

Physicians and nurses' perspectives of encountering neonates with poor prognosis

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Abstract

Introduction: Decision making regarding the treatment of neonates with poor prognoses is difficult for healthcare staff working in the neonatal intensive care unit (NICU). This study aimed to investigate the attitude of physicians and nurses towards the value of life and ethical decision making when encountering neonates with poor prognosis in the NICU.

Methods: A cross-sectional study was conducted in 2016. This study was carried out in five NICUs of five hospitals in Tehran city, Iran. The perspectives of 144 paediatricians, gynaecologist and nurses were assessed using the questionnaire of attitude toward the value of life and agreement on intensive care management on three hypothetical cases scenarios of neonates with poor prognosis. Data was analysed using descriptive and inferential statistics.

Results: The negative agreement on the no initiation of intensive care measures and the discontinuation of resuscitation in neonates with poor prognosis was more than the positive agreement. Also, various factors influenced the participants' decision making for the provision of care to neonates. Regarding the case scenarios, the participants agreed on the provision of aggressive, conservative, and palliative care with various frequencies. This study confirms the importance of healthcare providers' perspectives and their impacts on ethical decision making. The participants in this study favoured the value or sacredness of life and agreed on the use of all therapeutic measures for neonates with poor prognosis.

Conclusion: More studies are required to improve our understandings of factors influencing ethical decision makings by healthcare providers when encountering neonates with poor prognosis in NICUs.

Key words: Decision making, ethics, neonatal intensive care unit, poor prognosis, value of life

Introduction

Given the development of the neonatal intensive care unit (NICU) and advances in treatment modalities, the numbers of neonates who are at the end stage of chronic diseases have increased. Provision of intensive care to neonates is intertwined with ethical conflicts. For instance, healthcare professionals working in the NICU face difficult situations in patient care and should make decisions on the start and stop of treatment for neonates that have a low survival chance. It can create many scientific, ethical, religious, and legal challenges for making an appropriate decision on the provision care¹⁻⁵ especially for neonates suffering from prematurity, asphyxia, and congenital malformations⁶. Above all, there is no consensus on criteria by which neonates could be candidates for palliative care rather than intensive care.

Any form of euthanasia is forbidden in many cultures based on the perspective of the sacredness of life. However, it is believed that the value of life is associated with the present or future capacity, which defines the quality of life. A number of intermediate positions that identifies between these two extremes have been the source of ongoing discussions by ethicists, legal experts, and policymakers.⁷⁻⁹ Therefore,

through accepting the sacredness of life, starting and continuing intensive interventions to preserve the neonate life is required. Continuing tough measures for infants with a low life expectancy or low quality of life in developing countries has limited the number of beds for providing care to other infants with a better health condition.¹⁰

In the Islamic perspective, the human life is valuable and saving one life is considered equal to saving the life of all mankind. Healthcare professionals are responsible to do everything possible to preserve the patient's life and improve his/her wellbeing. However, there are limitations in their efforts as well as equipment and facilities to provide appropriate care. Given the sacredness of the human life and the value of human's existence, therapeutic measures that bring about severe consequences and violate human dignity should be discontinued. Patients with the end stage disease or multiple organ failures are not subjected to futile and invasive procedures such as cardiopulmonary resuscitation or surgeries.¹¹⁻¹² Medical futility is an extremely complex, ambiguous, situation-specific, and goal-dependent concept, which is almost surrounded by some degrees of uncertainty. There is no objective and valid criteria for determining medical futility.¹³ Healthcare staff working in neonatal wards report a great deal of ethical challenges in their practice, because of their constant contact with patients and their family members.¹⁴⁻¹⁶ The function and perspective of healthcare providers varies with regard to the provision of care to neonates at the end stage of life in various contexts and cultures.¹⁷⁻¹⁸ Therefore, the aim of this study was to investigate the attitude of physicians and nurses toward the value of life and decision making when encountering critically ill neonates with poor prognosis in an Iranian context.

Methods

Design and sample

A cross-sectional study was conducted in 2016 over a period of three months in five NICUs of five hospitals in Tehran, Iran from Oct 2016 to Jan 2017. The NICUs were selected using a convenience sampling method via census from three teaching and two non-teaching hospitals with 5–30 active beds. The NICUs provided care to neonates with various diseases around the clock and 24 hours a day. All healthcare staff including paediatricians (n = 41), gynaecologists (n = 41), and nurses (n = 62) working in these NICUs were recruited who were Muslims. For recruitment, the list of healthcare staff working in the NICUs was provided and they were invited to take part in the study, with no one declining to participate.

Data collection

Data was collected using the demographic characteristics form consisting of questions about the subjects' gender, the marital status, work experience, history of encountering with severely ill infants, having a severely ill neonate in the family/relatives, and the type of workplace.

Also, a 15-item questionnaire about the attitude toward the value of life was used. It was developed based on the Eouronic's study⁶ and was translated using the forward and backward translation method.

Also, its content validity was assessed by 10 faculty members consisting of neonatologists, social medicine, and medical ethics specialists affiliated with the university in which the corresponding author worked. The list of the questions were as follow: 1. because the human life is sacred, everything should be done to ensure the neonate's survival, even if the prognosis is poor; 2. even with a severe physical disability, life is better than no life at all; 3. even with severe mental disability, life is always better than no life at all; 4. stopping the provision of intensive care, even for special situations, is a 'slippery slope' that can lead to abuse; 5. intensive care is 'slippery slope' and likely leads to therapeutic aggressiveness; 6. the burden of disabled childcare on the family is not considered, when an ethical decision is made; 7. there is no room for making an ethical decision when the law does not allow to limit therapeutic measures; 8. every neonate should be provided with the best intensive care irrespective of the outcome, because the acquired clinical experience can benefit other neonates in the future; 9. increasing the cost of care hinders healthcare staff to treat each neonate regardless of the outcome; 10. there is no difference between the discontinuance of intensive care and administration of drugs with the purpose of ending the neonate's life; 11. there is no difference between discontinuance and withholding of intensive care from the ethical perspective; 12. withholding intensive care without simultaneously taking active measures to end the neonate's life is dangerous, because it makes it more likely that the neonate will be severely disabled, if he/she survives; 13. given the Islamic justice and limitations in intensive care equipment, my religious belief allows me acting out for terminating intensive care such as the discontinuation of mechanical ventilation or discontinuation of vital medicines in certain cases; 14. given the Islamic justice and limitation in intensive care equipment, my ethical belief allows me acting out for the termination of intensive care such as the discontinuation of mechanical ventilation or discontinuation of vital medicines in the certain cases; 15. my religious belief is always the most important in making the decision for the discontinuance of intensive care.

For reliability, the Cronbach's alpha coefficient was calculated using a pilot test with 20 healthcare providers and was reported 0.82. This questionnaire had a five-point Likert scale. The score range of the questions 1 to 10 was from 0 to 4 as follows: strongly agree = 4, agree = 3, no idea (I do not care) = 2, disagree = 1, and strongly disagree = 0. For questions 5, 9, 13, 14, it had a reverse scoring. The higher score indicated more positive attitude about the value of life. For standardization, the total score was multiplied to 25 and was divided to 15 as the number of questions. Therefore, a score between 0 and 100 was achieved with a higher score indicating a higher attitude toward the value of life.

The third tool was a researcher-made questionnaire consisting of questions about factors influencing the healthcare providers' decisions to provide care to neonates with poor prognosis including gestational age, weigh at birth, parents' marital status, family's socio-economic condition, type of neonate disease, response of laboratory tests, physician's prediction of neonate prognosis, presence of abnormalities against the neonate life, consultant physician's comment, hospital therapeutic protocols, standard of neonatal association, expectations of the mortality committee, and religious beliefs. They were asked to show their agreements on the five-point Likert scale from completely agree (score 4) to completely disagree (score 0). Also, three case scenarios for starting and discontinuation of resuscitation and intensive care in four groups of neonates with poor prognosis including low age at birth (< 25 weeks),

weight below 1000 gr, multiple congenital anomalies, and asphyxia, with implications for clinical ethics were designed as follow:

- A. You are present in the delivery room and a neonate is born with a gestational age of 26 weeks. The neonate starts crying, but has a weak cry sound. The heart rate is reported 100 beats per minute. The infant is limp, its eyes are closed, and his/her skin is thin and transparent. Its weight is approximately between 550 and 600 gr.
- B. Due to the long-term umbilical cord prolapse, a neonate is born at a gestational age of 37 weeks with a weight of 2900 gr. The neonate's shape is normal at birth, but he/she is limp, has low muscle tone with cyanosis. The neonate cannot breathe by herself/himself. Cardiopulmonary resuscitation is performed and the neonate is transferred to the NICU. After 25 days, he/she is suffering from severe neurological injuries, but has a few spontaneous movements, and ischemic changes are shown on the brain imaging. The neonate cannot feed orally owing to the absent of sucking and gagging reflexes. The neurologist reports a little chance of long-term survival and no chance of functional development.
- C. After a natural delivery, a 35-week neonate is transferred to the NICU. He/she has clear manifestations of trisomy 18 including low-set and malformed ears, prominent occiput, micrognathia, cleft palate, and cyanotic congenital heart disease. This diagnosis is confirmed using the chromosomal analysis.

These case scenarios were drawn from medical ethics practice and were confirmed in terms of validity by a team of experts consisting of neonatologists, social medicine and medical ethics experts. The participants were asked to show their agreement and disagreement with care measures they would approve with respect to these three cases scenarios including 'aggressive care', 'conservative care', or 'palliative care' approaches. Aggressive care meant all necessary, practical measures that must be taken to preserve the infant life including the initiation or continuation of mechanical ventilation, medication to preserve and protect the functions of vital organs, and even surgery. Conservative care was related to the initiation and continuation of a limited number of treatment modalities for neonates such as administration of oxygen through non-invasive methods, suctioning, and feeding. It did not consider invasive measures such as intubation, mechanical ventilation, or surgery. Palliative care consisted of the application of no interventions except those aiming at warming or comforting the neonate.¹⁹⁻²⁰ The participants were asked to show their agreements on the use of each care measure on a five-point Likert scale from completely agree (score 4) to completely disagree (score 0). To facilitate the interpretation of findings, the scores of completely agree and agree were summed together and the summation of other options' scores was considered disagree.

Data analysis

Descriptive and inferential statistics were used for data analysis. The Chi-square test, Fisher's exact test, Cohen's d test, Kruskal-Wallis test, and Mann-Whitney U test were used for the comparison of findings

between the participants' groups. The data analysis was performed via the SPSS software (version 16) and p-value less than 0.05 was considered statistically significant.

Results

In this study, 144 healthcare providers participated and their demographic characteristics were presented in Table 1. Accordingly, 41 (28.5%) were gynaecologists, 41 (28.5%) were paediatricians and 62 (43.1%) were nurses. The majority of the gynaecologists and paediatricians (43.1%) and the nurses (32.6%) were female. The gynaecologists and paediatricians (52.8%), and nurses (35.4%) more than 5 times encountered severely ill neonates during their work career. The majority of the participants worked in public hospitals as follows: gynaecologist (18.8%), paediatricians (14.6%), and nurses (31.9%). The gynaecologists (13.9%) and the nurses (20.1%) had the work experience of 6–15 years, but the paediatricians had the work experience 6 years and higher (22.2%). No statistically significant differences were reported between the participants in terms of the demographic variables ($p > 0.05$).

Table 1

The demographic characteristics of the participants in work disciplines (n = 144)

Variable	Work discipline			TOTAL	Test, p value
	Gynecologist (n = 41), n (%)	Pediatricist (n = 41), n (%)	Nurse (n = 62), n (%)		
Gender					
Male	20(13.8)		15(10.5)	35(24.3)	Fisher's Exact Test P = 0.99
Female	62(43.1)		47(32.6)	109(75.7)	
Work experience, y					
1–5	8(5.6)	9(6.2)	13(9)	30(20.8)	$\chi^2(4) = 0.97$ P = 0.91
6–15	20(13.9)	16(11.1)	29(20.1)	65(45.1)	
> 16	13(9)	16(11.1)	20(13.9)	49(34)	
Marital status					
Single	3(2.1)	8(5.6)	16(11.1)	27(18.8)	$\chi^2(4) = 0.97$ P = 0.91
Married	38(26.4)	33(22.9)	46(32)	117(81.2)	
Encounter with severely ill infants					
< 5	6(4.2)		11(7.6)	17(11.8)	Fisher's Exact Test P = 0.06
> 5	76(52.8)		51(35.4)	127(88.2)	
Having a severely ill neonate in the family/relatives					
Yes	32(22.2%)	32(22.2%)	47(32.6)	111(77.1)	$\chi^2(4) = 0.99$ P = 0.95
No	9(6.2)	9(6.2)	15(10.4)	33(22.9)	
Type of workplace					
Public	27(18.8)	21(14.6)	46(31.9)	94(65.3)	$\chi^2(2) = 5.75$ P = 0.056
Private	14(9.7)	20(13.9)	16(11.1)	50(34.7)	

The number and percentage of the participants' positive and negative agreements on the no initiation of resuscitation measures and the discontinuation of resuscitation in neonates with poor prognosis were shown in Table 2. Accordingly, the negative agreement was more than the positive agreement ($p = 0.001$), and the severity of the related effect was reported moderate ($d = 0.55$ & 0.60 , respectively).

Table 2

The frequency and percentage of the participants' agreement on the no initiation of resuscitation and the discontinuation of resuscitation in four groups of neonates with poor prognosis

Agreement levels n (%)	Neonates with poor prognosis					test, p-value
	Weight < 1000 gr	Asphyxia	Multiple congenital anomalies	Low age at birth (< 25 weeks)	Total	
Agreement on the no initiation of resuscitation						$\chi^2(3) = 41.35$, P = 0.001, d Cohen's = 0.55, r = 0.26
Positive	14(2.4)	48(8.3)	59(10.2)	29(5)	150(26)	
Negative	130(22.6)	96(16.7)	85(14.8)	115(20)	426(74)	
Agreement on the discontinuation of resuscitation						$\chi^2(3) = 48.50$ P = 0.001, d Cohen's = 0.60, r = 0.29
Positive	63(10.9)	69(12)	91(15.8)	50(8.7)	273(47.4)	
Negative	81(14.1)	75(13)	53(9.2)	94(16.3)	303(52.6)	

Factors influencing decision making by the participants for the provision of different types of care were assessed and the mean scores of agreements were compared between the healthcare disciplines (Table 3). Accordingly, the mean scores of agreements between the participants had statistically significant differences in terms of physicians' prediction of neonate prognosis ($p < 0.001$) and the highest mean score belonged to the nurses (3.11). Also, the mean scores of agreements between the paediatricians (2.98) and the nurses (3.42) had significant differences in terms of the presence of abnormalities against the neonate life ($p = 0.01$). The factor of the consultant physician's comment showed statistically significant differences between the gynaecologists and the paediatricians (2.07 vs. 2.51, $p = 0.02$), and between the gynaecologists and the nurses (2.07 vs. 2.31, $p = 0.005$). In terms of religious beliefs, the mean score of agreements between the gynaecologists (3.07) and the paediatricians (3.41) had statistically significant differences ($p = 0.007$).

Table 3

Factors influencing the decision made by the participants to provide care to neonates

Factors	Paediatricians (n = 41), mean (SD)	Gynecologist (n = 41), mean (SD)	Nurse (n = 62), mean (SD)	test, p-value
Neonate gestational age	2.85 (1.38)	2.76 (1.33)	2.69 (1.31)	Kruskal-Wallis H (2) = 0.77, P = 0.68
Weight at birth	2.54 (1.50)	2.54 (1.58)	2.42(1.47)	Kruskal-Wallis H (2) = 0.46, P = 0.79
Parents' marital status	0.95 (1.16)	0.80 (0.81)	0.95 (0.89)	Kruskal-Wallis H (2) = 0.63, P = 0.72
Family's socio-economic condition	1.05 (1.04)	1.15 (0.88)	1.24 (1.97)	Kruskal-Wallis H (2) = 1.15, P = 0.56
Type of the neonate disease	3.15 (0.79)	2.93 (1.19)	3.29 (0.99)	Kruskal-Wallis H (2) = 3.36, P = 0.18
Response of laboratory tests	3.24 (0.79)	2.90 (1.04)	3.31 (0.89)	Kruskal-Wallis H (2) = 4.46, P = 0.10
Physician's prediction of neonate prognosis	2.93 (0.98)	2.54 (0.97)	3.11 (1.43)	Kruskal-Wallis H (2) = 16.63, P = 0.001 Mann-Whitney U group1 vs. group2, P = 0.04 group1 vs. group3, P = 0.02 group2 vs. group3, P = 0.001

Factors	Paediatricians (n = 41), mean (SD)	Gynecologist (n = 41), mean (SD)	Nurse (n = 62), mean (SD)	test, p-value
Presence of abnormalities against the neonate life	3.32 (1.12)	2.98 (1.27)	3.42 (1.27)	Kruskal-Wallis H (2) = 6.32, P = 0.04 Mann-Whitney U group1 vs. group2, P = 0.18 group1 vs. group3, P = 0.24 group2 vs. group3 P = 0.01
Consultant physician's comment	2.07 (0.84)	2.51 (1.16)	2.31 (1.13)	Kruskal-Wallis H (2) = 8.31, P = 0.01 Mann-Whitney U group1 vs. group2, P = 0.02 group1 vs. group3 P = 0.005 group2 vs. group3 P = 0.67
Hospital's therapeutic protocols	2.29 (1.03)	2.51 (1.22)	2.39 (1.21)	Kruskal-Wallis H (2) = 2.37, P = 0.30
Standards of neonatal association	3.39 (1.22)	2.88 (1.48)	3.10 (1.54)	Kruskal-Wallis H (2) = 3.11, P = 0.21
Expectations of the mortality committee	2.73 (0.94)	2.85 (1.52)	2.58 (1.30)	Kruskal-Wallis H (2) = 5.13, P = 0.07

Factors	Paediatricians (n = 41), mean (SD)	Gynecologist (n = 41), mean (SD)	Nurse (n = 62), mean (SD)	test, p-value
Religious beliefs	3.07 (1.14)	3.41 (1.24)	3.03 (1.52)	Kruskal-Wallis H (2) = 6.78, P = 0.03 Mann-Whitney U group1 vs. group2, P = 0.007 group1 vs. group3, P = 0.19 group2 vs. group3, P = 0.16

The relationships between the mean score of the participants' attitude towards the value of life and demographic variables were shown in Table 4. In between-group comparisons, female gender, being married, and no history of having a severely ill neonate in the family/relatives had statistically significant relationships with the attitude towards the value of life between the participants ($p < 0.05$). Also, for both public and private workplaces, statistically significant relationships were found between the attitudes of gynaecologists and paediatricians, and between the attitudes of the gynaecologists and the nurses ($p < 0.05$).

Table 4

Relationships between the participants' attitude toward the value of life and demographic characteristics

Variable	Attitude toward the value of life			test, p-value
	Gynecologist (n = 41), mean (SD)	Paediatricians (n = 41), mean (SD)	Nurse (n = 62), mean (SD)	
Gender				
Male	0	51.83 (11.05)	51.22(12.04)	Mann-Whitney U Z=-0.55, P = 0.58
Female	60.08 (13.87)	54.60 (12.98)	48.61(10.90)	Kruskal-Wallis H (2) = 28.84, p < 0.001; Mann-Whitney U Group 1 vs. Group 2: P = 0.02; Group 1 vs. Group 3:P = 0.001; Group 2 vs. Group 3: P = 0.005
Marital status				
Single	68.33(8.33)	53.54 (13.58)	51.87(11.92)	Kruskal-Wallis H (2) = 5.88, P = 0.05
Married	59.42 (14.08)	53.18 (11.83)	48.33(10.84)	Kruskal-Wallis H (2) = 27.73, P = 0.001 Mann-Whitney U Group 1 vs. Group 2:P = 0.002 Group 1 vs. Group 3:P = 0.001 Group 2 vs. Group 3:P = 0.007
Type of workplace				
Public	59.44 (14.75)	52.69 (11.48)	49.98(11.01)	Kruskal-Wallis H (2) = 21.44, P = 0.001 Mann-Whitney U Group 1 vs. Group 2:P = 0.003 Group 1 vs. Group 3:P = 0.001 Group 2 vs. Group 3:P = 0.05

Variable	Attitude toward the value of life			test, p-value
	Gynecologist (n = 41), mean (SD)	Paediatricians (n = 41), mean (SD)	Nurse (n = 62), mean (SD)	
Private	61.30 (12.42)	53.83 (12.82)	49.99(11.83)	Kruskal-Wallis H (2) = 9.81, P = 0.007 Group 1 vs. Group 2:P = 0.03 Group 1 vs. Group 3:P = 0.005 Group 2 vs. Group 3:P = 0.10
History of having a severely ill neonate in the family/relatives				
No	59.16 (14.72)	53.80 (10.69)	49.07(10.91)	Kruskal-Wallis H (2) = 24.77, P = 0.0001 Mann-Whitney U Group 1 vs. Group 2:P = 0.002 Group 1 vs. Group 3:P = 0.001 Group 2 vs. Group 3:P = 0.009
Yes	63.33(10.34)	51.29 (10.51)	49.77(10.21)	Kruskal-Wallis H (2) = 7.36, P = 0.07 Mann-Whitney U Group 1 vs. Group 2:P = 0.08 Group 1 vs. Group 3:P = 0.005 Group 2 vs. Group 3:P = 0.37

The results of the participants' decision making on the cases scenarios were presented in Table 5. For neonates with age at birth below 25 weeks, the participants mainly agreed on aggressive care ($p = 0.001$) and disagreed on palliative care ($p = 0.008$). For neonates with asphyxia, the participants reported highest agreements on aggressive care ($p = 0.001$), conservative care ($p = 0.007$) and palliative care ($p = 0.01$). For neonates with multiple congenital anomalies, the same number of participants agreed and disagreed on aggressive care ($p = 0.0001$), but they mostly agree on both conservative care and palliative care ($p = 0.0001$).

Table 5

Perspectives of the participants regarding their agreement or disagreement with care proposed for each scenario

Case scenario	Type of care	Agree or disagree	n	Mean (SD)	test, df, p-value
A. Infant with age at birth below 25 weeks	Aggressive care	Agree	119	57.49 (8.67)	Mann-Whitney U Z=-6.57, P = 0.001
		Disagree	25	34.33 (12.90)	
	Conservative care	Agree	44	49.31(18.35)	Mann-Whitney U Z=-1.26, P = 0.20
		Disagree	100	55.30(9.19)	
	Palliative care	Agree	31	46.45(17.45)	Mann-Whitney U Z=-2.63, P = 0.008
		Disagree	113	55.39(10.71)	
B. Neonate with asphyxia	Aggressive care	Agree	79	60.35(8.92)	Mann-Whitney U Z=-7.71, P = 0.001
		Disagree	65	45.10(12.14)	
	Conservative care	Agree	95	50.92(14.27)	Mann-Whitney U Z=-2.68, P = 0.007
		Disagree	49	58.40(7.89)	
	Palliative care	Agree	81	51.56(12.64)	Mann-Whitney U Z=-2.50, P = 0.01
		Disagree	63	55.92(12.99)	
C. Neonate with multiple congenital anomalies	Aggressive care	Agree	72	62.01(6.21)	Mann-Whitney U Z=-9.05, P = 0.0001
		Disagree	72	44.93(12.27)	
	Conservative care	Agree	90	47.49(12.33)	Mann-Whitney U

Case scenario	Type of care	Agree or disagree	n	Mean (SD)	Z=-8.44, test, df, p-value
		Disagree	54	63.42(5.91)	
	Palliative care	Agree	79	45.99(12.15)	Mann-Whitney U Z=-8.76, P=0.0001
		Disagree	65	62.56(6.40)	

Discussion

The study aimed to investigate the perspectives of healthcare providers toward the value of life and decision making when encountering critically ill neonates and with poor prognosis.

In this study, the participants showed an agreement on the initiation of intensive care for neonates with poor prognosis indicating the perspective of value or sacredness of life, which was in line with the findings of Ghaffari's study in Sari City, Iran and Bilgin's study in Turkey.^{3,18} Conversely, the Rebagliato's study found that the approach of quality of life was more common as participants preferred to provide care to those neonates that would enjoy a higher quality life in the future. They also reported that the perspectives of European neonatologists about the sacredness of life vs. quality of life varied within and across participants across 10 European countries⁷, indicating the effect of religion and culture on their perspectives.

The participants of this study agreed that everything possible should be done to ensure a neonate's survival, even if the neonate had a poor prognosis. This perspective supported the value or sacredness of life similar to previous studies. For instance, 33% of physicians in Italy, 25% in Lithuania, and 24% in Hungary, agreed on the above statement. Also, 75% of responders in Turkey agreed on this statement supporting the value of life.^{7,18}

In this study, the attitude towards the value of life in all participants and female gender had a statistically significant relationship. Similarly, Nayeri in Iran and Rebagliato in the European region demonstrated that female doctors were more in favour of the quality of life approach and had a positive attitude toward the value of life.^{7,20} Also, a study in Switzerland showed differences between nurses' and physicians' perspectives regarding end-of-life decision makings in extremely preterm infants.²¹

The participants in this study agreed on the provision of aggressive, conservative, and palliative care to neonates with poor prognosis with various frequencies. Nayeri in Iran showed that participants agreed on the use of advanced invasive methods for premature neonates.²⁰ Some healthcare providers may consider that premature neonates have positive prognosis, and all facilities should be used for their

survival. Others may consider that neonates with severe asphyxia and congenital anomaly do not have a favourable prognosis. The results of this study indicating the high agreement on the use of aggressive measures for neonates with poor prognosis was consistent with the results of studies in Iran, Taiwan, Oman, Turkey^{3, 5, 10, 18} and was converse with the study in the USA.²²

In general, from the findings of this study it is inferred that the participants supported the use of all therapeutic measures for neonates with poor prognosis, that is against the perspective of active euthanasia in clinical practice. While withholding and withdrawing intensive neonatal care in the UK is not uncommon¹⁷, the British Medical Association repeatedly reinforces the rejection of active euthanasia.²³ Active euthanasia appears to be an acceptable intervention in the Netherlands, France, and Lithuania, but it is less accepted in Sweden, Hungary, Italy, and Spain. Half of physicians in the Netherlands and a quarter in France feel that active euthanasia should be supported by the law.²⁴ A study in Belgium suggested that in certain cases interventions that hasten death could be permitted. Also, most physicians favoured the legalization of the use of lethal drugs in some cases in Belgium.²⁵ A study in the Netherlands suggested that treatment should generally be considered conditional and if the treatment fails, it can be abandoned.²⁶ It is noted that for all healthcare providers who have the decisive role in end of life decisions, euthanasia and decision making on the provision of care can create serious ethical problems²⁷ that needs to be discussed with more details in future studies.

Conclusion

The participants in this study mostly agreed on the value or sacredness of life and the use of all therapeutic measures for neonates with poor prognosis. It shows that ethical decisions made by them are influenced by their perspectives, that directly impact the provision of care to neonates in the NICU. To prevent conflicts during decision making and to improve the atmosphere of teamwork in clinical practice, hospitals should set up a multi-specialized ethical committee for resolving ethical dilemmas and facilitate decision making on complicated cases, especially in developing countries in which insufficient staffs and equipment encourages healthcare providers to prioritize care and treatment to those who have a higher chance of survival. Due to the low sample size and non-random selection of the participants in the present study, further studies with larger sample sizes using observations are needed to support the findings of this study and improve its generalization to other settings. Also, future qualitative studies can help with the improvement our understandings of factors influencing ethical decision makings when encountering neonates with poor prognosis in NICUs.

Declarations

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Abbreviations

Declarations

Ethics approval and consent to participate

The process of data collection was anonymous and did not involve the real treatment process of neonates in the NICUs. The participants signed the written consent form before the study. Also, this study was approved by the research ethics committee affiliated with Shahed University (Decree code: 41/219210).

Availability of data and material

Data supporting the results reported in this article can be found through contacting with the corresponding author.

Competing interests

None of the authors have any conflicts of interests with regard to this research.

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