

Hurried Child Syndrome Among Children and Adolescents: A Pilot Study to Calculate Sample Size

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ABSTRACT

The term 'pilot study' refers to mini version of a full-scale study. These mini version studies are one of the crucial elements of a research design and are used for many purposes, to fulfil various objectives. The main cause behind conducting any pilot trial is to calculate the sample size for finding the prevalence of particular variable(s) in research and to remove all the weaknesses which can be faced while conducting the final study. This study was carried out to calculate the prevalence of 'Hurried child syndrome' in the Indian scenario. Based on that prevalence, final sample size for the main research was calculated. **Results:** The prevalence of 'Hurried child syndrome' was 87.5% in the pilot study and calculated sample size was 559. **Conclusion:** Sample size was calculated accurately with the help of a pilot study. It also facilitated the investigators to handle the shortcomings and modify the research protocol accordingly in advance.

Keywords: Pilot study, sample size, hurried child syndrome

We live in a time-regulated society, where the emphasis is on speed, prompt results, fast food and rapid services. It takes great strength and discipline to live life at a slower pace. As a result, most people follow the fast current, and this fast current is growing rapidly faster, giving rise to a problem, known as 'the *hurried child*.' Concept of *the hurried child* was first proposed by a child psychologist and a teacher by profession - Professor David Elkind (1981), working at the Tufts University (Medford, United States). It is a set of stress linked behaviours, which results when a child is expected by his/her parents to perform well beyond his or her level of mental, social or emotional capabilities. A condition, in which the schedule of children is overfilled, they are pushed hard for academic success, along with other extracurricular activities, and are expected to behave as replica of the adults. New family lifestyles, academic pressure, over scheduling, dynamics of media and internet, parental peer pressure, childhood moving indoors, idea of child as a consumer and dynamics of schooling, are a few factors which come under this umbrella term. These factors exist in the contemporary environment of children and adolescents, which allow them to confront numerous emotional, mental and behavioural problems. [1, 2, 3]

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Received: January 05, 2022; Revision Received: June 03, 2022; Accepted: June 17, 2022

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Usually, the developing nations look at the studies carried out in the developed world to calculate the sample size. Studies conducted in the first world countries are kept as the frame of reference for any research which is to be conducted in third world countries. As a result, researchers from the third world countries restrict themselves to the data available on Pubmed, Medline, ResearchGate and many other websites, to conduct the final research. There is a dearth of research and specifically, quantitative data on the concept of 'Hurried child syndrome'. Although research has been conducted on this topic, but data is not available about the prevalence of this condition. Hence, it was unavoidable to calculate the sample size for the final study on this concept, based on the findings of a pilot trial.

Pilot trials are used to examine the utilized tools, procedures and processes which will be made use of in the final work. [4, 5]. On the other hand, sample size is another critical element of quantitative research. [6] It ascertains the minimum number of participants/subjects which are to be included for the main study, so that the research questions can be answered. A prerequisite of most of the empirical work is the calculation of an adequate sample size through pre-studies. [6, 7, 8, 9]

The purpose of this study was to calculate accurate sample size, by taking an example of prevalence of hurried child syndrome in the field settings of Himachal Pradesh (India). This mini-investigation was also carried out to remove the procedural bugs which were to be faced in the final study and decrease the number of unanticipated difficulties.

METHODOLOGY

Study area

District Shimla of Himachal Pradesh is located in south-western Himalayan region. It lies between 77.10'- 78.19' E (longitude) and 30.4'- 31.44' N (latitude). The urban and rural areas of this district were selected for the pilot trial. Headquarters of this district are situated in Shimla town, which covers nearly 9.2 kilometres from east to west. This urban area is divided further into twenty-five (25) wards. Two wards were picked up through simple random process for selecting participants to be included in the pilot test. On the other hand, rural Shimla is divided into sixteen sub-districts (tehsils in hindi language). Out of the 16 sub-districts, again two sub – districts were selected using simple random technique for calculating sample size of the study.

Study population

Parents of children aged between 5-12 years and adolescents aged between 15-18 years were the study population.

Inclusion criteria: The study population residing in district Shimla (urban and rural), Himachal Pradesh was the most important inclusion criteria. Parents of the selected age range for both the groups: 5-12 years and 15-18 years of age was also another significant criterion of incorporation for the participants in the study.

Exclusion criteria: Parents of those children and adolescents, who did not give consent, were excluded from the study. Parents who were having wards with diagnosed mental illness or any chronic morbidity were also excluded from the pilot and final study.

Sample size

To estimate the sample size for this pilot trial, methods given by Browne and Teare, Dimairo, and Shephard were utilized. [10, 11] Browne's rule of thumb is to use at least 30

Hurried Child Syndrome Among Children and Adolescents: A Pilot Study to Calculate Sample Size

subjects or greater to estimate a parameter, whereas Teare et al., recommend a sample size of at least 70 for pilot trials in order to reduce the imprecision around the estimate of the standard deviation. Based on Teare and others' 'rule of thumb', 70 subjects were selected randomly from the selected areas for the study.

Sampling strategy

The sample size was divided equally into rural and urban areas. Two tehsils (sub districts) of rural Shimla and two wards from urban Shimla were selected purposively. A total of 35 questionnaires were distributed to the participants in rural and urban areas (each). In order to collect data from the two wards of rural and urban areas (each), snowball sampling technique was utilized in this phase of the study. It was done to make the research cost and time effective. For it was independent research without any funding aid.

Study tool

A structured questionnaire was utilized for the parents of children and adolescents who were included in the study. Hurried child syndrome was labelled based on a set of forty-two (42) questions, which was further given scores. The final scores were calculated by adding score on each question. Lowest calculated score on the questionnaire was 117 and, the highest calculated score was 166.

Data collection

The pre designed structured questionnaire in English and Hindi was introduced to the participants who consented to participate. Participants, who were not comfortable with the languages of questionnaires, were interviewed by one of the authors. The final sample consisted of 51 subjects from two tehsils (sub-districts) of rural and two wards of urban Shimla. The questionnaires of remaining 19 participants were rejected because of either response bias or missing responses. The final sample size for the pilot work included: 24 parents of wards in the age group of 5-12 years (first group) and 27 parents of the adolescents (15-18 years of age).

Data analysis

Descriptive statistics (mean and standard deviation) were utilized to form the norms, for the categorization of scores of each subject. Prevalence was calculated based on the scores, falling in the 'average high', 'high' and 'very high' category of norms (as shown in Table: 1). A score above 135 (> 135) was considered to be taken for calculating the anticipated prevalence.

Table: 1 Norms for finding the anticipated prevalence

Category	Score range	Age group	
		5-12 years	15-18 years
Very low (M-1/2 SD)	<123.80	2	1
Low (M -1 SD)	123.80-129.34	1	1
Average low	129.34 – 134.87	3	1
Average high	134.87 – 140.40	6	10
High (M+1/2SD)	140.40 – 145.93	7	7
Very high (M+1SD)	> 145.93	5	7

* *M* stands for mean and *SD* stands for standard deviation

RESULTS

Based on the data collected in the pilot phase, anticipated prevalence ‘p’ for the participants was 87.5 (percent). It was calculated by using the total scores of all the participants on the questionnaire. Calculated mean and standard deviation were **134.868** and **11.066** respectively.

The final sample size for the study was calculated by using the formula: $4pq/e^2$, where ‘p’ is the anticipated prevalence of the problem being studied. For finding the suitable sample size, the assumption usually made is that the allowable error (e) does not exceed 10% or 20% of the positive character. [12] The sample size was calculated at the confidence interval of ninety five percent (95%). Calculated total sample size for this study was **559**. Total sample size was divided among the rural and urban population proportionately i.e. 90:10, as 90 percent of the Indian population resides in rural areas of this country. The sample size of this study was calculated according to the 2011 census of Himachal Pradesh. Details are given in Table 2 and 3.

Table: 2 Detail of sample size for the selected areas

	Age group	Sample size		
		Urban	Rural	Total
First group	5-12 years	44	396	440
Second group	15-18 years	35	84	119

Table:3 Division of random selection of participants for the study from urban and rural areas

Age group	Urban	Rural	Total
5-12 years	44	396	440
	* 2 subjects from each (25) ward	* 39 participants from each (10) randomly selected sub-districts * 6 subjects were selected randomly from any 6 sub-districts	
15-18 years	35	84	119
	* At least 1 participant from each (25) ward.	* 8 subjects from each (10) randomly selected sub-district * 4 participants were selected randomly from any selected sub-district.	

DISCUSSION

Pilot studies which are well planned and carried out effectively, are helpful for the entire research process. Smaller versions of main studies even inform the researchers about the probable results. Feasibility studies are most likely to increase the quality of research. Results from such studies are of great help for the final research.

A feasibility study is used to assess the suitability of the main study. Assessment of resources: time and cost mainly, along with execution and applicability are the main areas with which a pre-test deals with. [13] Research studies take a lot of time, are frustrating, and filled with problems which are not expected and predicted. It is better to conduct pilot works and deal with the problem areas in advance, before devoting a large amount of time, funds, and energy directly on a final study. [14, 16] It has been reported that, conducting a pilot

Hurried Child Syndrome Among Children and Adolescents: A Pilot Study to Calculate Sample Size

work help in facing the challenges that are likely to arise in the substantive study. Such systematic studies also make the investigators more confident in the instruments that they use for the process of data collection. [15, 16]

This pre-test was conducted to overcome the dearth of research and data on the prevalence of 'Hurried child syndrome'. Sample size was calculated based on the findings of a pilot trial. Another major goal was to assess the efficacy of the research instrument, which was to be used for the main study. It assisted in interrogating the flaws present in drafted questionnaires, which were standardized after conducting the final research. Carrying out a mini trial made the researchers aware, about most of the hindrances which were to be faced at later stages. Most importantly, it made the entire task of investigation, testing and analysis simpler and easier.

CONCLUSION

This pilot work was carried out with an aim of calculating the final sample size for a study. It was also done to increase the knowledge about methodological issues of pilot studies which are rarely reported. Conducting a pilot study does not assure success in the main study, but it increases the likelihood of success. It fulfils a wide array of important functions and provides valuable insights for other researchers. Researchers need to discuss among themselves, about the process and outcomes of pilot studies. Pilot trial of studies enable the identification of weaknesses which researchers are likely to face while execution and analysis of the study. Investigators should be encouraged to conduct and even report their pilot studies in detail. This will help in making preliminary improvements for the study design and the entire research process.

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Hurried Child Syndrome Among Children and Adolescents: A Pilot Study to Calculate Sample Size

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Acknowledgement

The author(s) appreciates all those who participated in the study and helped to facilitate the research process.

Conflict of Interest

The author(s) declared no conflict of interest.

How to cite this article: Kashyap V & Sharma S K (2022). Hurried Child Syndrome Among Children and Adolescents: A Pilot Study to Calculate Sample Size. *International Journal of Indian Psychology*, *10*(2), 410-415. DIP:18.01.041.20221002, DOI:10.25215/1002.041