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Measuring Limit-Setting Practices Used by Family Members Towards Relatives with Psychiatric Disorders

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Abstract Family members often set limits with relatives with psychiatric disorders (PD), however, no scale currently exists measuring the use of such limit-setting practices. The present article describes the development and results of a new measure, the Family Limit-Setting Scale (FLSS). Via a national online survey, the FLSS was completed by 573 adults residing in the U.S. who report having an adult relative with PD. We conducted exploratory and confirmatory factor analyses, examined internal consistencies and other indicators of construct validity, and performed invariance analyses assessing the generality of the optimal factor model to men, women, Caucasian respondents, and non-Caucasian respondents. Results indicate that the FLSS has an acceptable two factor structure (routine limit-setting and crisis prevention limit-setting) with both factors being highly generalizable to all groups of respondents examined. Internal consistencies and other indicators provide additional evidence of the FLSS' construct validity. Use of the FLSS will enable the conduction of quantitative research in this area. In addition, this measure may be employed in education/support organizations for families with a member with mental illness in an effort to identify persons using high levels of limit-setting practices who may benefit from extra support and/or guidance.

Keywords Psychiatric disorders · Family limit-setting · Mental illness

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Introduction

As a result of deinstitutionalization and a lack of adequate community supports, family members often provide support to relatives with psychiatric disorders (PD) such as schizophrenia, bipolar, and major depressive disorders. While there is considerable variation, this support can be immense in volume and truly extensive—spanning across domains as discrete as social support, compliance with mental and somatic health treatment, housing, representative payee services, and numerous activities of daily living [1–3]. Due to the immense responsibility placed on family members not only to provide care to relatives with PD but also to monitor their behavior and well-being, family members have been described as "de facto" [4] and "auxiliary" [5] therapists. Similar to mental health professionals [6], family members often attempt to prevent, decrease, terminate, or otherwise change behaviors their relative with PD engage in, which they consider problematic. These attempts at preventing, decreasing, terminating, or otherwise changing potentially problematic behaviors—described as limit-setting practices—take the form of various strategies, which family members engage in for a variety of reasons. Most prominent among such reasons are surely pursuit of what is perceived to be in the best interest of relatives with PD (e.g. medication compliance, sobriety, admission to inpatient psychiatric treatment) and a desire to decrease hardship experienced by the family (e.g. discourage erratic, embarrassing, or destructive behavior and encourage prosocial behavior).

While family members may typically acknowledge their relative with PD's autonomy and interact with them in a primarily supportive manner, strategies used to limit problematic behaviors are likely quite directive. Not only do many problematic behaviors need to be resolved quickly (e.g. intimidating or threatening behavior), it is also likely that when persons with PD are engaging in certain problematic behaviors (e.g. medication non-compliance and a resulting exacerbation of psychiatric symptoms, drug and alcohol use) their family members believe they have a decreased ability to independently make decisions that are beneficial to themselves and others. In support of this argument, among mental health professionals—who are trained and expected to support the autonomy of consumers with PD—the existence of problematic behaviors among consumers with PD such as drug and alcohol use, treatment non-adherence, symptoms of psychosis, and discussing thoughts of harming self or others (which family members are also confronted with) have been found to be associated with a decreased likelihood of practitioners supporting client autonomy and/or engaging with clients in shared decision making [7]. Indeed, family limit-setting practices that have been documented in the literature are quite directive, including verbal encouragement and pressure [8], the creation of behavioral contingency contracts [8], the creation of housing and monetary based contingency contracts [8], and initiating admission to psychiatric inpatient treatment [9]. Such directive limit-setting practices used by family members are similar to those used by mental health professionals [6]. A prominent behavior commonly attempted to be limited by family members is the use of alcohol and illegal drugs [3], with alcohol and drug use also being associated with the use of limit-setting practices by mental health workers towards persons with PD [6]. An illustration of how limit-setting practices used by family members may be extremely directive (and arguably coercive), yet perceived by the family member to be in the best interest of the relative with PD is the observation that "A very common arrangement consisted of being allowed to live with the parents in return for medication compliance" [8, p. 47].

Unlike family caregiving and burden [10], extremely scant research has been conducted regarding limit-setting practices employed by family members towards their relatives with PD. Research that is available, however, indicates that family limit-setting is a construct of much importance. Through qualitative interviews it is reported that family limit-setting can result in conflict [8], with a similar relationship being found regarding the use of financial limit-setting practices by mental health professionals towards consumers [11]. The use of limit-setting practices by family members is even theorized to be associated with family violence committed by persons with PD [12, 13], with preliminary quantitative evidence supporting this proposition [14]. In addition to family conflict, family members report that attempting to prevent the behavior of their relatives with PD greatly contributes to their level of subjective burden in providing care [3], while attempting to prevent specific behaviors is additionally associated with greater psychological distress, poorer mental health, and increased objective burden among relatives [15]. Alternatively, it is possible that the use of specific limit-setting practices—in certain situations—may be associated with favorable outcomes for persons with PD [16] such as treatment compliance, maintenance of housing, sobriety, and prosocial behaviors. These favorable outcomes may, in turn, decrease levels of family burden and distress and improve the quality of relationships among persons with PD and their relatives.

Given the probable association between family limit-setting practices and the health and well-being of persons with PD, their family members, and the relationships they have with each other, it is imperative that more be known regarding the effects and correlates of family limit-setting practices. No scale measuring limit-setting practices used by family members towards relatives with PD currently exists, however. Before quantitative research can be validly conducted in this area, it is requisite that family limit-setting practices be able to be measured in a psychometrically sound manner. Consequently, the objectives of the present study were to (1) present the development of the Family Limit-Setting Scale (FLSS)—proposed to measure the level of limit-setting practices used by a specific family member towards their relative with PD in the past 6 months, (2) evaluate the construct validity of the FLSS by assessing its factor structure—with exploratory and confirmatory analyses—and internal consistency, (3) assess the generalizability of said factor structure across gender and racial/ethnic minority status, and (4) assess the FLSS' construct validity by examining the relationship of FLSS scores with relationship type (mother vs non-mother) and co-residence.

Methods

The following analyses are based on data provided by 573 adults who report having a living adult relative with PD. Upon receiving approval from the University of Pennsylvania's Institutional Review Board, said persons completed an online survey concerned with the interactions people have with relatives with PD between July 2014 and February 2015. As part of the survey, respondents completed 10 questions composing the FLSS, each of which pertains to behaviors that the respondent may have engaged in towards their relative with PD in the past 6 months.

Table 1 Items composing the Family Limit-Setting Scale and rates of responses provided

Item In the past 6 months about how often…	Rates of responses % (n)					Mean (SD)
	Not at all (0)	Less than once a month (1)	Once a month (2)	Once a week (3)	More than once a week (4)	
1. Did you suggest that your FMMI [family member with a mental illness] should change his/her behavior?	20 (113)	23 (134)	19 (108)	16 (91)	22 (127)	2 (1.4)
2. Did you firmly tell your FMMI what s/he should do about something, or what attitude s/he should have about it?	25 (145)	24 (136)	16 (92)	17 (97)	18 (103)	1.8 (1.4)
3. Did you refuse or delay helping your FMMI in some way because of his/her behavior?	47 (267)	16 (91)	15 (87)	13 (74)	9 (54)	1.2 (1.4)
4. Did you tell your FMMI something like "I will help you with this when you do that"?	49 (281)	17 (96)	14 (81)	11 (64)	9 (51)	1.1 (1.4)
5. Did you try to prevent your FMMI from drinking alcohol of using illegal drugs?	69 (397)	10 (57)	8 (47)	6 (32)	7 (40)	0.7 (1.2)
6. Did you encourage your FMMI to voluntarily admit him/herself to a mental health hospital when s/he did not think it was necessary?	64 (368)	21 (119)	8 (48)	5 (27)	2 (11)	.6 (1)
7. Were you involved in committing your FMMI to a mental health hospital against his/her will?	78 (446)	18 (101)	2 (11)	2 (10)	1 (5)	.3 (.7)
8. Did you warn your FMMI s/he could not continue living with you if s/he did not change his/her behavior (examples are take his/her medications, clean up after him/herself, etc.)?	75 (430)	9 (54)	7 (40)	5 (30)	3 (19)	.5 (1)
9. Did you warn you FMMI that you would withhold money for basic living necessities such as food, transportation, or rent if s/he did not change his/her behavior (examples are take his/her medications, clean up after him/herself, etc.)?	80 (459)	8 (46)	6 (35)	3 (20)	2 (13)	.4 (.9)
10. Did you warn your FMMI that you would withhold money for non-necessities such as spending money, personal items or cigarettes if s/he did not change his/her behavior (examples are take his/her medications, clean up after him/herself, etc.)?	75 (432)	9 (50)	8 (44)	5 (27)	3 (20)	.5 (1)

N = 573

Family Limit-Setting Scale

The research team desired to create a brief scale measuring family limit-setting practices that could be easily administered and that would pose minimum burden to participants. As such we decided that the scale would consist of ten or fewer items. Admittedly, it is unlikely to measure every conceivable component of the construct of interest in 10 or fewer questions—a criticism that could be made of all brief scales. However, the 10 items that compose the scale represent the majority of limit-setting practices used by family members towards relatives with PD (based on the literature and logic described above). In addition, there is empirical evidence that short scales are able to be as valid as longer scales in measuring constructs in the mental health domain [17]. As such, adding more items to the scale would likely result in diminishing returns regarding increased construct coverage but—due to the increased time required to administer and complete the longer instrument—may reduce its utility for anticipated users (mental health researchers and staff at family support/education organizations). The 10 items included in the scale were created/adapted based on the limited scholarship in the area (cited above) and on our clinical and professional understanding of family limit-setting practices used towards persons with PD, with common scale development guidelines being observed [18]. As limit-setting practices involving verbal pressure, general behavioral contracts, and inpatient admission are surely similar when used by family members versus mental health professionals [12], six items (Items 1–4, 6, 7) pertaining to these strategies were adapted from the Therapeutic Limit Setting Scale, which has been found to have a viable factor structure and strong internal consistency [6]. The remaining items were created to capture the use of housing and monetary specific contingency contracts (Items 8–10) as well as strategies employed specifically to limit the use of alcohol and illegal drugs by relatives with PD (Item 5). Respondents were prompted to complete all items based on their experiences in the past 6 months with response options being: Not at all (score = 0), Less than once a month (score = 1), Once a month (score = 2), Once a week (score = 3), or More than once a week (score = 4). We chose to inquire about respondents' experiences in the past 6 months, as opposed to a shorter period, in an effort to capture the occurrence of relatively infrequent limit-setting practices, which may—despite their infrequency—be of much clinical significance. These ten items, as part of the online survey, were pretested with two participants who described the questions as straightforward and easy to understand. While pretesting participants met the eligibility criteria, their responses were not included in the analyses. To view the ten items that compose the FLSS as well as descriptive statistics pertaining to the frequency of responses obtained by the present sample (described below) regarding these items, please see Table 1.

Sample

Without considerable financial resources, recruiting a truly representative sample of persons with a relative with PD is not feasible. Studies sampling persons with a relative with PD most often recruit participants through relatives with PD actively attending mental health treatment or through family education, support, and/or advocacy organizations (e.g. National Alliance on Mental Illness [NAMI], Depression and Bipolar Support Alliance [DBSA]). Such samples are not representative of this population as family education/support organizations have little racial diversity, as many persons with PD are not

actively attending mental health treatment, and as such samples are often restricted to particular geographic regions. While anticipated to not be truly representative either, we decided to use a variety of web-based and in-person strategies to recruit a geographically and clinically diverse sample. Web-based recruitment occurred through soliciting hundreds of mostly non-profit organizations to circulate an advertisement for the study. In-person recruitment was conducted by presenting advertisements at an event held by a U.S. state chapter of NAMI and at the 2014 NAMI National Conference. Advertisements provided prospective respondents with the web address to further information regarding the study, from which they could complete the online survey after providing informed consent, if they met the eligibility criteria. Eligibility criteria involved being at least 18 years of age and having a living relative at least 18 years of age who has been diagnosed with a PD, per respondent report. In an effort to achieve as diverse of a sample as possible, most organizations solicited to circulate an announcement were not oriented exclusively towards persons with PD or their families; however, from observing the inflow of participation we believe that the majority of respondents were recruited through NAMI and DBSA organizations.

Five hundred and seventy six respondents completed the online survey, with the research team removing three respondents for not meeting eligibility criteria. Of the remaining 573 respondents in the sample, 88 % ($n = 507$) were Caucasian (non-Hispanic) and 87 % ($n = 496$) were female, a response bias which is common when recruiting from organizations pertaining to the families of persons with PD [19, 20] and, to a lesser extent, surveys generally [21–23]. The mean $\pm$ SD for the age of respondents was 48.94 $\pm$ 14.63 (range 18–88), with a median annual income (including their romantic partners, if applicable) being between \$40,000 and \$59,999. Respondents were asked but not required to provide their zip code of residence. The 474 (83 %) respondents who provided their zip code resided in 42 states in the U.S. Each respondent provided information about a single relative with PD. Of the 573 relatives with PD referenced, primary diagnoses were reported to be bipolar (40 %, $n = 230$), schizophrenia/schizoaffective (31 %, $n = 177$), major depressive (13 %, $n = 76$), anxiety related (10 %, $n = 57$), other (5 %, $n = 26$), and unknown (1 %, $n = 7$). Sixty one percent ($n = 348$) were male, with a mean $\pm$ SD of age being 39.34 $\pm$ 15.15 (range 18–87). Sixty percent of the relatives with PD were either unemployed ($n = 124$) or disabled ($n = 215$). Most relatives with PD were reported to have regularly taken prescribed psychiatric medications (77 %, $n = 443$) and to have regularly attended mental health treatment (64 %, $n = 368$) in the past 6 months. Thirty four percent ($n = 195$) had been hospitalized for a mental health reason in the past year. Most respondents had in-person contact with their relative more than once a week (62 %, $n = 353$) and had resided with the relative with PD in the past 6 months (60 %, n = 346). More detailed information regarding the sample [24] and recruitment strategies employed [24, 25] is provided elsewhere.

Statistical Analysis

Exploratory Factor Analysis

In order to comprehensively examine the factor structure of the scale the sample was randomly partitioned in half, with the first half ($n = 287$) being submitted to exploratory analysis and the second half ($n = 286$) being submitted to confirmatory analysis. The

response options for items consisted of ordered categories and item data was often highly skewed and leptokurtic. Microfact 2.0 software [26] was used to avoid the assumption of continuous data by computing polychoric item correlations for the first subsample with the use of two-stage maximum-likelihood estimation [27]. With least-squares approximation of the original matrix, the correlation matrix was smoothed for nonsingularity and positive semidefiniteness [28]. With the use of SAS 9.4, the smoothed matrix was then submitted to iterative principal factoring with squared multiple correlations as initial communality estimates, with equamax, varimax, and promax rotations. The criteria used to identify the optimal factor structure consisted of the following: (1) having the simplest structure as indicated by having a hyperplane count of 4 or less [29] and having the greatest item coverage; (2) yielding the smallest root mean squared residual (RMSR) and highest goodness-of-fit index [26]; (3) having at least 3 salient loadings ($\geq$.40) per factor [30]; (4) producing internally consistent factors (Cronbach's alpha $\geq$.70), and (5) making theoretical sense in terms of coverage of the data and compatibility with research conducted in the substantive area [30]. As only 10 items are included in the scale, using the above criteria, it is impossible for the optimal structure to consist of more than 3 factors. As such, minimum average partialing [31] or other commonly used methods were not employed to suggest the number of factors for retention. Instead, one, two, and three factor models were evaluated with the aforementioned criteria to determine the number of factors to retain.

Confirmatory Analysis

To test the fit of the optimal model identified in the exploratory analysis, confirmatory analysis was conducted on the second subsample using EQS 6.1 software [32]. The polychoric correlation matrix was analyzed using structural equation modeling with maximum likelihood estimation. Robust fit indices for categorical data were applied. Cutoff points for the comparative fit index (CFI) and root mean squared error of approximation (RMSEA) proposed to indicate an acceptable fit vary; however, commonly used criteria indicating acceptable fit are CFI $\geq$.90 and RMSEA $\leq$.08 [33, 34].

Invariance

To assess whether the optimal factor structure identified is generalizable across groups based on gender and racial/ethnic minority status, with the use of SAS 9.4 we repeated the optimal factor structure for men, women, Caucasian respondents, and non-Caucasian respondents. We then compared the factor solution yielded for each group with that of the entire sample using Wrigley–Neuhause coefficients of congruence [35], where coefficients of congruence $\geq$.70 are considered substantial. Additionally, the Cronbach's alpha coefficients (internal consistency) were computed for each of the two factors among all groups of respondents, again with coefficients $\geq$.70 being considered substantial.

Additional Evidence of Construct Validity

Since no established measure currently exists measuring the use of family limit-setting practices and as these practices are not able to be easily and decidedly observed, the assessment of criterion-related validity is not currently possible. While much may be hypothesized regarding the correlates of family limit-setting practices, little is currently known regarding such associations—limiting the possible relationships that may be

assessed in an effort to examine the scale's construct validity. Two relationships that have been documented, however, are that mothers are more likely to attempt to limit the behaviors of their relatives with PD than are other relatives [3, 8], as are relatives co-residing with the persons with PD [3]. To evaluate whether scores on the FLSS are significantly higher for mothers and relatives co-residing with persons with PD than they are for other relatives—thereby providing evidence of the scale's construct validity—independent-samples t tests (with unequal variances) were conducted with the use of Stata 14. Scores on the FLSS were compared for mothers versus all non-mother relatives, and for co-residing relatives versus non-co-residing relatives.

Results

Factor Analysis

With regard to exploratory analysis, iterative factor solutions were tested for one, two, and three factors and were evaluated using the aforementioned criteria. The two factor model with promax rotation ($k = 3$) satisfied all criteria and was deemed the optimal factor model. The three factor model resulted in an ultra-Heywood case (communality >1) with 2 items loading on multiple factors, likely indicating an excess of common factors proposed, whereas the one factor model resulted in a lower GFI and higher RMSR than did the two-

Table 2 Rotated factor pattern loadings for the Family Limit-Setting Scale

Item[a]	Factor and loadings[b]		
	Routine LS	Crisis prevention LS	Communality[c]
Factor 1: routine limit-setting (LS) (.85)[d]			
Firmly tell what s/he should do or attitude to have	.97	−.06	.86
Suggest change his/her behavior	.95	−.07	.82
Refuse or delay helping because of behavior	.67	.16	.60
Tell "I will help you with this, when you do that"	.64	.24	.66
Warn could not live with you unless change behavior	.60	.17	.52
Factor 2: Crisis prevention limit-setting (LS) (.81)[d]			
Involved in committing to a mental health hospital	−.13	.80	.52
Encourage to voluntarily admit to hospital	.07	.73	.61
Warn withhold money for basic living necessities	.34	.63	.79
Warn withhold money for non-necessities	.37	.61	.79
Try to prevent from using alcohol or illegal drugs	.28	.48	.48

[a] Content is abbreviated for more convenient presentation

[b] Values are pattern loading with promax rotation at $k = 3$, where hyperplane count is optimized. Salient loadings ($\geq.40$) are italicized

[c] Final communality estimates indicate the proportion of item variance explained by the two factors. Total communality estimate for solution = 6.66

[d] Cronbach's alpha for salient items included in each factor. Cronbach's alpha for entire scale = .88

factor model. The GFI for the two-factor model is .995 with an RMSR of .0453. Salience was found for all 10 items with no items loading on more than one factor. Final factors, component items, pattern loadings, and communalities are listed in Table 2. Based on the ascending factor loadings, item responses, and our clinical/professional understanding of family limit-setting practices, the factors were named Routine Limit-Setting (practices that likely occur more often and in response to varied conditions/behaviors) and crisis prevention limit-setting (practices that likely occur in response to specific conditions/behaviors associated with crises and decreased well-being of relatives with PD). The 10 items included in the FLSS produced an internal consistency of .88 with all items having an item-rest correlation [36] between .47 and .68, with the internal consistency failing to improve with the removal of any item. Items included in routine limit-setting yielded an internal consistency of .85, with all items having an item-rest correlation between .50 and .78. The internal consistency would improve slightly to .87 with the removal of Item 8, although, said item had an item-rest correlation of .50. Items composing Crisis Prevention Limit-Setting yielded an internal consistency of .81, with the removal of any item failing to increase the internal consistency and all items having an item-rest correlation between .55 and .68.

Submitting the second subsample to confirmatory analysis with the optimal two factor model identified in exploratory analysis resulted in a CFI = .935 and a RMSEA = .111, 90 % CI [.09, .13]. Factor 1 and factor 2 were found to have a correlation of .686. A critical evaluation of these criteria is included in the "Discussion" section below.

Invariance

Generality of the two factor structure to women, men, Caucasian persons, and non-Caucasian persons is presented in Table 3. Coefficients of congruence revealed much generalizability for both factors across groups of respondents. In addition, the coefficients between hypothesized non-counterpart factors indicate that the factor pattern remains distinct and does not approximate the pattern of the other factor. Additionally, the Cronbach's alphas for both factors among all groups of respondents remained well above .70,

Table 3 Coefficients of congruence for generality of full sample factor structure to specific groups and internal consistency of dimensions among specific groups

Sample size and factor	Specific groups			
	Caucasians	Non-Caucasians	Women	Men
N	507	66	496	77
Routine limit-setting	**.99** (.16) **[.85]**	**.99** (.17) **[.86]**	**.99** (.16) **[.85]**	**.99** (.19) **[.86]**
Crisis prevention limit-setting	**.99** (.18) **[.81]**	**.98** (.14) **[.82]**	**.99** (.17) **[.79]**	**.99** (.15) **[.91]**

Nonparanthetical and parenthetical entries are Wrigley–Neuhaus coefficients. Nonparenthetical values indicate similarity of the respective factor extracted from the entire sample (per Table 2) to the same factor extracted for the specified group of participants. Parenthetical values indicate similarity of the specified factor to the other factor extracted from the subsample of specific persons. Factor analysis for subsamples were conducted as that for the entire sample. Bracketed values are the Cronbach's alpha (internal consistency) computed for salient items according to the factor structure identified in Table 2. Coefficients ≥.70 are considered substantial and are in bold

indicating the dimensions retained strong internal consistency across gender and racial minority status.

Additional Indicators of Construct Validity

Two-tailed independent-samples t tests with unequal variances revealed that there was a significant difference in scores on the FLSS for non-mother relatives ($n = 324$, $M = 8.6$, $SD = 7.8$) versus mothers ($n = 249$, $M = 10$, $SD = 8.6$); $t(507) = -2.1$, $p = .039$. Similarly, there was a significant difference for FLSS scores for non-co-residing relatives ($n = 227$, $M = 6.9$, $SD = 6.6$) versus co-residing relatives ($n = 346$, $M = 10.6$, $SD = 8.8$); $t(561) = -5.8$, $p < .0001$.

Discussion

The two-factor model identified in exploratory analysis met multiple standard criteria for an acceptable solution, providing evidence of the FLSS' construct validity and indicating that the scale has two distinct, but related dimensions. After submitting an independent subsample to confirmatory analyses, mixed evidence emerged regarding the acceptability of fit of the optimal model; while the CFI yielded (.935) meets the often used cutoff point of acceptability, the RMSEA yielded (.111) does not meet the proposed criteria indicating acceptability. In reconciling this incongruence, it is important to acknowledge that the RMSEA is highly sensitive to model and sample qualities with it being more difficult to achieve an acceptable RMSEA with small or moderate samples [37], fewer degrees of freedom [38], or fewer variables included in the model [39]. In addition, the RMSEA value deemed to indicate acceptable fit fluctuates considerably [40, 41], while the mere notion of an absolute threshold has been criticized [40, 37, 38]. In an effort to reexamine the RMSEA obtained in analyses and the possible effect sample size may be contributing, the entire sample was submitted to identical confirmatory analysis, yielding an RMSEA of .090, 90 % CI [.077, .102] and CFI = .959. The lower bound of the 90 % CI being .077 indicates that the difference in the RMSEA obtained and the value of .08 (the standard cutoff point of acceptability) is not statistically significant. Therefore, the factor model proposed can be described as a close fit [40].

The RMSR, GFI, CFI, and RMSEA are all indexes of model fit. As three of these four indexes indicate an acceptable fit and the difference between the remaining index and the proposed cutoff point is not statistically significant when the entire sample is examined, we believe that the factor model identified fits the data acceptability well. Providing additional evidence of construct validity, the internal consistency for the FLSS as a whole, and for each of its two factors are all above .80.

Analyses regarding invariance demonstrated that the optimal two-factor model identified among the entire sample is highly generalizable to women, men, Caucasian respondents, and non-Caucasian respondents, with both factors retaining a Cronbach's alpha near or above .80 for all groups examined. The entire sample is overwhelmingly female and Caucasian. As such, this evidence of generalizability is of much importance as it tentatively indicates that the factor structure identified fits well not only for Caucasian women who have a relative with PD, but also for men and non-Caucasian persons with such a relative. Of course, a limitation with the analysis remains to be that the sample contains fewer than 100 men and racial minorities, reducing the likelihood that the sample

accurately represents racial minorities and men who have a relative with PD. Further and quite unfortunately, while analysis were able to indicate that the factor structure generalizes to respondents who are non-Caucasian, there was not enough diversity in the sample to permit assessing whether the factor structure is generalizable to specific racial/ethnic minority groups (e.g. African Americans, Hispanics, etc.). As such, further research with a more racial/ethnic and gender balanced sample is certainly needed to be confident that the factor structure identified for the FLSS generalizes to men and specific racial/ethnic minority groups.

Analyses show that scores on the FLSS are significantly greater for mothers than for all other family members as are scores for co-residing relatives than for non-co-residing relatives. Such findings provide further evidence of construct validity as it has been found that mothers and co-residing relatives are more likely to attempt to prevent or limit the problematic behaviors of their relatives with PD [3, 7].

Conclusion

The lack of research conducted regarding family limit-setting practices directed towards persons with PD is startling and bespeaks the need for a reliable and valid means of assessing such limit-setting practices. The results of analyses performed in the present study provide evidence that the FLSS is such a reliable and valid means of measuring family limit-setting practices. It is our hope that the FLSS will begin to be utilized in research studies regarding persons with PD and their family members. As family limit-setting practices are likely associated with outcomes regarding the wellness of persons with PD and their families, it is imperative that research be conducted in this area; such research may provide new insights for how to protect and improve the well-being of persons with PD and their relatives—populations which comparatively experience increased vulnerability and disadvantage.

The FLSS has potential utility in education and support organizations for families with a member with PD. Such organizations are widespread, well attended, and actively provide programs intending to improve family functioning and problem-solving and decrease detrimental outcomes [19]. The FLSS is brief and could easily be administered to members of such organizations in an effort to help staff and participating family members identify persons using high levels of limit-setting practices, who may benefit from extra support, guidance, and/or assistance in navigating their relationship with their relative with PD, including how to best manage problematic behaviors. While it has yet to be adequately examined, it is likely that engaging in directive family limit-setting practices such as those measured in the FLSS may result in increased conflict and a deterioration of the quality of relationship among family members and persons with PD. If such a result is found, it will point to the need for family education organizations to teach relatives more collaborative strategies for preventing and resolving problematic behaviors by their relatives with PD that lead to fewer undesired consequences. The use of the FLSS could be a valuable component of such education.

Compliance with Ethical Standards

Conflict of interest Travis Labrum, Marlene Walk, and Phyllis Solomon have declared that they has no conflict of interest.

Ethical approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed consent Informed consent was obtained from all individual participants included in the study.

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