

Texting at a Child Helpline: How Text Volume, Session Length and Duration, Response Latency, and Waiting Time Are Associated with Counseling Impact

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Abstract

This study investigated the association between formal features, such as text volume, session length and duration, response latency, and waiting time, and the impact of counseling. The analysis was based on 603 text message counseling sessions at a child helpline and connected information about the formal features of the sessions and the effects on clients. The results showed that sessions characterized by more text volume from the counselor in each message, but with fewer messages from beginning to end, were more effective than sessions without these characteristics. Furthermore, session duration was associated with a positive impact, whereas counselor response latency was not. This indicates that clients might benefit from the asynchronous affordance of texting as long as the counselor responds promptly and with dense messages. We also found that the impact measured at end of session predicted the impact measured 2 weeks after the child or young person received counseling.

Keywords: child helpline, counseling impact, SMS counseling, text messaging counseling, mediated communication in counseling

Introduction

CHILD HELPLINES USE technology to provide young people with confidential access to someone who listens and an opportunity to be heard¹; in addition, they offer a safe, confidential, and accessible reporting mechanism for children suffering from violence and abuse.² In 2016, there were more than 24 million instances of contact between child helplines and young people globally³; this included more than half a million counseling sessions via SMS, which is this the second most common method (after telephone counseling) for providing children with help.³ However, despite its growing importance, the influence of the SMS service format on children's experience of the helplines is unknown.

This study examined the formal features⁴ of dialogue-based, human-handled, text message counseling and explored the importance of these characteristics to counseling impact, measured as the client's experience of being heard, changes in well-being, and empowerment in line with previous research exploring child helplines.⁵⁻⁸

Formal features of text message counseling

While research has focused primarily on automated text services,⁹ dialogue-based counseling through text messages within the helpline context remains virtually unexplored. Therefore, our literature review was based on research in the context of chat and telephone counseling, which resemble text message counseling in that they are all mediated and dialogue-based and can be provided in an anonymous manner. Chat and text message counseling also share the characteristic of being text-based. However, while telephone and synchronous chat counseling require the client and counselor to be in front of their computers or tablets or on the phone at the same time, text message communication does not require the presence.¹⁰⁻¹⁴ This creates a different affordance for elements such as session length and text mass.

Texting has the possibility of being both (almost) synchronous and asynchronous.¹⁵ Because of this, certain concepts, such as time, pauses, and waiting, are particularly interesting variables. We refer to these concepts as the formal features of texting.

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Counselor response length. Response length was defined as the average number of characters sent by the counselor per message within a session (many messages had typing errors, such as missing or added spaces, which made automatic word counting less precise than counting characters). Through text, the counselor can actively show the child that he or she has listened and understands.¹⁶ Therefore, we expected longer messages to be associated with a positive impact on children.

Counselor response latency. Communicating in writing is much slower than oral conversations, even when synchronous.^{6,7,13,14,17–20} This creates inevitable response latencies²¹ as children spend time putting thoughts into writing and again when counselors do the same. While both counselors and children have mentioned that having time to write and edit one's thoughts is an advantage of text-based counseling,^{4,13,14,17} it might not have the same positive effect when waiting for a reply. Suler¹⁴ suggested that an advantage of synchronous therapy is the therapist's effort to be with the client in real time as a sign of commitment and dedication, which creates the experience of presence.²² Latency on the counselor's side might be interpreted by the child as lacking this characteristic.

Waiting time. We know from studies of service quality that waiting time can result in negative responses, such as boredom, irritation, anxiety, tension, and helplessness.^{22–24} We expect this negative response to waiting to be particularly strong when experienced by a help-seeking child.

Session duration. Fukkink and Hermanns⁶ suggested that, for child helpline chat and telephone services, session

duration may be positively associated with increased well-being. However, a recent study on chat counseling at a child helpline showed a negative relationship between changes in well-being and session duration on children seeking emotional support, presumably because of exposure to negative emotions for too long and a lack of capacity to process the session.²⁵ Texting enables children to reflect and respond when convenient, and not having to cope with counselors' immediate reactions might be considered positive by children writing about emotional and personal issues.¹⁴ The asynchronicity of texting makes it possible for children to have increased power over the pace of the sessions, resulting in longer sessions.

Session length. While time might challenge children's cognitive capacity in synchronous counseling, in asynchronous counseling, the session length, measured as the total number of messages exchanged, might be the important variable. We identified only one study that assessed the effects of session length measured as the number of messages (or "turns").²⁶ In this study of a peer counseling chat service, a positive relationship was found between length and rated quality.²⁶ A possible strength of text counseling (as opposed to synchronous chat) is that children will have the dialogue present on their mobile phones after a session has ended and can return to and reread it. Sessions with fewer messages might provide children with a better overview of the counseling process compared with long threads.

In summary, we hypothesized that counseling impact would be positively associated with longer but fewer messages from counselors, longer session duration, and shorter response latency and waiting time (Fig. 1):

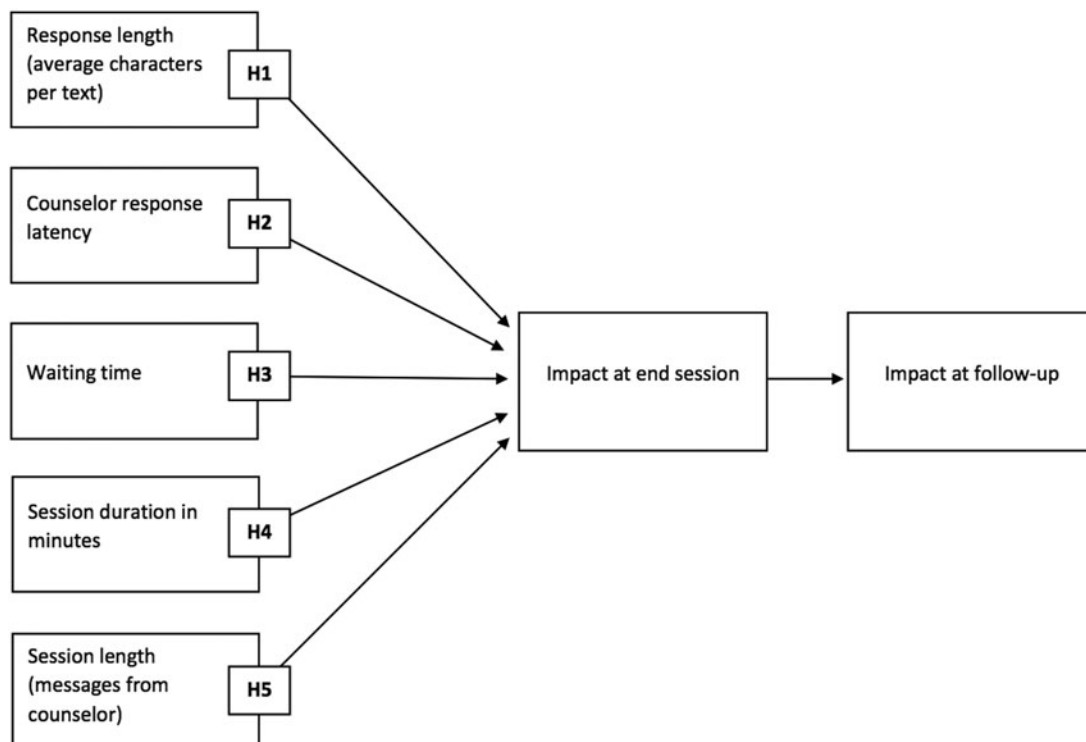


FIG. 1. Conceptual model.

H1: Longer counselor responses will be associated with positive counseling impact.

H2: Shorter counselor response latency will be associated with positive counseling impact.

H3: Shorter waiting time before the session will be associated with positive counseling impact.

H4: Longer session duration will be associated with positive counseling impact.

H5: A lower number of messages from the counselor (session length) will be associated with positive counseling impact.

Materials and Methods

The Danish child helpline

The data were collected at the Danish child helpline, *BørneTelefonen*, which responds to people younger than 23 years. The helpline is accessible online and through the common European child helpline number 116 111 and is open 365 days a year from 11:00 a.m. until 2:00 a.m. It is staffed by 450 trained volunteers, all with professional backgrounds in child work. Children contact the helpline with a variety of issues (Table 1).

Sample

Data were collected between June 14, 2015, and June 14, 2016. During this period, all youths using the texting service,

where a counselor had ended the session, were presented with an automated text with a link to an online questionnaire. The present study included all sessions ($N=603$) with children who completed the End-Session Questionnaire (EQ) and the Followup Questionnaire (FQ) 2 weeks after receiving counseling. The FQ was sent only to children who provided active consent in the EQ.

Sample characteristics were compared with the characteristics of all sessions (Table 1). A goodness-of-fit chi-squared test revealed that our participants were significantly younger [$\chi^2(3)=20.98, p<0.001$] compared with the population, and we found an overrepresentation of sessions concerning family relationships and an underrepresentation of sessions about body issues, health, sex, and sexuality [$\chi^2(8)=24.37, p<0.01$]. We did not observe significant differences according to sex or experience of using the helpline.

Data Sets and Instruments

The data set consisted of client-descriptive variables, formal features of the sessions, and clients' survey responses. Data sets were merged via a unique user ID for each session, making it possible to collect and merge the data without compromising the client's anonymity. The counselor records, completed after each session, provided information about the clients' sex, age, and reasons for contact. The child helpline's text counseling system provided information on waiting time, latency time, text volume, and session time (Table 2).

TABLE 1. DESCRIPTIVE STATISTICS AND PARTICIPANTS

	Included (N=603)		All sessions (N=6,060)		χ^2
	n	%	n	%	
Sex					2.96
Boy	58	9.6	718	11.8	
Girl	543	90.0	5,326	87.9	
Unknown	2	0.3	16	0.3	
Age, years					20.98***
9–12	237	39.3	1,564	26.2	
13–14	198	33.1	1,945	32.5	
15–17	139	23.2	1,993	33.3	
18 +	24	4.0	478	8.0	
User experience ^a					3.46
First time	293	48.8	847	47.0	
Recurrent (1–3 previous sessions)	175	29.2	522	29.0	
Experienced (4–10 previous sessions)	74	12.3	270	15.0	
Very experienced (>10 previous sessions)	58	9.7	164	9.1	
Reason for contact ^b					24.37**
Family relationships	85	14.1	637	10.5	
Abuse and violence	44	7.3	452	7.5	
Problems in regard to the authorities	3	0.5	60	1.0	
Body and health	58	9.6	731	12.1	
Psychosocial mental health	143	23.7	1,287	21.2	
Peer relationships	187	31.0	1,820	30.0	
School-related issues	11	1.8	174	2.9	
Sex and sexuality	26	4.3	455	7.5	
Other	46	7.6	444	7.3	

^aReported by the child.

^bReported by counselor. Only one reason can be chosen.

*** $p<0.001$, ** $p<0.01$.

TABLE 2. PREDICTOR VARIABLES

<i>Variable name</i>	<i>Definition</i>
Counselor response length	Average number of characters per message by the counselor in session. Calculated as the total number of characters by the counselor divided by the total number of messages by counselor.
Counselor response latency	Average time from when the child sends a message in an active session until the counselor replies. When the child sends multiple messages, the latency time is calculated from the first message until the last reply from the counselor.
Waiting time	Minutes from when the child sends a second message to the helpline (replying to an automated text received after the first message was sent) until the counselor sends the first message back.
Session duration	Minutes elapsed from the first message from the counselor (defining the session start) until the counselor technically ends the session by sending an automated text to the child (defining the session end).
Session length	Number of messages the counselor sends to the child from the beginning to the end of the session.

Child survey

Assessing the impact of anonymous, mediated counseling is challenging,^{27–29} but the technology used for text message counseling has opened ways of distributing questionnaires while still acknowledging children's need for informed consent and anonymity. Impact data were collected through an online questionnaire using IBM Data Collection Interviewer Server Administration Version 6.

In the EQ, we measured the clients' experience of counseling impact from the beginning to the end of each session. Impact was measured using seven items. Three were adapted from previous studies on child helpline outcomes^{5,6}: (1) "When talking to BørneTelefonen, I ... (wasn't/was) taken seriously," (2) "Did it help talking to BørneTelefonen? (Not at all/A lot)," and (3) "After talking to BørneTelefonen, I feel ... (much worse/much better)." One item was developed for the purpose of this study: (4) "In the session with BørneTelefonen, we ... (did/didn't) talk about what I wanted." One item was adapted from the Session Impact Scale³⁰ and the Youth Counseling Impact Scale³¹ and has been applied in several impact studies of child helplines^{5,6,8}: (5) "After talking to BørneTelefonen, I have ... (no idea/an idea) about what to do." One item was adapted from the Strengths and Difficulties Questionnaire (SDQ P11–17 Followup)³²: (6) "After talking to BørneTelefonen, the problem is ... (much worse/solved)." The last item was adapted from an impact study of the Swedish child helpline⁵: (7) "After talking to BørneTelefonen, I have more trust in myself (disagree/agree)."

In the FQ, we measured the clients' perceived counseling impact from the time they contacted the helpline to the time of followup (2 weeks later). FQ impact was measured using four items repeated from the EQ (items 2, 3, 6, and 7). One item was added to measure agency adapted from the Youth Counseling Impact Scale³¹: "Have you tried any of the things you discussed with BørneTelefonen? (None/All of

them)." The period of 2 weeks between the end of counseling and followup was chosen to ensure that the children would be able to recall the session and the issues raised in the session would still be relevant.

Each question was rated on a five-point smiley scale with statements at each end of the scale (e.g., ranging from 1 ["It didn't help at all"] to 5 ["It helped a lot"]). In accordance with recommendations for surveying children, a smiley scale was chosen with a frowning smiley at 1, a neutral smiley at 3, and a smiling smiley at 5.³³ Internal consistency for each of the scales was good to excellent based on examination using Cronbach's alpha, which was 0.91 for the EQ and 0.86 for the FQ.

Data Analysis and Results

Sample characteristics

The sample consisted of 603 SMS-mediated counseling sessions; 90% of the participants were girls, and participants' mean age was 13.2 years ($SD=2.6$). Half of the respondents were first-time users of the service, whereas 10% had used the SMS service at least 10 times before (Table 1).

Regarding the formal features of the session, counselors' text messages had an average response length of 189 characters per message (range: 40–741, Table 3). The average in-session response latency was 5.4 minutes, and the average waiting time before the session was activated by a counselor was 90.4 minutes (range: <1 minute to >24 hours 52 minutes; the latter being clients who did not receive responses within the opening hours on the same day). The average session duration was 2 hours and 50 minutes (range: 4 minutes to 47 hours 11 minutes). An average session included 13.4 messages from the counselor (range: 2–78).

The end-session survey results showed that in 84.9% ($n=512$) of the included sessions, children or young people

TABLE 3. DESCRIPTIVE STATISTICS ON FORMAL FEATURES ($N=603$)

	<i>Min</i>	<i>Max</i>	<i>Median</i>	<i>M</i>	<i>SD</i>
Response length	40 characters	741 characters	172 characters	189 characters	91.0
Response latency	<1 minute	2 hours 4 minutes	3 minutes	5.4 minutes	10.0
Waiting time	<1 minute	24 hours 52 minutes	19 minutes	1 hour 30 minutes	239.4
Session duration	4 minutes	47 hours 11 minutes	1 hour 9 minutes	2 hours 50 minutes	330.5
Session length	2 messages	78 messages	11 messages	13.4 messages	8.83

SD, standard deviation.

TABLE 4. COUNSELING IMPACT (N=603)

	M	SD	Negative		Neutral		Positive	
			n	%	n	%	n	%
End-session counseling impact	3.94	0.88	80	13.3	11	1.8	512	84.9
Counseling impact at followup	3.50	1.03	166	27.5	43	7.1	394	65.3

experienced an immediate positive impact after the session (Table 4). At 2-week followup, this number dropped to 65.3% ($n=394$).

Test of structural model

Structural equation modeling with maximum likelihood estimation using AMOS 23 software was used to test our model. *Response length*, *counselor response latency*, *waiting time*, *session duration*, and *session length* were treated as exogenous variables; *End-session impact* and *impact at followup* were considered endogenous variables. Age and sex were included as control variables. The correlations between the variables are presented in Table 5.

The adequacy of the model was assessed using several common fit indices,³⁴ which indicated a good to acceptable fit (comparative fit index=0.98, $\chi^2=23.47$, root mean square error of approximation=0.08, 90% confidence interval=0.05–0.11, Bollen's incremental fit index=0.98, standardized root mean square residual=0.02) between the hypothesized model and the data.³⁵ The standardized coefficients for the model are shown in Figure 2.

The estimated coefficients showed that counselor response length was significantly associated with end-session impact, and counselor response latency was significantly negatively associated with end-session impact. Therefore, H1 and H2 were accepted. Waiting time was significantly negatively related to impact. Consequently, H3 was accepted. Counseling session duration was significantly positively associated with end-session impact. Therefore, H4 was accepted. Session length, measured as the number of messages from the counselor, was negatively associated with end-session impact. Therefore, H5 was accepted. The results also showed that the clients' perception of the impact of counseling at the end session was a positive predictor of counseling impact at followup.

Regarding the control variables³⁶ (age and sex), age influenced the relationships between the exogenous and endogenous variables, whereas sex did not. Age was negatively

related to impact, indicating that older users of the helpline service experienced a less positive counseling impact relative to that of younger service users.

Discussion

We found an overall positive counseling impact immediately after the session and 2 weeks later, which is similar to previous study results regarding child helpline telephone, chat, and e-mail services,^{5–8,13,25,37,38} indicating that using text messages as a medium in child helpline counseling may provide similar results to other more commonly researched modalities, but comparative studies are needed to confirm this.

Sessions characterized by fewer messages (H5) from the counselor and more characters per message (H1) were associated with a positive influence on help-seeking clients. The idea that text interactions should consist of many³⁹ brief⁴⁰ messages does not seem to apply here. Perhaps communicating via fewer more substantial messages provides the child with a better overview of the session content. Our findings indicating that counselors need to be expressive and elaborate in their writing stand in contrast to research on synchronous chat, wherein a large text shared by the counselor was found to have a negative relationship to the child's immediate well-being after seeking emotional support from the helpline.²⁵

In addition, the results showed that session duration (H4) and length (H5) were quite different features in text messaging.^{10–12,15} Sessions can be long in duration but short in message quantity and vice versa. Duration exerted a positive relationship and the number of messages exerted a negative relationship with counseling impact. Research on synchronous chat counseling has shown inconsistent results concerning the effects of session duration.^{6,17,25} A long duration with few texts indicates that the correspondence is quite asynchronous, and based on the current study results, this asynchronicity does not seem to be a limitation and could be a strength of text message communication. Asynchronicity affords greater control over when and how

TABLE 5. CORRELATION TABLE

	Age	Sex	Response length	Response latency	Waiting time	Duration	Session length	EQ
Sex	–0.12**							
Response length	–0.13**	–0.02						
Response latency	–0.03	–0.00	–0.13**					
Waiting time	–0.07	–0.01	–0.02	–0.03				
Duration	–0.00	–0.04	–0.04	–0.64***	–0.14***			
Session length	–0.16***	–0.04	–0.19***	–0.03	–0.02	–0.32***		
EQ	–0.20***	–0.08	–0.16**	–0.03	–0.05	–0.00	–0.23***	
FQ	–0.22***	–0.06	–0.04	–0.04	–0.01	–0.01	–0.27***	0.58***

*** $p < 0.001$, ** $p < 0.01$.

EQ, End-Session Questionnaire; FQ, Followup Questionnaire

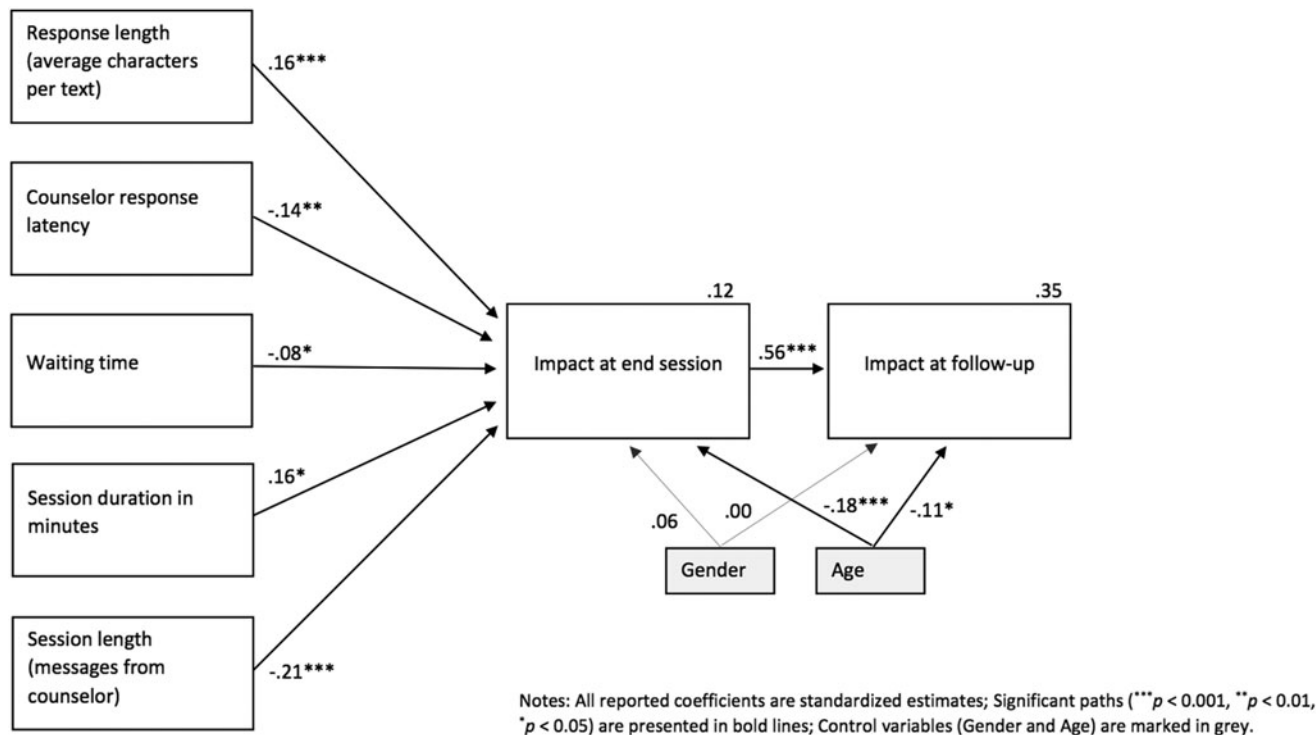


FIG. 2. Summary of results.

to respond to messages, leaving reflection time and greater face management.^{14,41,42}

Within text counseling, children and counselors can communicate across contexts⁴³ and challenge the idea that the presence is determined by physical space⁴⁴ or synchronicity. Texting makes the counseling service highly accessible and promises the possibility of contact with a counselor whenever required, conveniently and from a variety of self-selected locations.^{13,41} Our results highlight the benefits of this.

However, although we observed a positive association between impact and session duration, counselors should not prolong the session duration by taking extra time to respond to children. Our results showed that response latency (H2) on the counselors' side is associated with a lower counseling impact. As stated by Kalman *et al.*^{45(p12)}: "In asynchronous CMC, a quick response is one of the only non-verbal tools that can be used to signal immediacy, care, and presence." Latency may be effective for the person producing a response but not for the one waiting for it.^{14,46} In addition, we observed a negative relationship between counseling impact and waiting time before counseling (H3) in accordance with our hypothesis. Previous research has shown that increased waiting time can result in negative responses.²³

The present study was the first to examine how formal features of text message counseling relate to impact on children and youth seeking help from a child helpline. The child helpline under study provided a suitable context for conducting this research, as it has a strong tradition of data collection, has invested in technology that can support this type of research, and has a high degree of awareness and use among the youth population. However, there may be cultural

differences that challenge the generalizability of our findings to helplines in other parts of the world. Further studies on these differences are encouraged.

The present study focused solely on factors influenced by counselors' behavior. However, further research exploring both counselors' and children's behavior, with particular consideration of linguistic style matching, is required.⁴⁷

Text message or SMS counseling can be conducted in many ways. It can be a one-text-one-answer type of service or based on automated texts without any counselor involvement.⁹ Different modalities set different conditions to provide support to the helpline service users.¹⁶ When texting, the counselor is silent, invisible, and because of the asynchronicity of this format, absent. The affordance of texting offers both possibilities and constraints.⁴⁸ The results of the current study show that, for services offering dialogue-based, human-handled, text counseling sessions should entail fewer and longer messages over a longer period, with quick responses from the counselor to increase probability of a positive effects on children.

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