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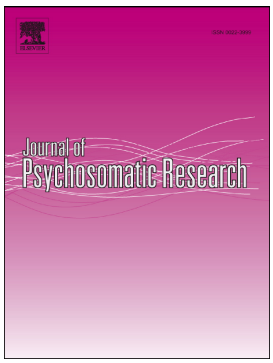

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The development and psychometric testing of the Perinatal Infant Care Social Support (PICSS) instrument

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Abstract

Background

Social support facilitates a woman's transition to motherhood. This major developmental transition can be stressful as it includes adaptation of self as well as learning new infant care practice skills. Although a number of instruments have been developed to measure social support, none have been developed or underpinned by theory in the context of perinatal infant care practices.

Aim

To develop a reliable and valid instrument to measure social support for new mothers in the perinatal period.

Methods:

Phase 1 involved the development of instrument structure and content. Constructs to be measured were defined through an analysis of relevant theoretical and empirical literature.

Phase 2 established the psychometric properties of the functional domain of the PICSS. Exploratory factor analyses and principal Component Analyses were undertaken with a sample of first-time mothers (n = 371) from postnatal wards of a large maternity hospital. Item reduction and Cronbach's alpha reliability tests were performed. The structural social support domain was not amenable to psychometric testing.

Results

Exploratory Factor Analyses and Principal Component Analyses of the functional domain resulted in a logically coherent 19-item, two-factor solution. The first factor 'Supporting Presence' has nine items (Cronbach's alpha = 0.90) and the second factor 'Practical Support' has ten items (Cronbach's alpha = 0.86).

Conclusions

The PICSS is a coherent and valid measure of social support for new mothers in the postnatal period in the context of infant care practices.

Keywords: Social support, perinatal period, instrument development, psychometric properties, mothers

Introduction and Background

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The World Health Organisation [1, 2] recommend that expectant mothers are supported throughout pregnancy and that they not only receive medical support but also comfort and reassurance. Becoming a mother is a major developmental transition and new mothers are faced with learning new skills relating to infant care practices as well as recovering physically and emotionally from child birth [3].

Social support for new mothers is associated with increased confidence [4, 5], high maternal parental self-efficacy (MPSE) [6-8], decreased risk of postnatal depression (PND) [9], facilitates improved infant bonding [10] and infant attachment [11].

Findings from research on social support in the postnatal period suggest that new mothers need the availability of a social network to include both formal (health care professionals) and informal (family and friends) sources of support [3, 12, 13] throughout the perinatal period. Mothers have indicated the need for different types of functional social supports from varied sources, depending on their needs at specific time points. The functional social supports identified as important to new mothers include: information, instrumental (hands-on help), emotional and appraisal (affirmation) support [3, 9, 13, 14]. Fundamental infant care practices identified by new mothers that require support include feeding, changing, settling to sleep and bathing practices [4, 15].

Social support has been investigated with new mothers in the postpartum period, both from mothers' perspectives [13, 16, 17] and from healthcare professionals' perspectives [14]. Social support has been measured using a variety of methods, tools and instruments [18]. Some of these include: the modified Kendler Social Support Interview [19]; the maternal social support scale [20], birth scenarios [21]; daily diary [22]; daily logs [23]; the Interpersonal Support Evaluation List (ISEL) [24]; a satisfaction scale for social support [3]; Norbeck Social Support Questionnaire [25]; Cohen's dimensions of Social Support Scale [26]; Social Provision Scale [27]; and formal structural support networks such as public health nurses [14] or midwives only [28]. The Support Behaviours Inventory instrument is contextualised within pregnancy [29] only and assesses types of social support available and does not assess availability of social networks. The Postpartum Social Support Questionnaire [30] was developed in the context of postpartum adaptation only and is not underpinned by theory. Measures such as these are limited in application as they were not developed or validated for use with women in the perinatal period and omit items that are important to women in the context of infant care practices. Furthermore, their development using a theoretical framework is absent. As per social support theory, there is a need to separate the sources and the types of support as assumptions of support are frequently made [31].

No previous instrument has been developed underpinned by theory measuring social support for new mothers in the context of infant care practices. To facilitate the collection of credible data for a health measure, it is recommended that instrument development proceed from theory [32]. The Perinatal Infant Care Social Support PICSS instrument was designed to measure social support in the context of perinatal infant care practices underpinned by social support theory [33]. Furthermore, it clearly facilitates the identification of the potential sources (structural) of the different types (functional) of supports in the context of infant care practices.

Aim

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To develop a reliable and valid instrument to measure social support for new mothers in the context of infant care practices in the perinatal period.

Methods

A two-phase methodological design was undertaken. Phase 1 involved the development of the instrument structure and content with Phase 2 focused on evaluating factor structure of both the structural and functional domains and psychometrics of the functional domain.

Phase 1 involved the development of instrument structure and content. Constructs to be measured were defined through an analysis of relevant theoretical and empirical literature. The item pool for this instrument was generated from a review of relevant theoretical and empirical. It was developed based on social exchange theory [34] and social support theory [33, 35-38]. Social exchange theory is based on the central premise that human behaviour is in essence an exchange, particularly of rewards or resources [34], which necessitates a relationship between at least two people. Social support theories were investigated to provide insight and explain the process through which social relationships promote health and well-being as a buffering effect for stress, such as transition to motherhood [33, 35-38]. There is no consensus on the definition of social support. Schumaker and Brownell [38] define it as an exchange of resources between two individuals that enhances well-being but does not provide any details on such resources. Cobb [35] defines it in terms of reciprocity with the focus on information that enhances well-being and does not view the exchange of goods or services as social support. Whereas, Khan and Antonucci [36] define it in terms of interpersonal transactions that include one or more of three dimensions: affect (emotion); affirmation (appraisal) and aid (instrumental), but omits the dimension of information. A more complete definition used is that proposed by House [33] as: 'The combination of social structures and social functions, where social structures demonstrate cohesiveness and there is a flow of emotional concern, instrumental aid, information, and appraisal between people' (p.26). Furthermore, a concept analysis was undertaken to provide greater clarity on the concept and working definitions agreed which provided guidance about the type of information to be collected [39]. The construct was then 'unpacked' so that relevant dimensions of the construct were identified [32]. Therefore, the construct of social support as conceptualised for this study includes two intrinsically linked domains, namely: structural and functional domains.

Structural supports refer to the people within their social network that are available to provide support. The functional domain refers to the types of support exchanged, namely: informational, instrumental, emotional, and appraisal. From empirical literature [40-43] on the transition to motherhood, support for the efficacy of including such theoretical tenets was established. The structural domain is the social network of the mother which includes both formal (healthcare professionals) and informal (family and friends). Informational support is the availability of appropriate relevant advice, suggestions and directives for the mother in her present circumstances. Instrumental support is characterised as access to behaviours that directly helps the mother, such as hands-on help with housework or infant care. It is considered to be concrete assistance or tangible aid. Emotional support is delineated as those acts that provide empathy, concern, caring, love and trust. Appraisal support is identified as the transmission of information relevant to self-evaluation, which may be derived from affirmation, feedback and social approval opportunities. Based on the outcomes of the theoretical and empirical literature a conceptual framework was developed to

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guide the item development of the instrument. In addition to the theoretical and empirical review of the literature, existing social support instruments used to measure social support were appraised so that defining social support in the context of the perinatal period could be evaluated to progress the development and refinement of instruments in this area [44]. The item generation process resulted in an original item pool of 122 items. This pool was then reviewed in an effort to eliminate or amalgamate indicators that were repetitive. This iterative process resulted in a pool of 37 items.

A panel of 8 purposely selected individuals with either relevant professional backgrounds or lay expertise assessed the PICSS for clarity and content validity. These included: two international academics with expertise in designing a similar previous instrument; two midwives, one with both academic and clinical expertise in caring for women in the postnatal period and one senior management clinician on the postnatal wards; two public health nurses (PHNs), one with both academic and clinical expertise with postnatal women and infants in the community and one senior PHN clinician; two mothers with infants aged 3 and 6 months respectively. Items were judged to be of sufficient clarity if a 70% agreement was reached by participants [45]. A formal content validity index (CVI) was computed by averaging individual item CVIs, summing them together and dividing by the number of instrument items. The validity of items was estimated using the CVI where an overall CVI of 0.90 is recommended and was reached [46]. Based on the panel judgments, 15 items were eliminated and four items were reworded. Therefore, items were reduced from 37 to 22. One was eliminated from each of the four functional dimensions as two of the items within each were collapsed to remove the naming of specific health care professionals while retaining the concept of this type of support. Two additional items were removed from the each of the four functional dimensions as deemed not relevant to the contextual time point of 6 weeks postpartum. One item was removed from the appraisal dimension as deemed repetitious as was one each from instrumental and emotional dimensions. A pilot study was carried out with respondents (n = 20) to test the face validity of the instrument with no changes recommended. Therefore, the final number of items for scoring was 22.

The total Functional Social Support Score was the sum of all items giving a total possible minimum score of 22 and maximum score of 88 for each person. Each subscale was scored by the sum score. For both the Informational and the instrumental subscale the scores ranged from the lowest at 7 to the highest at 28. For the Emotional and Appraisal subscale, the scores ranged from the lowest at 4 and the highest at 16. Structural social support was assessed from both formal and informal sources and were considered to have been available if any of the four types of support were identified from at least one source.

Phase 2 established the psychometric properties of the functional domain of the PICSS. Research Ethics Committee approval was granted and first-time mothers (n= 589) were recruited on the postnatal wards. Based on the number of items within the scale (22) and sample size prerequisites for psychometric data analysis techniques [47, 48], a sample size of approximately 300 participants was desirable. Eligibility criteria for selection were: first-time mother; 18 years and over; medically uncomplicated pregnancy or delivery; full term at delivery; singleton baby; baby discharged with mother; and English as first language. Eligible participants were recruited in 2008 following a hospital birth and provided with an information leaflet. Those interested signed written consent to

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participate (n=568) and at 6 weeks postnatal were mailed the questionnaire. Of the 568 eligible participants, 410 completed the instrument. Thirty-nine participants who had 25% or more missing data were excluded from data analysis, giving a total sample of 371 which underwent Exploratory Factor Analysis and Principal Component Analyses. The structural social support domain was not amenable to psychometric testing.

Exploratory factor analysis (EFA) was conducted to examine the factor structure of the functional domain of social support 22 items. Prior to performing EFA, the suitability of data for factor analysis was assessed using Bartlett's test of sphericity, the Kaiser-Myer-Olkin (KMO) statistic, and the correlation and anti-image correlation matrices. Principal component analysis (PCA) was used to extract the factors. The primary method used for determining the number of factors to retain was Horn's parallel analysis. Kaiser's criterion (eigenvalues>1) and inspection of the scree plot were also applied. To aid interpretability of the retained factors, an oblimin (delta=0) rotation was used. Oblique rotation was used as it was hypothesised that the factors would be correlated. As the responses to the items were ordinal, the 22×22 inter-item polychoric correlation matrix (rather than Pearson's correlation matrix) was used for the EFA. Items with a minimum loading of 0.4 on at least one factor were retained and any items that cross-loaded onto two or more factors with a difference in loadings of ≤ 0.3 were removed. Stata (Version 13.0, StataCorp LP, College Station, TX, USA) was used to generate the polychoric correlation matrix and EFA was conducted in IBM SPSS Statistics [49] using the matrix exported from Stata.

Results

Sample characteristics

The demographic characteristics indicated that the majority of women (n=350, 94.6%) were Irish; two thirds (n=232, 66%) aged between 27-35 years; over two-thirds (n= 258, 70%) educated to third level and living with their husband/partner (n=306, 87%) with equal numbers breast (n=162) or formula feeding (n= 161) their infant. (see Table 1). This resembles the characteristics of first-time mothers in Ireland (CSO, 2017).

Exploratory factor analysis

The data were suitable for factor analysis. All items, except one "I learn from other mothers' experiences" had a minimum correlation of 0.3 with at least one other item. The Kaiser-Meyer-Olkin value was 0.83 (above the recommended minimum of 0.6) and Bartlett' test of sphericity was statistically significant ($p<0.001$). The diagonals of the anti-image correlation matrix were all over 0.5, supporting the inclusion of each item in the factor analysis.

In the initial principal component analysis, 4 factors had eigenvalues greater than 1, explaining 43.3%, 15.1%, 5.9% and 4.8% of the variance, respectively. Parallel analysis supported a two-factor solution, accounting for 58.4% of the variance. The scree plot also supported a two-factor solution (Figure 1).

PCA using an oblimin rotation of the 2-factor solution was conducted and inspection of the pattern matrix showed that one of the items "I learn from other mothers' experiences" failed to load onto either factor with a factor loading of at least 0.4 (factor loadings: 0.130 and 0.305 with factor 1 and factor 2, respectively). The EFA steps were repeated with this item removed. Again, a two-factor

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solution was supported and the pattern matrix of the 2-factor solution after an oblimin rotation was examined. One item "I get positive feedback from professionals about the care I give my baby" cross-loaded on both factors (factor loadings: 0.463 and 0.318 with factor 1 and factor 2, respectively). This item was removed and the EFA steps repeated. Again, a two-factor solution was supported and the pattern matrix of the 2-factor solution after an oblimin rotation was examined. One item "I have time for myself" cross-loaded on both factors (factor loadings: 0.429 and 0.227 with factor 1 and factor 2, respectively). This item was removed and the EFA steps repeated. Examination of the pattern matrix of the 2-factor solution after an oblimin rotation revealed that each item loaded on to one factor only with a loading of at least 0.4. The results of the final 2-factor solution are presented in Table 2. The percentage of total variation explained post rotation was 63.2%. Factor 1 explained 45.8% of the total factor solution variance with Factor 2 accounting for 17.4% variance. There was a moderate correlation between the two factors (r=0.416). The first factor has nine items (Cronbach's alpha = 0.90) and the second factor has ten items (Cronbach's alpha = 0.86). The functional social support measure includes 19 items: Factor 1 'Supporting Presence' has 9 items, and Factor 2 'Practical Support' has 10 items. Each item is rated on a four-point Likert scale, from 'strongly disagree' to strongly agree' (Table 2).

Structural social support

The structural social support measure includes six items that identify the individuals who provide support to mothers. Structural social support from both formal (nurses/midwives, doctors) and informal (husband/partner, maternal parents, sisters, friends, neighbours and others) sources are considered. Participants respond to whether they receive informational, instrumental, emotional or appraisal support from any of the aforementioned sources, using a tick box. For example, the questions are laid out horizontally across the top of the page and the sources as delineated vertically on the left of the page. Participants are asked to tick a box indicating if they 'receive information about caring for their baby in relation to feeding, changing, bathing and settling to sleep' support from any of the sources listed on the left side of the page. Similar questions are posed related to 'hands-on help with infant care practices'; 'show care, love and respect you since you had your baby' and 'Praise you for doing a good job in caring for your baby'.

As previously indicated the internal consistency of the structural domain of social support was not amenable to assessment. Research determines that two measurement models can be distinguished in the development of measurement tools. These are the effect indicator model and the causal indicator model. This study relates to a measurement model in which the items determine the construct (causal indicator model), and where the items are not necessarily correlated. Therefore, reliability statistics or internal consistency are not applicable on our structural domain of social support [50].

The descriptive statistics for Structural social support are presented in Tables 3 and 4. The findings revealed differences in the types of social support provided by various persons from respondents' social support networks. The vast majority of respondents reported informal social networks as their source of support (M = 5.2 SD = 1.8) in caring for their infants since birth.

Discussion

The purpose of this study was to develop a reliable and valid instrument to measure social support for new mothers in the perinatal period underpinned by theory. Following a rigorous item generation and refinement process, item and exploratory analyses revealed a two-factor, 19-item

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solution which accounted for 63.2% total explained variance. This amount of variance is considered meritorious from a research perspective given the multiplicity of factors to impact on social support in the perinatal period. The PICSS instrument has two domains: Structural and Functional, which are intrinsically linked. Structural social support are the sources or the people from the women's social network who provide different types of support. The structural social support measure was not amenable to psychometric testing. The results of the analyses for the functional social support domain revealed an instrument with 2 factors and 19-items, measuring functional support in the context of infant care practices. Functional social support factor 1 items reflect 'Supporting Presence' and factor 2 items reflect 'Practical Support'.

Whilst the theoretical assumptions emanating from such literature as discussed previously, suggested four functional domains, this analysis resulted in only two Factors. This is not surprising as establishing psychometric measures is a difficult task, particularly for psychological constructs, such as social support. There is continued debate and only broad consensus in the literature as to the agreed conceptualisation of social support [51]. The identification of two factors in terms of functional support differs somewhat with the analysis of the concept underpinned by social support theories in the development of the instrument as discussed previously. However, the four functional dimensions as articulated within the theoretical literature are clearly reflected in the two new factors, but not explicitly delineated as they are more nuanced. Factor 1 'Supporting presence' reflects the dimensions of emotional and appraisal support in terms of items relating to being comforted, cared for, being appreciated and having someone to talk to and share how they feel. Factor 2 'Practical Support' reflects informational and instrumental support. These items convey appropriate relevant advice on infant care and access to behaviours that directly helps the mother, such as hands-on help with housework or infant care. It is not perhaps unusual for mothers' highest priority needs (encouragement and information) to be emphasised in terms of measurement. Most measurement is directed towards constructs that we cannot directly observe, such as attitudes, mental health, knowledge, executive functions, personality traits, political preferences, culture, cognitive biases, and motives. Perhaps other functional support factors would be identified at different stages later in the parenting journey.

From a conceptual coherence perspective, it makes sense to present the structural domain under the four types of social support. From a psychometric perspective they are considered separate whereas they are conceptually congruent but not psychometrically congruent. The difference from this analysis is that two factors now describe their categorization within functional support. However, it would be reductionist to further sub divide the structural purely for aesthetic reasons. The 2 final factors encompass the four original functional dimensions. From a clinical perspective, which is the eventual point for this instrument, pending further validation work, the nuanced information necessary for clinicians to assess social support for women in the perinatal period requires this level of detail.

The added contribution of the PICSS to this debate is of particular importance for new mothers, particularly first-time mothers who are transitioning to motherhood. Transition to motherhood is known to be challenging and stressful for some women and the empirical evidence on the positive association between social support and reducing adverse maternal and child mental and physical health outcomes is well established [52, 53]. The items in factor 1: 'Supporting Presence' delineate the types of support new mothers need at this time and thus are context specific. These items are

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further illuminated by the Structural domain of the questionnaire as responses clearly outline the people from the mother's social network that can provide such types of support. Previous research [12, 13] has reported that new mothers' husbands/partners and own mothers to be the main sources of emotional and affirmational support, which again reflects both underpinning theories of social exchange [34] and social support [35, 45]. Items in factor 2: 'Practical Support' reflect the knowledge and hands-on help that new mothers need in caring for themselves and their infant during this time when everything is new and challenging. Previous research has found that infant feeding, bathing, changing and settling to sleep are the key infant care practices that new mothers struggle to manage [4, 12, 54]. Thus, factor 2 clearly reflects such social support needs specific to women in this transitional period. Three items, namely: "I learn from other mothers' experiences"; "I get positive feedback from professionals about the care I give my baby"; and "I have time for myself" did not load onto either factor. Given the time point of data collection at 6 weeks postnatal, first-time mothers' opportunities for meeting others in similar circumstances or healthcare professionals and having time for themselves are limited. From a theoretical perspective, inclusion of named persons is redundant as this aspect is attended to in structural social support domain.

The structural domain of the questionnaire facilitates the identification of persons who can support new mothers with infant care practices. Previous research indicates that this may be provided by both formal and informal sources [13, 52, 54]. Results from Law et al's (2018) [54] study with first-time mothers in Australia, identified other mothers and child health nurses as key sources of support to enhance maternal confidence and reducing psychological distress in the early postpartum period.

Raising awareness of the importance of social support for women throughout the perinatal period by healthcare professionals engaged in the provision of antenatal care and education is crucial to facilitating this transition to motherhood [54-56]. Throughout the perinatal period continuous awareness of postnatal infant care planning is required of health professionals who care for pregnant women. Much attention is given to preparation for childbirth within antenatal education, including preparing a birth plan. However, preparedness for the postnatal period receives sparse attention within antenatal clinical appointments or education [57].

Strengths and Limitations

In terms of research on social support in the context of the perinatal period, the PICSS is specifically designed and underpinned by theory. It offers a new measure of social support for first-time mothers in the perinatal period. Thus it will contribute to the extent to which a support intervention influences the type (functional) of support it was intended to positively influence or designed to generate sources of support from the individual's social network (structural). For example, some interventions aim to increase the perception and availability of a 'supporting presence' in the guise of emotional support and others to mobilise 'practical support' such as hands on help with the infant. Such interventions can be assessed using the PICSS as it is specific to this context and thus will contribute to the body of knowledge on how social support relationships influence health and well-being of new mothers as recommended by social support theorists [58] and instrument developers [44]. The limitations of this study include the sample being homogenous to an Irish Caucasian population with no ethnic diversity. Although important information regarding social support in the postnatal period in this specific populace was generated, the reliability and validity of the PICSS needs investigation in more diverse populations. Furthermore, examination of social support and

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how this changes throughout the perinatal period at the various time points (antenatal, intranatal, postnatal beyond the first 6 weeks) requires further investigation. Further psychometric testing of the PICSS is necessary, including confirmatory factor analysis (CFA). In using the PICSS in clinical practice, social support needs of new mothers could be assessed and where support is limited or absent, either from a structural or function perspective, supports could be mobilized by health care professionals in partnership with the mother. However, further testing and analysis to provide the instrument's sensitivity, specificity and positive and negative predictive value would be required prior to its use in clinical practice.

Conclusion

The Perinatal Infant Care Social Support (PICSS) Instrument is a coherent and valid measure of social support specific to the postnatal period. The PICSS differs from other social support instruments in that it was developed and designed specific to the postnatal context underpinned by theory. As a psychometrically sound instrument it can be used in research to further contribute and enhance the science on social support for new mothers. However, further testing in terms of using more diverse samples; at different time points across the perinatal period using CFA is warranted. Furthermore, and more specifically, the development of the PICSS for use by healthcare providers who need to identify low levels of support for new mothers and intervene early to forestall poor outcomes is recommended.

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Table 1. Characteristics of participants, n=371*

	n	(%)
Gender (n=369)		
Female	197	(53.4)
Male	172	(46.6)

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Age (years)		
18-22	45	(12.1)
23-26	51	(13.7)
27-30	113	(30.5)
31-35	119	(32.1)
36-40	36	(9.7)
≥41	7	(1.9)
Highest education level (n=370)		
Primary	5	(1.4)
Secondary	103	(27.8)
Third level	258	(69.7)
Other	4	(1.1)
Living arrangements (n=354)		
Husband	219	(61.9)
Partner	87	(24.6)
Parents	38	(10.7)
Alone	9	(2.5)
Other	1	(0.3)
Type of delivery (n=368)		
Vaginal	148	(40.2)
Caesarean section	113	(30.7)
Instrumental	107	(29.1)
Method of feeding (n=366)		
Breast	162	(44.3)
Bottle	161	(44.0)
Both	43	(11.7)
Day of discharge (n=290)		
Day 1	1	(0.3)
Day 2	27	(9.3)
Day 3	111	(38.3)
Day 4	99	(34.1)
Other	52	(17.9)

*unless otherwise stated

Table 2. Results of EFA with PCA and oblimin rotation of two-factor solution, n=371

Items	**Factor 1**		**Factor 2**		**Communalities**
	Pattern	Structure	Pattern	Structure	
I have someone to care & comfort me	**0.920**	**0.918**	-0.005	0.378	0.843
I have someone to talk to & share experiences with	**0.914**	**0.920**	0.015	0.395	0.846
Those close to me understand that it is ok for me to need help	**0.891**	**0.883**	-0.019	0.351	0.779
I have someone to talk to about how I feel	**0.871**	**0.889**	0.044	0.406	0.792

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I have someone who shows me appreciation	**0.851**	**0.871**	0.050	0.403	0.761
If I need advice there is someone who will assist me	**0.841**	**0.853**	0.028	0.378	0.728
I have people to count on when things go wrong	**0.838**	**0.871**	0.079	0.428	0.764
I won't be on my own taking care of my baby	**0.746**	**0.769**	0.054	0.364	0.593
I have someone to help with routine housework	**0.707**	**0.667**	-0.095	0.199	0.453
I can get information on how infant comfort/settling	-0.168	0.205	**0.897**	**0.827**	0.708
I can get information on infant changing/dressing	-0.160	0.196	**0.857**	**0.790**	0.646
I can get hands-on help with comforting baby	-0.019	0.294	**0.753**	**0.745**	0.555
I can get hands-on help with infant changin/dressing	-0.018	0.290	**0.739**	**0.732**	0.536
I can get hands-on help with infant feeding	0.079	0.381	**0.727**	**0.760**	0.582
I can get information on infant feeding	0.041	0.343	**0.726**	**0.743**	0.554
I can get information on infant bathing	0.057	0.337	**0.674**	**0.698**	0.490
I can get hands-on help with infant bathing	0.149	0.421	**0.654**	**0.716**	0.532
I can get consistent information on infant care	0.121	0.387	**0.641**	**0.691**	0.490
I can get information on taking care of my body after birth	0.115	0.337	**0.534**	**0.581**	0.349
Percentage of total variation accounted for		45.8		17.4	
Factor intercorrelations					
Factor 1		1		0.416	

Table 3. Informal Structural Support at Birth, n=371

Persons who provided support	Informational Support n	(%)	Instrumental Support n	(%)	Emotional Support n	(%)	Appraisal Support n	(%)	Any Support n	(%)
Informal supports										
Husband/Partner	143	(38.5)	314	(84.6)	346	(93.3)	336	(90.6)	351	(94.6)
Mother	274	(73.9)	227	(61.2)	307	(82.7)	281	(75.7)	325	(87.6)
Father	57	(15.4)	73	(19.7)	239	(64.4)	200	(53.9)	254	(68.5)
Sister 1	166	(44.7)	143	(38.5)	245	(66.0)	210	(56.6)	260	(70.1)
Sister 2	63	(17.0)	63	(17.0)	125	(33.7)	102	(27.5)	133	(35.8)
Friend 1	179	(48.2)	104	(28.0)	231	(62.3)	192	(51.8)	269	(72.5)
Friend 2	97	(26.1)	61	(16.4)	168	(45.3)	131	(35.3)	189	(50.9)
Neighbour 1	46	(12.4)	21	(5.7)	55	(14.8)	52	(14.0)	77	(20.8)
Neighbour 2	31	(8.4)	24	(6.5)	35	(9.4)	33	(8.9)	53	(14.3)
Cronbach's alpha value[1]	0.563		0.663		0.700		0.715		0.628	

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Mean inter-item correlation[1]	0.129	0.179	0.204	0.211	0.154
Cronbach's alpha value[2]	0.448	0.544	0.584	0.619	0.476
Mean inter-item correlation[2]	0.125	0.155	0.187	0.209	0.138

[1]all 9 informal supports included
[2]6 informal supports included: husband/partner; mother; father; at least one sister; at least one friend; at least one neighbour

Table 4. Formal Structural Support at Birth, n=371

Persons who provided support	Informational Support n	(%)	Instrumental Support n	(%)	Emotional Support n	(%)	Appraisal Support n	(%)	Any Support n	(%)
Formal supports										
Midwife	273	(73.6)	174	(46.9)	83	(22.4)	163	(43.9)	279	(75.2)
G.P.	110	(29.6)	31	(8.4)	33	(8.9)	46	(12.4)	122	(32.9)
Community nurse	69	(18.6)	26	(7.0)	20	(5.4)	22	(5.9)	74	(19.9)
Cronbach's alpha value	0.522		0.534		0.713		0.511		0.541	
Mean inter-item correlation	0.269		0.366		0.520		0.321		0.282	
Any professional support	288	(77.6)	179	(48.2)	87	(23.5)	174	(46.9)	294	(79.2)

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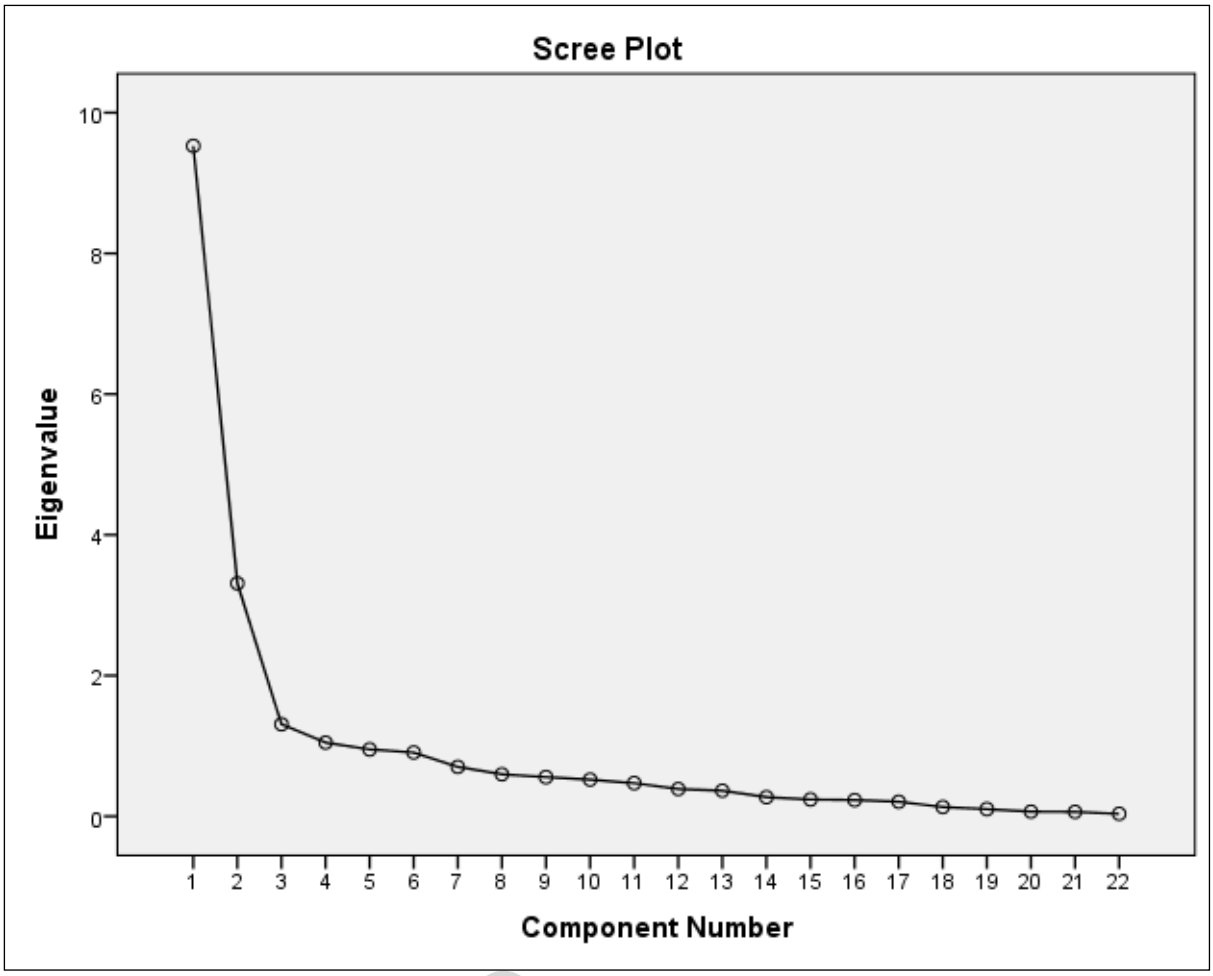

Figure 1. Scree plot

Highlights

- The PICSS is a coherent and valid measure of social support for new mothers in the postnatal period.
- The first social support instrument that was developed underpinned by theory in the context of the perinatal period
- The PICSS can be used to assess for maternal social support needs in the postnatal period.

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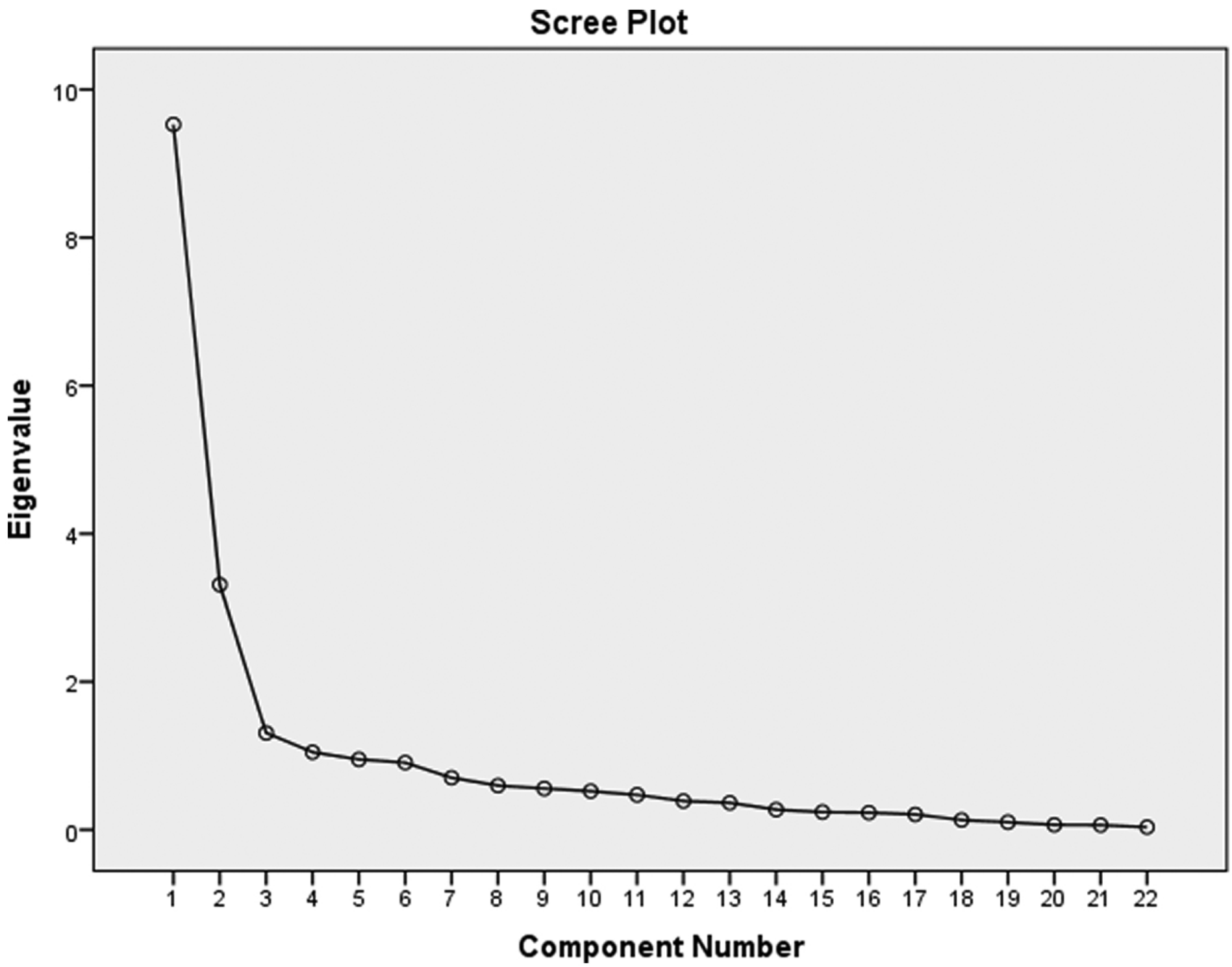
Scree Plot
Eigenvalue
10
8
6
4
2
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
Component Number

Figure 1