

# Influences of Multimedia Health Education on Constipation and Negative Emotions in Puerperas

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## ABSTRACT

**Background:** The aim of the study was to study the influences of multimedia health education on constipation and negative emotions in puerperas. **Methods:** Two hundred and eighty cases puerperas of Shijiazhuang Fourth Hospital were selected, from March 2019 to October 2019, and randomly divided into control group and observation group for 140 cases of each group, respectively. Control group was given the basic conventional nursing, including guiding the diet, drinking, and other conventional nursing. Observation group was performed the basis of conventional nursing combined with multimedia health education, including psychological nursing, abdomen and acupoint massage, and exercise guidance. The dynamic states of constipation rate, squat toilet time, shit shape, empty feeling, the difficulty degree of defecation, and self-rating anxiety scale (SAS), self-rating depression scale (SDS), and comfortable state were recorded on the days of 3, 10, 20, and 30 after childbirth. **Results:** There was obviously difference in constipation and negative emotions on the days of 3, 10, 20, and 30 of childbirth between the two groups. Compared with control group, the constipation rate, squat toilet, granular shit, empty feeling, the difficulty degree of defecation, SAS, and SDS in observation group were significantly decreased ( $P < 0.05$ ,  $P < 0.01$ ), and comfortable state was significantly increased ( $P < 0.01$ ). **Conclusion:** The multimedia health education can lower the occurrence of constipation and alleviate negative emotions for puerperal after childbirth and is advantaged of recovering the maternal body, which provided a proof that the multimedia health education is worthy of promotion and application in clinic.

**Key words:** Multimedia health education, constipation states, negative emotion

## INTRODUCTION

Constipation is the less shit defecation, the shit dry knot and cacation difficulties.<sup>[1]</sup> The puerperas appear cacation difficulties and high constipation rate as the decline of pelvic floor muscles tension resulted from childbirth.<sup>[2]</sup> In addition, the childbirth resulted in a lot of blood loss, the qi-blood insufficiency, the exercise lack and eating the high quantity, and less fiber food also to aggravate the occurrence of constipation.<sup>[3]</sup> It is reported that the constipation rate reached to 40% following the 1 month

of postpartum puerpera by natural delivery and to arrive the peak of 2 ~ 5 days for postpartum.<sup>[4]</sup> Constipation can result in maternal abdominal distension, appetite loss, sleep disorder, decreased comfort, rectocele, hemorrhoids, and other anorectal disease, which maybe affect maternal body recovery and breastfeeding.<sup>[5]</sup> Then, the effective preventing postnatal constipation is more important for protecting the mother and child health and recovering the maternal body.

There are many ways to intervene the postnatal constipation in clinic, such as oral the lactobacillus, massage the

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acupuncture point, soak the foot using Chinese medicine, and other methods, which have been gotten beneficial effect.<sup>[6]</sup> Along with the development and application of multimedia, whether the multimedia health education can reduce maternal postpartum constipation stats, anxiety, depression, and raise maternal comfortable stat was not reported. The aim of this study is to evaluate the dynamic states of constipation, anxiety, depression, and comfort between the two groups given basic conventional nursing or multimedia health education, which accumulated data for widespread application of multimedia health education in clinical nursing.

## GENERAL DATA AND INTERVENTION METHOD

### General Data

Two hundred and eighty cases of pregnancy women were selected from January 2019 to December 2020 in Shijiazhuang Fourth Hospital and randomly divided into control group and observation group, with 140 cases of each group. The diagnosis standard was performed based on "The New Standard of Constipation and The Diagnosis and Treatment of Constipation Disease Symptoms."

### Inclusion Criteria

(1) The smooth delivery of primiparas, (2) antenatal examination without organic disease, especially exclude the digestive system disease, (3) the puerperas and their relatives signature an informed consent letter and approved by the Medical Ethics Committee were included in the study.

### Exclusion Criteria

(1) The puerperas with hemorrhoids, rectal stenosis, outlet obstructed constipation, rectal mucosa prolapse, and habitual constipation, (2) the puerperas with serious heart, liver, kidney, and lung disease, (3) the puerperas with mental disease and poor adherence, (4) the puerperas with malignant tumor, blood system disease, endocrine disease, and immune system disease were excluded from the study.

Pregnant woman in control group were 22~36 years old, average  $26.9 \pm 3.7$  years old, pregnant period 37~41 weeks, and average  $38.31 \pm 1.33$  weeks. The partial type included primipara 95 cases and multipara 45 cases. The way of children given birth was natural birth 64 cases and cesarean 76 cases.

Pregnant woman in observation group were 22~35 years old, average  $28.18 \pm 3.29$  years, pregnancy period 37~41 weeks, and average  $38.62 \pm 1.45$  weeks. The partial type included primipara 98 cases and multipara 42 cases. The way of children given birth was natural birth 65 cases and cesarean 75 cases.

The maternal age, pregnancy period, maternal type, and children given birth between two groups have no statistically significant difference ( $P > 0.05$ ).

## INTERVENTION METHODS

### Intervention for Control Group

The puerperas in control group were given basic conventional nursing, including the comfortable rest environment, 18~22°C of the room temperature, and 50~60% of humidity. The wards were ventilated 2 times a day and 30 min every time. The perineum of puerperas need be scrubbed 2 times a day for preventing infection. The uterus was closely observed over 24 h after delivery and immediately inform to doctors as any problem. The puerperas were prioritized asked the diet and nutrition guidance, half or all of liquid food for the 1<sup>st</sup> time, and then eating the original food, paying attention to the balanced diet, with high protein, high vitamin, and low fat and iron food. The puerperas also need have reasonable fruit, more meals a day but less food at each; avoid spicy food, smoking, and drinking. The puerperas need to drink 1500~2000 ml water of a day and provide guidance after discharge.

### Intervention for Observation Group

The puerperas in observation group were given the basic conventional nursing and accompanied by multimedia health education. The multimedia health education group was formed of physicians, nurse-in-charge, nurses, midwives, and other staffs. The head nurse is the group leader. All the members in the group were together to discuss the contents of multimedia health education, including recovery environment, diet, and preventing infection for puerperas, especially setting out the nursing rules for constipation of puerperas. (1) The psychological nursing: The cesarean and vaginal puerperas with introitus of sides cut or tear would not like defecation due to scare the wound pain, which maybe result in the postnatal constipation. This constipation can cause the anxiety and depression. At this time, the medical staffs should actively communicate with puerperas and tell them the importance of regular defecation, comfort, and encourage them to overcome the fear, relieve the anxiety and depression and avoid the negative emotions to affect the autonomic nervous system, and aggravate the constipation. (2) The abdominal acupoint massage nursing: The puerperas was asked to lie on the bed. The nurses hand fingers overlap with merge and massage along the transverse colon, descending colon, sigmoid colon, and rectum by clockwise for 10 min, 3 times a day, and began of postpartum. The acupoint massage is that the thumb aims the Shenque acupoint, Tianshu acupoint, and Qihai acupoint to malaxate. The soreness and numbness of puerperas felt were suitable with 2 min a time, 3 times a day and began of childbirth. (3) The exercise guide nursing: The natural childbirth puerperas may turn over on the 3 h after childbirth. They can move indoors if their body is allowed on the day of childbirth. The cesarean puerperas were allowed

move indoors after 24 h childbirth. Meanwhile, the nurses guide puerperas to do Kegel exercises. The puerperas lied on their back on the bed, continuously stretched and bended their two knees, and relaxed the pelvic floor muscle for 10 s, 15 s each group, two groups a day. The aim is to ameliorate the blood circulation of maternal anus. The above of health education content was made multimedia videos with soft music, voice, and person show combined with animation if related to privacy. The multimedia video display was hanged over the wall of ward and the puerperas can directly watch by lying the bed. The video was regularly played at clock 10 in the morning and 15 in the afternoon a day, and also showed at any time if the puerperas asked. The nurses have a comprehensive guidance and explanations when the video was played for the 1<sup>st</sup> time and individual guidance for problems when repeating play, the aim of which is to strengthen the interaction. Simultaneously, this video can also be pushed by WeChat, qq and other media to puerperas, and follow-up 1 month discharge the hospital for puerperas.

**Observation Indicators**

The constipation dynamic states of puerperas were recorded on the day 3, 10, 20, and 30 of childbirth, including constipation rate, squat toilet time, and shit shape after the puerperas were received multimedia health education. The empty feeling and the difficulty degree of defecation were evaluated with score table designed by self-department, with score set 0–4 points. The 0 was regarded as normal, 1 was mild, 2 were medium, 3 were heavy, and 4 were very severely. The higher score was designed the worse of empty feeling and the more difficult of defecation. The self-rating anxiety scale (SAS) and self-rating depression scale (SDS) were used to evaluate the puerperas' psychological states, and the Kolcaba comfortable table was used to assess the comfortable state. The score was ordered 100, the higher score was regarded the more severely anxiety, depression, and the higher comfortable state. The nurse recorded these data during one's hospitalization. The puerperas consciously accepted the multimedia health education by QQ or WeChat after discharge and recorded their constipation, SAS, SDS and comfortable states, and provided to nurse by the telephone follow-up.

**Statistical Analysis**

The experimental data are expressed as mean ± SD and were analyzed using Statistical Software SPSS 19.0. T-test was used to analyze the group differences in the data from the all experiments. *P* < 0.05 was considered to be statistically significant.

**Table 1:** The dynamic observation of multimedia health education on constipation rate (*n*=140)

Group	d 3	d 10	d 20	d 30
Control group	67.86%	61.43%	54.29%	46.43%
Observation group	59.29%	45.71%	27.14%	14.29%

\**P*<0.05, \*\**P*<0.01, Compared with control group.

**RESULTS**

**The Dynamic Observation of Multimedia Health Education on Constipation States**

**The dynamic observation of multimedia health education on constipation rate**

Table 1 shows that, in the following 30 days dynamic observation trial, the constipation rate in both of groups was gradually reduced along with the time of childbirth. On the days 3, 10, 20, and 30 of childbirth, the number of constipation was 95, 86, 76, and 65 in control group, and 83, 64, 38, and 20 in observation group. Compared with control group, the constipation rate lowered 8.57% (d 3, *P* > 0.05), 15.72% (d 10, *P* < 0.05), 27.15% (d 20, *P* < 0.01), and 32.14% (d 30, *P* < 0.01), respectively, in observation group. The results have statistically significant on the day 10, 20, and 30 of childbirth.

**The Dynamic Observation of Multimedia Health Education on Squat Toilet Time**

Table 2 shows that, in the following 30 days dynamic observation trial, the squat toilet time in both of groups was gradually shortened along with the time of childbirth. The squat toilet time in observation groups decreased 34.72% (*P* < 0.01), 37.44% (*P* < 0.01), 36.32% (*P* < 0.01), and 55.94% (*P* < 0.01) on the days 3, 10, 20, and 30 of childbirth, as compared with control group. All these results have statistically significant on the days 3, 10, 20, and 30 of childbirth between observation groups and control group.

**The Dynamic Observation of Multimedia Health Education on Shit Shape**

Table 3 shows that, in the following 30 days dynamic observation trial, the shit of hard chestnut shape was gradually decreased and soft cylinder shape was gradually increased along with the time of childbirth. Compared with control, the number of hard chestnut shit lowered 12.63%, 25.58%, 50%, and 69.23%, and soft cylinder shit raised 0.63, 0.41, 0.59, and 0.60 folds, respectively, at the days of 3, 10, 20, and 30 after childbirth in observation group.

**The Dynamic Observation of Multimedia Health Education on Empty Feeling**

Table 4 shows that, in the following 30 days dynamic observation trial, the score of empty feeling was gradually decreased along with the time of childbirth. The score of empty feeling in observation group attenuated 36.08% (d 3, *P* < 0.01), 56.69% (d 10, *P* < 0.01), 60.21% (d 20, *P* < 0.01), and 61.91% (d 30, *P* < 0.01), respectively, as compared with control group.

**The Dynamic Observation of Multimedia Health Education on the Difficulty Degree of Defecation**

Table 5 shows that, in the following 30 days dynamic observation trial, the score of difficulty degree of defecation

**Table 2:** The dynamic observation of multimedia health education on squat toilet time ( $\bar{x}\pm SD/\text{min}$ ,  $n=140$ )

Group	d 3	d 10	d 20	d 30
Control group	13.22±2.54	10.47±4.15	7.49±2.38	4.88±1.34
Observation group	8.63±2.32**	6.55±2.46**	4.77±2.32**	2.15±0.24**

\*\* $P < 0.01$ , Compared with control group.

**Table 3:** The dynamic observation of multimedia health education on shit shape ( $n=140$ , case)

Group	shit shape	d 3	d 10	d 20	d 30
Control group	hard chestnut shape	95	86	76	65
	soft cylinder	35	54	64	75
Observation group	hard chestnut shape	83	64	38	20
	soft cylinder	57	76	102	120

was gradually decreased along with the time of childbirth. There were 36.09% (d 3,  $P < 0.01$ ), 54.92% (d 10,  $P < 0.01$ ), 63.05% (d 20,  $P < 0.01$ ), and 70.34% (d 30,  $P < 0.01$ ) lower in observation group than those of in control group.

### The Dynamic Observation of Multimedia Health Education on SAS

Table 6 shows that, in the following 30 days dynamic observation trial, the score of SAS was gradually decreased along with the time of childbirth. There were 27.00% (d 3,  $P < 0.05$ ), 30.63% (d 10,  $P < 0.01$ ), 43.99% (d 20,  $P < 0.01$ ), and 75.38% (d 30,  $P < 0.01$ ) higher in observation group than those of in control group.

### The Dynamic Observation of Multimedia Health Education on SDS

Table 7 shows that, in the following 30 days dynamic observation trial, the score of SDS was gradually decreased along with the time of childbirth. The score of SDS in observation group lowered 15.28% (d 3,  $P > 0.05$ ), 28.54% (d 10,  $P < 0.05$ ), 50.21% (d 20,  $P < 0.01$ ), and 83.37% (d 30,  $P < 0.01$ ), respectively, as compared with control group.

### The Dynamic Observation of Multimedia Health Education on Comfortable State Score

Table 8 shows that, in the following 30 days dynamic observation trial, the score of comfortable state was gradually increased along with the time of childbirth. The increase in observation group was dramatically higher than those of in control group. Compared with control group, the score of comfortable state increased 45.83% (d 3,  $P < 0.01$ ), 41.05% (d 10,  $P < 0.01$ ), 33.23% (d 20,  $P < 0.05$ ), and 11.06% (d 30,  $P > 0.05$ ) in observation group.

## DISCUSSION

It is well known that the childbirth is women's nature and the postpartum constipation is one of the common complications after childbirth. So-called as the constipation is that the shit stayed in intestine too long, resulting in the constipation chestnut, defecating time enlarger, or difficulty even if having desire of defecation.

The main reasons of postpartum constipation resulted from that the first reason is derive from the reduced tension of abdominal muscle and pelvic floor muscle as childbirth, which result in the pelvic floor function declined, the colon down-transfer function loss, the shit stay in colon, discharge difficulty, and finally, cause the constipation the postpartum constipation for puerperas. The second reason is that the hormone level change of puerperas after childbirth, which causes the disturbance of vegetative nerve functional, the reduced volume of gastric acid secreted, the decreased regulating function of stomach and intestine, and the increased absorption of intestinal water, finally, the decreased water in shit may result in the postpartum constipation for puerperas. The third reason is that the puerperas loss massive body fluid as childbirth massive bleeding, sweating, and lactation. This lost body fluid does not immediately supplement and causes the less water in intestinal tract. Then, the shit is dryness accumulation and results in the constipation the postpartum constipation for puerperas. The fourth reason is that the postpartum stress is higher, especially the highest mental tension, anxiety, and unhappy emotion in primiparas have severely affects the gastrointestinal function and induces the constipation. The fifth reason is that the diet intake is fine and the rude fiber food intake is less. Then, the gastroenteric movement is lowered and induces the constipation.<sup>[7-10]</sup> In addition, the puerperas are fear of wound pain due to cesarean or vaginal lateral incision, to delay defecation, which aggravate the occurrence of constipation. Regarding these above constipation factors, strengthening the postpartum nursing can effectively reduce the occurrence of constipation state and related to negative emotions.

The idea of traditional Chinese medicine is that the dual deficiency of Qi and blood, and body fluid consumption after childbirth. The movement of *intestinum crassum* is forceless, the insufficiency of liquid and blood cannot moisten the intestines, which cause the disturbance in gastrointestinal inward and outward movement and transformation,

**Table 4:** The dynamic observation of multimedia health education on empty feeling (x±SD, n=140)

Group	d 3	d 10	d 20	d 30
Control group	3.52±1.12	2.84±0.21	1.91±0.13	1.05±0.15
Observation group	2.25±0.21**	1.23±0.13**	0.76±0.31**	0.40±0.03**

\*\*P<0.01, Compared with control group

**Table 5:** The dynamic observation of multimedia health education on the difficulty degree of defecation (x±SD, n=140)

Group	d 3	d 10	d 20	d 30
Control group	3.63±1.02	2.95±0.22	2.14±0.17	1.18±0.11
Observation group	2.32±0.25**	1.33±0.15**	0.79±0.21**	0.35±0.12**

\*\*P<0.01, Compared with control group

**Table 6:** The dynamic observation of multimedia health education on SAS (x±SD, n=140)

Group	d 3	d 10	d 20	d 30
Control group	80.23±8.65	51.22±7.44	35.58±5.26	21.49±4.21
Observation group	58.57±6.89*	35.53±4.11**	19.93±3.41**	5.29±0.84**

\*P<0.05, \*\*P<0.01, Compared with control group

**Table 7:** The dynamic observation of multimedia health education on SDS (x±SD, n=140)

Group	d 3	d 10	d 20	d 30
Control group	31.21±3.45	20.88±1.99	11.69±1.54	5.11±0.23
Observation group	26.44±2.31	14.92±1.35*	5.82±0.56**	0.85±0.09**

\*P<0.05, \*\*P<0.01, Compared with control group

**Table 8:** The dynamic observation of multimedia health education on comfortable state (x±SD, n=140)

Group	d 3	d 10	d 20	d 30
Control group	49.98±3.55	60.24±4.79	69.14±4.55	90.04±7.11
Observation group	72.89±5.87**	84.97±6.84**	92.12±7.43**	100.00±0.00

\*\*P<0.01, Compared with control group

conduction dysfunction, and finally the constipation states will appear.<sup>[11]</sup> The constipation states maybe remedy by massage of abdominal Shenque, Tianshu, Qihai, and other acupoints, which is derived from that the massage can adjust the qi and blood, rectify the spleen and stomach and restore the gastrointestinal conduction function. It is reported that Shenque acupoint, the named navel in Western medicine, is the roots of the five visceral and six bowels, is place of thoroughfare and controlling vessels patrolled, the bases of the original Qi. Shenque acupoint is also the place of nature-nurture interflowed. The massage of abdominal Shenque acupoint can motivate the body channel of Qi, prompt the flowing of bowels and viscera of Qi, bring the true Qi filling to body, and advance the relax of the body and prolong of the life-span.<sup>[12]</sup> Tianshu acupoint is another abdominal acupoint, which is placed at side of navel and regarded as the end of the human. Tianshu, the reason that is the name Tianshu, is because of passing there of the Qi of body, the

communication of up and down and the lift ups and downs. In addition, Tianshu is the alarm acupoint of intestinum crassum and the place of Yang and Ming vessel started, which is mainly responsible for coursing and regulating the intestines, rectifying Qi and moving stagnation, and dispersing food. Tianshu acupoint is the vital acupoint of abdomen. Massaging the Tianshu acupoint can ameliorate intestins function and exerts wonders for constipation and related to symptom.<sup>[13]</sup>

Qihai acupoint is vital point for supplementing Qi. The Qihai is a filling Qi that the moisture and Qi in controlling vessel gasifies and scatters as absorption of heat, which is the same as the ocean of Qi, then, it is named as Qihai. Massaging the Qihai acupoint can warm Yang and boost Qi, support right and secure the root, moisten the bowels and viscera, prompt the gastrointestinal peristalsis, and finally alleviate the constipation and related to symptom.<sup>[14]</sup>

The present study found that the constipation rate, squat toilet time, shit shape, empty feeling, the difficulty degree of defecation, SAS, SDS, and comfortable state in puerperas received the massage of Shenque, Tianshu, and Qihai acupoint following with multimedia health education nursing, were significantly advantage over the puerperas received with conventional nursing. These results demonstrated that the abdominal massage nursing is beneficial to gastrointestinal function; relieve the constipation states and negative emotion. In addition, puerperas received the moving guidance and taking Kegel exercises, is helpful to the pelvic relaxation, promote anus blood circulation, and gastrointestinal peristalsis, which is beneficial to relieving constipation and negative feelings.

In summary, in the present studies, the basic conventional nursing combined with multimedia health education have markedly improved constipation states and negative emotion for puerperas after childbirth. The results indicated that the conventional nursing combined with multimedia health education for the postpartum puerperas has obtained the good nursing effects, improved the constipation states and negative feelings, raised the life quality and took low cost, which suggested that this nursing way is feasible, effective, safe, and worthy of promotion and application in clinic.

## DECLARATION OF COMPETING INTEREST

The authors declare that they have no competing interests regarding this manuscript.

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