Competence Scale ¹²			X	X		X

go out and leave the baby with someone else, how much do you have the baby on your mind during the time that you are away? and How easy would it be for you to leave the baby with your spouse/partner when you go out? tap the psychological health, self-care, and management domains in that they evaluate the mother's ability to delegate and enjoy time away from the baby. Specific aspects of self-care related to the mother's physical needs were not addressed by this questionnaire. Additionally, although the question: On the whole, how stressful is your life, being the parent of a young baby and perhaps having other things to deal with? was posed, the questionnaire does not address the mother's perception of her management of all her responsibilities. Rather, the question inquires as to her stress level after making an assumption about other responsibilities. Therefore, although aspects of self-care and management are touched on, the coverage is not comprehensive in terms of measuring function. Such questions as: How much is the baby's physical health on your mind? and How much do you think that you positively affect your baby's development? fall in the infant care domain albeit from the perspective of the mother's thoughts about infant care. This questionnaire does not require the mother to grade her ability to take care of her infant's physical needs. The WPL-R poses several questions related to mother-child interaction, including: How much do you think your baby enjoys his/her interactions with you? and How well do you think you know your baby? These questions represent the most thorough coverage of any domain in an attempt to gauge the quality of the communication between mother and child.

The Gratification Checklist

Created by Russell⁸ and modified by Mercer,² the Gratification Checklist (GRAT) requests that a mother rate her level of enjoyment on each of 14 items. The original version of the GRAT was conceived based on parents' responses to questions about what they enjoyed most about their new role. As with all questionnaires, it is important to consider not only the content areas but also the perspective from which the questions are asked. The GRAT begins with the statement: "Since the birth of my baby, I have enjoyed . . .," and requires the subject to rate her responses on a 5-point scale (not at all to very much). Mother-child interaction, social support, and psychological well-being are the three domains tapped by the GRAT. The most extensive coverage belongs to the social support component as mothers are asked to what degree they have enjoyed (1) closer family relationships, (2) increased contact with neighbors, (3) more things to discuss with mate, and (4) feeling closer to mate. Social support associated with specific child care tasks is not part of the GRAT. Such items as enjoying baby's company and baby fun to play with target mother-child interaction. Lastly, the mother's psychological well-being is measured to some degree by items, feeling of fulfillment and a purpose for living.

Infant Care Survey

The Infant Care Survey (ICS) was developed with the intention of measuring maternal self-efficacy related to infant care.⁹ A Bandurian¹⁵ concept, self-efficacy theory refers to the link between a person's belief in her ability to perform a range of tasks within a specific context and behavioral outcomes.

The statement, "an initial pool of 48 statements that represent usual and important infant care behaviors were written", was used to describe the item generation process.⁹ There is no mention of new mother input described in the item development of the ICS. Mothers are asked to rate their confidence level from 1 (quite a lot) to 5 (very little) on 51 infant care tasks, including selecting baby foods and relieving pain from teething. The 51 infant care items are divided into six sections: health knowledge, diet knowledge, safety knowledge, health skills, diet skills, and safety skills. Consequently, the only maternal functioning domain addressed by the ICS is infant care.

Myself as Mother

The Myself as Mother¹⁰ scale employs a semantic differential technique¹⁶ with the intent of evaluating a woman's concept of herself as a mother.¹⁰ The instrument is best described by the author as consisting of "11 bipolar adjective pairs embedded within a 22-item, 7-point semantic differential scale."¹⁰ In order to complete the scale, the mother is required to rate herself from 1 to 7 on 22 different adjective pairs. Examples of the pairs are: fast-slow, weak-strong, and calm-excitable. Although mothers at a well-baby clinic ($n = 104$) were involved in the testing of the instrument, the original survey items were selected by the investigator (L. O. Walker, personal e-mail communication). Higher scores on the Myself as Mother scale are indicative of positive maternal self-evaluations. In terms of content, the areas of maternal functioning addressed (to some degree) are mother-child interaction, psychological well-being, and management. Limited aspects of the mother's psychological health are tapped by adjective pairs: pessimistic-optimistic, weak-strong, hopeless-hopeful, tough-fragile, mature-immature, and calm-excitable. Albeit somewhat inferred, some aspects of mother-child interaction are tapped by the following pairs: kind-cruel, hard-soft, far-near, severe-lenient, and cold-hot. Although subject to interpretation, these adjective pairs seem to target the mother's level of attachment (far vs. near, cold vs. hot) and communication style (kind vs. cruel, severe vs. lenient). The appropriateness of the severe-lenient item is questionable when referring to mothering an infant. Management style is assessed by such items as fast-slow, weak-strong, successful-unsuccessful, complete-incomplete, and calm-excitable. Whereas the first four target overall competency, the calm-excitable item requires the mother to rate her overall anxiety level. This instrument requires a high-level of interpretation on the part of the respondent.

My Baby

The My Baby¹⁰ scale was developed in tandem with Myself as Mother¹⁰ and also uses a semantic differential technique,¹⁶ but with 6 items imbedded in 21 adjective pairs.¹⁰ My Baby also employs a 7-point scale, and adjective pairs include clean-dirty, sweet-sour, pleasant-unpleasant, light-heavy and difficult-easy. This instrument is intended to characterize the mother's perception of her infant. As was the case with Myself as Mother, higher scores represent a more favorable evaluation of one's infant. The only maternal functioning domain that relates to the My Baby scale is mother-child interaction. Whereas sweet-sour, pleasant-unpleasant, beautiful-ugly, difficult-easy, and belligerent-peaceful are descriptors of the

infant, a mother's positive evaluation of her baby related to these items may indicate gratification in the mothering role, which is the desired result of interaction. This scale is limited in assessing this domain, however, as it does not directly measure the quality of communication between mother and child. A mother describing her child as being peaceful or beautiful does not answer the question: How well do you and your baby understand each other? This question embodies the key concept of the mother-child interaction component.

How I Feel About My Baby Now Scale

The 10-item How I Feel About My Baby Now scale (FAB)¹¹ is intended as a measure of parental attachment and, consequently, can be filled out by the mother or father. The directions instruct the respondent to indicate how he or she feels "right now about the baby" using a series of statements, including: "I feel tenderly toward my baby," and "I feel unaware of my baby." The FAB is rated on a 4-point Likert scale with response choices: often, sometimes, rarely, and never. The only two maternal components that apply to the FAB are mother-child interaction and psychological well-being. Statements like: "I feel tenderly toward my baby," and "I feel playful toward my baby" are obvious attempts to evaluate quality of interaction, and all 10 of the items on the FAB relate to some aspect of the mother-child relationship. Such responses as: "I feel annoyed at my baby," and "I feel unaware of my baby" may be some indication of the mother's mental health, although not in any way conclusive or diagnostic. Feeling unaware of one's infant could be a sign of apathy and poor functioning in the maternal role.

The Inventory of Functional Status After Childbirth

Derived from the role-adaptive function of Roy's Adaptation Model,¹⁷ the Inventory of Functional Status After Childbirth (IFSAC)⁶ was intended to measure a woman's level of functioning after giving birth. A return to full functional status is characterized by a woman's resumption of the roles she performed before childbirth. The IFSAC is the only instrument to date that was designed specifically to measure functional status during this time frame.¹⁸ The roots of the IFSAC can be traced back to the Sickness Impact Profile¹⁹ and the postpartum literature. Although not cited as part of the initial item generation process, maternal input was sought during the refinement of the instrument. It is difficult to ascertain the degree to which the input affected the content of the IFSAC.

Fawcett et al. describe functional status as, "a multidimensional concept encompassing the mother's readiness to assume infant care responsibilities and resume self-care, household, social and community, and occupational activities."⁶ These five areas represent the subscales of the IFSAC. The household section begins by asking the mother to check her responsibilities before giving birth and to then indicate to what level she has resumed the said responsibilities. For example, a woman who endorsed "doing dishes" would also have to indicate to what level, from 1 (not at all) to 5 (fully) she had resumed this activity. Ironing and caring for pets are other sample activities from the household section. The social and community section is similar to the household section, with women endorsing their activities before pregnancy and then indicating their level of current involvement. Such items

as community service organizations and social clubs are used to measure social functioning for this IFSAC subscale. The self-care section requires the mother to respond to a series of phrases based on how their life has been during the past week or two. Respondents can answer never to all the time on a series of items, including "take walks" and "engage in sexual intercourse as frequently as before this pregnancy." Infant care items are prefaced with the statement: "Please circle the number that indicates to what extent you have assumed your part of the flowing aspects of the baby's care." Sample infant care items include "night feedings" and "change diapers." The occupational activities section comprises items such as: "Am accomplishing as much as usual in my job," and "Am doing my job as carefully and accurately as usual." Before answering, women must indicate their employment status (yes/no) and are instructed to respond to items as they pertain to the 2 previous weeks. Both subscale means and an overall mean are calculated for the IFSAC, and higher scores indicate greater levels of functioning.

Self-care, infant care, mother-child interaction, social support, and adjustment are all measured to varying degrees by the IFSAC. The IFSAC approaches self-care from a physical perspective featuring items that tap energy level rather than emotional self-care. The coverage of infant care corresponds directly with the definition put forth in this article, which describes infant care as encompassing all the physical needs of the infant. The lone interaction item, "play with the baby," is insufficient to characterize the interaction between mother and child. The adult interaction aspect of social support is tapped by six items: "community service organizations," "professional organizations," "religious organizations," "socializing with friends," "socializing with relatives," and "social clubs." There is no assessment of social support related to infant care or in the form of verbal encouragement. These omissions are not unexpected, as the IFSAC was not intended as a measure of social support.

It can be argued that much of the IFSAC is based on the concepts of management and adjustment. By asking the respondent to indicate to what degree she has resumed prior responsibilities, aspects of management and adjustment are measured. However, the mother's perception of her ability to grow and adapt with the infant over time is not requested.

Parenting Sense of Competence Scale

The 17-item Parenting Sense of Competence Scale (PCOS)¹² largely measures the feelings of a new parent. Respondents have six answer choices, from strongly agree to strongly disagree. The items are in the form of statements and are of considerable length, providing a challenge for less literate respondents. The item: "If being a mother of an infant were only more interesting, I would be motivated to do a better job as a parent," is illustrative of this point. The majority of the items gauge the parent's state of mind, but there are two items related to parent-child interaction and one item for both management and adjustment. Sample psychological well-being items include: "Being a parent makes me tense and anxious," and "I do not know why it is, but sometimes when I'm supposed to be in control, I feel more like the one being manipulated." The items: "Being a parent is manageable, and any problems are easily solved," and "Considering how long I've been a mother, I feel thoroughly familiar with this role" relate to

the management and adjustment components of functioning, respectively. Items: "The problems of taking care of a baby are easy to solve once you know how your actions affect your baby, an understanding I have acquired," and "If anyone can find the answer to what is troubling my baby, I am the one," tap aspects of the interaction between mother and child.

Discussion

The present definition is the product of a novel approach to investigating maternal functioning in the postpartum period. It reflects the experiences and feelings intimated during three new mother focus groups. This new definition was subsequently used to assess the degree to which 8 systematically selected maternal assessments were measuring function in addition to their intended purpose.

Although none of the selected instruments covered all seven functional domains, the IFSAC provided the most thorough coverage, tapping 6 functional domains. The performance of the IFSAC is not surprising given its status as the only existing instrument designed to measure maternal functional status.¹⁸ However, the IFSAC was based on a different definition of maternal functional status and has some limitations. The rigid definition of functional status makes it difficult for any woman to achieve full functional status.²⁰ Performance on the IFSAC is dependent on a woman's resumption of the roles she had before giving birth. The IFSAC does not take into account that a change in activity level (and type) may be necessary and even satisfactory to a new mother. A key omission from the IFSAC is an assessment of the mother's feelings or state of mind, both of which are related to functioning.

The WPL-R involves five of the seven domains of functioning, not including social support and adjustment. A weakness of the WPL-R is the way the questions are framed and the degree of difficulty related to reading the questions. Questions: "On the whole, how stressful is your life, being the parent of a young baby and perhaps having other things to deal with?" and "How much does the baby or the baby's care come first in your thoughts, taking precedence over things you would otherwise spend time thinking about?" are two examples of questions that are worded in a confusing manner. Additionally, such questions as: "How satisfied are you with the way that you relate to your baby and your baby's needs?" seem to tap two concepts at once. This lack of clarity in item wording makes the WPL-R formidable even for the educated respondent. Overall, although the WPL-R touches on several of the relevant domains, it is framed primarily in terms of the parent's thoughts and is not intended as a comprehensive assessment of maternal functioning. It is plagued by the same issue of convoluted item wording as is the PCOS, which features such statements as: "The problems of taking care of a baby are easy to solve once you know how your actions affect your baby, an understanding I have acquired." Although the PCOS taps some concepts in a straightforward manner, its overall approach may be overwhelming, especially in the case of a depressed mother.

The GRAT imposes little burden on the patient, with only 14 relatively straightforward items, and is currently being used in clinical settings. The GRAT focuses on the mother's feelings around social relationships and overall sense of satisfaction (feeling of fulfillment), as giving birth and can

arguably be considered a barometer of the mother's overall mental and emotional health. Tangible aspects of infant care or self-care are not measured by this instrument.

Narrowest in terms of functioning scope are the ICS and My Baby scale, which address aspects of infant care and mother-child interaction, respectively. Although not an appropriate measure of maternal functioning, the ICS is generous in its coverage of infant care tasks and is clinical in approach. The My Baby scale is appropriate where there is interest in characterizing the mother's evaluation of her infant. The construct most frequently covered by this group of instruments was mother-child interaction, addressed to varying degrees by 7 of 8 scales. Psychological well-being, the most expansive of the domains, was involved in 5 of the instruments. The ICS and IFSAC, which both targeted tangible aspects of motherhood, excluded any assessment of the mother's feelings or mental state. Social support and self-care, both identified as essential by the focus group participants, were included in only 2 of 8 scales. This general omission of self-care is significant, as mothers noted a direct relationship between their health and their baby's well-being during the focus group discussions. The overwhelming sentiment was that being judiciously selfish was both necessary and beneficial to the family system as a whole. Management, which refers to a woman's ability to manage all her responsibilities, was measured by 4 of the instruments.

Conclusions

This evaluation of selected instruments against a new definition of maternal functional status yielded important information. Through a multistage, systematic selection process, the most frequently used maternal instruments were identified. The selection process represents the strength of this review because instruments were chosen based on several criteria, including their relevance to research literature and clinical settings. Because the goal of this review was to evaluate the most commonly used maternal assessments, less established instruments were less likely to be chosen. Therefore, it is possible that novel instruments with the capability for capturing functional status exist and were excluded from this review.

Subsequent to selection, a content analysis revealed the deficits of each instrument in measuring the patient-defined concept of functional status; none of the reviewed instruments covered all seven of the functional domains. Thus, there is a need for a new measure of maternal functioning that (1) originates from a patient-centered concept of maternal functioning, (2) is reliable and valid, (3) covers all domains of functioning, and (4) does not present an unnecessary burden for the respondent. Ideally, new mother input will be sought before item generation, rather than later in the development process. Mothers' experiences, supplemented by the literature and clinicians' perspectives, should serve as the basis of the measure, as they are the affected population.

Acknowledgments

This work was supported by an internal development fund at the University of Pittsburgh in Pittsburgh, Pennsylvania.

Disclosure Statement

The authors have no conflicts of interest to report.

References

1. Fowles ER, Horowitz JA. Clinical assessment of mothering during infancy. *J Obstet Gynecol Neonatal Nurs* 2006;35:662–670.
2. Mercer RT. The process of maternal role attainment over the first year. *Nurs Res* 1985;34:198–204.
3. Beck CT. A review of research instruments for use during the postpartum period. *MCN Am J Matern Child Nurs* 1998;23:254–261.
4. Ware JE Jr., Sherbourne CD. The MOS 36-item short-form health survey (SF-36). I. Conceptual framework and item selection. *Med Care* 1992;30:473–483.
5. Fayers P, Hays R, eds. *Assessing quality of life in clinical trials: Analysis and interpretation*, 2nd ed. Oxford: Oxford University Press, 2005.
6. Fawcett J, Tulman L, Myers ST. Development of the Inventory of Functional Status After Childbirth. *J Nurse Midwifery* 1988;33:252–260.
7. Pridham KF, Chang AS. What Being the Parent of a New Baby Is Like: Revision of an instrument. *Res Nurs Health* 1989;12:323–332.
8. Russell CS. Transition to parenthood: Problems and gratifications. *J Marriage Fam* 1974;36:294–302.
9. Froman RD, Owen SV. Infant care self-efficacy. *School Inq Nurs Pract* 1989;3:199–211.
10. Walker LO, Crain H, Thompson E. Maternal role attainment and identity in the postpartum period: Stability and change. *Nurs Res* 1986;35:68–71.
11. Leifer M. Psychological changes accompanying pregnancy and motherhood. *Genet Psychol Monogr* 1977;95:55–96.
12. Gibaud-Wallston J, Wandersman LP. Development and utility of the Parenting Sense of Competence Scale. Paper presented at American Psychological Association Meeting, Toronto, Canada, 1978.
13. Pridham KF, Chang AS. Parents' beliefs about themselves as parents of a new infant: Instrument development. *Res Nurs Health* 1985;8:19–29.
14. Polit DF, Hungler BP. *Nursing research: Principles and methods*, 3rd ed. Philadelphia: J.B. Lippincott, 1987.
15. Bandura A. *Social foundations of thought and action: Social-cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall, 1986.
16. Osgood CE, Suci GJ, Tannenbaum PH. *The measurement of meaning*. Urbana, IL: University of Illinois Press, 1957.
17. Roy C. *Introduction to nursing: An Adaptation Model*, 2nd ed. Englewood Cliffs, NJ: Prentice-Hall, 1984:27.
18. Aktan NM. Functional status after childbirth: A review of the literature. *Clin Nurs Res* 2007;16:195–211.
19. Gilson BS, Gilson JS, Bergner M, et al. The Sickness Impact Profile. Development of an outcome measure of health care. *Am J Public Health* 1975;65:1304–1310.
20. McVeigh C. Functional status after childbirth in an Australian sample. *J Obstet Gynecol Neonatal Nurs* 1998;27:402–409.

Address correspondence to:

Jennifer L. Barkin, Ph.D.

University of Pittsburgh Medical Center

Women's Behavioral HealthCARE

3811 O'Hara Street, Oxford Building, Suite 410

Pittsburgh, PA 15213

E-mail: barkinj@gmail.com