

Adherence to Home Treatment Guidelines Among Pediatric Home Treated COVID-19 Patients in Puducherry

We studied the adherence to Government of India guidelines for home treatment of asymptomatic/mild covid-positive children, whereby a family member is designated as caretaker for the patient. Proportion of caretakers adhering to guidelines was 68%. Persistence in adherence was 6 (1.4) days. 14 children (16.5%) developed symptoms while in home isolation. The most reported commonly barrier was it was that time consuming.

Key words: *Coronavirus, Covid-19, Guideline adherence, Pandemic, Patient isolation, SARS CoV 2.*

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To tackle the growing number of COVID-19 cases during the peak, the Government of India instituted home isolation and treatment of asymptomatic and mildly symptomatic patients including children without co-morbidities, and formulate specific guidelines for the same [1]. Instructions on the guidelines were given to the patients' caretaker, which included care and monitoring of the patient, use of mask, gloves, hand hygiene, disposal of waste and environmental sanitation at the time of initiation of home isolation [1,2]. As much depended on caretaker compliance and it being a novel approach, the present study was undertaken to evaluate the caretakers' adherence to home treatment guidelines, the outcome of these home-treated patients and the barriers/difficulties faced by the caretakers, if any.

A sample size of convenience of 85 was planned. Inclusion criteria were caretakers of eligible home treated COVID-positive children aged 8 to ≤ 12 years willing to participate in the study. After getting ethics clearance, a total of 350 patients, phone numbers were retrieved from register for those home treated between August and December, 2020. Systematic randomized sampling technique was followed whereby every third caretaker of these home-treated patients was enrolled during the study period from July to September, 2021. Caretakers whose numbers were not reachable, switched off, who did not answer two calls, were not willing to participate, and those with incomplete responses were excluded ($n=65$). After getting informed verbal consent, details were obtained by telephonic interview by a single trained research assistant and data entered into a pre-tested validated semi-structured questionnaire. The items in the questionnaire were adapted from the MOHFW guidelines on home isolation and biomedical waste disposal [1,2,4]. There were five broad indicators viz use of mask with five items under it; use of gloves along with mask having four items under it; hand hygiene with nine items; environmental sanitation with six items; and, general isolation

guidelines with six items under it. Adherence was scored as one for each item and non-adherence as zero. Adherence was assessed as proportion of caretakers following recommended guidelines for each of the indicators, and persistence in adherence as the mean number of days the guidelines were followed out of the 10 days of home isolation. Adherence score was classified based on the mean total score for all the subjects, and sociodemographic variables were compared. Perceived barriers were assessed by open-ended questions, and analyzed for multiple responses.

Descriptive statistics was used to calculate adherence proportion, outcome and perceived barriers, and adherence persistence. Chi-square test was used to compare low and high adherence groups based on their adherence score (below and above 20). A P value of <0.05 was taken as statistically significant.

Of the 85 children included, 59 (69.4%) were asymptomatic (mean (SD) age, 6.5 (3.6) years). The overall proportion of caretakers who adhered to the guidelines was 68% with mean (SD) persistence in adherence of 6 (1.4) days. The minimum total adherence score was 13/30 and maximum was 28/30. The highest mean adherence was in the area of hand hygiene (87%) followed by general measures on isolation (76%), environmental sanitation (65%) and use of mask (60%). The least adherence was in the use of gloves cum mask for cleansing and sanitation (43%). This was in contrast to a previous study [6], where the compliance was $<30\%$ for both mask and hand hygiene. Li, et al. [7], in their study among adults, observed full compliance to use of mask in 93.5% and to hand hygiene in 75%. The combined use of mask and hand hygiene has already been demonstrated to be efficacious [8].

With respect to individual guidelines, highest full adherence was seen in refraining children from social gatherings (94.2%) followed by practice of hand hygiene before eating, after use of restroom, and whenever hands looked dirty (90.6%). Similarly, reasonable proportion of participants used soap with water or alcohol based solution as recommended for hand hygiene (83.4%) and refrained from sharing child's personal items (81.2%) and disallowed visitors to the child (88.2%). The least adherence to individual guidelines was to disposing biomedical waste in yellow bag (3.5%), use of 1% sodium hypochlorite solution to disinfect mask before discarding (10.6%), and in the use of both mask gloves for cleaning surfaces, for handling the child and soiled linen (11-18%).

Except for the socioeconomic class, there were no significant differences between the low-and-high adherence groups (Table I). This may be attributed to the wide dissemination of information, education and communication materials made available to the general public through media. However, this is in contrast to the findings reported by Lou, et al. where age and gender of both the child and the caretaker influenced compliance.

Table I Baseline Characteristics of the Participants

| Variable | Low adherence group, n=48 | High adherence group, n=37 |
|---|---------------------------|----------------------------|
| Child's age ^a | 6.4 (3.6) | 6.6 (3.7) |
| Male gender | 26 (54.2) | 22 (59.5) |
| <i>Clinical status</i> | | |
| Asymptomatic | 28 (58.3) | 17 (45.9) |
| Mildly symptomatic | 14 (29.2) | 12 (32.4) |
| Pre-symptomatic | 6 (12.5) | 8 (21.6) |
| Caretaker – mother | 34 (70.8) | 32 (86.5) |
| Caretaker's age, y ^a | 17.8 (1.9) | 23.3 (2.1) |
| <i>Caretaker's educational status</i> | | |
| Illiterate | 2 (4.2) | 1 (2.7) |
| School | 17 (35.4) | 18 (48.6) |
| College | 29 (60.4) | 18 (48.6) |
| <i>Socio-economic class^b</i> | | |
| 1 | 15 (31.2) | 16 (43.2) |
| 2 | 23 (47.9) | 7 (18.9) |
| 3 | 5 (10.4) | 7 (18.9) |
| 4 | 3 (6.2) | 7 (18.9) |
| 5 | 2 (4.2) | 0 |
| Nuclear family | 30 (62.5) | 23 (62.2) |

All values in no. (%) except ^amean (SD). ^bP=0.02.

Of the 85 children, 14 children (16.5%), who were asymptomatic at the time of home isolation, developed symptoms later while in home isolation. However, all of them improved on home isolation treatment and none required hospitalization. Self-reported perceived barriers to following the guidelines were, it was time consuming (n=50, 49.5%), and busy schedule (n=27, 26.7%) (Fig. 1).

Limitations of the study were small sample size and single center study. Data on secondary attack rate in the household would have provided further insights about the effectiveness of the compliant behavior.

In conclusion, most caretakers (68%) were able to follow the guidelines and individual compliance was good for 4 of the 5 indicators.

Ethics clearance: Institute ethics committee; No.3/315/IEC/32/PP3/2021, dated Feb 19, 2021.

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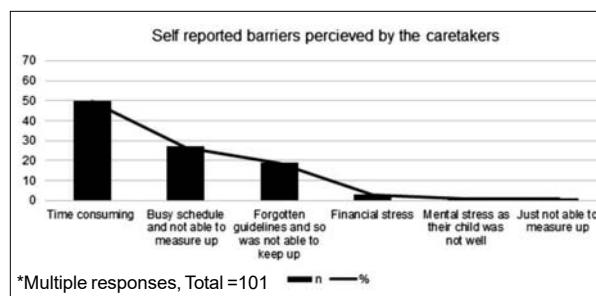


Fig. 1 Caretaker perceptions regarding barriers to following home treatment guidelines.

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REFERENCES

1. Revised guidelines for Home Isolation of very mild /pre-symptomatic /asymptomatic COVID-19 cases. Accessed July 26, 2020. Available from: https://www.mohfw.gov.in/pdf/RevisedHomeIsolation_Guidelines.pdf
2. Revised guidelines for Home isolation of mild /asymptomatic COVID-19 cases. Government of India. Ministry of Health and Family Welfare. Accessed September 01, 2021. Available from: <https://www.mohfw.gov.in/pdf/RevisedguidelinesforHomeIsolationofmildasymptomaticCOVID19cases.pdf>
3. Balasubramanian S, Rao NM, Goenka A, et al. Coronavirus disease 2019 (COVID-19) in children - What we know so far and what we do not. Indian Pediatr. 2020;57:435-42.
4. Guidelines for handling, treatment and disposal of waste generated during treatment/diagnosis/ quarantine of Covid-19 patients – revision 2. Accessed July 26, 2020. Available from: http://www.cpcbenvvis.nic.in/pdf/BMW-GUIDELINES-COVID_1.pdf
5. Guidelines for Management of COVID-19 in Children (below 18 years). Ministry of Health and Family Welfare Government of India. Accessed September 01, 2021. Available from: <https://www.mohfw.gov.in/pdf/GuidelinesforManagementofCOVID19inCHILDREN18June2021final.pdf>
6. Lou Q, Su DQ, Wang SQ, et al. Home quarantine compliance is low in children with fever during COVID-19 epidemic. World J Clin Cases. 2020;8:3465-73.
7. Li H, Peng YY, Lu JP. Investigation and analysis of 108 cases of home isolated patients with mild COVID-19. Disaster Med Public Health Prep. 2020 Aug 12:1-4. Epub ahead of print.
8. Ma QX, Shan H, Zhang HL, Li GM, Yang RM, Chen JM. Potential utilities of mask-wearing and instant hand hygiene for fighting SARS-CoV-2. J Med Virol. 2020;92:1567-71.