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ORIGINAL ARTICLE

Child Health Booklet: Assessment of completion and its use by families in Basic Health Units

Julia dos Reis Raimundo[1], Juliane Sauter Dalbem[1]

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Abstract

Child Health Booklet is an instrument for monitoring a childs health, essential for detecting changes in growth and development, as well as for preventing diseases and reducing morbidity and mortality. Correct and complete recording of information is fundamental for the CSC to fulfill its role in child health surveillance and promotion. However, what is observed in most studies is a failure in completion and a lack of awareness among families about the notebook. This study aimed to evaluate the completion of the CSC and its use by families in basic health units in a municipality in the northern region of Rio Grande do Sul. It is an observational, cross-sectional, and prospective study, conducted through the application of a form followed by an evaluation of the notebooks completion. The study was conducted with a population of families attending child healthcare consultations or appointments with other healthcare professionals, and who were carrying the notebook. The sample consisted of 100 individuals, seen at four basic health units in the municipality, selected between September 2022 and November 2023. The study found 45% of the notebooks had unsatisfactory completion, including failures in recording growth and development items. The results reinforce the still deficient use of the CSC and underscore the need for professional training and family awareness to ensure its role in promoting child health.

[1] Universidade Regional Integrada do Alto Uruguai e das Missões, Departamento de Saúde - Erechim - Rio Grande do Sul - Brazil.

Correspondence to:
Julia dos Reis Raimundo.
Universidade Regional Integrada do Alto Uruguai e das Missões. Av. Sete de Setembro, 1621, Fátima, Erechim, RS, Brazil. CEP: 99709-910. E-mail: juliaraimundo3@gmail.com

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INTRODUCTION

One of the fundamental strategies for restructuring the welfare model of the Unified Health System (SUS) was the establishment of the Family Health Program (PSF) in 1994, through which health services were integrated and brought closer to the population. This program, now consolidated as the Family Health Strategy (ESF), a cornerstone of Primary Health Care (PHC), aims to ensure universal and continuous access to quality health services, reaffirming the basic principles of the SUS[1]. It is in the exercise of these activities that child health care gains significant prominence and a historical role.

Primary child health care actions are essential for monitoring growth and development, as well as preventing injuries and diseases. Child growth is described as a dynamic and continuous process, dependent on biological and socio-environmental characteristics. Periodic recording of weight, height, and BMI (body mass index) is ideal for monitoring. Development, on the other hand, refers to the progressive transformations of childhood, including growth, maturation, learning, and psychological and emotional aspects. Its assessment is based on psychomotor development milestones[2]. Child health surveillance also includes breastfeeding and weaning care, healthy eating, immunization, and oral health, among other aspects.

Between the 1970s and 1980s, the Ministry of Health launched the Child Card (CC), which contained a growth chart for children under 5 years of age and their vaccination records. In 2005, the CC was replaced by a booklet and became known as the Child Health Booklet (CSC)—a passport to citizenship. This new document was expanded to include children up to 10 years of age and included data on the newborn's health, pregnancy, childbirth, and postpartum period, as well as guidance on breastfeeding, healthy eating, neuropsychomotor development, accident prevention, anthropometric data recording, head circumference charts, and the basic vaccination schedule[3]. Currently, the booklet is considered the primary instrument for monitoring children's growth and development in primary health care. In addition to guiding health promotion and disease prevention actions, it also allows for comprehensive monitoring and communication between families and the different services and levels of health care[4].

Despite the evident importance of this health tool, studies on the completion and use of the CSC demonstrate high rates of missing data and incomplete or irregular records. This is due not only to a lack of training and qualifications among health professionals, but also to the short time intervals between appointments in most primary care units. Another significant problem is the lack of knowledge, especially among family members, about how the booklet can be used as a tool for collecting health information and notes, resulting in little use and reading.

Therefore, the study aims to evaluate the completion of the CSC and its use by family members. It also aims to identify the sections with the highest number of records, investigate the guidance families receive from the booklet, and understand the sociodemographic profile of participating families.

MATERIAL AND METHODS

This observational, cross-sectional, and prospective study was conducted using a questionnaire and followed by an assessment of the child's health record completion. The sample size was determined based on an average of 1,306 live births over the last 10 years in the municipality of Erechim, resulting in a sample size of 100 individuals. This number was distributed among four primary health care units in the municipality with the largest registered population, according to data from August 2021: UBS Aldo Arioli, UBS Atlântico, UBS Progresso, and UBS São Cristóvão. The study was conducted from September 2022 to February 2023. Families who, along with their child, attended a well-child visit/follow-up with a doctor or other member of the health team and who were carrying the child's health record were included.

The form developed by the authors consists of 15 questions, the first 10 of which seek to analyze the family's sociodemographic context and data on pregnancy and postpartum, while the remaining questions address the interviewee's perception of the child's health record. The CSC assessment, similar to a study conducted in Belo Horizonte, Minas Gerais[5], was carried out through direct verification of the records, including 20 variables considered essential for monitoring the child's health, the completion of which is considered the bare minimum. To assess the 20 items, the guidelines in the CSC User Manual, provided by the Ministry of Health, were followed, which indicates which health services should preferably complete the sections/parts[3]:

1. Completion by parents/guardians: child's identification items: child's name and date of birth, mother's name;

2. Completion by the maternity hospital: trimester of onset and number of prenatal consultations; type of delivery; weight, length and head circumference at birth; Apgar score at 5 minutes; gestational age; type of feeding of the child upon discharge from the maternity hospital; and

3. Completion by the APS/other services: neuropsychomotor development; head circumference and birth weight recorded on the chart; age when the last point of the head circumference and weight was recorded on the chart; record in the eruption schedules, record of the use of ferruginous and record of vaccinations.

The item was considered completed correctly when it complied with the Ministry of Health guidelines. A scoring

system similar to the previously cited study [5] was used, assigning a value of 1 to correctly completed items and a value of zero to items completed incorrectly or not completed at all. The final score received by each CSC was obtained by summing the scores received for each item, ranging from 0 to 20 points. Since the aim was to assess the completion variable, the score was converted to a percentage. Thus, CSCs with ≥ 60% completion (>12 points) were classified as complete, and those with ≤60% completion (≤12 points) were considered incomplete, and those with unsatisfactory completion (12 points).

It should be noted that data collection difficulties were encountered due to the failure to distribute health records in some municipalities during the post-COVID-19 pandemic period, in which newborns received the old version—the Child Card—or a smaller, fewer-page version of the current CSC. Furthermore, the municipality has nine additional basic health units, some of which operate in partnership with the university and, consequently, potential locations for expanding the research.

To structure the database **,** the forms and information collected after verifying the CSC were analyzed and computed, generating Excel tables and statistical analysis using *GraphPad Prism* 9.0 software. Data were analyzed using descriptive statistics to calculate the percentages of CSC completion. The complete or incomplete CSC classification was associated with sociodemographic variables using the chi-square test, considering $p<0.005$ as significant.

The research was approved by the Research Ethics Committee (CEP) with human beings of the Regional Integrated University of Alto Uruguai and Missões, under Opinion No. 57175722.2.0000.5351.

RESULTS

Table 1 shows the general characteristics of the population according to the survey form. The sample consisted of 100 individuals, with 77% of the interviews conducted with the child's mother. The mothers' ages ranged from 19 to 51 years, with a median of 30 years. Regarding maternal education, 35% did not complete high school, and only 16% had completed higher education. Regarding family planning, 56 individuals had two or more children, while 44 were in their first pregnancy; of these, half of the pregnancies were unplanned. All mothers received prenatal care, with a median of nine visits.

The children's ages ranged from 0 to 14, with a median of 2.3 years. Of this population, 48% are up to 2 years old, a period during which children should have more checkups and health monitoring. Over 95% of the children received well-child visits, especially in the first years of life. When asked about the need for medical care, 81% of participants responded that their children receive regular care through the public health system, while 19% receive care through private services.

The items selected to compose the completion score, as well as their percentages, are presented in Table 2. The CSC completion score ranged from 4 to 18 points, with a median of 13 points. 45% of the booklets had a score less than or equal to 12 points, considered unsatisfactory.

There was significant variability in the verification of the CSC records, ranging from no completion (record of iron use) to 100% completeness (vaccination records). The vaccination schedule was up to date and correctly completed in all CSCs evaluated, since most of the information obtained in the survey was obtained after the child was seen at the basic health unit.

The child's name and date of birth, as well as the mother's name, were missing from two of the family's records. Regarding other birth data, birth weight and head circumference were completed in 93% and 89% of records; however, they were only correctly recorded in the corresponding charts in 30% and 28%, respectively. Furthermore, only five records contained any data from the neuropsychomotor development section.

Mothers with complete or incomplete higher education had higher completion scores; only one booklet received a score lower than 12 points (Fig. 1a). Family income was less than or equal to two minimum wages in almost half of the sample, and the vast majority of families use the public health system when they need medical care. These two variables did not demonstrate a significant difference in the booklet score (Fig. 1b and c).

Whether the pregnancy was planned or not, as well as the number of children, did not reveal a difference in the completion score (Fig. 1d and e). Receiving an explanation about the CHR at the maternity ward/UBS, and reading/taking notes in it or not, also did not show a difference in the final score (Fig. 1f and g). On the other hand, a larger sample size could demonstrate a degree of difference in family planning *versus* score (Fig. 1d) and in the variable explanation about the CHR *versus* score (Fig. 1f), as evidenced by the approximate values of $p=0.22$ and $p=0.39$, respectively.

Maternal age was statistically significant ($p<0.05$), and advanced maternal age was associated with lower CHR completion rates (Fig. 2a). The child's age did not correlate with the completion rate. Among children up to 5 years of age (n=78), more than 60% had a score >12 points. Of those aged 10 years or older - considered adolescents by the Ministry of Health - and whose booklet should have at least 12 points, a significant proportion (n=10) had unsatisfactory completion (Fig. 2b). Regarding prenatal care, more than half of mothers who attended more than 6 prenatal appointments (n=86), the minimum recommended by the Ministry of Health, had their children's CHR completed satisfactorily (Fig. 2c).

DISCUSSIONS

The CSC provides comprehensive monitoring of children's health, detecting changes in growth and development

Table 1. General characteristics of the sample studied.

Variable	n	%
1. Child's age (0 to 14 years)		
≤2.3	50	50
>2.3	50	50
2. Degree of kinship of the interviewee		
Mother	77	77
Father	9	9
Others	14	14
3. Maternal age (19 to 51 years)		
≤30	52	52
>30	48	48
4. Maternal education		
Incomplete Fund	13	13
Full Fund	22	22
Complete Intermediate	45	45
Incomplete Supervision	4	4
Complete Supervision	16	16
5. Family income		
≤2	37	37
>2	63	63
6. Planned pregnancy		
Yes	50	50
No	50	50
7. Number of pregnancies		
1	44	44
2	35	35
≥3	21	21
8. Number of prenatal consultations		
≤6	13	13
>6	87	87
9. Health service used when a child needs medical care		
UBS/ Public Hospital	81	81
Private	19	19
Yes	97	97
No	3	3
11. Where did you purchase the CSC?		
Maternity	86	86
UBS	6	6
Other	8	8
12. Did the family receive explanations about the CSC at the maternity hospital/UBS?		
Yes	80	80
No	20	20
13. Does the family usually read and take notes in the CSC at home?		
Yes	83	83

No	17	17
14. Which part of the CSC do you use/like most?*		
Immunizations	55	55
Development monitoring	17	17
Growth monitoring	13	13
Breastfeeding tips, first days of life, nutrition	7	7
The entire CSC	7	7
No part	9	9
Graphics	2	2
15. Do you consider it important to use and monitor children's health through the CSC?		
Yes	100	100
No	0	0
Total	100	100

CSC: Child Health Booklet.
* More than one option could be selected. Percentage calculated for the total number of interviews conducted.
Source: the authors (2024).

Table 2. CSC scoring.

CSC Items	Correct filling (%)
1. Child's name	98
2. Child's date of birth	98
3. Mother's Name	98
4th trimester of prenatal care initiation	78
5. Prenatal consultation number	78
6. Type of delivery	84
7. Birth weight	93
8. Length at birth	87
9. Head circumference at birth	89
10. Apgar at the fifth minute	90
11. Gestational age	87
12. Type of food given to the child upon discharge from the maternity hospital	51
13. Neuropsychomotor development*	5
14. PC at birth recorded on the chart	28
15. Birth weight recorded on the chart	30
16. Age when the last PC point was recorded on the chart**	23
17. Weight when the last point was recorded on the graph	23
18. Recording in eruption timelines	1
19. Record of the use of ferruginous	0
20. Vaccination Record***	100

**Age ranges available in the Child Health Booklet: 1-2 months, 3-4 months, 5-6 months, 7-9 months, 10-12 months and 13-18 months. Recording in three or more age ranges = 1 and in less than three age ranges = 0;
** Difference between marked age and chronological age ≤ 3 months = 1 and > 3 months = 0;
*** Complete schedule for age or vaccines less than one month late = 1 and vaccines one month or more late = 0
Source: the authors (2024).

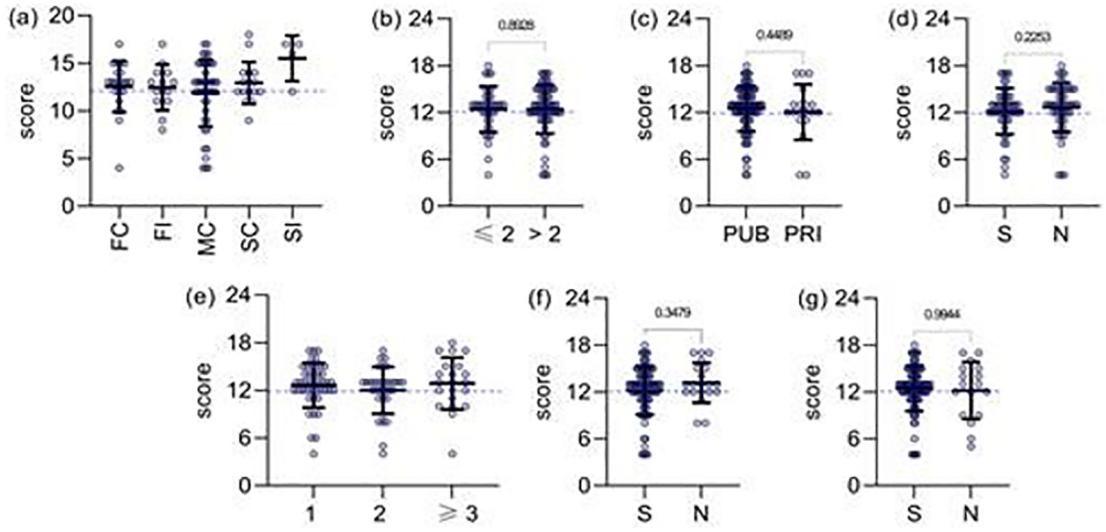


Figure 1. Sociodemographic variables versus completion score.

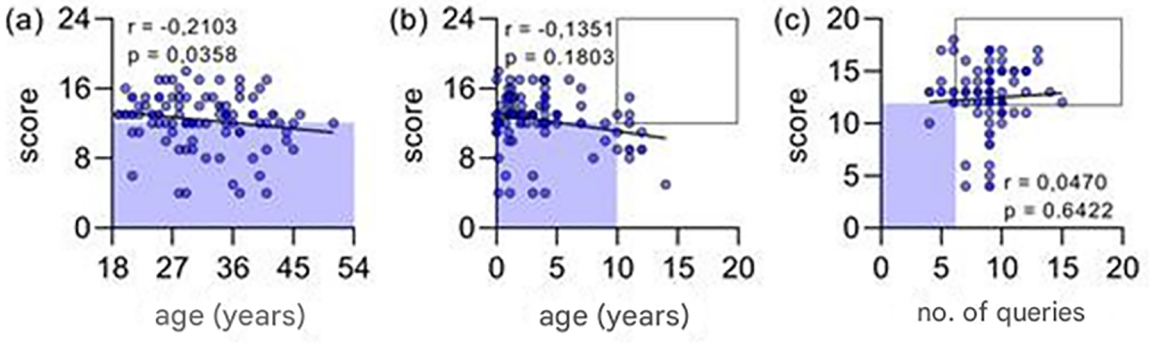


Figure 2. Correlation between child's age, maternal age and number of prenatal consultations *versus* completion score.

and helping prevent diseases and conditions common in this age group. The 20 items selected for completion reflect essential information for the CSC to fulfill its role. Accurate recording of this data is essential, beginning in the maternity ward and followed by professionals at primary health care units.

In the survey, 45% of the evaluated notebooks had unsatisfactory filling (≤12 points). This number was worse than that found in Belo Horizonte in 2009, which, in the analysis of 355 notebooks, revealed 30% with unsatisfactory filling[5]. Similarly, in 2018, 382 CSCs in public and private services in the same city were evaluated, obtaining a frequency of unsatisfactory filling quality in more than 55% of the sample[6]. These results reinforce the still deficient use of CSCs.

The growth process is influenced by genetic, environmental, and socioeconomic factors and constitutes one of the best indicators of child health. It was observed that birth weight and head circumference were completed in the vast majority of child health records; however, they were recorded correctly on the corresponding charts in less than 30% of the CSCs. It was also observed that both the weight and head circumference of the last point recorded on the chart, according to the child's age, were incomplete in 77% of the records evaluated. These results are consistent with studies in Belo Horizonte[5], Pelotas (n=197)[4], and Pouso Alegre (n=150)[7], which demonstrated problems in the completion of the items and curves related to growth and head circumference monitoring.

Neuropsychomotor development (NPMD) is a process of change that encompasses social aspects, motor skills, learning, and language that a child acquires throughout their growth. Monitoring it is essential for early detection of developmental delays and pathologies. Despite this, what is observed when evaluating the CHRs is the lack of completion of this information. In the study, only 5% of the notebooks

contained notes in this section, similar to the 2009 study[5], with only 18.9% of the CHRs containing NPMD information. Another study conducted in 2011 with 950 children in Cuiabá, Mato Grosso do Sul[8], found that 95.4% of the notebooks presented incomplete or missing information for development assessment.

The items with the highest completion rates were related to child identification, birth data (type of delivery, weight, length, head circumference, gestational age, and 5-minute Apgar score), and the vaccination schedule. With the exception of the type of feeding at discharge from the maternity ward (51%), all of these data were correctly recorded in more than 84% of the records evaluated.

The CSC is distributed free of charge in public and private maternity hospitals and primary health care units to all newborns in Brazil. It must accompany the child to any health care facility. Therefore, it is the responsibility of parents or guardians to carry the booklet with them during appointments and to read it. During the survey, it was observed that many caregivers only took the booklet to the health care facility when the child needed to update their vaccination schedule, neglecting to take it to medical appointments. Another relevant point is the failure to distribute the CSC in some facilities in recent years, which ultimately hinders the recording and monitoring of growth and development.

In the results collected, 20% of family members did not receive guidance on the CSC, a worrying number considering the length of time the institution has been in operation and the importance of the record. Furthermore, although most families reported reading and taking notes in the CSC, more than half of them, similar to other studies[4,6], responded that the immunization section is the most frequently used. This reinforces the idea that its use remains limited as a vaccination record tool and does not encompass the broader perspective of comprehensive surveillance and monitoring of children's health.

Although reading/taking notes and receiving guidance on the health record book did not demonstrate a significant risk of children having their CHRs poorly completed, unlike the study by Alves[5], it is essential that families be encouraged to actively participate in the health record book. Children of older mothers tend to have less complete health records, which may be explained by the greater number of children and the feeling of experience with motherhood and caregiving, which leads them to seek care less frequently. Requesting the CHRs during appointments, encouraging reading and taking notes, as well as providing guidance and discussion about this instrument are crucial measures to optimize and empower families to use them jointly.

It is also noteworthy that, although healthcare professionals recognize the importance of the CHR, this instrument is little used in routine child care, especially by general practitioners and in hospital settings. This is due not only to the lack of training and qualifications among professionals, but also to the short time intervals between appointments in most services. A recent study in municipalities in northeastern Brazil (n=140) revealed that over 85% of professionals had not taken or participated in any specific CHR course or training. Furthermore, low completion rates were observed, ranging from 40% (completes weight-versus-age curves from zero to two years) to 0.7% (completes data related to children's blood pressure measurements). Nevertheless, a significant portion (53.6%) admit to using the booklet little or not at all.[8-9].

Finally, given the multifunctionality of the CSC as a tool to support healthcare professionals and guide caregivers, further reflection and planning are needed regarding its use. It is clear that there are problems with the quality of CSC completion, and child monitoring instruments are still underutilized in Brazil. There is a lack of awareness among healthcare professionals regarding completion and explanations of the document, and there is also a lack of involvement among families in reading it, bringing the booklet to appointments, and demanding that it be completed. Guiding and involving families, as well as training healthcare teams, are essential actions for the CSC to fulfill its role as a tool for communication, education, surveillance, and health promotion, fostering comprehensive and longitudinal child health care. Furthermore, there is a clear need for further studies evaluating the use and quality of the booklet, as well as training models for professionals and strategies that encourage timely use of the CSC by families.

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