

# The Persistence of Traditional Cradle Board (Beshik) Usage among Post-Soviet Central Asian Mothers: Survey Analysis from Southern Kyrgyzstan

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## ABSTRACT

This paper investigates the attitudes, knowledge of, and usage of the traditional Central Asian cradle board (*beshik*) by Kyrgyzstani mothers residing in the southern region of the Kyrgyz Republic. Socio-economic factors, such as level of education or household income, appear to exert little influence on the likelihood of usage of the traditional Kyrgyz *beshik*. Rather, dynamics associated with extended family relations appear to be critical in maintaining the practice of infant swaddling long after the widespread cessation of nomadism in the region. Quantitative and qualitative survey data were collected from 481 randomly selected mothers and statistically analyzed to develop an understanding of *beshik* usage in southern Kyrgyzstan. More than 90% of the mothers used the traditional Kyrgyz cradle board. The most common reason (33%) cited by mothers for choosing to use the *beshik* relates to practicality (“Baby will not get cold”). Mothers opting not to use the cradleboard in childrearing expressed broad skepticism of the *beshik*, with 38% responding “All of the above” to a list of five separate options. Knowledge of the effects, beneficial as well as adverse, of swaddling were statistically low among the surveyed mothers: Only 11% were consulted by a health practitioner about the *beshik*. If information about the risks of using the cradleboard was provided to new mothers, changes in attitudes regarding the *beshik* could take place. Based on our data, however, it may have little short-term effect in a region where most mothers adhere closely to the recommendations provided by elders, especially mothers-in-law.

**Keywords:** Healthcare, Traditional methods, Cradle board, Beshik, Swaddling, DDH, Developmental dysplasia of the Hip, Plagiocephaly.

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### Highlights of this paper

- This article investigates Kyrgyz usage statistics of the Central Asian traditional cradle board: the *beshtik*.
- This article examines local knowledge of affiliated diseases with cradle board usage such as Developmental Dysplasia of the Hip (DDH), plagiocephaly, and more.

## 1. INTRODUCTION

The *beshtik* is a Central Asian traditional cradle board used by many in contemporary Kyrgyzstan. The cradle board immobilizes the limbs, protecting the infant from the dangers of nomadic settings, including open fires, domestic animals, and treacherous terrain. Despite the Kyrgyz having transitioned away from a nomadic lifestyle, some nomadic cultural traditions persist (Boyanin, 2011; Yildirim, 2019).

While cradle board usage is popular in Kyrgyzstan (Zawlacki & Derrick, 2020) it remains an understudied phenomenon. Previous research on health care practices in Kyrgyzstan has focused on the country's post-Soviet transition to a market-based health care system, praising the country for being a "pioneer in reforming the system of health care finance (Falkingham, Akkazieva, & Baschieri, 2010; Ismailbekova & Megoran, 2020). Other contributions to the study of health care practices and provisions in contemporary Kyrgyzstan have examined the role of midwives and nurses in providing abortions, contributing to a reduction in the number of unwanted births in the country (Johnson Jr et al., 2018) and the development of palliative care (Mukambetov, Sabyrbekova, Asanalieva, Sadykov, & Connor, 2019). Shin, Lee, Lee, and Shon (2019) provide a study on community health needs assessment for a child health promotion program in Kyrgyzstan, while Dronina and Nam (2019) published a comparative study of health care systems in Kyrgyzstan, Kazakhstan, and Uzbekistan. Aside from the recent study from Zawlacki and Derrick (2020) however, no health care research has addressed the phenomenon of cradle board usage in post-Soviet Central Asia.

Thus, *beshtik* usage in contemporary Kyrgyzstan presents an interesting case study, as historically the usage of similar cradle boards among peoples in other parts of the world generally ceased once the socio-economics of nomadism gave way to settled lifestyles associated with modernity (Mellbin, 1962; Michelet, 2015).

In our previous work (Zawlacki & Derrick, 2020) we investigated factors associated with the usage of the *beshtik* among current residents of Bishkek; located in the country's northern region, Bishkek (population 1 million) is the political and economic capital of Kyrgyzstan. Analysis of survey data collected from more than 200 surveys in 2017 indicated that while two-thirds of the respondents reported employing the *beshtik*, the practice was especially prominent among recent immigrants from the less economically developed, more culturally traditional and socially conservative southern region of the country (the north and the south of Kyrgyzstan are bisected by the Tian Shan Mountain Range, forming a physical barrier between the two regions, influencing their separate orientations).

For this article, we turn attention to examination of residents of Osh (population 300,000) and Jalalabad (100,000), the two largest cities in the country's south, seeking a finer-scale examination of the factors driving continued use of the *beshtik* in contemporary Kyrgyzstan. This paper investigates the attitudes, knowledge of, and usage of the traditional Central Asian cradle board (*beshtik*) by Kyrgyzstani mothers residing in the southern region of the Kyrgyz Republic. Modeling the surveys after a previous study of Turkish mothers' attitudes toward swaddling (Yilmaz et al., 2012) we conducted nearly 500 survey questionnaires of mothers of Jalalabad province and Osh province. Socio-economic factors, such as level of education or household income, appear to exert little influence on the likelihood of usage of the traditional Kyrgyz *beshtik*. Rather, dynamics associated with extended family relations appear to be critical in maintaining the practice of infant swaddling long after the widespread cessation of nomadism in the region.

## 2. LITERATURE REVIEW

Research conducted by Mellbin (1962) indicates that the usage of cradle boards and other infant swaddling techniques were historically practiced among nomadic people across the world, but ceased with cessation of nomadism, i.e. the Sami of northern Scandinavia and the Navajo and Apache Native American tribes (see also (Anzai, Matsuura, Yakubo, Mikami, & Uemura, 2019; Grove & Lancy, 2016; Lancy, 2017; Van Sleuwen et al., 2007)). While peoples led nomadic lifestyles, such devices were effective in securing infants while adults engaged in highly mobile socio-economic activities. With the transition to settled lifestyles and new socio-economic practices linked to modernization, cradle boards and other swaddling devices proved to be no longer useful and therefore abandoned. However, the practice remains entrenched in small pockets of the globe among formerly nomadic peoples, including residents of contemporary Kyrgyzstan (Michelet, 2015; Nelson, 2017).

Most research on the continued use of the cradle board has approached the topic through the lens of public health because of the associated risk factors (Okka, Durduran, & KODAZ, 2016; Rabin, Barnett, Arnold, Freiberger, & Brooks, 1965). Plagiocephaly, the flattening of the head, and developmental dysplasia of the hip (DDH), a congenital hip disorder referring to an abnormality of the pelvis in relation to the femoral head and complete congenital hip dislocation, have both been linked to traditional swaddling techniques similar to the Kyrgyz cradle board (Blatt, 2015; Loder & Skopelja, 2011; Yang, Zusman, Lieberman, & Goldstein, 2019). Infants with scoliosis also had a tenfold increased rate of DDH compared to those without (Hooper, 1980). While plagiocephaly is mostly benign in its consequences, DDH often results in a lifelong physical disability lacking a noninvasive solution (Salter, 1968; Sandell, 2012; Weinstein, 1987).

Much of the research on the topic has shifted focus to understanding factors underpinning the continued use of cradle boards in post-nomadic societies. For example, Yilmaz et al. (2012) investigated swaddling practices by contemporary Turkish mothers and their knowledge of possible side effects. In the context of North Africa, studies show that infant swaddling remains prevalent among mothers in rural Jordan, in spite of official campaigns to halt the practice, due to deeply entrenched cultural reasons (Abuidhail, 2014; Al-Sagarat & Al-Kharabsheh, 2017). Surveying Bishkek, the capital city of Kyrgyzstan, in our previous research (Zawlacki & Derrick, 2020) we found that mothers who had recently migrated from the southern region of Kyrgyzstan were significantly more likely to use the *beshik* compared to mothers from the northern region. This finding prompted further investigation into the attitudes and practices of Kyrgyzstani mothers in the most populous cities of the south, Osh and Jalalabad, areas recognized as more culturally traditional than Bishkek and other parts of the country's north (Liu, 2007; Ryan, 2019).

## 3. MATERIAL AND METHODS

Quantitative survey research is among the most common types of research in the field of healthcare and childcare (Aday & Cornelius, 2006; Kelley, Clark, Brown, & Sitzia, 2003). Survey questionnaires comprise "one of the most used quantitative techniques (Queirós, Faria, & Almeida, 2017) due to their comparative advantages, including their relatively quick production of empirical data, ability to capture relatively large samples that may be representative of a much larger population, and, followingly, comparatively low cost for the fast creation of large datasets (Kelley et al., 2003).

However, data derived from quantitative survey questionnaires may be undependable if researchers fail to adhere to certain best practices (Fink, 2015). Among the best practices in survey research, which served as guiding principles in our study, are articulating a clearly defined research question, capturing a large enough sample, fully

describing the survey instrument, and pretesting and revising the survey instrument (Bennett et al., 2011; Bryson, Turgeon, & Choi, 2012; Draugalis, Coons, & Plaza, 2008; Draugalis. & Plaza, 2009).

The survey questionnaire designed for this project was modeled on the survey instrument used by Yilmaz et al. (2012) in their research on swaddling perceptions among mothers in Turkey. A sample of 481 participants were surveyed between March and May of 2018 in the provinces of Jalalabad and Osh in the south of Kyrgyzstan. Survey participants were randomly approached in public spaces throughout the city centers of each province. Surveys were conducted in Russian, Kyrgyz, and Uzbek languages, depending on the preferred language of the survey participant (Wei, 2008). To decrease potential bias, surveys were conducted by native Kyrgyz research assistants (Wei, 2008).

The following sociodemographic characteristics of the mother were asked in the questionnaire: home location, number of children in the household, years of post-secondary education, language spoken at home, *beshtik* ownership, *beshtik* usage, how many months she swaddled her children in the *beshtik*, and how she learned about using the device. The mother was also asked if she had been consulted by a health professional during pregnancy about swaddling, her age, religion, ethnicity, and type of domicile.

These questions were presented orally to each participant:

1. Where do you live?
2. How many children live in the household?
3. How many years of education do you have?
4. What language is spoken at home?
5. Is there a *beshtik* in your home?
6. Have/will/do you use it?
  - a. If yes, why?
    - A Baby will sleep better.
    - B It is what I learned from my elders.
    - C Baby will not get cold.
    - D Baby will cry less and calm down.
    - E I observed good results from previous children.
    - F All of the above.
    - G Others:
  - b. If not, why not?
    - A Will increase the risk of hip dysplasia.
    - B Baby will not pass gas.
    - C Will increase the risk of sudden infant death syndrome.
    - D Will increase the risk of lung infection.
    - E Will prevent normal development.
    - F Baby's legs will develop irregularly.
    - G It will be too hot for the baby.
    - H All of the above.
    - I Others:
7. If used, how many months did you use the *beshtik*?
8. If used, how did you learn to use the *beshtik*?
  - A From my elders.
  - B From my social surroundings.

- C From healthcare workers.
  - D Via the TV/internet/media.
  - E Book.
9. Did a doctor ever mention the *beshtik* to you?
    - a. If yes, what did s/he say?
  10. Would you recommend using the *beshtik* to other mothers?
  11. Monthly Income (Kyrgyzstani *som*)
    - a. Less than 5,000
    - b. Between 5,000 and 10,000
    - c. More than 15,000
    - d. Pension
    - e. Decline to answer
  12. Age
  13. Religion
  14. Ethnicity
  15. Type of domicile

**4. RESULTS**

The study was conducted on 481 women with ages ranging between 18 and 80 years old (mean=44.6 years). The majority (54%) of women surveyed came from medium-income households, 3% came from low-income households, 18% were pensioners, and 26% came from high-income households; 12.7% participants declined to answer. More than 90% of the participants stated that they swaddled their babies with the *beshtik*. The majority of participants swaddled their children between 12 and 24 months, 20.6% swaddled for 12 months, 27.9% swaddled for 18 months, and 19.8% swaddled for 24 months; the mean *beshtik* usage time was 18.7 months.

Upon asking what the main reason for using the *beshtik*, just over one-third (n=144) stated it was for practicality (“The baby will not get cold”) see Figure 1. Among those electing not to use the *beshtik*, the most common reason (43.9%) was “All of the above,” indicating the mothers’ general distrust of the cradle board see Figure 2.

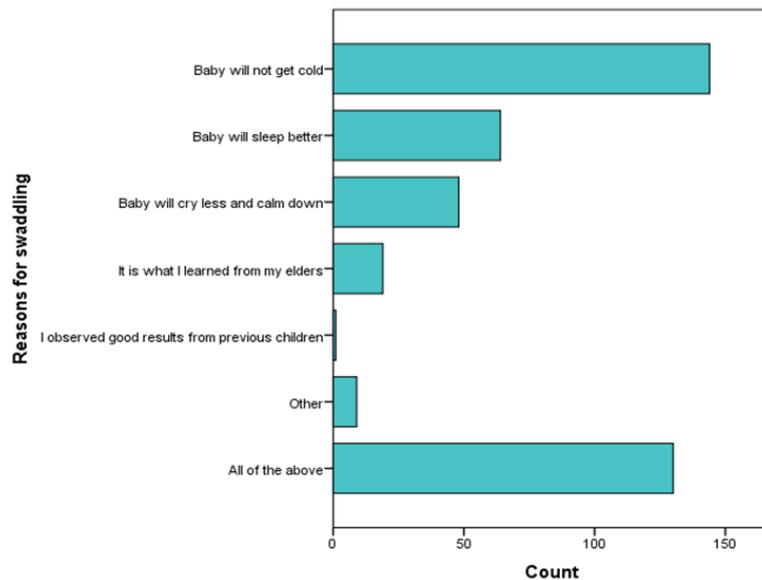


Figure-1. Reasons for swaddling with the *beshtik*.

Among the survey participants who met with a health practitioner, data suggests ineffective medical consultation. Of the 30 advised not to use the *beshtik*, 24 participants nonetheless did use the cradleboard. Eleven participants were advised to use the *beshtik*, and 10 complied; 14 were given advice to use the *beshtik* with certain conditions, and 13 complied.

Differences between the Jalalabad and Osh provinces were not significant. This likely results from both provinces belonging to part of a larger geographical region in Kyrgyzstan, separated by the Tian Shan Mountain Range from the more economically dynamic, socially mobile, Russified north of the country. The tendency to swaddle had no relationship to age, religion, type of housing, or where in the province the participant lived.

The level of maternal education also was not a significant indicator of whether a mother would use the *beshtik*. Participants with higher levels of education were similarly inclined to swaddle as compared to those with lower levels of education. The rate of swaddling showed no difference by household monthly income.

Participants who used the *beshtik* were asked where they learned about the practice of traditional swaddling. More than 90% (n=40) stated "From my elders." The second most common response, registered by 7% (n=29), was "From my social surroundings." These results suggest a strong influence of elders.

No demographic study has been conducted among the Kyrgyz population elucidating factors for the usage of the traditional cradleboard. Furthermore, there exists no recorded data of usage statistics across any of the post-Soviet Central Asian countries: Kyrgyzstan, Kazakhstan, Turkmenistan, Uzbekistan, and Tajikistan. Our research is the first of its kind in addressing a traditional medical practice that has been overlooked by scholars and medical researchers alike in studying Developmental Dysplasia of the Hip (DDH). Even among scholarship addressing traditional nomadic practices (Loder & Skopelja, 2011) we found no mention of cradleboard usage in the steppe nomad tradition.

This article hopes to help build a foundation of research for further exploration into not only the influences on those who use traditional health practices, but on how to prepare medical professionals with training and education for the specific risks associated with the traditional Central Asian cradleboard. While this region of the world is most certainly a lacuna in the global discussion of DDH, we hope to provide meaningful data to future researchers and scholars.

## 5. DISCUSSION

With the foregoing in mind, we frame this discussion around two main takeaways for medical researchers. First, a significant finding of our research relates to health education and doctor consultation in south Kyrgyzstan. Only 11.4% (55 of 481) received a doctor's consultation about the *beshtik*. Thirty of the consultations explicitly advised against using the cradle board, yet only six participants reported complying with that recommendation. That such a small number received doctor's advice against using the *beshtik* suggests that the region's medical community is not communicating best practices in childcare.

Indeed, even those respondents who chose not to use the *beshtik* were unable to clearly explain why see Figure 2. None of the 47 participants not employing the *beshtik* mentioned the risk of Developmental Dysplasia of the Hip or plagiocephaly, the two most common risks of using nomadic cradleboards. Among the few concrete reasons against usage, as expressed by our participants, was "Doctors said legs won't be straight," a medical concern unrelated to what are far and away the two most common risks. Other reasons for not using the device included "The *beshtik* is uncomfortable" and "Doctor said to be careful," concerns ungrounded in best medical practice. The lack of evidence-based reasons suggests a need for *beshtik*-specific health education for health professionals and mothers alike.

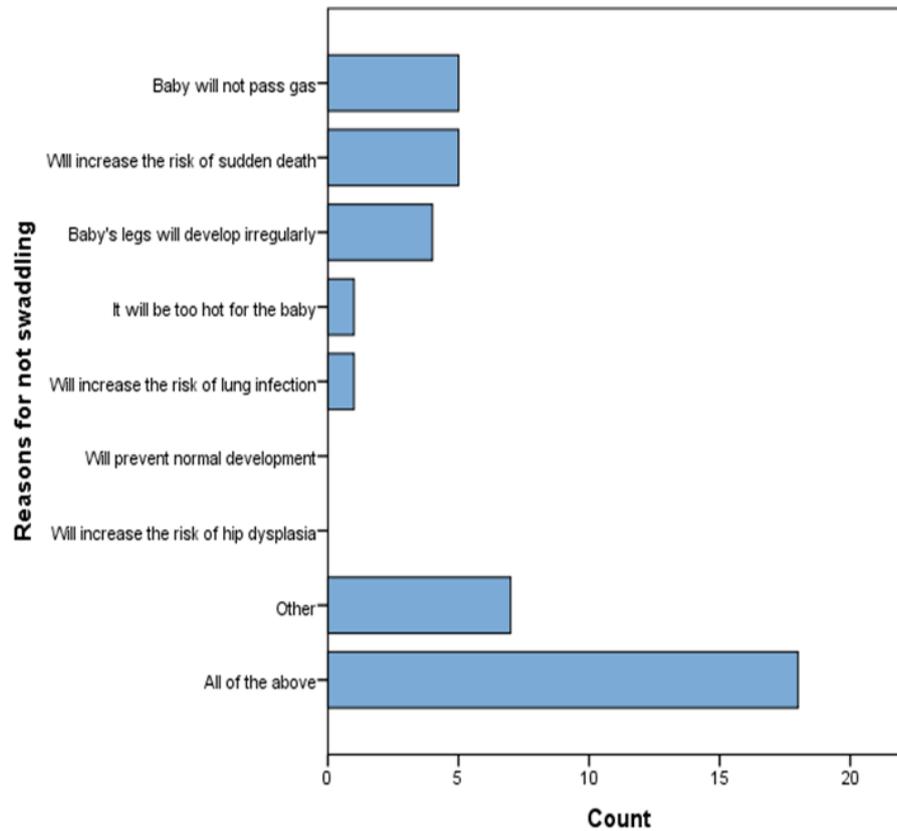


Figure-2. Reasons for not swaddling with the beshik.

As a second takeaway for medical researchers, our analysis of data from the small subset of non-Kyrgyz/non-Uzbek survey participants (n=43) provides some insight into the complexities of ethnic identities and the influence of traditional family structures. Nearly 60% (n=22) of this subset said “yes” to using the *beshik*, significantly lower in portion compared to the overall figure of 90%. However, a mother’s choice is clearly influenced by ethnic heritage. All Turkic peoples in this subset reported using the cradleboard: Turks (n=7), Kazakhs (n=3), and Uyghurs (n=1). The sole Tajik participant also reported using the *beshik*. Half the Chinese (2 of 4) and half the Dungans (1 of 2), closely related ethnic groups cleaved by traditional religious affiliation (unlike Han Chinese, Dungans are historically associated with Islam), utilized the cradleboard.

In the non-Kyrgyz/non-Uzbek subset, Russians (n=16) and Ukrainians (n=3) together represent the group’s Slavic contingency. Yet they diverge in their choice in cradleboard usage. None of the Ukrainian mothers used the *beshik*. Ethnic Russians, however, displayed a more complex relationship to the cradleboard. Of the 16 Russian mothers, seven used the *beshik*, while nine did not. One explained her decision not to use the cradleboard in simple ethnic terms: “Russians don’t use them.” However, she is contradicted by two other Russian mothers who explained why they did use the *beshik*: “Because my mother-in-law [either Kyrgyz or Uzbek] told me to.”

Our previous research in Bishkek (Zawlacki & Derrick, 2020) identified Russification to be the strongest factor in determining if a Kyrgyz mother would use the *beshik*. That 44% (n=7) of the Russian mothers in Osh/Jalalabad used the traditional cradleboard on their children suggests that the process of acculturation, at least in the question of *beshik* usage, is not unidirectional. In Kyrgyzstan’s south, a Russian mother’s decision to use the cradleboard is intertwined with her entry into the traditional family structures of the region’s ethnic Kyrgyz and Uzbeks. In these family structures, the elder mother exerts great influence within the domestic sphere which she shares closely with her daughter-in-law (Childress, 2018; Ismailbekova, 2016; Ismailbekova & Megoran, 2020).

## 6. CONCLUSION

Prior to this study, based on our database searches, no demographic study has been conducted among the Kyrgyz population elucidating factors for the usage of the traditional cradleboard. Furthermore, we uncovered no recorded data of usage statistics across any of the post-Soviet Central Asian countries: Kyrgyzstan, Kazakhstan, Turkmenistan, Uzbekistan, and Tajikistan. Our research is the first of its kind in addressing a traditional medical practice that has been overlooked by scholars and medical researchers alike in studying Developmental Dysplasia of the Hip (DDH). Even among scholarship addressing traditional nomadic practices (Loder & Skopelja, 2011) we found no mention of cradleboard usage in the steppe nomad tradition.

This data is meant to be a starting point for further research in the usage demographics of the Central Asian traditional cradleboard. In order to further address the increased rate of DDH among Central Asian populations and recommend possible solutions, additional statistics with varying population samples must be collected. As our research has shown, the usage of the *beshtik* shows no signs of slowing down. For this practice to continue, greater awareness on part of health practitioners must be founded in additional research findings. Until then, the *beshtik* will continue to be used as it has for thousands of years without the proper sensitivity by health professionals to screen for the disease in infancy.

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