

Original Research Article

An evaluation of basic and special features of toddler parenting apps to support toddler parents in India

Abstract:

Background: As the number of smartphones in use rises, more parents are turning to mobile applications for parenting guidance. However, identifying quality apps for guidance on child development can be challenging for parents.

Objective: An objective of this study was to evaluate existing mobile applications that can help disseminate important parenting information among Indian parents.

Methodology: This app analysis study aimed to document the basic and special features of toddler parenting apps in India available to parents as they promote their child's development and health. To understand the accessibility and quality of apps for toddler parents, we conducted an analysis of apps in the Google Play Store. The Google Play Store was searched for available parenting apps using different search terms such as mom, mother, mommy, father, dad, papa, daddy, baby, kid, toddler, child, children, parent, and parenting. A total of 138 apps were screened, and 40 apps that met the selection criteria were evaluated.

Results: We found that a great number of toddler parenting apps are available, but most of the apps had foreign regions of origin. The information is in English language and the apps are mostly non-interactive.

Conclusion: Future research directions and limitations on the interpretation and generalization of the results are discussed.

Keywords: smartphone, mobile application, toddler, parenting, non-interactive

Introduction

A toddler is a child approximately 12 to 36 months old¹. According to the Cambridge dictionary, a toddler is a young child, especially one who is learning or has recently learned to walk. The word "toddle" comes from the verb "to walk unsteadily, as a child of this age might." Toddlers go through constant growth and development changes. Piaget's theory links toddlerhood to the sensory preoperational phase, Freud to the anal stage, and Erickson views it as the time to

vacillate between feelings of autonomy vs. shame and doubt². The term parenting has been defined as the process or the state of being a parent, and includes nourishing, protecting, and guiding a child through the course of development³.

With technology fast becoming a vital part of people's lives, parenting has also experienced a deep change recently. Now-a-days mobile applications have been seen as the most effective, current, and powerful technologies, and this is due to the widespread use of mobile devices. Moreover, the raising power of mobile devices has a great effect on people of all ages; and more specifically on social relationships, including interaction between parents and child. Parenting apps are assisting couples raise their offspring in a much more effective and secure way⁴.

The widespread usage of apps makes it an appropriate platform to help parents in their parenting⁵. However, the proliferation of low-quality applications presents challenges for parents in properly employing apps. According to Bhandari *et al.* (6), parents' first perceptions of an app's quality are influenced by its design, which can either strongly encourage or discourage parents from downloading it. Furthermore, parents preferred some app features over others. So the present study was conducted to analyze the various existing toddler parenting apps to help the parents locate the best parenting app for their parenting purpose.

Material and method

We finished analysis of applications in the Google Play store to determine the quality and availability of apps for parents of toddlers. The Google Play Store was searched for available parenting apps using different search terms such as mom, mommy, mother, father, dad, daddy, papa, toddler, kid, child, children, family, parent, and parenting. A total of 138 apps were screened, and 40 toddler parenting apps that met the selection criteria available for free download on the Google Play Store were downloaded and installed on an Android phone for analyzing their basic and special features. Each app was tested and individually assessed by the researcher using a self-structured schedule.

The questionnaire had two sections, A and B, which dealt with analysis of the app's basic and special features, respectively.

- Section A (App's basic features) had a total 12 items
- Section B (App's special features) had a total of 10 items

The collected data were classified and tabulated to draw meaningful inferences as per the objectives. For interpretation of results, frequency and percentage descriptive statistics were used.

Results: The result of the present study have been presented under following heads and sub-heads:

1.1. Analysis of existing toddler parenting apps

1.1.1 Features of toddler parenting apps

1.1.1.1 Basic features of toddler parenting apps

1.1.1.2 Special features of toddler parenting apps

1.1.1 Features of toddler parenting apps

In this section, basic, special, interactive, and use & share features of various toddler parenting apps have been described.

1.1.1.1 Basic features of toddler parenting apps

Basic features of toddler parenting apps like the last update, number of reviews, number of downloads, Google Play Store rating, region of origin, version type, affiliation, app permissions, app working mode, payment, and language were assessed.

The basic features of toddler parenting apps have been presented in Table 1. The results showed that nearly two-thirds of the apps had been updated within the last year (72.5%), followed by more than two years (15.0%), and between one and two years (12.5%).

Around two-thirds of the apps had reviews up to one thousand (65.0%), followed by one thousand to one lac (27.5%), and more than one lac (07.5%). About two-thirds of the apps had downloads up to one lac (60.0%), 27.5 percent had between one lac to five lac and 12.5 percent had more than 5 lac.

Maximum apps had Google Play Store ratings ranging from 4.1 to 5.0 (67.5%) and from 3.1 to 4.0 (32.5%), but none of the apps had ratings between 1.0 to 2.0 and 2.1 to 3.1. Half of the apps belonged to foreign countries (50.0%), followed by Indian country (45.0%), while the region of origin of 5 percent of the apps was unknown. On the first download, the majority (92.5%) of apps were available for the user with a full version, while only 7.5 percent of apps offered a trial version. Out of 40 toddler parenting apps, nearly all the apps were affiliated with individuals (92.5%), followed by commercials (7.5%), and none of the apps were affiliated with any government or non-government organization.

The majority of the apps (70.0%) asked for specific permissions such as media, contacts, location, etc., while 15 percent required general permissions for app access, and 15 percent of the apps were freely accessible without needing any permission. The working mode of more

than half of the apps (67.5%) was online, 20 percent worked in both online and offline mode, whereas a few (05.0%) worked offline.

More than half of the apps (62.5%) were exclusively free, while the remaining 37.5 percent apps had some specific paid content.

Around two-third of the apps (67.5%) were available only in a single language, while the remaining 32.5 percent of the apps were multilingual. 65 percent of apps were exclusively in English, whereas 17.5 percent were in English, Hindi, and other regional languages. A very small number of the apps were in English, Hindi, and other international languages and exclusively in Hindi, i.e., 12.5 and 5 percent, respectively.

Table1:Basicfeaturesofvariousoddler parentingapps

N=40

Sr.No.	Basicinformation	F	%
1	Lastupdate		
	Within1 year	29	72.50
	1-2years	06	15.00
	morethan2 years	05	12.50
2	No.of reviews		
	Up to1k	26	65.00
	1k-100k	11	27.50
	Morethan100k	03	07.50
3	No.ofdownloads		
	Up to 100K+	24	60.00
	100K+ to500K+	11	27.50
	Morethan500K+	05	12.50
4	Googleplay storering		
	1.0-2.0	00	00.00
	2.1-3.0	00	00.00
	3.1-4.0	13	32.50
	4.1-5.0	27	67.50
5	Regionof origin		
	Indian	18	45.00
	Foreign	20	50.00
	Unknown	02	05.00
6	Versiontype		

	Trialversion	03	07.50
	Fullversion	37	92.50
	Both	00	00.00
7	Affiliation		
	Individual	37	92.50
	Unknown	00	00.00
	Commercial	03	07.50
	Government	00	00.00
	NGO	00	00.00
8	Apppermissions		
	None	06	15.00
	GeneralPermissions	06	15.00
	SpecificPermissions	28	70.00
9	Appworking mode		
	Online	27	67.50
	Offline	05	12.50
	Both	08	20.00
10	Apppayment		
	Exclusivelyfree	25	62.50
	Withspecificpaidcontent	15	37.50
11	Language		
	Single	27	67.50
	Multilingual	13	32.50
12	Availablelanguages		
	English	26	65.00
	Hindi	02	05.00
	English,HindiandotherInternational	05	12.50
	English,HindiandotherRegional	07	17.50

1.1.1.2 Special features of toddler parenting apps

Special features of the toddler parenting apps, such as target group, type of app, and mode of information provided by the app, were assessed.

Table 2: Special features of various toddler parenting apps

N=40

Sr.No.	App features	F	%
1	Target group		
	Infants	00	00.00
	Preschoolers and Toddlers	05	12.50
	Pregnant women, Lactating mothers and Toddlers	09	22.50
	Toddlers	14	35.00
	All of the above	12	30.00
2	Type of app		
	Growth tracker	05	12.50
	Informative app	09	22.50
	Multipurpose	26	65.00
3	Mode of information		
	Only text	04	10.00
	Text + Photos + Charts	04	10.00
	Text + Videos	03	07.50
	Text + Photos + Charts and Videos	29	72.50
4	App interaction		
	Interactive	16	40.00
	Non-interactive	24	60.00
5	Sign up		
	Required	24	60.00
	Not required	16	40.00
6	App registration		
	Required	18	45.00
	Not required	16	40.00
	Optional	06	15.00
7	Share option on app icon		
	Available	40	100.00

	Notavailable	00	00.0 0		
8	Share option under appmenu				
	Available	36	90.0 0		
	Notavailable	04	10.0 0		
9	Rewardforsharingapp				
	Available	07	17.5 0		
	Notavailable	33	82.5 0		
10	Feedbackoption				
	Available	16	40.0 0		
	Notavailable	24	60.0 0		

Special features of the toddler parenting apps have been shown in Table 2. Around one third of the apps (35.0%) were meant for toddlers and remaining for all groups (30.0%). 22.5 percent of apps were meant for pregnant women, lactating mothers, and toddlers, while 12.5 percent were for preschoolers and toddlers.

Results showed that more than half (65.0%) of the apps were multipurpose (growth tracker, informative, photo sharing, etc.), while 22.5 percent were informative, followed by 12.5 percent that were only growth trackers. The main purpose of growth tracking apps was to keep track of the growth of the toddler, while informative apps aimed only at providing information about toddlers.

It was observed that the majority of the apps (72.5%) were providing information in the form of text, photos, charts, and videos. Even a number (10.0%) of apps provided information only through text and by text, photos, and charts. A few of the apps (07.5%) provided information through a combination of text and videos. More than half (60.0%) of the apps were found non interactive, while 40.0 percent were interactive.

More than half of the apps (60.0%) did not require any sign-up to use the app, whereas the remaining apps (40.0%) required the user to sign up before using the app. Approximately half of the apps (45.0%) require app registration, around one-third of the apps (40.0%) do not require registration, and for 15 percent of the apps, registration is optional.

It is clear from the table that 40.0 percent of apps provided open access as they did not require any registration, while the remaining apps required the user to register.

All the apps had both share options on the app icon and under the app menu. The majority of the apps (82.5%) were not offering any reward, such as coins, coupons, etc., for sharing the app. As evident from the table, the feedback option was provided only in 40 percent of the apps, while the rest (60.0%) did not provide any feedback option.

Discussion

The results of the analysis of various toddler parenting apps revealed that most of the apps were updated within one year. More than half of the apps had number of reviews up to one thousand and number of downloads up to one hundred thousand, which means that these apps are being used by a great number of mothers. Virani *et al.* (7) also found that most of the apps (n=12) were updated within the last year and received 4.5 or above ratings from users. More than half of the apps had Indian origin, while the remaining apps were of unknown origin. It means a great number of Indian mothers are using these apps. Zhao *et al.* (8) discovered, in contrast to these findings, that the majority of applications were developed by commercial entities and poorly rated.

In the majority of the apps, the full version was available for the user after first download, which means the contents of the app were easily and freely accessible. Virani *et al.* (7) also revealed that mostly apps were freely available to the public on the Google Play Store. According to David *et al.* (9), 86.7% of the applications were downloaded for free, while the remaining apps required subscription and payment after the trial version. The majority of apps were individually affiliated, and only 3 apps were commercially affiliated, which puts a question mark on the credibility of the information provided through these apps. Taki *et al.* (10) discovered that one app was commercial while the majority of the applications (43/46) were non-commercial. More than half of the apps asked for specific permissions such as media, contacts, location, etc., to access the app, which raises concerns about privacy and safety of the user.

More than half of the apps provided content in online mode, which means the app was unusable without active internet. Most of the apps were exclusively free, and a few had some specific paid content like specific advice by professionals, diet plans for toddlers, etc. Davis *et al.* (11), Phillips *et al.* (12) found that the price for app content ranged from free to \$4.99, and most of the parenting apps were in English only. The willingness of mothers to pay for information has also been reported by Kuo *et al.* (13) who found that mothers were willing to pay for mobile services that are going to provide professional health services for their children.

Only 35 percent of the apps were focused on the target group, i.e., toddlers. More than half of the apps were multipurpose apps in nature, while the rest were growth trackers or informative. Three-fourths of apps provided information through combinations of methods, i.e., text, photos, charts, and videos, to make the content more interesting and easy to understand. In research to evaluate current parenting apps, Davis *et al.* (11) discovered that the purpose, target audience, and topics varied. Even though every app on the list was intended for parents, some were for more targeted groups of parents.

Most of the apps were interactive; therefore, they were able to answer queries of the mothers. More than half of the apps required sign-up, and most of the apps required registration, which made them difficult to access. The Share option was available in all the apps, and more than half of the apps did not have a feedback option, which shows that app developers were interested only in promotion but not in the improvement of the app. In contrast to these results, Samanta (12) conducted a study to develop content for parenting app for mothers of infants and found that most of the apps were non-interactive, did not require any sign up or registration, and more than half of the apps had a feedback option.

Conclusion

Use of mobile apps by women to get information on toddler parenting is on the rise. A great number of toddler parenting apps are available, but most of the apps had foreign regions of origin, were available online, and asked for specific permissions such as media, contacts, location, etc. A very small number of apps were focused on their target group and provided feedback option. The information is in English language and the apps are mostly non-interactive. Future research is required to help designers in this domain, especially in relation to preventing possible user burdens.

Limitations

- Only 40 existing toddler parenting apps have been analyzed, which is a small number in comparison to the total number of apps.

Recommendations

- To make toddler parenting apps relevant for a wider audience, material should be available in multiple languages.
- Toddler parenting apps should be interactive so they allow moms to ask professionals questions and receive expert responses.
- To make it easy to use and comprehend for the average Indian mother, toddler parenting apps should have a light and basic design.
- The toddler parenting app should also be capable of operating offline.

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