

## Original Paper

# Assessment of Psychometric Properties of the Postpartum Bonding Questionnaire (PBQ) in Jordanian Mothers

Fida Thekrallah<sup>1</sup>, Saif Aldeen AlRyalat<sup>1\*</sup>, Ayman Qatawneh<sup>1</sup>, Eshraq AlQadri<sup>1</sup> & Dana Melhem<sup>1</sup>

<sup>1</sup> The University of Jordan, Amman, Jordan

\* Saif Aldeen AlRyalat, The University of Jordan, 11942 Amman, Jordan

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### Abstract

**Background:** Mother to infant bonding is the most important process in the puerperium, where many instruments have been designed to screen for mother-infant bonding issues. In this study, we will translate and validate the Postpartum Bonding Questionnaire (PBQ) to the Arabic and to measure the mother-infant bonding in a sample of Jordanian mothers.

**Materials and methods:** This sample is a representative sample taken from multiple centers in Amman, Jordan. Post-partum lady who give a birth to a live healthy baby, regardless the mood of the delivery, who have been discharged with their babies home. Women with multiple pregnancies were also included. We calculated reliability indices and relevant statistics using SPSS.

**Results:** A total of 120 participants included in this study. The mean age for the included sample was 28.1 ( $\pm 6.3$ ) years. Scale internal consistency measured via Cronbach's alpha is 0.720. Average intraclass correlation coefficient for single measure is 0.067 (CI 0.045 to 0.097). Mean score for the 4 factors of the questionnaire were: Factor 1: 17.43 ( $\pm 3.95$ ), factor 2: 4.10 ( $\pm 3.98$ ), factor 3: 7.99 ( $\pm 2.39$ ), factor 4: 0.37 ( $\pm 0.94$ ).

**Conclusion:** We translated and validated an Arabic version of the Postpartum Bonding Questionnaire (PBQ), an easy and widely used instrument to measure mother-infant bonding disorders. We observed a high frequency of bonding disorder among a Jordanian sample.

### Keywords

Bonding, Post-partum, Arabic, Questionnaire

## 1. Introduction

The development of the relationship between the mother and the newborn is the most important process in the puerperium, and it is the topic of investigation for researchers since late 1960 (BROCKINGTON,

2004; BROCKINGTON, 2006). Information regarding mother-infant relationship emerged through qualitative research using interviews and observation by different instruments (BROCKINGTON, 1996). The impact of difficulties in mother-infant bonding has been also well studied and documented in the literature (Winston, 2016). It is crucial to early diagnose any disordered bonding as early as possible, considering that mothers are usually not aware about bonding problems they might have. For this reason, many instruments have been designed to screen for mother-infant bonding issues, including Mother-to-Infant Bonding Scale (Taylor, 2005), the Maternal Postpartum Attachment Scale (Condon & Corkindale, 1998), and the Postpartum Bonding Questionnaire (PBQ) (Brockington, 2001). Of these instruments, the PBQ is widely used in different countries, considering its high reliability and its ease of use (Garcia-Esteve, 2016). It is also worth noting that none of the bonding instruments were validated to the Arabic language. In this study, we aim to translate and validate the PBQ to the Arabic and to measure the mother-infant bonding in a sample of Jordanian mothers.

## 2. Methods

### 2.1 Patients

This retrospective study was approved by the institutional review board (IRB) of the Jordan University Hospital and was conducted in concordance with the latest update of Helsinki declaration.

In our study the sample was taken from 2 sites, the first part was from Jordan University Hospital and the other part was taken from the maternity centers which are related to the public health sectors. Overall, our sample was representative of Amman, capital of Jordan.

The total sample was around 120 ladies who gave a birth within the last 10-14 days. The part from Jordan University Hospital was followed via a phone call. On the other-hand, the part from the maternity centers was collected via a direct interview with the mother. Upon choosing the sample we looked for a post-partum lady who give a birth to a live healthy baby, regardless the mood of the delivery, who have been discharged with their baby's home. Women with multiple pregnancies were also included.

### 2.2 PBQ Scoring

The PBQ has 25 statements, each followed by six alternative responses ranging from "always" to "never". Positive responses, such as "I enjoy playing with my baby", are scored from zero ("always") to 5 ("never"). Negative responses, such as "I am afraid of my baby", are scored from 5 ("always") to zero ("never"). The scores are summated for each factor, a high score indicating pathology. Mothers completed the PBQ in respect of their current symptoms (useful for planning treatment), and at their worst (which corresponded to the epoch covered by the interview, looking back over the postpartum period). Scores at their worst were used in this analysis.

PBQ is divided into 4 main factors, each of them measures an aspect related to bonding (Brockington, 2001):

Factor 1: General factor (Q: 1,2,6,7,8,9,10,12,13,15,16,17), with a cut-off score 11 (i.e., Higher score

indicate bonding disorder).

Factor 2: Rejection and pathological anger (Q: 3,4,5,11,14,21,23), with a cut-off score 16.

Factor 3: Anxiety about the infant (Q: 19,20,22,25), with a cut-off score 9.

Factor 4: Incipient abuse (Q: 18,24), with a cut-off score 2.

### 2.3 Statistical Analysis

We used SPSS statistics version 21.0 (Chicago, USA). We performed descriptive statistics on the included sample and reported the results using frequency and (percentages), and mean ( $\pm$  standard deviation).

We performed reliability analysis using Cronbach's alpha for scale internal consistency. We reported scored using the score and its 95% confidence interval. A p value of  $<0.005$  is considered significant.

## 3. Results

A total of 120 participants included in this study. The mean age for the included sample was 28.1 ( $\pm 6.3$ ) years. The mean number of pregnancies was 3.1 ranging from 1 to 9, and the mean number of children was 2.5 ranging from 0 to 8. The mean and standard deviation for each item is shown in Table 1. Mean score for the 4 factors of the questionnaire were:

Factor 1: 17.43 ( $\pm 3.95$ ), with 1/120 (0.8%) had a score of 11 or below, and 119/120 (99.2%) had a score of 12 and above.

Factor 2: 4.10 ( $\pm 3.98$ ), with 117/120 (97.5%) had a score of 16 or below, and 3/120 (2.5%) had a score of 17 and above.

Factor 3: 7.99 ( $\pm 2.39$ ), with 86/120 (71.7%) had a score of 9 or below, and 34/120 (28.3%) had a score of 10 and above.

Factor 4: 0.37 ( $\pm 0.94$ ), with 113/120 (94.1%) had a score of 2 or below, and 7/120 (5.9%) had a score of 3 and above.

Scale internal consistency measured via Cronbach's alpha is 0.720, each question's score is shown in Table 2. Average intraclass correlation coefficient for single measure is 0.067 (CI 0.045 to 0.097).

**Table 1. The Mean and Standard Deviation for Each Item**

	Mean	Std. Deviation	N
Q1	.3417	1.05716	120
Q2	1.3500	1.59120	120
Q3	.5167	.99565	120
Q4	.1417	.59826	120
Q5	.6750	1.23099	120
Q6	.0833	.33263	120
Q7	1.1250	1.26732	120
Q8	3.6250	1.39062	120
Q9	.1583	.77780	120
Q10	4.8500	.72934	120
Q11	.4333	1.08258	120
Q12	2.6417	1.07528	120
Q13	2.3583	1.45980	120
Q14	.7500	1.19699	120
Q15	.4750	.91635	120
Q16	.2833	1.05467	120
Q17	.1417	.58404	120
Q18	.1667	.59878	120
Q19	1.2167	1.38530	120
Q20	.6667	1.16916	120
Q21	.7167	.99734	120
Q22	4.9500	.33930	120
Q23	.8667	1.23624	120
Q24	.2000	.74020	120
Q25	1.1583	1.32840	120

**Table 2. Item Total Statistics and the Contribution of Each Item in the Scale**

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q1	29.5500	66.771	.295	.622
Q2	28.5417	58.267	.502	.586
Q3	29.3750	66.354	.348	.617
Q4	29.7500	69.231	.341	.626
Q5	29.2167	65.684	.290	.621
Q6	29.8083	72.156	.128	.639
Q7	28.7667	64.886	.318	.618
Q8	26.2667	84.432	-.523	.710
Q9	29.7333	71.794	.045	.644
Q10	25.0417	76.225	-.296	.666
Q11	29.4583	67.242	.258	.626
Q12	27.2500	70.996	.046	.648
Q13	27.5333	65.125	.243	.628
Q14	29.1417	62.392	.485	.598
Q15	29.4167	66.985	.344	.619
Q16	29.6083	68.190	.212	.631
Q17	29.7500	68.508	.428	.621
Q18	29.7250	69.092	.355	.625
Q19	28.6750	62.188	.407	.604
Q20	29.2250	66.277	.281	.623
Q21	29.1750	64.851	.445	.608
Q22	24.9417	74.139	-.217	.650
Q23	29.0250	64.814	.334	.616
Q24	29.6917	70.081	.190	.634
Q25	28.7333	70.130	.049	.652

#### 4. Discussion

We described a validation of the Post-Partum Bonding Questionnaire (PBQ) to the Arabic language, where the internal consistency of the tool found to be acceptable. We also found that according to the four factors of the PBQ, more than 99% of the included sample had a bonding disorder (i.e., factor 1), but only 2.5% had rejection and pathological anger (i.e., factor 2), 28.3% had anxiety about the infant (i.e., factor 3), and only 5.9% had incipient abuse (i.e., factor 4).

The PBQ was translated and validated to different languages including German (Reck, 2006; Van

Bussel, 2010), Spanish (Garcia-Esteve, 2016), Chinese (Siu, 2010), and Japanese (Kaneko, 2014; Suetsugu, 2015; Ohashi, 2016). The PBQ was found to be a valid and reliable tool for mother-infant bonding assessment in almost all languages, with a reliability of 0.85 for the German, and 0.90 for the Spanish (Reck, 2006; Garcia-Esteve, 2016). Upon comparing the prevalence of impaired bonding, it was found to be 17% in the German population, 2.9% in the Spanish populations (Reck, 2006; Garcia-Esteve, 2016). The reliability of the Japanese version was 0.85 (Kaneko, 2014). They found a mean score for each factor as following:

Factor 1: 5 ( $\pm 4.4$ ) for the Japanese, compared to 17.43 ( $\pm 3.95$ ) in our study.

Factor 2: 2 ( $\pm 2.6$ ) for the Japanese, compared to 4.10 ( $\pm 3.98$ ) in our study.

Factor 3: 3.7 ( $\pm 2.7$ ) for the Japanese, compared to 7.99 ( $\pm 2.39$ ) in our study.

Factor 4: 0.05 ( $\pm 0.3$ ) for the Japanese, compared to 0.37 ( $\pm 0.94$ ) in our study.

We encountered several limitations in this study, including a relatively small number of participants, which is due to the difficulty of follow up with mothers after birth. The included population was also recruited from the central hospitals in the capital city, which might not represent mothers from other rural areas. Moreover, future studies should consider testing the PBQ questionnaire against other bonding questionnaires, which would provide different Arabic version instruments for prospective researchers.

In conclusion, we translated and validated an Arabic version of the Postpartum Bonding Questionnaire (PBQ), an easy and widely used instrument to measure mother-infant bonding disorders. We observed a high frequency of bonding disorder among a Jordanian sample.

## References

- Brockington, I. (2004). Postpartum psychiatric disorders. *The Lancet*, 363(9405), 303-310. [https://doi.org/10.1016/S0140-6736\(03\)15390-1](https://doi.org/10.1016/S0140-6736(03)15390-1)
- Brockington, I. F. (1996). *Motherhood and mental health*. Oxford University Press, Oxford.
- Brockington, I. F., Aucamp, H. M., & Fraser, C. (2006). Severe disorders of the mother-infant relationship: Definitions and frequency. *Archives of women's mental health*, 9(5), 243-251. <https://doi.org/10.1007/s00737-006-0133-0>
- Brockington, I. F., Oates, J., George, S., Turner, D., Vostanis, P., Sullivan, M., ... Murdoch, C. (2001). A screening questionnaire for mother-infant bonding disorders. *Archives of Women's Mental Health*, 3(4), 133-140. <https://doi.org/10.1007/s007370170010>
- Condon, J. T., & Corkindale, C. J. (1998). The assessment of parent-to-infant attachment: Development of a self-report questionnaire instrument. *Journal of Reproductive and Infant Psychology*, 16(1), 57-76. <https://doi.org/10.1080/02646839808404558>
- Garcia-Esteve, L., Torres, A., Lasheras, G., Palacios-Hernández, B., Farré-Sender, B., Subirà S., ... Brockington, I. F. (2016). Assessment of psychometric properties of the Postpartum Bonding Questionnaire (PBQ) in Spanish mothers. *Archives of women's mental health*, 19(2), 385-394.

- <https://doi.org/10.1007/s00737-015-0589-x>
- Kaneko, H., & Honjo, S. (2014). The psychometric properties and factor structure of the Postpartum Bonding Questionnaire in Japanese mothers. *Psychology*, 5(09), 1135. <https://doi.org/10.4236/psych.2014.59126>
- Ohashi, Y., Kitamura, T., Sakanashi, K., & Tanaka, T. (2016). Postpartum bonding disorder: Factor structure, validity, reliability and a model comparison of the postnatal bonding questionnaire in Japanese mothers of infants. *Healthcare*, 4(3), 50. <https://doi.org/10.3390/healthcare4030050>
- Reck, C., Klier, C. M., Pabst, K., Stehle, E., Steffenelli, U., Struben, K., & Backenstrass, M. (2006). The German version of the Postpartum Bonding Instrument: Psychometric properties and association with postpartum depression. *Archives of women's mental health*, 9(5), 265-271. <https://doi.org/10.1007/s00737-006-0144-x>
- Siu, B. W. M., Ip, P., Chow, H. M. T., Kwok, S. S. P., Li, O. L., Koo, M. L., ... Hung, S. F. (2010). Impairment of mother-infant relationship: Validation of the Chinese version of Postpartum Bonding Questionnaire. *The Journal of nervous and mental disease*, 198(3), 174-179. <https://doi.org/10.1097/NMD.0b013e3181d14154>
- Suetsugu, Y., Honjo, S., Ikeda, M., & Kamibeppu, K. (2015). The Japanese version of the Postpartum Bonding Questionnaire: Examination of the reliability, validity, and scale structure. *Journal of psychosomatic research*, 79(1), 55-61. <https://doi.org/10.1016/j.jpsychores.2015.02.008>
- Taylor, A., Atkins, R., Kumar, R., Adams, D., & Glover, V. (2005). A new Mother-to-Infant Bonding Scale: Links with early maternal mood. *Archives of Women's Mental Health*, 8(1), 45-51. <https://doi.org/10.1007/s00737-005-0074-z>
- Van Bussel, J. C., Spitz, B., & Demyttenaere, K. (2010). Three self-report questionnaires of the early mother-to-infant bond: Reliability and validity of the Dutch version of the MPAS, PBQ and MIBS. *Archives of women's mental health*, 13(5), 373-384. <https://doi.org/10.1007/s00737-009-0140-z>
- Winston, R., & Chicot, R. (2016). The importance of early bonding on the long-term mental health and resilience of children. *London journal of primary care*, 8(1), 12-14. <https://doi.org/10.1080/17571472.2015.1133012>