

Parent satisfaction of newborn hearing screening program during COVID-19 pandemic

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ABSTRACT

Objective: To determine the satisfaction levels of parents with the Newborn Hearing Screening Program (NHSP) during COVID-19 pandemic, and to reveal whether the pandemic affects the satisfaction levels of the parents.

Materials and Methods: A prospective questionnaire study. A total of 43 individuals who had a baby during COVID-19, and as the control group 13 individuals who had a baby previously participated. The Turkish version of the Parent Satisfaction Questionnaire with Neonatal Hearing Screening Program (PSQ-NHSP) was applied.

Results: Subjects received information about the NHSP before hearing screening (75%), mostly ($\geq 70\%$) had a positive opinion about the tester, and found the testing environment appropriate ($>72\%$). Almost half of the participants ($<60\%$) could not find the opportunity to ask more questions about the NHSP. Overall, $\sim 70\%$ of them were satisfied with the NHSP. There was no significant difference between the study and control groups ($p>0.05$).

Conclusion: In general, parents who had a baby during the pandemic were satisfied with the NHSP, they found the information about NHSP very useful and easy to understand. However, the verbal or written information about the process and the program was not enough. The pandemic did not affect the satisfaction levels of the parents in this study.

Keywords: COVID-19, newborn hearing screening program, parental satisfaction

ÖZ

COVID-19 pandemi sürecinde yenidoğan işitme tarama programı ebeveyn memnuniyeti

Amaç: Ebeveynlerin COVID-19 pandemisi sürecinde Yenidoğan İşitme Tarama Programı'ndan (YDİTP) memnuniyet düzeylerini belirlemek ve pandeminin ebeveynlerin memnuniyet düzeyleri üzerinde bir etkisinin olup olmadığını ortaya koymaktır.

Gereç ve Yöntemler: Prospektif bir anket çalışması. Çalışma grubunda COVID-19 sürecinde bebek sahibi olan toplam 43 kişi ile kontrol grubunda daha önceki dönemde bebek sahibi olan 13 kişi yer aldı. Bireylere the Parent Satisfaction Questionnaire with Neonatal Hearing Screening Program (PSQ-NHSP) Türkçe versiyonu uygulanmıştır.

Bulgular: Katılımcılar işitme taramasından önce YDİTP hakkında bilgi aldıklarını (%75) belirtmişlerdir, çoğunlukla ($\geq 70\%$) testi yapan kişi hakkında olumlu görüşe sahiptiler ve test ortamını uygun bulduklarını ($>72\%$) göstermişlerdir. Katılımcıların neredeyse yarısı ($<60\%$) YDİTP hakkında daha fazla soru sorma fırsatı bulamadıklarını belirtmişlerdir. Genel olarak bireylerin $\sim 70\%$ 'i YDİTP'den memnundu. Gruplar arasında anlamlı fark yoktu ($p>0.05$).

Sonuç: Pandemi döneminde bebek sahibi olan ebeveynler genel olarak YDİTP'den memnun kalmışlar, YDİTP ile ilgili bilgileri çok faydalı ve kolay anlaşılır bulmuşlardır. Diğer taraftan süreç ve programla ilgili sözlü veya yazılı bilgilendirmenin yeterli olmadığı görülmektedir. Bu araştırmadaki ebeveynler için pandeminin memnuniyet düzeylerini etkilemediği ortaya konmuştur.

Anahtar kelimeler: COVID-19, yenidoğan işitme tarama programı, ebeveyn memnuniyeti

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INTRODUCTION

Early diagnosis of hearing loss in newborns is very critical in terms of language and speech development (JCIH, 2007). National Newborn Hearing Screening Program (NHSP) is implemented by the Ministry of Health within the framework of a specific protocol throughout our country. On the other hand, within the scope of the screening program, the level of family satisfaction with the program and the service is not routinely evaluated as it is in many other countries. Patient satisfaction as a measure

of quality is one of the most important factors determining the success of a healthcare institution (Manzoor, Wei, Hussain, Asif, & Shah, 2019). Similarly, the Joint Committee on Infant Hearing (JCIH) underscores the importance of measuring the satisfaction of the parents to determine the success of NHSPs (JCIH, 2007). There are also pieces of evidence for the importance of measuring parental satisfaction in health services (Bernheimer, Gallimore, & Weisner, 1990), and it is proved that satisfied parents will cooperate

more effectively, participate more in the child's treatment, and are more likely to return to the service (Bragadottir & Reed, 2002). In addition, the information obtained from the measurement of parental satisfaction can also be used to improve the services. The Parent Satisfaction Questionnaire with Neonatal Hearing Screening Program (PSQ-NHSP) was developed by Mazlan et al. (Mazlan, Hickson, & Driscoll, 2006). is used precisely for this purpose. This questionnaire was adapted to Turkish by Cekic and Arslan (Cekic & Arslan, 2022).

The other subject is COVID-19 pandemic, which emerged in 2019 and influenced the whole world with a very high spread rate (Shereen, Khan, Kazmi, Bashir, & Siddique, 2020). This global health issue brought along many restrictions as well as negative effects for individuals with hearing loss (Kaya, Senli, Mecit, Kagitcibasi, & Karabulut, 2021). The necessity of clarifying the possible relationships between mortality and the availability of healthcare resources during the pandemic has also been a matter of debate (Ji, Ma, Peppelenbosch, & Pan, 2020). During COVID-19 period, to reduce the risk of transmission, many routines have been restricted. Both the epidemic itself and these restrictions have affected societies in many ways (van Veenendaal, Deierl, Bacchini, O'Brien, & Franck, 2021). There are studies examining the effect of COVID-19 on NHSPs (Greczka, Dabrowski, Zych, Szyfter, & Wierzbicka, 2022; Blaseg, Williams, Jepperson, Messersmith, 2021; Alan & Alan, 2021). However, it is seen that the parental satisfaction measures, the importance of which is explained above, are rarely studied, especially during the pandemic period. This study investigates whether the limitations experienced during the pandemic affect the level of parental satisfaction with the NHSP in Turkey.

MATERIALS AND METHODS

Participants: Parents who had a baby during COVID-19 pandemic (in 2019 and after) were invited to the study with calls on a digital platform. As the control group, parents who gave birth before 2019 were also invited. A total of 43 individuals who had a baby during COVID-19 period and 13 individuals who gave birth in previous periods participated. Inclusion for participation was not restricted; only having babies screened and being a volunteer to participate was required.

Data collection: This is a prospective questionnaire study conducted with volunteers on a digital platforms (via Google Forms). Ethics committee approval was obtained for the study from the Ankara Yıldırım Beyazıt University University Health Sciences Ethics Committee with the date and number of 06.10.2022–14. A Turkish version of the PSQ-NHSP (Cekic, S. and Arslan, M., 2022) was presented to the subjects.

Data collection tools: The PSQ-NHSP Turkish version consists of four dimensions: information (items 3–5), staff responsible for the hearing test (items 9–16), the hearing screening process (items 8–17, 17–22), and overall satisfaction (items 23–26). The scale is composed of 22 Likert-type, closed-ended items with scores ranging from 1 to 5 (5 indicates 'strongly agree'). In addition, the PSQ-NHSP contains three open-ended items to get parents' suggestions for improving the program. Some items of the PSQ-NHSP were reverse-coded to reduce response-style bias. Parents' demographics and hearing screening results were also collected.

Table 1. Answers to the multiple-choice questions

Item no	Items	Parents in COVID-19 N=43 n (%)	Control Group N=13 n (%)	U	p
3	The content of the information sheet (brochure or leaflet) was sufficient.	26 (60)	4 (30)	214	0.23
4*	The information about the infant hearing screening program was difficult to understand.	37 (86)*	11 (84)*	141	0.06
5	The information about the infant hearing screening program was very useful before my child's first appointment.	25 (58)	8 (61)	239	0.76
11*	The information I received regarding the testing procedure was not sufficient.	30 (70)*	8 (61)*	181.5	0.11
12	The information on the results of the test was sufficient.	29 (67)	6 (46)	191.5	0.65
13	The tester was knowledgeable about the infant hearing screening program.	32 (74)	7 (54)	217	0.75
14	The tester was skillful with the equipment.	30 (70)	6 (46)	206	0.93
15*	The tester was not approachable.	34 (79)*	11 (84)*	309	0.06
16	The tester was gentle with my baby during the testing procedure.	34 (79)	9 (69)	187	0.41
17	I had the chance to ask more about the program.	24 (56)	7 (54)	180.5	0.25
18	I had the chance to ask more about the test procedure.	23 (53)	7 (54)	157	0.09
19	I had the chance to ask more about the results of the test.	24 (56)	7 (54)	165.5	0.14
22*	The testing site for this program was not appropriate.	31 (72)*	10 (77)*	307	0.07
23	Overall, I was satisfied with the infant hearing screening program.	30 (70)	9 (69)	190.5	0.4
24*	I was not satisfied with the test process.	28 (65)*	10 (77)*	313.5	0.06
25	I will recommend this infant hearing screening program to friends or relatives.	34 (79)	8 (61)	230	0.99
26*	I will not use the same service in the future.	36 (84)*	10 (77)*	318.5	0.42

*The results of the reverse-coded items are presented in the table after being corrected. In other words, the values reflecting the reverse-coded items in the table reflect the value of positive opinions about those items.

Statistical analysis: In this study, software provided by Statistics Kingdom (<http://www.statskingdom.com>) was used for the statistical analysis. Data obtained from the study and control groups were presented using descriptive statistics (frequency and percentage) and non-parametric pairwise comparisons (Mann-Whitney U tests) were conducted. The open-ended questions were analyzed manually by the author. The significance level was taken as 0.05.

RESULTS

The subjects evaluated within the scope of the study consisted of mothers from 15 different cities throughout Turkey who gave birth between 2004 and 2022. These mothers were between the ages of 25 and 44 years old. It was determined that only 1 baby (out of 43) had a refer result in the study group, and there were no babies in the control group (out of 13) who had a refer result. It was determined that 9 of those who had babies during COVID-19 period and 3 of those who had babies in the previous periods did not receive any information about the newborn hearing screening program. It was seen that the participants ($n=56$) generally received information from doctors ($n=45$), and some of them ($n=9$) were health professionals, so they knew about the screening issue. The other answers to the multiple-choice questions are presented in Table 1.

DISCUSSION

Although different percentages are presented in previous studies investigating the level of parental satisfaction with NHSPs (Qirjazi, Toçi, Tushe, Burazeri, & Roshi, 2020; MacNeil, Liu, Stone, & Farrell, 2007; Shojaee, Kamali, Sameni, & Chabok, 2013; Mazlan, Ting, Mukari, & Abdullah, 2014), it is seen that parents are generally satisfied with these programs. A recent study conducted in our country demonstrated that 75% of the parents were satisfied with NHSP (Cekic et al., 2022). In this study, we investigated whether the limitations experienced during the pandemic affected the level of parental satisfaction with the NHSP. It was determined that the majority of individuals (70%) who had a baby during COVID-19 pandemic were satisfied with the NHSP. When compared with the control group, there was no significant difference.

Considering that congenital hearing loss is seen at a rate of 1–3/1000 in healthy newborns and 2–4/100 in high-risk babies (Wroblewska-Seniuk, Greczka, Dabrowski, Szyfter-Harris, & Mazela, 2017), it would not be surprising that the test results of all but one of the babies in this study were “passed”. Since the test results of almost all babies were “passed”, three questions (Questions 8, 9, and 10) about the next appointments in the Turkish PSQ-NHSP were excluded.

Most of the participants who had babies during COVID-19 pandemic received information about the NHSP before hearing screening (75%). The information was mostly provided by

physicians, and some parents already knew about the program because they were health professionals. Although some studies say that there were some limitations during the pandemic period (van Veenendaal, et al., 2021), it is seen that information is still provided to the patients. This finding shows that physicians continued to inform prospective parents about NHSP during the pandemic period.

The PSQ-NHSP consists of four dimensions: information (items 3–5), staff responsible for the hearing test (items 9–16), the hearing screening process (items 8–17, 17–22), and overall satisfaction (items 23–26). In this study, the satisfaction levels of individuals who had a baby during COVID-19 pandemic were examined under these dimensions. Regarding the first dimension (items 3–5), parents found the information about the NHSP very useful before the first appointment and easy to understand. However, the verbal or written information about the process and the program was not enough for most of them. In fact, this result was true both for individuals who had a baby during COVID-19 pandemic and for individuals in the control group. This was most likely due to the time constraints of the testers in both groups.

Responsiveness and empathy are important factors in service quality assessments (Aljaberi, Juni, Al-Maqtari, Lye, Saeed, Al-Dubai, & Shahar, 2018). In addition, physician attitudes and behaviors have a very important (and positive) effect on patient satisfaction with health services (Manzoor, et al., 2019). In the second dimension of the PSQ-NHSP (items 9–16), the majority of the individuals (70%) thought positively about the tester. Despite all the limitations of the pandemic, it is considered that this positive view of staff behavior is also reflected in the overall satisfaction levels of the participants.

Physical conditions are the most important determinant of patient satisfaction in service quality measurements (Manzoor, et al., 2019). In the third dimension of the PSQ-NHSP (items 8 through 22), overall, 72% of the individuals were satisfied with the test environment. Although this value is partially lower than the value of the control group (77%), the difference between the groups is not significant. On the other hand, only approximately half of the individuals stated that they had the opportunity to ask questions about the NHSP, the test procedure, and the results. This means that parents generally do not have the opportunity to ask questions. Actually, as a public health practice, it is very important to inform families about newborn hearing health, even if the baby gets a pass.

In our study, overall satisfaction and recommendation status were examined under the final dimension (items 23–26). Normally, families report satisfaction with the EHDI services and express strong support for the universal newborn hearing screening initiative (MacNeil, et al., 2007). It is demonstrated that 78% reported overall satisfaction (Cekic, et al., 2022), and 94% were very satisfied or satisfied with UNHS (Qirjazi, et al.,

2020). The restrictive policies applied due to COVID-19 had a negative effect on the parents' perception of spending quality time with the newborns in the intensive care unit, but despite this, satisfaction with the care and medical service received by the infants remained positive (Zorro, et al. 2022). In our study, regarding general satisfaction and recommendation, it was determined that 70% of the participants were satisfied, and there was no significant difference between groups in terms of satisfaction levels. This means COVID-19 does not affect parent satisfaction levels with NHSP.

Regarding the open-ended questions, it was seen that few participants gave written answers, and very few of them contained negative comments. The importance of parental views toward NHSP should be explained to the families, and they should be encouraged to express their views on the program.

There are studies examining parental satisfaction together with psychological factors such as stress and anxiety in the pre-pandemic period (Qirjazi, et al., 2020; MacNeil, et al., 2007). The main limitation of this study is that it only evaluates the satisfaction levels of parents without considering other parental factors. The small sample size, particularly in the control group is another limitation of this study. Therefore, examining those factors including parents' education level and occupation, stress and anxiety level with larger samples in the future, will be beneficial. Another issue is that, although the research is open to both mothers and fathers, it is noteworthy that all participants who filled out the questionnaires were mothers. This situation draws attention to the fact that mothers are more interested in the issue, and it is important to take this into account in future planning.

Ethics Committee Approval: Ethics committee approval was obtained for the study from the Ankara Yıldırım Beyazıt University Health Sciences Ethics Committee with the date and number of 06.10.2022-14.

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The effects of COVID-19 on the NHSP are still not very clear. In some previous studies, a strong correlation was found between the positive result of COVID-19 PCR test during pregnancy and the abnormal hearing screening test results (Alan et al., 2021; Panahi, et al., 2022). On the contrary, a study examining the possible direct and indirect impact of COVID-19 on the NHS found that COVID-19 had a limited effect on NHS results. It was stated that COVID-19 was not an audiological risk factor for that series (Gallus, et al., 2022). In our study, a rarely studied but very important topic, parental satisfaction related to NHSP, was examined during COVID-19 pandemic, and parental satisfaction levels have been demonstrated. Referring to this result, our study was very valuable. Furthermore, it is known that research on the quality of life and satisfaction evaluations frequently collects data via e-mail (MacNeil, et al., 2007). Our study was carried out on a digital platform, and in this way, we were able to reach individuals from 15 different cities. Thus, the views of the individuals who received screening services in different centers could be easily included.

CONCLUSION

In general, it was observed that parents who had a baby during COVID-19 pandemic were satisfied with the NHSP. They found the preliminary information provided about NHSP very useful and understandable, but they thought that there was not enough verbal or written information about the process and the program. There was no significant difference between the satisfaction levels of the parents who had a baby during the pandemic period and the parents who had a baby before. Since the users' perception of the quality of a health service is strongly and directly related to their satisfaction with that service and their future use of such services, it is recommended that this topic be studied more in the future.

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