Development of Adler Birth Order Scale

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The present study was aimed to assess birth order theory proposed by Adler (1928) among college to university aged students in Pakistan. For this, two studies were carried out. In Study 1, Adler Birth Order Scale was developed to measure personality traits associated with birth order. After literature review, items were generated, translated, and content validity index was established followed by a pilot study. Further, construct validity was established with a sample of 400 participants (with equal gender distribution), with age range 19-25 years in Lahore. Exploratory Factor Analysis resulted in 50 items with eight core traits including deviant, conscientious, pampered, social interest, parental attention, self-centered, neurotic, and competitive. The Scale showed a relatively high reliability, with adequate range of reliability for subscales. In Study 2, Confirmatory Factory Analysis was computed on an independent sample of 400 participants (men = 198, women = 202), with age range 19-25 years and results revealed a good model fit to the data, validating the eight-factor structure of the scale, established through EFA earlier. However, 11 items receiving low factor loadings were omitted from different subscales, thus, 39 items were retained for the final version of Adler Birth Order Scale with higher Cronbach alpha .90. Use of this scale was discussed for clinical practice.

Keywords. Scale development, Adler, birth order, factor analysis, personality traits

The imperative role of birth order in shaping personality was highlighted for the first time by Adler (1927), who was the founder of Individual Psychology and based on his clinical and observational work; he proposed birth order was associated with personality characteristics or traits (Akgeyik, 2013). In order to develop a scale to measure birth order related personality traits, it was necessary to understand the Adler's birth order theory in detail for instance,

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Ansbacher and Ansbacher (1956) paraphrased Adler's ideas by stating the fact that first born receive maximal parental attention for being the only child in their lives till they have other children; and because of this, the first born is the only child where parents instill their views, rules, and traditions. With the arrival of other siblings, the first child learns leadership skills like their parents, and becomes consistent in dealings and exchanges like them. They hold a serious attitude, become self-reliant, and are conventional to secure their unique status to continuously receive parental attention (Hotz & Pantano, 2015). The oldest children train themselves to imitate their fathers or mothers to look after their younger siblings. They are high achiever and consider success important to excel in life. They strive towards leadership and become the upholder of family traditions, moral standards, and responsibility to keep their parents happy. Also, first born obey rules, strive towards perfectionism, and develop trust in their capabilities.

Stein (2005) points out when second and additional siblings arrive first born children feel dethroned, feeling neglected, and no more focal to their parental attention; if these feelings are addressed and reconciled by the parents, first born children become strong traditionally and resemble much like their parents in later life. However, if they feel parents have neglected them and have not given valid explanations of their lack of attention, they become aggressive, rigid, critical, timid, reclusive, pessimistic, criminal minded, likely to indulge in drugs and alcohol.

According to Adler (1964), middle born are in race with their elder siblings (first and second) and want to surpass people who are superior to them because they want to be in the spotlight just like the first sibling. So, they try to adjust in their family by becoming sociable, flexible, and developing a stable personality. For last born, Adler stated that parents gratify their last-born children with extreme indulgence, care, and kindness, and try to fulfill their desires or needs even though they already have those possessions. This pampering continues in adolescence and into adulthood (Ansbacher & Ansbacher, 1956). Adler (1964) also pointed out, parents' pampered attitudes make the children self-centered, dependent, immature, drug abusers, or antisocial, but when they see themselves as inferior to other siblings, a powerful drive to become autonomous to surpass their siblings emerge (Adler, 1926; Ansbacher & Ansbacher, 1956).

The inclusion of items in scale was based on relevant literature. The phenomenon of birth order has inspired many researchers since Adler introduced this concept in the 1920s. Beck et al. (2006) carried out a study on undergraduate and postgraduate students in Germany,

revealing that first born were more dominant and authoritative, while second born found to be more sociable. Eckstein et al. (2010) found that middle born possess more interpersonal skills like sociability and are also rebellious to reconnoitering different areas of life than elder siblings, while last born are pampered by parents and secure baby position. Suitor and Pillemer (2007) found that parental favoritism keep continued even when their children enter in adulthood, as it was seen that mothers were more emotionally attached with their last-born adult children while they were more likely to discuss their problems and crises with their first adult child.

In Pakistani context, a qualitative study revealed that parents perceive their first child as a role model for siblings and second child imitates the first sibling and learn many things from him/her. First-born children are given more responsibilities and expected to mature earlier. They are also expected to adopt parental roles to carry over the family traditions. Thus, they become perfectionist, and conscientious as they copy their parents to complete different tasks (Kamran, 2016; Swada & Loshkin, 2009). Further, Alvi et al. (2009) found that first born adults are more vulnerable to experience psychological issues due to meeting up parental expectations, however, researchers also found that neurotic tendencies can also be developed among middle born for being neglected (Khan et al., 2006; Zain et al., 2014).

To fill the gap in literature, it has been considered necessary to develop a personality scale, to measure the traits for different birth ranks. Adler Birth Order-Scale (ABOS) was particularly based on Adler's theory that measured several unique factors related to his general concept of birth order. There are many standardized scales to measure personality, for example, NEO Personality Inventory-Revised (McCrae & Costa, 1992), Big five Aspect Scale (DeYoung et al., 2007), etc. However, these scales measure personality traits generally and do not comprise of all areas covering Adler's birth order theory (Adler, 1927). Therefore, a unique scale was developed that measured all traits that could be subsumed under Adlerian concept of birth order. For instance, in Conscientiousness subscale an item added "*in order to take care of my siblings, I play the role similar to my parents*" which is based on true paradigm of Adler (1927). In competitive domain, items were added like "*I want to surpass all my siblings in different activities*". Especially, parental attention and pampered behaviors of parents were entirely new factors (with reference to Adler's birth order theory); therefore, ABOS exclusively included these factors. The scale is especially relevant in indigenous context as an average sibling size in Pakistani family is four (Rana, 2017). Moreover, the first sibling is usually supposed to be a role

model for siblings, while last born is the most pampered one. Siblings are continued to be treated in the same manner even in adulthood which affects their personality (Swada & Loshkin, 2009).

This study elaborated the role of birth order in whittling personality that modifies behavior and is necessary for personal growth or style of life, as Adler (1928) put it. Hence, findings of this study may be useful in clinical settings, where professionals would counsel clients and their parents on connotations associated with birth order manifesting distinct personalities (Heinrichs & Doss, 2010). A valid and reliable tool can also be helpful for researchers to address birth order issues in normal and clinical adult population. Thereby, the present study added valuable and latest findings in literature about birth order related personality traits.

The broader objective of the present study is to develop a valid and reliable personality-based birth order scale based on Adler's birth order theory, which could help examining the traits among young adults at different birth order positions.

Method

The present research consisted of two studies. Study 1 dealt with the development of ABOS. In Study 2, the factorial structure of ABOS was confirmed and validated on a separate sample through Confirmatory Factor Analysis.

Study 1: Development of ABOS

The current study was carried out in three phases, where Phase 1 was carried out in six steps.

Phase 1: Identifying the Phenomenology of Adler's Birth Order Theory

Step 1: Literature review. Boynton and Greenhalgh (2004) method with a few modifications was used for scale development. In step one, an extensive literature review of Adler's birth order theory (Adler, 1927) was carried out to identify core personality traits. An extensive list of personality traits related to birth order were generated by reviewing articles during 1990 to 2020 (Beck et al., 2006; Galloway, 2010; Gustafson, 2010; Healey & Ellis, 2007; Khan et al., 2006; Moffitt, 2005; Marini & Kurtz, 2011; Rohrer et al., 2015; Zain

et al., 2014). Many books written by Adler or by his biographers were also reviewed.[2]

Step 2: Generation of item pool. A pool of 66 items for different birth ranks were established. For instance, Ansbacher and Ansbacher (1956) pointed out, first-born receive greatest parental attention for this, two items were developed like "*I have always been the center of attention of my parents*". Adler (1926) suggested because of this parental attention, first-born become traditionalists, rules oriented, take responsibilities, adopt parental roles, possess leadership qualities, concerned about status, serious, self-reliant, consistent, and perfectionists and to test if this was the case, 15 questions were prepared such as "*I am a traditional person", I possess leadership skills*". Alder (1928) also stated that when first born are no longer the receiver of their parental attention (dethroned by younger siblings) or overburdened by parents, they become neurotic and psychopaths. For this, 15 questions were generated.

Further, Adler (1931) articulated that middle-born children are in a race with their elder siblings and also want to surpass people who are superior to them. So, two questions were developed to measure second born competitive abilities such as "*I try to show better performance than my elder sibling in various activities*". For social interest, eight questions are, "*I meet people warmly*", "*I co-operate with others*". were developed. In addition, items to measure middle children's loneliness and insecure feelings due to parental neglect were also developed. For last born, pampered attitudes of parents were measured by establishing five questions like "*I am pampered by my parents*". Further, items to inquire self-centered and dependent tendencies were developed. Thus, a pool of 66 items was generated and given to experts to get their opinion on it.

Step 3: Response format. A 5-point rating scale for all items was developed, with response categories 0 (*never*), 1 (*rarely*), 2 (*to some extent*), 3 (*often*), and 4 (*always*) using Brown (2010) method.

Step 4: Translation method. Brislin's (1970) translation method, with little modifications was used (Willgerodt et al., 2005). The process of *forward translation* involved three Doctoral faculty members (Assistant Professor = 1, Associate Professors = 2) at the

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[2] An Individual Psychology of Alfred Adler (Ansbacher & Ansbacher, 1956); The Collected Clinical Works of Alfred Adler, Volume 10: Case Readings and Demonstrations (Stein, 2005); Understanding human nature (Adler, 1927)

Applied Psychology Department, public university, with age range 39-55 years, and married were approached. The pool of 66 items developed in Urdu by researchers was given to these bilingual experts, to examine the wording of developed items and to translate them in English. A few items in Urdu were changed by experts like *mein logon (waldein/rishtedar/dost) k sath intehai mukhlis hun* was changed to, "I am loyal to people". Later, the best translated versions among three were chosen for back translation.

The process of *back translation* involved three Psychology experts (MPhil = 1, PhD = 2), aged between 30-50 years, with more than 15 years of experience in personality theories. The pool of 66 items of the best translated versions, extracted from forward translation, was given to these experts for back translations into Urdu. Experts read the translated English items carefully and clarified them for ambiguity or other linguistic confusions. They translated back the English version into Urdu which were the best representations of English and Urdu items.

Step 5: Endorsements. Content Validity Index (CVI, Lawshe, 1975; Polit & Beck, 2006) was determined with three experts (professional clinical psychologists), with an average clinical experience of about six years ($M = 5.70$, $SD = 1.30$). A review of 66 items for relevance, clarity, and endorsements was rated on 2 (*yes*), 1 (*to some extent*), and 0 (*no*), which resulted in removal of 8 items that got lower endorsements (.67) and were excluded (see Wynd et al., 2003); CVI .91 was considered excellent thus, leaving 58 items for further process.

Step 6: Pilot study. It was carried out on 30 (men = 15, women = 15) young adult undergraduates, who did not report any difficulty in comprehending scale items. A preliminary coefficient of reliability ($\alpha = .76$) was found to be adequate.

Phase 2: Establishing Construct Validity via Factor Analysis

In Phase 2, construct validity was established through factor analysis using a cross-sectional research design.

Sample. Using purposive sampling technique, adequacy of sample size was determined by the general rule of thumb that is five participants per item; and since there were 58 items, a sample of 290 was deemed adequate to run Exploratory Factor Analysis (EFA) minimizing violations (Tinsley & Tinsley, 1987). Tabachnick and Fidell (1996) recommended for EFA a sample size of 300 is fine, and a sample of 500 is very good. So, a sample of 500 participants was

taken, however, data from 100 participants could not be used for various reasons including partially or not completing the scale, hence, resulted in data of 400 (men = 200, women = 200) young adults with an age range of 19-25 years (M = 21.11, SD = 1.68) years for analysis. There were an equal number of first (n = 100, 25%), second (n = 100, 25%), middle (n = 100, 25%), and last-born (n = 100, 25%) participants. Participants represented 90% of the enrollment in third to sixth year classes; while 10% were from MS/MPhil. They were selected from two government colleges (n = 120, 30%), two government universities (n = 140, 35%), and a private university (n = 140, 35%); and were living in nuclear (n = 254, 63%) and joint family system (n = 146, 37%).

Exclusion criteria. In the current study, participants who were psychologically or physically handicapped were not selected. Participants living with stepparents (either mother or father), employed (even part-time employed), and engaged or married were not selected. Twins and only children were not included in the sample, and participants with divorced or widowed parents were not chosen. Finally, students of psychology and hostelites were excluded.

Procedure. Administrators of higher educational institutions (two government colleges, two government universities, and one private university) were contacted and permission for data collection was sought. Students were briefed about the nature of study and were assured that all the collected data would be kept confidential. Participants filled out a consent form, a demographic information form, followed by completing ABOS. After data collection, the researcher graciously thanked participants and analyzed the data using SPSS (version 23.0).

Results. The value of Kaiser-Meyer-Olkin (KMO) was significantly high that is .78 (Kaiser, 1970). The Bartlett's test of sphericity is also significant (p < .001), demonstrating the satisfactory division of data (Snedecor & Cochran, 1989). Maximum likelihood extraction method has been applied. In rotated component matrix, the factor loadings and communalities for items > .40 are included in the scale (Osborne et al., 2008) resulting in a 50-items for ABOS with eight factors.

In Table 1, EFA on 58 items with Varimax rotation (Bryant & Yarnold, 2011) indicated significant correlations between variables to justify the application of factor analysis. Based on eigen values (>1), eight factors are determined and factors that are rejected had cumulative variance of 5%, not suitable for the inclusion in the analysis.

Table 1

Factor Loadings and Communalities of ABOS Subscales (N = 400)

Item No. & Factors	F1	F2	F3	F4	F5	F6	F7	F8	*h*
F1: Deviant									
51	**.69**	.32	.12	.21	.00	.04	.09	.22	.74
52	**.59**	.12	.33	.00	.04	.17	.26	.21	.60
53	**.73**	.51	.11	.35	.00	.05	.00	.05	.54
54	**.62**	.10	.15	.23	.09	.22	.42	.00	.52
55	**.73**	.22	.09	.00	.19	.36	.16	.27	.71
56	**.79**	.13	.00	.29	.27	.21	.13	.12	.43
57	**.77**	.40	.23	.00	.33	.08	.25	.00	.62
58	**.84**	.31	.24	.31	.13	.11	.00	.41	.45
F2: Conscientious									
2	.11	**.58**	.23	.10	.03	.21	.04	.00	.76
7	.09	**.60**	.20	.00	.39	.00	.10	.14	.50
8	.15	**.53**	.00	.32	.30	.11	.00	.07	.64
10	.00	**.43**	.14	.00	.15	.24	.19	.04	.59
11	.22	**.51**	.17	.16	.26	.00	.16	.30	.49
18	.26	**.64**	.26	.41	.00	.30	.20	.23	.63
20	.13	**.59**	.00	.00	.36	.25	.45	.00	.79
21	.13	**.76**	.18	.51	.20	.11	.20	.17	.81
F3: Pampered									
35	.13	.27	**.63**	.13	.00	.50	.20	.31	.84
36	.00	.11	**.61**	.00	.29	.00	.01	.25	.58
37	.11	.15	**.59**	.37	.17	.35	.00	.21	.40
44	.31	.00	**.68**	.14	.40	.18	.13	.29	.43
45	.16	.10	**.70**	.00	.48	.30	.00	.10	.69
46	.12	.16	**.70**	.50	.00	.19	.49	.06	.77
F4: Social Interest									
26	.26	.02	.13	**.65**	.18	.34	.50	.18	.50
28	.06	.17	.28	**.59**	.02	.00	.10	.22	.72
29	.07	.08	.01	**.58**	.11	.29	.04	.01	.56
30	.21	.10	.23	**.58**	.20	.00	.00	.30	.55
34	.40	.03	.02	**.55**	.23	.37	.31	.27	.62
38	.02	.51	.07	**.62**	.17	.00	.24	.16	.56
40	.17	.23	.11	**.63**	.10	.10	.12	.20	.78
41	.04	.10	.05	**.63**	.27	.17	.26	.13	.86
42	.01	.35	.16	**.76**	.11	.20	.19	.10	.77
F5: Parental Attention									
5	.04	.12	.15	.22	**.70**	.18	.20	.14	.72
6	.10	.00	.30	.11	**.68**	.00	.30	.21	.56
15	.21	.14	.01	.20	**.57**	.00	.18	.10	.55
16	.29	.10	.37	.00	**.61**	.22	.10	.20	.70

Continued…

Item No. & Factors	F1	F2	F3	F4	F5	F6	F7	F8	*h*
F6: Self-Centered									
17	.22	.01	.10	.08	.09	**.52**	.17	.23	.57
22	.00	.15	.18	.10	.30	**.53**	.09	.20	.53
47*	.20	.00	.20	.00	.16	**.66**	.22	.25	.61
48*	.09	.10	.30	.25	.04	**.66**	.16	.23	.52
49*	.27	.28	.01	.07	.21	**.71**	.19	.19	.40
50	.22	.20	.19	.20	.17	**.60**	.24	.15	.53
F7: Neurotic									
3	.04	.11	.05	.07	.29	.09	**.62**	.30	.64
4	.28	.09	.10	.01	.07	.12	**.52**	.22	.63
13	.31	.25	.24	.29	.08	.30	**.60**	.15	.71
31	.12	.14	.00	.26	.23	.26	**.52**	.08	.61
32	.09	.01	.17	.00	.16	.00	**.64**	.10	.74
F8: Competitive									
9	.01	.12	.02	.34	.22	.04	.05	**.55**	.48
24	.45	.20	.10	.10	.00	.28	.21	**.60**	.56
25	.11	.43	.03	.38	.00	.19	.21	**.66**	.69
43	.01	.22	.18	.10	.20	.46	.19	**.58**	.55
Eigen values	5.06	4.11	2.78	2.62	2.62	2.43	2.42	2.18	
Cumulative %	11.43	19.57	25.79	31.27	36.41	39.00	41.99	45.29	

Note. * = Reversed scored items.

To insure these eight factors are adequate we ran parallel analysis and found that all eigen values (>1) are greater than values from parallel analysis. In Table 1, these eigenvalues for eight factors are 5.06 (1.79), 4.11 (1.71), 2.78 (1.65), 2.62 (1.60), 2.62 (1.56), 2.43 (1.52), 2.42 (1.48), 2.18 (1.45) with values from the parallel analysis in parentheses (Horn, 1965); cumulative variance of eight factors equaled 45.29%.

Description of factors. Eight factors extracted based on Exploratory Factor Analysis are described as follows:

Factor 1: Deviant. The first factor named as *Deviant*, which comprised of 8 items (51, 52, 53, 54, 55, 56, 57, & 58), and included four items on drugs use (51, 52, 57, & 58), and another four on antisocial activities (53, 54, 55, & 56). Furthermore, Miller (2013) suggested that deviance means engaging in prohibited behaviors set by norms and customs of the society like physically assaulting another person, stealing, destroying property, or using drugs like marijuana, alcohol, or other recreational drugs. The scores for this subscale range from 0-32 where higher scores indicate higher inclinations of deviance.

Factor 2: Conscientious. The second factor comprised of 8 items (2, 7, 8, 10, 11, 18, 20, & 21). This factor is developed on Adler's (1927) viewpoint that usually first born are given more responsibilities by their parents and that parents have greater expectations from them. First born want to maintain their status as center of parental attention, which makes them consistent, responsible, independent, and serious about life, developing leadership skills to be in front of the line (Ansbacher & Ansbacher, 1956). For this subscale, the scores range from 0-32, the higher scores show a greater conscientious personality trait.

Factor 3: Pampered. The third factor consisted of 6 items (35, 36, 37, 44, 45, & 46) and is a factor that is at the heart of Adler's (1926) concept that measures parental pampered behaviors for last-born. A pampered child is overindulged by parents who gratify his/her wishes to an excessive extent. This subscale score could range from 0-24, where a higher score would represent experiencing greater pampered behaviors of parents.

Factor 4: Social Interest. The fourth factor comprised of nine items (26, 27, 28, 29, 30, 34, 38, 40, 41, & 42) based on Adler's (1964) concept that at times, parents' pampered attitude makes the last-born children dependent. To escape such an inferiority complex, children develop social interests, working enthusiastically, and energetically (which is opposite to their self-centered personality) towards the welfare of others. They usually try to amuse others through their creative and artistic skills and express their loyalty toward them, and that they are concerned about their well-being (also see Carducci, 2009; Lundin, 2015). The score range of this subscale lies between 0-36, where higher scores indicate higher tendencies of social interests.

Factor 5: Parental Attention. The fifth factor consisted of four items (5, 6, 15, & 16), derived from Adler's (1926) theory that first born are center of parental attention and secure unique status in home. This attention is usually qualitatively beneficial in the form of allocating them responsibilities, and holding expectations to do well in life, but can also lead to neurosis if they begin to receive less attention due to the arrival of new sibling who dethrones him. So, a balanced parenting is required to keep the children in straight direction (Ansbacher & Ansbacher, 1956; Clark, 2002). The scores of this subscale ranges between 0-16, while the higher score would indicate higher perceptions of parental attention.

Factor 6: Self-Centered. The sixth factor consisted of six items (17, 22, 47, 48, 49, & 50). Dambrun and Richard (2011) described it

as an exaggerated sense of importance given to the self (e.g., considering that one's own condition is more important than that of others) and a hedonic process (an approach to gratify ones need). Cortina and Landis (2013) stated that a self-centered person just wants to fulfill his own desires through being hostile, malevolent, and malicious even without realizing that he has such kinds of flaws in his personality. So, items inquiring aggression, rigidity, and criticizing others are also included in the subscale. For this subscale, the score could range between 0-24, where the higher score would represent a higher tendency for being self-centered.

Factor 7: Neurotic. This factor is labeled as *Neurotic*, comprised of 5 items (3, 4, 13, 31, & 32). Adler (1926) explained that when parents do not treat children equally due to their birth order, this becomes a root cause for their neurotic tendencies, specially first born who are more neurotic because they are over-burdened (Ansbacher & Ansbacher, 1956). Thus, this subscale is specifically designed to measure neuroticism among individuals with different birth orders while the possible scores on this factor could range from 0-20 where higher scores indicate higher inclinations of neuroticism.

Factor 8: Competitive. The eighth factor consisted of four items (9, 24, 25, & 43). This factor is also an illustration of Adler's concept that middle born are usually competitive to attain the parents' attention just like first born receives. For this, they try hard to excel from their first sibling. So, this factor inquires these kinds of personality aspects and score range from 0-16, the higher scores represent greater competitiveness (see Appendix 1).

Reliability estimates. Cronbach alpha reliabilities of the ABOS (α = .75) and its subscales ranged from .52-.86, including for Deviant (α = .86); Conscientious (α = .77), Pampered (α = .67); Social Interest (α = .77); Parental Attention (α = .61); Self-centered (α = .67); Neurotic (α = .52); and Competitive (α = .75) that are adequately satisfactory.

Table 2 shows that ABOS is significantly positively associated with all its subscales. As expected, Deviance has significant positive associations with Self-Centeredness, Neuroticism, Pampered, and Competitive, but significant inverse relationships with Conscientious, Social Interest, and Parental Attention. Association between being Conscientious is significantly positive with Social Interest, Parental Attention, Sociable, and Competitive; however, significantly negative with Pampered and Self-Centered. All positive and negative associations make sense and raise the confidence in the validity of the Scale.

Table 2

Intercorrelations Among ABOS and Its Subscales (N = 400)

Scale/Subscales	1	2	3	4	5	6	7	8	9
1. ABOS	-	.22**	.58**	.40**	.52**	.57**	.40**	.38**	.56**
2. Deviant		-	-.17*	.45**	-.32**	-.34**	.20**	.35**	.28**
3. Conscientious			-	-.35**	.28**	.41**	-.19**	-.22**	.32**
4. Pampered				-	-.25**	.23**	.26**	.40**	.26**
5. Social Interest					-	.16*	-.57**	-.29**	.28**
6. Parental Attention						-	-.16**	.23**	.20**
7. Self-Centered							-	.19**	.17*
8. Neurotic								-	.24**
9. Competitive									-

*p < .05. **p < .01.

Study 2: Confirmatory Factor Analysis (CFA)

The factorial structure of the ABOS explored in the EFA in Study 1 is subjected to CFA; using IBM AMOS V23.0 to confirm the measurement model of ABOS for ensuring the factor structure and dimensionality of the scale.

Sample

An independent sample of young adults ($N = 400$) including both men ($n = 198$) and women ($n = 202$) was purposively recruited from postgraduate universities of Lahore, with a mean age of 20.9 $\pm$ 1.66. There were an equal number of third ($n = 90$), fourth ($n = 90$), fifth ($n = 90$), and sixth year students ($n = 90$); while MS/MPhil students 10% ($n = 40$), belonging to first ($n = 100$), second ($n = 100$), middle ($n = 100$), and last ($n = 100$) birth order positions. Respondents were enrolled in three government universities ($n = 275$) and one private university ($n = 125$). Participants were living in nuclear and joint family systems were taken.

Exclusion criteria. Participants living with divorced, single, or widowed parents were not included. Twins, single child, and those with any psychological and physical disability were excluded.

Measures

A 50-item ABOS was used to collect data to take opinions about the influence of birth order in determining personality of young adults on a 5-point Likert scale (0 = *never* to 4 = *always*). Subsequently, minimum and maximum possible score was 0-200 respectively. The

scale demonstrated significant internal consistency (α = .75) in Study 1.

Procedure

Participants were approached in their classes after getting permission from higher authorities to collect data. After the briefing, informed consent was taken from participants to assure that the collected information will be kept confidential and used only for study purposes. Then, the questionnaire was given to participants and were requested to provide honest and accurate information. Most of the participants returned the questionnaire except nine respondents. At the end, participants were thanked for their participation. A small number of sample entities were recruited to counter the problem of incomplete data, random responses resulted in discarding 18 forms. So, 400 forms were found suitable for study. Factor analysis was carried out after ascertaining assumptions (i.e., sample size, normality, outlier detection, correlation matrix, and commonalities).

Results

The CFA of ABOS indicated that the data fitted well with the proposed measurement model through displaying various indices of model fit, $\chi 2$ (839) = 277.81, p = .00; CFI = .94; GFI = .92; RMSEA = .04; SRMR = .06; PCLOSE = .78).

Factor loadings acquired through CFA are presented in Table 3. CFA in Table 3 shows that the factor loadings range from .50 to .79 and eight factors demonstrate excellent fit to the data. Three factors Deviant (k = 8), Neurotic (k = 5), and Competitive (k = 4) are retained as it is obtained through EFA, however, 1 item (i.e., 21) from Conscientious (k = 7), 2 items (i.e., 35 & 46) from Pampered (k = 4), 4 (i.e., 38, 26, 28, & 29) from Social Interest (k = 5), 2 items (i.e., 5 & 6) form Parental Attention (k = 2), and 2 items (22 & 49) from Self-Centered (k = 4) subscales are omitted due to receiving low factor loadings $\leq$ .40, resulting in exclusion of 11 items form scale. The factorial structure of the scale demonstrates convincing evidence for the construct validity of the scale as the 39 items have very high loadings on eight factors of ABOS. The mean score of ABOS is 112.34 (SD = 11.01). The distribution of the scale is symmetrical as coefficient of skewness is .63 and kurtosis is .11 indicating normal distribution of ABOS which justifies the choice of parametric tests for further testing.

Table 3

CFA Showing Factor Loadings of ABOS (N = 400)

Factors & Item #	λ	Factors & Item #	λ
F1: Deviant		F5: Parental Attention	
51	.60	15	.69
52	.53	16	.61
53	.53	F6: Self-centered	
54	.54	17	.62
55	.67	47*	.55
56	.79	48*	.63
57	.77	50	.74
58	.67	F7: Neurotic	
F2: Conscientious		3	.50
2	.61	4	.65
7	.51	13	.53
8	.56	31	.57
10	.57	32	.78
11	.52	F8: Competitive	
18	.52	9	.50
20	.69	24	.57
F3: Pampered		25	.67
36	.83	43	.59
37	.89		
44	.54		
45	.58		
F4: Social Interest			
30	.71		
34	.51		
40	.71		
41	.69		
42	.62		

Note. * = Reversed scored items.

The Cronbach's alpha of the scale is found to be .90, indicating high internal consistency of scale. Cronbach alphas is in acceptable range for subscales of Deviant (α = .87), Conscientious (α = .81), Pampered (α = .74), Social Interest (α = .69), Parental Attention (α = .61), Self-centered (α = .57); Neurotic (α = .66), and Competitive (α = .74).

Table 4 shows ABOS has significant positive associations with subscales. Deviant personality traits had an inverse relationship with positive personality traits like Conscientious and Social Interest. It is

seen that a decrease in parental attention is increasing deviance tendencies participants and parental pampering is making participants more deviant.

Table 4

Intercorrelations Among ABOS and Its Subscales (N = 400)

Scale/Subscales	1	2	3	4	5	6	7	8	9
1. ABOS	-	.68**	.88**	.45**	.59**	.77**	.46**	.59**	.70**
2. Deviant		-	-.46**	.54**	-.42**	-.84**	.55**	.86**	.89**
3. Conscientious			-	-.65**	.58**	.40**	-.29**	-.30**	.45**
4. Pampered				-	-.35**	.37**	.22**	.24**	.32**
5. Social Interest					-	.24**	-.61**	-.30**	.28**
6. Parental Attention						-	-.26**	.20**	.42**
7. Self-Centered							-	.31**	.24**
8. Neurotic								-	.34**
9. Competitive									-

**$p < .01$.

Discussion

The present study helped in developing a scale on personality traits and social exposures Adler (1926) had proposed for different birth ranks. EFA resulted in eight core traits in ABOS, representing trait differences in birth orders which have stood the test of time, even after a century (Campbell et al., 2019), and the reliabilities of ABOS and its subscales ranged from moderate to high. CFA also revealed a similar eight factor structure, but 11 items are excluded due to receiving low factor loadings. The exclusion of 11 items improved the final version of the Scale as in Social Interest subscale, few items were overlapping, while a few excluded items in Conscientious, Pampered, and Self-Centered subscales were not a good representative of a specific construct.

The first factor named as *Deviant* is explained by Ansbacher and Ansbacher (1956) that when parents treat their various birth rank children differently, it influences some of them (like last born) to become drunkards and antisocial. Later, Miller (2013) strengthens this idea and suggests deviance means engaging in prohibited behaviors set by norms and customs of the society like physically assaulting another person, stealing, or destroying property or using drugs like marijuana, alcohol or other recreational drugs. Aslam (2015), Eckstein et al. (2010), Gustafson (2010), and Khan et al. (2018) also supported Adler's views by stating that children share different positive and negative traits based on the parental treatment they receive. The scores

for this subscale range from 0-32 where higher scores indicating higher deviance.

The second factor is labeled as *Conscientious,* measuring responsible and careful attitudes, organized and doing daily tasks with perfection (Arthur & Graziano, 1996). This factor is developed on Adler's (1927) viewpoint that usually first born are given more responsibilities by their parents and that parents have greater expectations from them. First born children want to maintain their status as center of parental attention, which makes them consistent, responsible, independent, serious about life, and developing leadership skills to be in front of the line (Ansbacher & Ansbacher, 1956). Kamran (2016) also elaborated that in many Pakistani families, first born's decisions and suggestions matter a lot for other family members. They are esteemed, valued, and secure a dignified position. Likewise, they are given more responsibilities by their parents in maintaining daily life activities, so, parental expectations are also associated with the first child. The third factor is titled *Pampered* that is at the heart of Adler's (1926) concept that measures parental pampered behaviors for last born. A pampered child is overindulged by parents who gratify his/her wishes to an excessive extent. Last born usually secures baby position in family and keep showing immaturity even reaching at adulthood (Burchinal et al., 2010; Sultan & Malik, 2020). The fourth factor labeled as *Social Interest* is based on Adler's (1964) concept which at times, parents' pampered attitude makes the last born children dependent. To escape such an inferiority complex, children develop social interests, working enthusiastically, and energetically (which is opposite to self-centered personality) towards the welfare of others. They usually try to amuse others through their creative and artistic skills and express their loyalty toward them, and that they are concerned about their well-being (see Carducci, 2009; Lundin, 2015). However, social interests are specially manifested by middle born. They enjoy the company of other people and become socially successful through adopting superficial ways to adjust well in family and to gain parental attention (Syed, 2004; Schwar & Mahoney, 2012).

The fifth factor called *Parental Attention,* derived from Adler's (1926) theory that first born is center of parental attention and secures unique status in home. This attention is usually qualitatively beneficial in the form of allocating them responsibilities, and holding expectations to do well in life, but can also lead to neurosis if they begin to receive less attention due to the arrival of new sibling who dethrones him (Kamran, 2016; Masud et al., 2019). So, a balanced parenting is required to keep the children in straight direction

(Ansbacher & Ansbacher, 1956; Clark, 2002). The sixth factor is labeled as *Self-Centered* explained by Ansbacher and Ansbacher (1956) that last born are usually self-centered because of overindulged by parents. Dambrun and Richard (2011) described it as an exaggerated sense of importance given to the self. Cortina and Landis (2013) stated that a self-centered person just wants to fulfill his/her own desires through getting hostile, malevolent, and malicious even without realizing that he/she has such kind of flaws in his/her personality.

The seventh factor is labeled as *Neurotic* which is deliberated by Adler (1926) that when parents do not treat children equally due to their birth order, this becomes a root cause for their neurotic tendencies, specially first born who are more neurotic because they are over-burdened, while middle born are neglected one (Alvi et al., 2009; Zain et al., 2014). A neurotic individual has negative emotions and pessimistic (Purnamaningsih, 2017). Thus, this subscale is specifically designed to measure neuroticism among individuals with different birth orders. The eighth factor called *Competitive* is also an illustration of Adler's (1927) concept that middle born are usually competitive to attain the parents' attention just like first born receives. For this, they try hard to excel from their first sibling. Last born are most competitive because they feel inferior to other siblings as everyone in home is superior and autonomous (Ewest, 2017; Sultan & Malik, 2020).

In short, empirically reviewing personality theories in innovative ways can be a milestone for psychology. Especially, development of ABOS is particularly necessary to comprehend the role of birth order in shaping people's personality to seek ways to modify one's behavior and is necessary for healthy personal growth. In clinical settings, young adults and their parents can be counseled about birth order's implications in individual's distinctive psyche.

Limitations and Suggestions

In this study, a within-family design has not been used. The use of this design could greatly improve all measurements. So, in future studies, samples should be based on within-family designs and be studied longitudinally, to gain valuable information on birth order. Measuring multiple time points when sibling cohorts grow would not only differentiate personality traits, abilities, and other psychological factors, but would also give an ontological profile of how these measures would change across birth orders. Twins and single children were not part of the study. However, for future studies, a multi-

method approach where different samples of children, parents, and teachers could be utilized to focus on intersecting data to arrive at more reliable conclusions. EFA showed cumulative variance 46% which should be at least 50%, therefore, in future studies, we could take a new sample to address this issue.

Implications

Adler's theory of personality offers a quick way of assessing personality; by simply knowing birth order, a host of personality factors can be identified. Clinicians, counselors, and other professionals in the behavioral and social fields can use ABOS to ascertain personality and help those in need. Family therapists and counselors can also assist the clients to seek out their problems by focusing on their birth order related issues as conversion patients are often attention seekers for being neglected by parents. The study can also educate parents what to expect when engaging with their children and to know how it could be useful in gauging their development as the years ensue. Also, different sorts of seminars and awareness programs should be carried out to create awareness among parents, children, and youngsters to explain how birth order related issues can be handled and resolved to avoid various physical, psychological, and social problems.

Conclusion

Since an individual is born into a particular spot in the family and through this position, they has unique experiences. One of the most substantial ways to help people deal with the challenges of their positions is to recognize the difficulties each person might face. A valid and reliable tool ABOS provides innovative, positive, and constructive aspects to understand birth order characteristics that opens new ways for the betterment of society as it enables an individual to explore positive ways of self-enhancement by resolving personal conflicts.

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Appendix

Item #	Statements
Factor 1: Deviant	
51	I smoke.
52	I take relaxing drugs.
53	I threaten/intimidate people.
54	I hit people physically.
55	I use deceit to exploit others.
56	I participate in such activities that are harmful for others (for instance, breaking laws, stealing, vandalism etc.).
57	I take marijuana with cigarettes.
58	I drink alcohol.
Factor 2: Conscientious	
2	I follow rules and regulations.
7	I am a responsible person.
8	In order to take care of my siblings, I play the role similar to my parents.
10	I possess leadership skills.
11	I am serious about my life
18	I have consistency in my personality.
Factor 3: Pampered	
35	I am pampered by my parents.
36	My parents treat me just like a baby.
37	Despite being an adult, I have immaturity in my nature.
44	My parents buy things which are even not needed.
45	My parents fulfill my desires immediately.
46	Despite my unfavorable attitude, my parents fulfill my desires.
Factor 4: Social Interest	
34	I am loyal to people.
38	I have artistic and creative abilities.
40	I am interested in working with powerless people of society (e.g. social workers, nurses).
41	I participate in social welfare activities.
42	I am lively and energetic.
Factor 5: Parental Attention	
5	I have a unique status/position in my home as compared to my siblings.
6	I am given more responsibilities as compared to my siblings.
15	In childhood, I received the attention of my parents.
16	I have always been the center of attention of my parents.
Factor 6: Self-centered	
17	I show rigidity and strict attitude in different affairs.
22	I am aggressive by nature.
47	I try that people do not face problems due to my activities*
48	I do not think of my own comfort before doing any task*
49	I behave sympathetically when I see people in trouble*

Continued…

Item #	Statements
50	I criticize others.

Factor 7: Neurotic

3	I get more frightened in unusual circumstances as compared to others.
4	I keep worrying about what people think about me.
13	I am not optimistic about my future.
31	I feel lonely.
32	I feel insecure.

Factor 8: Competitive

9	I give special importance to position and status.
24	I try to show better performance than my elder sibling in various activities.
25	I try to surpass those people who are in better position than me.
43	I want to surpass all my siblings in different activities.

Note. * = Reversed scored item.