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Emotional Reality and Related Factors of Japanese Midwives in Mid-Term Abortion Care

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Abstract

Aim: To understand the emotions experienced by midwives in mid-term abortion care in Japan and to identify the related factors.

Background: Japanese midwives provide mid-term abortion care with conflicted and negative emotions, but the extent of the emotions and related factors are unknown.

Design: A cross-sectional design was used.

Methods: An online questionnaire survey was administered to 385 midwives with experience in mid-term abortion care in 2022. Bivariate and multiple regression analyses were performed.

Results: The Midwives' Emotion Scale in Second-Trimester Abortion Care (MES-SAC) score was highest for "negative perception of care", followed by "self-evaluation of care skills." The MES-SAC score was positively associated with care for the woman (unsympathetic attitude) and fetus (live delivery), midwifery services, self-confidence, and improved technology. Furthermore, it was negatively associated with length of engagement in mid-term abortion care, positive feedback experiences from women, challenges faced when working with physicians, and views on abortion.

Conclusion: Education for midwives to gain a correct understanding of women undergoing abortion is important to reduce negative emotions in mid-term abortion care. Furthermore, debriefing to understand the participants' own care and emotions, and case conferences, in which they can feel comfortable expressing their emotions, are also important.

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Introduction

In Japan, abortion is legal under the Maternal Protection Law (formerly the Eugenic Protection Law) promulgated in 1948; however, it was stipulated as illegal under the Penal Code in 1907, which remains in effect. Only "designated doctors," that is, those designated by the Maternal Protection Law, are allowed to perform abortions. Additionally, the reason for the abortion must be either: (1) physical or economic, whereby the continuation of pregnancy or delivery will likely cause serious harm to the mother's health, or (2) the pregnancy resulted from assault, threat, or adultery, wherein the woman was unable to resist or refuse.

In the 1950s, Japan was one of the first countries worldwide to legalize abortion; it was called the "abortion heaven" because of the high number of abortions performed there. In the 1970s, memorial services for aborted fetuses, known as "mizuko kuyo," became a common practice in the country, reaching the peak of popularity in the mid-1980s. The practice continues in many religious institutions to date [1]. Considering this background, it can be discerned that abortion is a taboo in Japan and is considered a sin, a value that is upheld by the nursing profession [2-3]. It is estimated that 122,725 abortions are performed annually in Japan, of which 7,045 are mid-term abortions occurring between 12 and 22 weeks' gestation [4]. Mid-term abortions are performed by artificially inducing labor and delivery, with uterine contractions after cervical ripening. Midwives are mainly responsible for the care of women undergoing abortion until delivery.

The World Health Organization (WHO) places women's values and preferences at the center of its conceptual structure for abortion care [5]. Conversely, abortion care in Japan is characterized by a dichotomy in nurses' care attitudes: one is a proactive, positive attitude, with a view to alleviate suffering, and the other is a passive, negative attitude, without being deeply involved with the woman undergoing abortion [6-8]. According to the WHO, care provided with a negative attitude cannot be centered on women's values and intentions. Japanese nursing professionals are conflicted regarding abortion care [9-11], which prevents them from providing care with a positive attitude. Saito et al. [12] revealed the phenomenon in which midwives who provide mid-term abortion care with a positive attitude deal with the conflicts they experience in their care; that is, the phenomenon of "respecting the women's decision to have an abortion." This reveals that by processing their own negative emotions toward abortion, abortion care, and women undergoing abortion, midwives may develop a positive care attitude.

By understanding the emotions (negative and positive) experienced by midwives in mid-term abortion care and identifying related factors, measures to reduce the midwives' negative emotions can be examined. Hence, this study aimed to understand the actual situation of midwives' emotions in mid-term abortion care in Japan and identify the related factors.

Methods

Study design

This study used a cross-sectional survey with a self-administered, anonymous questionnaire (online).

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Research participants

Midwives with experience in mid-term abortion care were the target participants. There was no restriction on the number of times they had provided mid-term abortion care, nor a limit on the length of their experience.

Logistic and proportional hazards regression analyses required a sample size of explanatory variables x 10 [13-14]. As the developed questionnaire comprised 41 items, we assumed a facility consent rate of 15% and a collection rate of 50%; therefore, 600 facilities were selected for the study to ensure that at least 410 midwives were included.

Mid-term abortions in Japan are performed at in-patient obstetric facilities. Therefore, we used "Perinatal Medical Plaza", a website operated by the Japan Society of Obstetrics and Gynecology, to search for delivery facilities and to recruit participants. We randomly selected 600 facilities in the top eight prefectures (Tokyo, Osaka, Kanagawa, Aichi, Fukuoka, Hokkaido, Chiba, and Saitama) in terms of the number of abortions in 2020 [15]. Furthermore, stratified sampling was used to select the facilities.

Survey contents

Demographic characteristics

The following information was obtained: participants' age, years of experience (nurse or midwife), midwifery school, whether advanced midwife, number of assisted vaginal births, children, and whether religious.

Midwife emotions in mid-term abortion

The Midwives' Emotion Scale in Second-Trimester Abortion Care (MES-SAC) developed by Saito et al. [16] was used to measure midwives' emotions in mid-term abortion. Developed to measure midwives' emotions in second-trimester abortion care, it comprises 25 items across six subscales ("factors"): Factor 1 ("positive perception of care") 6 items; Factor 2 ("negative feelings toward fetus") 4 items; Factor 3 ("anger toward women") 4 items; Factor 4 ("negative perception of care") 5 items; Factor 5 ("self-evaluation of care techniques") 4 items; and Factor 6 ("frustration with women's surroundings") 2 items. The possible scores range from 25 to 125 points, with responses rated on a 5-point scale ranging from 5 (Yes) to 1 (No). Higher scores indicate greater negative emotions in care.

Factors assumed to be related to midwives' emotions in mid-term abortion care

Factors assumed to be related to midwives' emotions in mid-term abortion care were extracted from previous studies [17-24] and an earlier literature review [25], and were examined. After the items were developed, pretests were administered to three researchers and five midwives. Finally, 33 items were established: four, ten, nine, five, and five items for personal background, abortion care experience, mid-term abortion care scene, attitudes in mid-term abortion care, and thoughts on mid-term abortion care, respectively (Supplementary File).

Analysis method

The statistical software SPSS Statistics Ver. 28 was used for the analysis. The significance level was set at less than 5%.

Descriptive statistics were calculated for all the variables. Furthermore, the total MES-SAC scale scores, means for each subscale, and item means for the subscales were calculated to determine the actual emotional state of midwives in mid-term abortion care.

Bivariate analyses (Spearman's rank correlation coefficient, Mann-Whitney U test, and Kruskal-Wallis test) were performed to examine differences in the total MES-SAC scores based on basic attributes and factors assumed to be related. Cronbach's alpha coefficient was calculated to assess the internal consistency of the MES-SAC. Spearman's rank correlation coefficients were calculated to confirm the correlations between the items.

A multiple regression analysis using the forced entry method was conducted with the MES-SAC as the dependent variable and basic attributes and factors with assumed associations as independent variables. We selected variables with a p-value of less than 0.2 in the bivariate analysis. If the correlation coefficient between the selected independent variables was greater than 0.6, one variable was excluded to avoid multicollinearity.

In the analysis, four- and five-count method variables among the independent variables were treated as interval measures, and qualitative variables generated multiple categorical variables. A Variance Inflation Factor (VIF) of less than 10 confirmed multicollinearity among the independent variables. Residual analysis was performed to confirm the normality of the residuals.

Ethical Considerations

This study was approved by the Juntendo University Graduate School Research Ethics Committee (Junkan Rin No. 2021-117). The study's purpose, significance, and methods were explained to the participants in writing, as was the fact that participation was voluntary. Explanations regarding privacy considerations, benefits, and disadvantages of participation, and that the results of the study would be presented at relevant academic conferences were also provided. All items were required to be answered, and this was stated at the beginning of the survey.

Results

Demographic characteristics

Table 1 presents the demographic characteristics. The largest number of subjects were between 40-49 years of age, and all were women, as there are no male midwives in Japan.

The emotional reality of midwives in mid-term abortion care

The MES-SAC scores ranged from 34 to 118 points, with a mean of 75.93 (SD = 15.9). The Shapiro-Wilk test showed p=0.279, and the total scores followed a normal distribution.

Means for each subscale were: Factor I: mean 17.27 points (SD = 4.43), Factor II: 11.41 points (SD = 4.34), Factor III: 10.87 points (SD = 3.88), Factor IV: 17.07 points (SD = 4.94), Factor V: 13.52 points (SD = 3.18), and Factor VI: 5.79 points (SD = 1.90). Item means were 2.88, 2.85, 2.72, 3.41, 3.38, and 2.90 for Factors I, II, III, IV, V, and VI, respectively, with Factor IV being the highest, followed by Factors V and VI.

Table 1: Demographic characteristics n=385

	n	%
Age (year)		
20–29	74	19.2
30–39	108	28.1
40–49	120	31.2
50–59	76	19.7
≥60	7	1.8
Years of experience (midwife) (year)		
1 >	5	1.3
1–5 >	67	17.4
5–10 >	83	21.6
10–15 >	72	18.7
15–20 >	49	12.7
≥20	109	28.3
Midwifery school		
Graduate school	27	7.0
University Major	49	12.7
University	54	14.0
University special course	8	2.1
Junior college	34	8.8
Vocational school	206	53.5
Other	7	1.8
Advanced Midwife*		
Yes	145	37.7
No	240	62.3
Number of births assisted		
50 >	37	9.6
50–100 >	46	11.9
100–300 >	114	29.6
300–1000 >	143	37.1
≥1000	45	11.7
Child		
No	168	43.6
Yes (one)	59	15.3
Yes (two)	90	23.4
Yes (3 or more)	65	16.9
No answer	3	0.8
Religion		
No	317	82.3
Buddhist	49	12.7
Shinto	5	1.3
Christianity (Catholicism)	3	0.8
Christianity (Protestant)	4	1.0
Christianity (Orthodox Church)	0	0.0
Other	3	0.8
No answer	4	1.0

*Advanced Midwife…Midwives certified at Level III of the Proficiency Stage of Midwifery Practice (CLoCMiP).

Comparison of MES-SAC scores by each variable

Table 2 presents the results of the bivariate analysis. The MES-SAC scores were significantly higher for midwives who were not advanced; were not currently engaged in mid-term abortion care; had no experience in perinatal loss care, participating in study groups or self-study, with positive feedback from women, with positive feedback from the woman's partner/family; and were unable to refuse care.

In mid-term abortion care situations, significant positive correlations were found between the MES-SAC scores and involvement in the decision-making process, care for the woman (regardless of the reason for abortion/unsympathetic reasons for abortion/unsympathetic attitude), care for the fetus (with abnormalities/with or without abnormality/live delivery), support from colleagues and supervisors, midwifery tasks, helping the woman remain positive, confidence, and improving skills. Conversely, a significant negative correlation was found between the MES-SAC scores and challenges in working with doctors.

Investigation of MES-SAC reliability

Cronbach's alpha coefficients for the MES-SAC were .905 for the overall scale and, for the subscales, .817, .838, .852, .864, .716, and .732 for Factors I, II, III, IV, V, and VI, respectively.

Multiple regression analysis with MES-SAC scores as dependent variable

In the bivariate analysis of the total MES-SAC scale scores, 33 variables had p-values less than 0.2. Spearman's rank correlation coefficients between these 33 items were calculated, and six combinations had correlation coefficients greater than 0.6. Therefore, four of these variables were excluded: years of experience (midwife), experience of positive feedback from partner/family, care for the woman (unsympathetic reasons for abortion), and care for the fetus (with or without abnormality). The remaining 29 items were used as independent variables. All variables had a VIF of less than 10. The Durbin-Watson test (2.24) for the total MES-SAC scale score and Shapiro-Wilk test confirmed the normality of the residuals ($p = 0.809$).

Multiple regression analysis using the forced entry method was performed with MES-SAC scores as the dependent variable (Table 3). MES-SAC scores were significantly associated with length of engagement in mid-term abortion care (<3–10 years) (β= -.135, p<.01), positive feedback experiences from women (β= -.132, p<.001), care for women (unsympathetic attitude) (β= -.274, p<.001), care for the fetus (live delivery) (β= -.154, p<.001), challenges in working with physicians (β= -.111, p<.01), midwifery services (β= -.157, p<.001), self-confidence (β= -.214, p<.001), improvement of technology (β= -.147, p<.001), and views on abortion (abortion is an option) (β= -.11, p<.01). The degree-of-freedom adjusted coefficient of determination was .626 (p<.001), and because the model fit and residuals followed a normal distribution, an interaction term was deemed unnecessary.

Discussions

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The mean MES-SAC scores in this study and a previous study were similar at 75.93 (SD = 15.9) and 75.79 (SD = 14.6; Saito et al., 2022), respectively. Therefore, the average MES-SAC score of Japanese midwives was inferred as approximately 75 points.

Table 2: Bivariate analysis of the MES-SAC scores and each variable. n=385

	n	Correlation analysis† with the MES-SAC		Test for differences in the MES-SAC scores‡§		
		Spearman's ρ	p-value	Mean ± SD	p-value	Multiple comparisons
Basic attribute						
Age					0.131§	
Years of experience (nurse)					0.601§	
Years of experience (midwife)					0.066§	
Midwifery school					0.203§	
Advanced Midwife					0.019‡	
Number of births assisted					0.986§	
Child					0.023§	N.S.
Religion					0.579§	
Personal Background						
Perinatal Loss of Care Experience					0.012‡	
Yes	376			75.6±15.9		
No	9			88.0±10.9		
Relation to infertile women					0.512‡	
Yes	226			75.5±16.2		
No	159			76.6±15.5		
Family and friends who have experienced Perinatal Loss					0.177§	
Yes	237			74.7±15.9		
No	143			77.9±16.0		
No answer	5			77.2±9.0		
Family and friends who have experienced an abortion					0.17§	
Yes	186			75.0±16.1		
No	189			76.5±16.0		
No answer	10			82.6±9.7		
Abortion Care Experience						
Number of assisted early-term abortions					0.017§	"300-1000 >" > "100-300 >"
0	46			78.8±16.9		
1–50 >	212			76.1±14.8		
50–100 >	76			73.8±15.7		
100–300 >	36			70.8±17.7		
300–1000 >	13			88.5±20.2		
≥1000	2			87.5±2.1		
Number of assisted mid-term abortions					0.027§	"1-5 >" > "5-10 >"
1–5 >	111			79.8±15.3		
5–10 >	120			74.0±13.3		
10–20 >	76			75.0±16.3		
20–30 >	33			74.0±13.8		
≥30	45			74.6±22.3		
Status of engagement in mid-term abortion care					0.031‡	
present	306			74.9±15.9		
the past	79			79.9±15.4		
Duration of engagement in mid-term abortion care (year)					0.004§	"1-3 >" > " ≥ 10"
1 >	42			79.8±13.8		
1–3 >	43			82.4±15.1		
3–5 >	52			74.9±15.7		
5–10 >	96			76.4±14.3		
≥10	152			73.1±17.1		

Continuing...

	n	Correlation analysis† with the MES-SAC		Test for differences in the MES-SAC scores‡§		
		Spearman's ρ	p-value	Mean ± SD	p-value	Multiple comparisons
Frequency of Mid-term abortion care responsibilities					0.299§	
More than 4 years interval	25			77.4±16.0		
Once every 2 to 3 years	61			78.1±12.4		
Once a year	92			77.3±16.1		
Once every six months	81			74.9±16.3		
At least once every six months	87			72.7±17.7		
Only one experience in charge	14			80.7±12.0		
Not currently engaged	25			76.0±16.2		
Participation in workshops and self-study on abortion care					<.001‡	
Yes	231			72.8±15.3		
No	154			80.7±15.6		
Experience in caring for teenage women undergoing abortion					0.518‡	
Yes	249			75.5±16.9		
No	136			76.6±13.9		
Experience in caring for women who have undergone repeat abortions					0.193‡	
Yes	202			74.9±16.0		
No	183			77.1±15.7		
Positive feedback experience from women					<.001‡	
Yes	227			71.7±15.6		
No	158			82.0±14.4		
Positive feedback experience from partner/family					<.001‡	
Yes	147			71.4±15.5		
No	238			78.8±15.6		
Mid-term abortion care scene						
Refusal of care					<.001‡	
possible	119			70.3±14.7		
impossible	266			78.5±15.8		
Care of the facility where you work (Multiple answers)						
care for the close to women	127			75.7±14.9	0.634‡	
care for the close fetus	85			73.7±13.1	0.154‡	
care for the close to woman and her fetus	323			75.2±15.9	0.059‡	
administrative care	106			75.9±14.4	0.893‡	
care that "never happened" abortion	3			74.0±6.9	0.78‡	
other	8			68.9±18.8		
do not know	14			87.7±13.7	0.004‡	
Involvement in the decision-making process		0.189	<.001			
closely involved	44			70.8±18.0		
somewhat involved	131			74.1±15.4		
mostly not involved	145			76.6±15.3		
not at all involved	65			81.6±15.2		
Care for women (regardless of reason for abortion)		0.48	<.001			
not at all resistant	34			58.2±15.2		
mostly resistant	102			69.3±12.7		
undecided	42			77.0±13.3		

Continuing...

	n	Correlation analysis† with the MES-SAC		Test for differences in the MES-SAC scores‡§		
		Spearman's ρ	p-value	Mean ± SD	p-value	Multiple comparisons
somewhat resistant	162			80.2±13.7		
very resistant	45			88.0±15.9		
Care for women (unsympathetic reasons for abortion)		0.505	<.001			
not at all resistant	25			58.5±16.6		
mostly resistant	87			66.6±13.3		
undecided	39			76.4±14.1		
somewhat resistant	157			77.9±13.2		
very resistant	77			88.0±13.3		
Care for women (unsympathetic attitude)		0.534	<.001			
not at all resistant	16			55.4±16.5		
mostly resistant	74			65.7±14.4		
undecided	39			75.0±10.9		
somewhat resistant	178			75.7±12.9		
very resistant	78			90.9±12.6		
Care for the fetus (with abnormalities)		0.367	<.001			
not at all resistant	91			65.6±15.8		
mostly resistant	139			76.2±14.4		
undecided	36			81.8±14.3		
somewhat resistant	96			79.2±13.0		
very resistant	23			92.1±14.8		
Care for the fetus (with or without abnormality)		0.375	<.001			
not at all resistant	87			65.5±16.0		
mostly resistant	128			75.8±14.5		
undecided	33			79.2±13.0		
somewhat resistant	110			79.7±13.0		
very resistant	27			91.0±16.6		
Care for the fetus (live delivery)		0.462	<.001			
not at all resistant	15			59.3±15.7		
mostly resistant	32			61.4±14.3		
undecided	35			73.9±13.7		
somewhat resistant	130			71.6±12.5		
very resistant	173			83.7±14.6		
Attitudes in Mid-Term Abortion Care						
Support from colleagues and supervisors		0.196	<.001			
feel very much	79			71.5±17.1		
feel somewhat	188			75.5±15.3		
feel little	94			79.2±15.0		
do not feel it at all	24			80.8±16.9		
Support from friends and family		0.044	0.39			
feel very much	18			69.1±18.0		
feel somewhat	89			75.5±15.0		
feel little	129			76.7±14.7		
do not feel it at all	149			76.3±17.1		
Staffing Challenges		-0.049	0.34			
feel very much	66			77.0±15.7		
feel somewhat	192			76.2±15.5		
feel little	109			75.5±15.5		

Continuing...

	n	Correlation analysis[†] with the MES-SAC		Test for differences in the MES-SAC scores[‡§]		
		Spearman's ρ	p-value	Mean ± SD	p-value	Multiple comparisons
do not feel it at all	18			72.1±22.6		
Challenges in working with physicians		-0.183	<.001			
feel very much	52			79.9±15.0		
feel somewhat	177			78.1±15.1		
feel little	140			72.0±16.1		
do not feel it at all	16			73.3±19.2		
Restrictions on involvement due to work schedule		-0.108	0.03			
feel very much	76			80.1±16.8		
feel somewhat	201			75.2±15.2		
feel little	100			74.3±15.6		
do not feel it at all	8			74.6±23.7		
Thoughts on Mid-Term Abortion Care						
Midwifery services		0.409	<.001			
agree	222			70.9±14.3		
somewhat agree	114			79.5±14.7		
neither agree nor disagree	13			81.8±10.9		
not so much agree	26			93.4±14.2		
disagree	10			94.0±16.7		
Making Women Positive		0.321	<.001			
agree	57			69.0±18.0		
somewhat agree	145			72.4±13.0		
neither agree nor disagree	53			78.6±16.4		
not so much agree	97			79.9±15.3		
disagree	33			87.5±15.3		
Self-confidence		0.428	<.001			
agree	7			51.9±15.5		
somewhat agree	50			63.0±15.8		
neither agree nor disagree	46			71.3±14.9		
not so much agree	132			75.6±13.0		
disagree	150			83.1±14.3		
Improvement of Technology		0.376	<.001			
agree	109			68.9±15.3		
somewhat agree	128			74.5±12.3		
neither agree nor disagree	48			75.4±14.3		
not so much agree	60			82.2±18.0		
disagree	40			91.1±13.1		
Views on abortion					<.001[§]	"Abortion is not a bad idea", "If anything, abortion is a bad idea", "Neither"> "Abortion is an option" "Abortion is not a bad idea", "If anything, abortion is a bad idea" >"If anything, abortion is an option"
Abortion is a bad idea	14			86.6±17.5		
If anything, abortion is a bad idea	73			84.0±14.7		
Neither	82			77.6±16.1		
If anything, abortion is an option	140			73.8±13.7		
Abortion is an option	76			68.3±15.9		

[†]Spearman's rank correlation coefficient.
[‡]Mann-Whitney's U test.
[§]Kruskal-Wallis test; multiple comparisons are made using the Dunn-Bonferroni method when there is a significant difference at p<.05.

Table 3: Multiple regression analysis with MES-SAC as dependent variable. n=385

Independent variable		MES-SAC		VIF
		β	*p*	
Age[a]		.018	.721	2.502
Advanced Midwife[b]		-.025	.505	1.486
Child[c]	one or two	.064	.103	1.551
	3 or more	.027	.476	1.489
Perinatal Loss of Care Experience[d]		-.041	.238	1.241
Family and friends who have experienced Perinatal Loss [e]		-.045	.192	1.222
Family and friends who have experienced an abortion[e]		-.010	.771	1.203
Number of assisted early-term abortions[f]	1–300 >	-.066	.083	1.487
	≥ 300	.041	.287	1.546
Number of assisted mid-term abortions[g]	5–10 >	.014	.739	1.862
	≥10	.026	.605	2.548
Status of engagement in mid-term abortion care[h]		.016	.669	1.509
Duration of engagement in mid-term abortion care[i]	3–10 >	-.135	.007**	2.539
	≥10	-.120	.052	3.854
Participation in workshops and self-study on abortion care[d]		-.041	.256	1.352
Experience in caring for women who have undergone repeat abortions[d]		.045	.195	1.209
Positive feedback experience from women[d]		-.132	<.001***	1.462
Refusal of care [j]		-.073	.034	1.202
Care of the facility where you work : Care for the close fetus[d]		.024	.473	1.128
Care of the facility where you work : Care for the close to woman and her fetus[d]		.047	.182	1.292
Involvement in the decision-making process[k]		.030	.393	1.272
Care for women (regardless of reason for abortion)[l]		.027	.514	1.792
Care for women (unsympathetic attitude)[l]		.274	<.001***	1.592
Care for the fetus (with abnormalities)[l]		.073	.052	1.421
Care for the fetus (live delivery)[l]		.154	<.001***	1.505
Support from colleagues and supervisors[m]		-.034	.339	1.298
Challenges in working with physicians[m]		-.111	.004**	1.472
Restrictions on involvement due to work schedule[m]		-.013	.738	1.543
Midwifery services[n]		.157	<.001***	1.553
Making Women Positive[n]		.008	.828	1.499
Self-confidence[n]		.214	<.001***	1.506
Improvement of Technology[n]		.147	<.001***	1.719
Views on abortion[o]	Abortion is a bad idea	.058	.168	1.792
	Abortion is an option	-.110	.008**	1.723
	R2	.659***		
	Adjusted R2	.626***		

forced entry method β = standard partial regression coefficient, VIF = Variance Inflation Factor
*p<.05 **p<.01 ***p<.001 Durbin-Watson = 2.243
"a: 20–29 years old = 1, 30–39 years old = 2, 40–49 years old = 3, 50–59 years old = 4, 60 years old and older = 5
b: No = 0, Yes = 1 c: No or do not respond = 0 (reference category), Yes (1 person) or Yes (2 persons) = 1, Yes (3 or more persons) = 2
d: None = 0, Yes = 1 e: not present or not responding = 0, present = 1
f: 0 cases = 0 (reference category), 1–50 cases, 50–100 cases, 100–300 cases = 1, 30–1000 cases, more than 1000 cases = 2
g: 1 to less than 5 = 0 (reference category), 5 to less than 10 = 1, 10 to less than 20, 20 to less than 30, 30 or more = 2
h: No (had been done in the past) = 0, Yes = 1
i: less than 1 year and 1-3 years = 0 (reference category), 3-5 years and 5-10 years = 1, more than 10 years = 2 j: Cannot = 0, Can = 1
k: closely involved = 1, somewhat involved = 2, little involved = 3, not involved at all = 4
l: No resistance at all = 0, little resistance = 1, undecided = 3, somewhat resistant = 4, very resistant = 5
m: very much = 1, somewhat = 2, little = 3, not at all = 4 n: agree = 1, somewhat agree = 2, undecided = 3, not so much agree = 4, disagree = 5
o: Abortion is not good because it is an act that takes the life of the fetus; If anything, abortion is not good because it takes the life of the fetus = 0; neither = 1 (reference category); If anything, a woman has the right not to give birth and abortion is an option; women have the right not to give birth and abortion is an option = 2"

Factor IV ("negative perception of care") had the highest item mean, followed by Factor V ("self-evaluation of care techniques"). Previous studies have demonstrated that many Japanese midwives find abortion care painful [26], some do not accept abortion care as a job [22], and some view it as being complicit in taking a life [27]. Furthermore, in Japan, the tendency to view abortion as evil persists, and midwives may have internalized these values, leading them to negatively perceive their provision of care. In addition, inadequate basic nursing education regarding abortion care [7,28] and the fact that care is practiced in an undeveloped state without the accumulation of knowledge/techniques through experience [6] were believed to be related to low self-evaluation of care skills. Conversely, the lowest item mean was Factor III ("anger toward women"). Indeed, descriptions of anger toward women were less common in Japan than internationally, with four descriptions in foreign literature and one in domestic literature [25]. This suggests that Japanese midwives' anger toward women was less impactful than other factors.

Factors associated with midwives' emotions in mid-term abortion care

Abortion care experience

Regarding abortion care experience, a significant association was observed between the duration of engagement in mid-term abortion care (<3–10 years) and positive feedback experience from women.

Compared to those who had been engaged in mid-term abortion care for <3 years, those who had been engaged for 3–10 years showed reduced negative affect. However, negative feelings were not necessarily inversely related to length of engagement, as no significant association was observed for those who had been engaged for more than 10 years.

The experience of receiving positive feedback from women has been shown to reduce negative emotions. Several studies have reported the influence of positive feedback from patients/families on job satisfaction and as confirmation of having done a good job [29-30]. Similarly, in this study, receiving positive feedback from women and their families reduced participants' negative feelings generated by mid-term abortion care and led to rewards and role recognition.

Mid-term abortion care scene

In mid-term abortion care situations, a significant association was observed between care for the woman (unsympathetic attitude) and fetus (live delivery).

Care for women with unsympathetic attitudes had the strongest impact on midwives' emotions. It was shown that the more resistance to care for a woman who exhibits unsympathetic attitudes, the more negative emotions increase, which is consistent with previous research [7,12]. It was found that empathy becomes difficult when the patient's behavior conflicts with the nurse's own values [31], which is also true in mid-term abortion situations. Consistent with previous studies, attitudes of women who underwent mid-term abortion were found to affect the midwives' emotions. Literature has reported that abortion causes women to have complex emotions, mainly negative ones [32-34]. Furthermore, midwives predict the expression of attitudes based on these feelings. Conversely, more than 85% of women who have experienced an abortion experience both negative emotions, such as sadness, guilt, regret, disappointment, and grief, and positive emotions, such as relief, happiness, satisfaction, and feeling better after an abortion [35-36]. Therefore, if nurses are unaware that women who undergo abortion have both positive and negative feelings, they may perceive the women's expression of positive feelings as an unsympathetic attitude.

Negative emotions were shown to increase with resistance to care for a fetus delivered alive. In support of this study's results, previous studies have reported that contact with a fetus delivered alive during a mid-term abortion caused negative emotions, such as distress [10,37], anger [38-39], and sadness [7], suggesting that care for a fetus delivered alive is closely related to negative emotions.

Attitudes in mid-term abortion care

A significant association was observed between challenges in working with physicians and attitudes in mid-term abortion care, indicating that the lesser the challenges of working with physicians, the greater the negative feelings were reduced. Negative feelings associated with lack of collaboration with physicians in necessary abortion care situations were only evident in the international literature [40]. The present study's results suggest that, even in Japan, inadequate collaboration with physicians increases negative emotions. Hence, clarifying the nature of the issues experienced by midwives in Japan and considering countermeasures are crucial. Furthermore, strategies, such as knowing the doctor in charge at the start of work and making contact early on when pain begins [40], are necessary to facilitate cooperation with physicians.

Thoughts on mid-term abortion care

There was a significant association between midwifery services, self-confidence, improvements in technology, and views on abortion (abortion is a choice) in terms of thoughts on mid-term abortion care.

The less the mid-term abortion care was considered a midwifery service, the more negative were the feelings. The International Confederation of Midwives specifies abortion care in its competencies specific to preconception and pregnancy care [41]. Conversely, this was not explicitly stated in the Core Competencies for Midwifery Practice 2021, presented by the Japan Midwifery Association [42]. Hence, clarifying the position of abortion care in midwifery education in Japan could reduce negative feelings.

The less the midwives' self-confidence in mid-term abortion care, the more negative their feelings. Lack of confidence among Japanese nurses in abortion care has been reported [10,43]; only 57 (14.8%) midwives in this study were confident. Parajuli et al. [44] report that years of experience is significantly associated with nurses' confidence in providing care, and experience has a significant impact on confidence. Among this study's participants, 60% were midwives who had assisted in fewer than 10 mid-term abortions, suggesting that their lack of experience could have influenced their confidence.

The results indicate that the more one perceived abortion as a choice, the more the negative feelings were reduced. "Views on abortion" was an item that asked about values toward abortion. In the U.S., opposition to abortion is referred to as being pro-life (the life of the fetus is paramount) and pro-abortionists are referred to as being pro-choice (insisting on a woman's right to choose); consequently, debates and conflicts have developed. However, values and attitudes do not necessarily coincide, as pro-life supporters are reported to

often have ambivalent attitudes toward medically necessary abortion, and pro-choice supporters tend to have ambivalent attitudes toward elective abortion [45]. Individual values toward abortion were found to be closely and intricately related to emotions experienced in mid-term abortion care.

Implications for nursing

Midwives' feelings regarding mid-term abortion care were most strongly influenced by their care for women (unsympathetic attitude). Women who undergo abortion sometimes lie and the attitudes expressed are not always based on a woman's true feelings. Therefore, rather than becoming angry at, or questioning, "cheerful or unconcerned women who undergo abortion," it is necessary for midwives to consider the possibility that the women's appearance is not based on their true feelings, and to attempt to understand the true intentions behind their words and actions. Conversely, as many women who undergo abortion experience both negative and positive emotions [35-36], accepting women's emotional reactions of relief and happiness as normal responses is desirable. Therefore, education to ensure midwives correct perceptions of women undergoing abortions may be effective.

Confidence and improved skills also influenced midwives' feelings regarding mid-term abortion care. Although experience has a significant impact on confidence [44], 60% of midwives had assisted in fewer than 10 mid-term abortion deliveries, suggesting that lack of experience also had an impact. According to Kukinaka et al. [46], despite experience in providing nursing care (to patients), if there is insufficient reflection and evaluation of the care provided, the nurses might develop fear and lose confidence in engaging with the patient. Furthermore, Koyama et al. [47] pointed out that a lack of positive dialogue regarding care among nurses leads to a sense of burden and lack of confidence in care. Therefore, debriefing [48] can be useful in understanding one's feelings and experiences and gaining knowledge that could be used in subsequent situations. In this context, the MES-SAC can be useful. Additionally, conducting case conferences in an atmosphere where participants feel comfortable expressing their feelings and discussing the meaning of negative and positive emotions could reduce the burden of mid-term abortion care and help participants gain confidence. Furthermore, more than half of the midwives (61.5%) wanted to improve their mid-term abortion care skills. To this end, appropriate educational programs are required to respond to midwives' motivations.

Limitations

Many midwives interested in the research topic may have participated in the survey. As all items in the questionnaire required answers, it is assumed that those who were averse to mid-term abortion care were not included. Additionally, because this was a cross-sectional study, causal relationships between emotions and related factors could not be determined. Future empirical research on changes in emotions and the causal relationship between emotions and related factors should be conducted through longitudinal studies.

Conclusion

The MES-SAC was used to identify midwives' emotional reality and the factors related to mid-term abortion care. In mid-term abortion care, midwives had strong negative perception about their care and felt that their own care skills were inadequate. The MES-SAC score was positively associated with care for the woman (unsympathetic attitude), care for the fetus (live delivery), midwifery services, self-confidence, and improved technology. Conversely, it was negatively associated with length of engagement in mid-term abortion care (<3-10 years), positive feedback experiences from women, challenges in working with physicians, and views on abortion (abortion is an option). Education for midwives to gain a correct understanding of women undergoing abortion, debriefing to understand their own care and feelings, and participation in case conferences in which participants feel comfortable expressing their feelings are important for reducing negative emotions in mid-term abortion care.

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Competing Interests

The authors declare no competing interests relevant to this article.

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