

Validity and Reliability of the Family APGAR as a Test of Family Function

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This paper offers evidence to support the use of the Family APGAR as a reliable, validated, utilitarian instrument to measure a subject's satisfaction with five components of family function. Mean total Family APGAR scores for several population groups are reported along with associated validity and reliability studies. A study from Taiwan supports the use of the Family APGAR in student populations 10 years of age and older. Studies are now under way to examine the use of the Family APGAR to correlate family function satisfaction with utilization of medical facilities, somatization, compliance, and the outcome of health problems.

The Family APGAR was introduced in 1978 as a utilitarian screening instrument for family function.¹ The five item questionnaire (Figure 1) was developed on the premise that a family member's perception of family function could be assessed by a member's report of satisfaction with five parameters of family function: adaptation, partnership, growth, affection, and resolve. The instrument allows three possible responses (2, 1, 0) to each of the five items in the questionnaire. Responses to the items are added, and thus scores may range from 0 to 10 (low to high satisfaction with family function).

The initial validation of the Family APGAR²

was effected by establishing correlations with a previously validated instrument, the Pless-Satterwhite Family Function Index,³ as well as with estimates of family function made by psychotherapists. This validation yielded an APGAR/ Pless-Satterwhite correlation of 0.80 and an APGAR/ therapist estimate correlation of 0.64. Additionally, Family APGAR scores of married graduate students (mean = 8.24) were significantly higher than scores of community mental health clinic patients (mean = 5.89).

Following this initial validation, the Family APGAR was introduced for trial in clinical and research settings. This paper will review studies in which the Family APGAR has been used.

Studies of Family APGAR

College Student Study No. 1

To gain normative information on the Family APGAR, the Family Function Questionnaire (Fig-

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The following questions have been designed to help us better understand you and your family. You should feel free to ask questions about any item in the questionnaire.

Comment space should be used if you wish to give additional information or if you wish to discuss the way the question applies to your family. Please try to answer all questions.

"Family" is the individual(s) with whom you usually live. If you live alone, consider family as those with whom you now have the strongest emotional ties.

For each question, check only one box

Almost always	Some of the time	Hardly ever
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I am satisfied that I can turn to my family for help when something is troubling me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Comments:

I am satisfied with the way my family talks over things with me and shares problems with me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Comments:

I am satisfied that my family accepts and supports my wishes to take on new activities or directions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Comments:

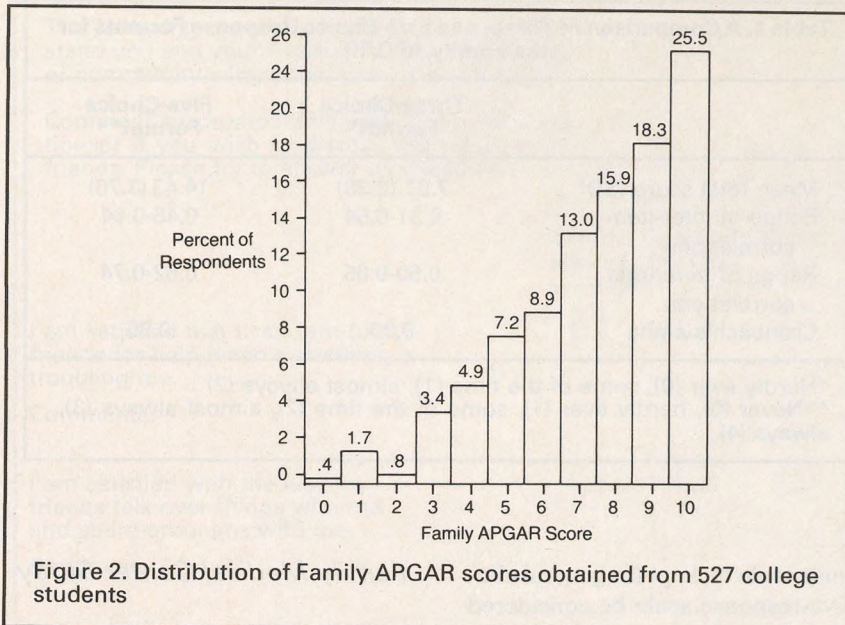
I am satisfied with the way my family expresses affection, and responds to my emotions, such as anger, sorrow, or love.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Comments:

I am satisfied with the way my family and I share time together.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Comments:

Figure 1. Family APGAR



ure 1) was given to first- and second-year college students in an introductory psychology course at the University of Washington. This sample consisted of 291 women and 238 men whose average age was 19.7 years. Figure 2 presents the distribution of scores obtained from this college student group.

This administration of the Family APGAR resulted in a median score of 8.1 and a mean score of 7.6 (SD = 2.3). A reliability analysis was performed on these data, yielding a Cronbach's alpha of 0.80, an indication that the instrument showed adequate internal consistency in assessing family function in this population. No significant differences were found between the scores of men and women.

In the initial validation study, item 5 was phrased to obtain a measure of satisfaction with the quantity of time spent with family. In this form, item 5 correlates poorly with items 1 through 4 and the total score. In a field test, the wording of item 5 was changed, asking subjects to rate their satisfaction with quality rather than quantity of time (ie, satisfaction with the way time was spent with family). This resulted in an increase in inter-item and total score correlation. Thus, a decision was made to change item 5 and seek the subject's

response to satisfaction with the quality of time shared with family.⁴ In college student study No. 1, the correlations between item 5 and the other four items ranged from 0.31 to 0.53, and correlation of item 5 with the total score was 0.71.

College Student Study No. 2

Inquiries from researchers using the Family APGAR suggested that a study was needed to determine if a five-choice response to the Family APGAR questions would give greater definition to the measure. To examine this question, the authors gave the Family APGAR to another sample of 486 first- and second-year students in an introductory psychology course at the University of Washington. This sample closely resembled the age and sex composition of the previous study. Table 1 presents a summary of the results of this study relative to the college student study No. 1.

These results indicate that a five-choice response format yields some improvement in psychometric qualities of the instrument, but the three-choice format also results in good scale qualities and is simpler. Thus it is recommended

Table 1. A Comparison of Three- and Five-Choice Response Formats for the Family APGAR

	Three-Choice Format*	Five-Choice Format**
Mean total score (SD)	7.61 (2.28)	14.43 (3.76)
Range of inter-item correlations	0.31-0.54	0.46-0.64
Range of item/total correlations	0.50-0.65	0.62-0.74
Cronbach's alpha	0.80	0.86
*Hardly ever (0), some of the time (1), almost always (2)		
**Never (0), hardly ever (1), some of the time (2), almost always (3), always (4)		

that a three-response scale be kept for general clinical use while a five-response scale be considered for research purposes.

College Student Study No. 3

An individual's social support comes not only from family but from friends as well. A third college student study was undertaken to investigate the feasibility of a Friends APGAR. Another sample of 297 college students, similar to those utilized previously, completed both the Family APGAR and a Friends APGAR. The Friends APGAR asked for the subject's report of satisfaction with adaptation, partnership, growth, affection, and resolve relative to the respondent's friends rather than family.

Figure 3 presents the specific format of the Friends APGAR. As can be seen, this instrument is an analog of the Family APGAR and asks for an assessment of support from one's friends instead of family.

In college student study No. 3, the sample's average Family APGAR score was 7.35 (SD = 2.42) while the average Friends APGAR score was 7.95 (SD = 2.30), a statistically significant difference (correlated $t = 3.15$; $P < .01$). Thus, as might be expected, college students express greater satisfaction with their friends than with their families. This finding supports the validity of the Friends APGAR, but little diagnostic significance can be drawn from the difference.

Family Medical Center Study

The Family Medical Center at the University of Washington offers the Family APGAR to all newly registered patients as part of a self-administered general medical and family history questionnaire. Figure 4 indicates a companion questionnaire that Family Medical Center patients complete. This form compliments the Family APGAR, since it provides information on the respondent's relationship with individual family members or persons who give social support. A consecutive sample of Family APGAR scores of 133 new patients (all new patients admitted to the practice in March 1979) was examined. Figure 5 shows the distribution of Family APGAR scores for this sample.

The mean score for this sample was 8.22 (SD = 2.14). The mean Family APGAR score is quite similar to that reported in the initial validation study for graduate students but is somewhat higher than the mean score derived from college students.

Psychiatric Outpatient Study

The Department of Psychiatry and the Behavioral Sciences at the University of Washington sponsors an Adult Development Program (ADP) featuring educational programs as well as more traditional counseling. A sample of 158 consecutive clients (47 men and 111 women), completed the Family APGAR upon registration at ADP.

The following questions have been designed to help us better understand you and your friends. Friends are nonrelatives from your school or community with whom you have a sharing relationship.

Comment space should be used if you wish to give additional information or if you wish to discuss the way the question applies to your friends. Please try to answer all questions.

	Almost always	Some of the time	Hardly ever
I am satisfied that I can turn to my friends for help when something is troubling me. Comments:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am satisfied with the way my friends talk over things with me and share problems with me. Comments:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am satisfied that my friends accept and support my wishes to take on new activities or directions. Comments:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am satisfied with the way my friends express affection, and respond to my emotions, such as anger, sorrow, or love. Comments:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am satisfied with the way my friends and I share time together. Comments:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Figure 3. Friends APGAR

This sample represented a diverse group, ranging in age from 17 to 70 years (average 34 years). Table 2 presents mean Family APGAR scores of ADP patients by their class participation or by counseling sessions. Note that the total number was not equal to 158, since some clients attended more than a single class or session.

Overall, ADP clients reported far lower satisfaction with family function than any other adult sample reported in this paper. The mean Family APGAR score in the ADP group was 5.8 (SD = 2.71).

National Taiwan University Study

The cross-cultural potential for the Family APGAR has been explored in the study of Chen et al⁵ at the National Taiwan University in Taipei. The instrument was translated into Chinese and given to two groups of students, aged from 10 to 13 years. A test group consisted of 1,377 students labeled "maladjusted," while a control group consisted of 1,164 students labeled "well adjusted." Students' adjustment status was established by a

Who lives in your home? * List by relationship (eg, spouse, significant other, ** child, or friend).			Please check below the column that best describes how you now get along with each member of the family listed.		
Relationship	Age	Sex	Well	Fairly	Poorly
_____	—	—	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	—	—	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	—	—	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	—	—	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	—	—	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	—	—	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If you don't live with your own family, please list below the individuals to whom you turn for help most frequently. List by relationship, (eg, family member, friend, associate at work, or neighbor).			Please check below the column that best describes how you now get along with each person listed.		
Relationship	Age	Sex	Well	Fairly	Poorly
_____	—	—	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	—	—	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	—	—	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	—	—	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	—	—	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	—	—	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
*If you have established your own family, consider home to be the place where you live with your spouse, children, or significant other; otherwise, consider home as your place of origin, eg, the place where your parents or those who raised you live.					
***"Significant other" is the partner you live with in a physically and emotionally nurturing relationship, but to whom you are not married.					

Figure 4. Family APGAR Supplement

three-test screening method developed by Bower⁶ and adapted by Hsu⁷ for Taiwanese students. The tests measure a student's self-perception, the teacher's professional judgment of the student's behavior, and peer estimates of a student's behavior.

Table 3 shows that each item of the Family APGAR, as well as the total score, differentiated the test and control groups. This study also looked for differences between (1) adopted and biological

children (adopted children had significantly lower Family APGAR scores), and (2) students separated from parents and those living with parents (separated students had significantly lower Family APGAR scores).

A two-week interval test-retest reliability was computed on data provided by 100 students from the study. The coefficient of test-retest reliability was 0.83.

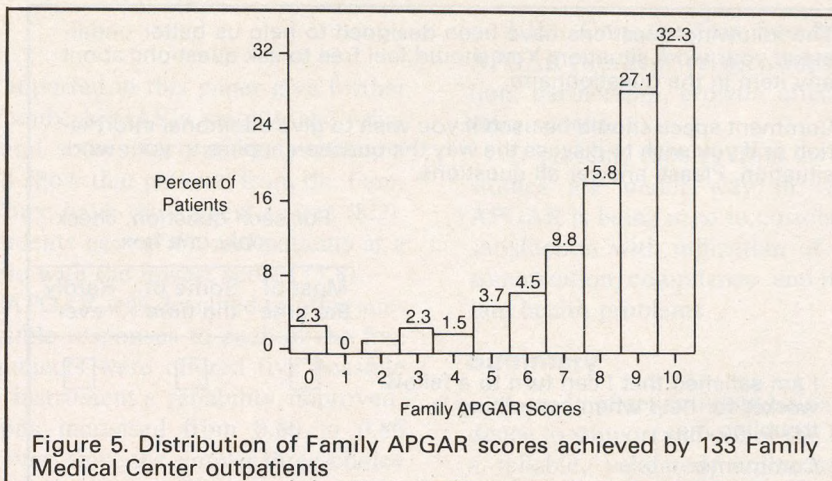


Figure 5. Distribution of Family APGAR scores achieved by 133 Family Medical Center outpatients

Table 2. Family APGAR Scores of Adult Development Program Patients in Various Classes and Counseling Sessions (n=245)

Class	Number	Mean	Standard Deviation
Territoriality	24	5.0	2.3
Social growth through drama	9	5.1	2.1
Shyness	22	6.04	2.8
Self-management of feelings	8	5.5	2.39
Women in transition	12	5.5	2.1
Affiliation skills	5	4.2	1.93
Couples communication	16	7.1	1.3
Dealing with depression	9	6.1	2.5
Assertiveness training	26	5.6	2.5
Sexual response	12	6.9	1.75
One individual session	42	6.2	2.79
2 to 4 individual sessions	25	5.84	3.06
5 to 7 individual sessions	14	5.7	2.4
8 to 10 individual sessions	8	6.75	1.19
Over 10 individual sessions	13	4.07	1.9

Table 3. A Comparison of Family APGAR Scores Obtained by Well-Adjusted and Maladjusted Taiwanese Students

Item	Well-Adjusted Group Mean (SD)	Maladjusted Group Mean (SD)	Mean Difference	t*
Adaptation	1.26 (.646)	1.01 (.766)	+.25	8.62
Partnership	1.26 (.702)	1.07 (.836)	+.19	6.11
Growth	1.25 (.637)	1.04 (.792)	+.21	7.31
Affection	1.41 (.679)	1.20 (.890)	+.21	6.56
Resolve	1.62 (.585)	1.40 (.685)	+.22	8.78
Total	6.85 (2.37)	5.71 (2.52)	+1.14	11.65

*All significant at P < .001

The following questions have been designed to help us better understand your work situation. You should feel free to ask questions about any item in the questionnaire.

Comment space should be used if you wish to give additional information or if you wish to discuss the way the question applies to your work situation. Please answer all questions.

	For each question, check only one box		
	Most of the time	Some of the time	Hardly ever
1. I am satisfied that I can turn to a fellow worker for help when something is troubling me. Comments:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. I am satisfied with the way my fellow workers talk over things with me and share problems with me. Comments:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. I am satisfied that my fellow workers accept and support my new ideas or thoughts. Comments:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. I am satisfied with the way my fellow workers respond to my emotions, such as anger, sorrow or laughter. Comments:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. I am satisfied with the way my fellow workers and I share time together. Comments:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. I am satisfied with the way I get along with the person who is my closest or immediate supervisor. Comments:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. I am satisfied with the work I do at my place of employment. Comments:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Figure 6. Work APGAR

Discussion

The studies reported in this paper give further evidence for Family APGAR's validity and reliability. Mean total scores for various population groups reported show that patients from the Family Medicine Clinic have the highest scores (8.2), with college students next (7.6), and patients at a psychiatric clinic with the lowest scores (5.8).

The Family APGAR was designed to offer subjects three possible responses to each of the five items. When subjects were offered five possible responses, the instrument's reliability improved. Cronbach's alpha increased from 0.80 to 0.86 (Table 1). However, since the simpler three-choice response has good scale qualities, it is recommended for routine use in clinical situations. For research purposes, the improved definition offered with the five-choice response may be desired by investigators.

In early field trials with the Family APGAR, children aged over 11 years appeared able to complete the Family APGAR questionnaire themselves. The cross-cultural study in Taiwan by Chen indicates that children aged 10 years and older can be expected to complete the Family APGAR themselves successfully.

The Friends APGAR study was introduced in the belief that social support must be explored in all its manifestations to understand better its impact on the individual. Family is the first and frequently the foremost of social support systems, but friends and other social support persons are also relevant to the individual. College student study No. 3 revealed greater satisfaction with the functional relationships with friends than with family. Other population groups may also relate more closely with friends than with family. For example, elderly persons living in retirement centers and isolated from family geographically or with no surviving family could be expected to relate most strongly to a social support network of friends.

Similarly, work associates may make up a social support system with significant impact on an individual. A Work APGAR form (Figure 6) is now being field tested. Preliminary studies show that in a sample of 290 patients on sick leave from work for more than six weeks, the mean total of Family APGAR scores was significantly higher (9.3, SD = 1.49) than the mean total Work APGAR (7.4, SD

= 3.15). Only the first five items on the Work APGAR (workers' relationships regarding adaptation, partnership, growth, affection, and resolve) were scored.

At present, reports from investigators indicate studies are under way in which the Family APGAR is being used to correlate family function satisfaction with utilization of medical facilities, somatization, compliance, and the outcome of certain health problems.

Summary

A study of several population groups yields evidence to support the use of the Family APGAR as a reliable, validated, utilitarian instrument that measures a subject's satisfaction with five components of family function. Furthermore, this self-completed five-item questionnaire has been used successfully in a general medical clinic as part of a routine health information survey. The skewness of distribution, with the vast majority of respondents bunched at the right, amplifies the clinical worth of the instrument in screening for those patients on the left who perceive their families as dysfunctional. When used to answer research questions, the scale qualities of the Family APGAR will be further improved by offering five possible responses to each question. A Taiwan study suggests that children from the age of 10 years may be expected to comprehend the Family APGAR questions and respond appropriately. Areas now being investigated with the Family APGAR include correlation studies with utilization, compliance, somatization, and disease and illness outcome.

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