



Impacts of social media use on occupations of youths with hearing disability in a special education school in upper northern Thailand

Siriyanee Limthongchalearn Suchitporn* Supawadee Putthinoi

Department of Occupational Therapy, Faculty of Associated Medical Sciences, Chiang Mai University, Thailand.

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ABSTRACT

Background: Social media have been used increasingly in the daily lives of the global population. Youths with hearing disability participate in many activities through social media, as do those in general. However, due to their hearing loss, they may experience different impacts, particularly in the special education context.

Objective: The purpose of this study was to investigate the impacts of social media use on occupations of youths with hearing disability, and the relationship of activity limitation and participation restriction in the special education school context.

Materials and methods: The participants comprised 92 youths with hearing disability, who were studying in a special education school. The research instrument was a questionnaire in two forms: paper-based and a sign language video clip. It was presented with acceptable content validity (IOC=0.60-1.00), good internal consistency reliability ($\alpha=0.88$) and moderate stability reliability (ICC=0.70).

Results: Results showed that most of the participants had their own smart phone and used a hearing aid for access to social media. Frequency of social media use was daily for 1-3 hour(s) per day. Overall, most of the participants had no activity limitation or participation restriction in their occupations, but they showed a minimal level of limitation and restriction in education. In terms of social media use, most of the youths presented a positive impact on occupations, particularly in social participation. The overall results indicated the relationship between activity limitation and participation restriction and impacts of social media use on occupations ($r= -0.293$, $p=0.005$). When considering each type of occupation, the results indicated the relationships of education, work, and social participation significantly.

Conclusion: The findings of this study revealed the relationship between activity limitation and participation restriction and overall impacts of social media use on occupations. These findings were applied to social media use, particularly in parts of the text and virtual networks, as an optional channel for providing occupational therapy services and accessing meaningful occupations for youths with hearing disability.

Introduction

According to the Digital 2021 Global Overview Report, the number of social media users reached 4.2 billion people or 53.65% of the world's population.¹ Therefore, social media has a noticeable influence on the daily lives of people worldwide. In addition, the tendency in Thailand is to use social media continuously and quickly, as in the global society. This can be seen in a survey from the National Statistical Office, Ministry of Digital Economy and Society of Thailand.² It revealed that populations of all age groups tended to use the Internet in

* Corresponding contributor.

Author's Address: Department of Occupational Therapy, Faculty of Associated Medical Sciences, Chiang Mai University, Thailand.

E-mail address: suchitporn.l@cmu.ac.th

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various activities in their daily lives. People aged between 15 and 24 years were seen as the highest Internet users, and defined as 'Youth' by the United Nations.³ Media from various channels play an important role in behavioral expression in the youth-age group, especially regarding social media. Social media are designed for easy access and convenience, and they can be a new communication channel that encourages learning exchange for youths beyond the classroom. On the other hand, youths might become addicted to social media through unsuitable or imbalanced time management, which has been found increasingly.⁴

Youths with hearing disability differ from those in general in terms of limited communication, due to their loss of hearing ability, which is an important component of learning a language in their communication skills. In Thailand, most of the students with hearing disability, especially those who are deaf or have moderate to profound hearing loss, study in special education schools.⁵ Although studying through sign language in a special education school is in the context of an accessible communication environment, they might have limited access to meaningful activities when compared to youths without disability.^{6,7} This limitation affects their daily life activities, especially when participating in social events. For this reason, social media were an alternative way for youths with hearing disability to access information, communicate, and participate in social activities.⁸ However, the use of social media among youths who transformed into a digital society is an issue in which society realizes both positive and negative impacts. Previous studies indicated that social media interact more positively in the daily lives of youths with hearing disability, particularly in education and communication.⁹⁻¹² At the same time, social media might have negative effects due to misuse that leads to addiction, as in youths without disability.¹³

The International Classification of Functioning, Disability and Health (ICF) was developed by the World Health Organization, and it provides a framework to code information on health.¹⁴ This framework is based on the concept of a Bio-Psychosocial Model of Functioning, Disability and Health, which explains the relationship between pathological processes and perception of health, and the effects on health that lead to illness. The scope of the ICF covers health conditions, body functions, body structures, activities and participation, and environmental and personal factors at both individual and population levels. The components of functioning and disability of the ICF can be used to indicate both problematic and non-problematic aspects of health. Qualifiers are used to interpret the magnitude level of health in components of body function, body structure, activities and participation, and environmental factors. The qualifiers can be used to indicate difficulty and limitations in people performing activities. According to the ICF, social media can be an environmental factor in the form of products and technologies, as well as related services, systems, and policies. The qualifiers of social media in youths with disability can be either a facilitator or barrier.

From an occupational therapy perspective, occupations refer to everyday activities that individuals normally do as part of their personal lifestyle. Occupations cover activities people need to, want to, and are expected to do regarding their roles and contexts.¹⁵ According to the Occupational Therapy Practice Framework: Domain and Process - Fourth Edition (OTPF-4), occupations are categorized as activity of daily living (ADLs), instrumental activity of daily living (IADLs), health management, rest and sleep, education, work, play, leisure, and social participation.¹⁶ As mentioned above, social media use was related recently to occupations or everyday activities in the global population. However, although previous studies indicated the positive and negative effects of social media use on various aspects of physical and mental health, little literature explained how their use affected everyday activities.¹⁷⁻¹⁹ Moreover, hardly any studies exist in the occupational therapy area regarding impacts of social media use on youths with hearing disability. Therefore, this study aimed to explore the impacts of social media use on occupations of youths with hearing disability, and the relationship of activity limitation and participation restriction in the special education school context. Consequently, this study leads to guidelines for occupational therapists, as healthcare providers, to promote health and health related contexts for the well-being of youths with hearing disability.

Materials and methods:

Ethical approval

This study was approved by the Research Ethics Committee of the Faculty of Associated Medical Sciences, Chiang Mai University, Thailand (AMSEC-65FB-006).

Participants

Only one special education school for students with hearing impairment was set up in Chiang Mai province in upper northern Thailand. The participants for this study were selected from the school by simple random sampling from a population of youth-age students with hearing disability. In addition, they had used social media continuously for at least 3 months. The participants comprised 92 students. Forty-eight of them were male (52.17%) and 44 female (47.83%). They were aged between 12 and 23 years ($M = 15.63$, $SD = 2.43$), with most of them deaf (81.52%) and studying in Grade 7 (18.48%). All of them used Thai sign language in school as their main form of communication.

Instrument

The research instrument in this study was a questionnaire on the impacts of social media use on occupations of youths with hearing disability. It was applied by the ICF, based on the Bio-Psychosocial Model of Functioning, Disability and Health. In addition, it consisted of four parts, including demographic data, social media use, activity limitation and participation restriction in occupations, and impacts of social media use on occupations. The activity limitation and participation restriction part in occupations had a five-point rating scale

applied from the activity and participation qualifier of the ICF (0 = no problem, 1 = mild problem, 2 = moderate problem, 3 = severe problem, 4 = complete problem). Items with no opportunity to participate in activities were not calculated. The occupations were categorized by the OTPF-4, such as ADL, IADL, health management, rest and sleep, education, work, play, leisure, and social participation. Interpretation of this part was considered in each type of occupation at four levels as follows:

Mean	Interpretation
0.00 – 0.99	No activity limitation or participation restriction
1.00 – 1.99	Mild activity limitation and participation restriction
2.00 – 2.99	Moderate activity limitation and participation restriction
3.00 – 4.00	Severe activity limitation and participation restriction

The impacts part of social media use on occupations was applied from the activity and participation qualifier of the ICF by occupations, as in the third part. In addition, it had two directions, positive and negative impacts. Items were in a nine-point rating scale (0 = no impact, -1 = mild barrier, -2 = moderate barrier, -3 = severe barrier, -4 = complete barrier, 1 = mild facilitator, 2 = moderate facilitator, 3 = severe facilitator, 4 = complete facilitator). Items with no opportunity to participate in activities were not calculated. Interpretation of this part was considered at four levels in each direction as follows:

Positive impact	Mean	Interpretation
	0.00 - 0.99	No impact
	1.00 - 1.99	Low positive impact
	2.00 - 2.99	Moderate positive impact
	3.00 - 4.00	High positive impact

Negative impact	Mean	Interpretation
	0.00 - (-)0.99	No impact
	(-)1.00 - (-)1.99	Low negative impact
	(-)2.00 - (-)2.99	Moderate negative impact
	(-)3.00 - (-)4.00	High negative impact

Procedure

Phase 1: developing and testing psychometric properties of the research instrument

The steps of developing and testing psychometric properties of the research instrument are as follows:

- 1) Drafting the paper version of the questionnaire, based on the Bio-Psycho-Social Model, ICF, and OTPF-4.
- 2) Testing the content validity and correcting the questionnaire by considering the index of congruence (IOC) from five experts.
- 3) Forward translating the paper version to the first draft version of the Thai sign language by the first

licensed Thai sign language interpreter. In this step, the instrument was in the form of a video clip.

- 4) Backward translating the first draft version of the Thai sign language to the paper version by another licensed Thai sign language interpreter. Confusing question items were corrected and improved by the interpreters and researchers.
- 5) After the final version of the Thai sign language instrument was developed, internal consistency reliability and stability reliability were examined in twelve youths with hearing disability. The internal consistency reliability was tested by the Cronbach's alpha coefficient. The stability reliability was tested by Intraclass Correlation Coefficient (ICC) from a test-retest-method.

Phase 2: exploring the impacts of social media use on occupations of youths with hearing disability in a special education school

In this phase, the researchers worked with a Thai sign language interpreter, who was informed regarding the responsibility of interpretation in each step of data collection. The participants, who signed the consent form and received the assent form from their parents or guardians, made an appointment for the interview. Before starting the interview, the participants were informed regarding the research objectives, and steps and length of the interview by the Thai sign language interpreter. Each question item was given through the video clip of the Thai sign language instrument. The participants marked their answers on the paper-version questionnaire while the video clip of each item was running.

Data analyses

In phase 1, the research instrument tested the psychometric properties. The content validity of the questionnaire was examined by the IOC. After that, internal consistency reliability was tested by the Cronbach's alpha coefficient (α). Stability reliability was tested by the ICC. In phase 2, demographic data, social media use, level of activity limitation and participation restriction, and impacts of social media use on occupations were analyzed by descriptive statistics, including frequency, percentage, mean and standard deviation. The relationship between activity limitation and participation restriction and impacts of social media use on occupations was analyzed by the Pearson correlation coefficient (r).

Results

Psychometric properties of the research instrument

The final version of the questionnaire consisted of 7 question items on social media use, 29 question items on activity limitation and participation restriction in occupations, and 34 question items on impact of social media use on occupations. Content validity of the questionnaire from the experts indicated an IOC of between 0.6 and 1.00. All of the question items were at the acceptable level. The Cronbach's alpha coefficient was

0.88, which indicated good internal consistency reliability. The ICC was 0.70, which indicated moderate stability reliability.

Social media use

Most of the participants (95.65%) used a smart phone as a communication device, and a hearing aid was usually used as an assistive device for accessing social media (59.78%). The majority of them used social media everyday (80.43%) for 1-3 hour(s) per day (78.26%) (as shown in Table 1).

Table 1. Social media use of the participants (n=92)

Social Media Use	Numbers (Percentage)
<i>Communication device (multiple selection)</i>	
Smart phone	88 (95.65)
Mobile phone without internet	1 (1.09)
Tablet	18 (19.57)
Desktop computer	62 (67.39)
Notebook computer	37 (40.22)
Thai Telecommunication Relay Service (TTRS)	34 (36.96)
<i>Assistive device for accessing social media (multiple selection)</i>	
Specific computer and software program	8 (8.70)
Cochlear implant	4 (4.35)
Hearing aid	55 (59.78)
Tracheoesophageal prosthesis	5 (5.43)
Not using any assistive device	27 (29.35)
<i>Frequency of use</i>	
3 days per month or less than	11 (11.96)
1-2 days per week	4 (4.35)
3-6 days per week	3 (3.26)
everyday	74 (80.43)
<i>Duration of use each time</i>	
Less than 1 hour	9 (9.78)
1-3 hour(s)	72 (78.26)
4-7 hours	7 (7.61)
8-11 hours	0 (0.00)
More than 11 hours	4 (4.35)

Activity limitation and participation restriction in occupations

Most of the participants had no activity limitation or participation restriction in their occupations (77.17%). When considering each type of occupation, results indicated that most of the participants had no limitation

or restriction in ADL, IADL, health management, rest and sleep, play, work, leisure, or social participation. However, most of them had a minimal level of activity limitation and participation restriction in education (as shown in Table 2).

Table 2 Level of activity limitation and participation restriction in occupations (n=92)

Occupations	Level of activity limitation and participation restriction			
	No limitation or restriction	Mild	Moderate	Severe
ADL	76 (82.61)	15 (16.30)	0 (0.00)	1 (1.09)
IADL	61 (66.30)	27 (29.35)	3 (3.26)	1 (1.09)
Health management	68 (73.91)	22 (23.91)	2 (2.17)	0 (0.00)
Rest and sleep	70 (76.09)	17 (18.48)	3 (3.26)	2 (2.17)
Education	33 (35.87)	38 (41.30)	16 (17.39)	5 (5.43)
Work	43 (46.74)	29 (31.52)	13 (14.13)	7 (7.61)
Play	61 (66.30)	24 (26.09)	4 (4.35)	3 (3.26)
Leisure	62 (67.39)	26 (28.26)	4 (4.35)	0 (0.00)
Social participation	64 (69.57)	22 (23.91)	3 (3.26)	3 (3.26)
Total	71 (77.17)	21 (22.83)	0 (0.00)	0 (0.00)

Impacts of social media use on occupations

In terms of overall impact, most of the participants (95.65%) presented a positive impact of social media use on their occupations, while some (4.35%) presented a negative one at the low to moderate level. When considering each type of occupation, results indicated

that most of the participants presented a positive impact at the low level in all types of occupation. Moreover, social participation was an occupation in which most of the participants presented a positive impact, while play was presented by most as having a negative one (as shown in Table 3).

Table 3 Impacts of social media use on occupations of youths with hearing disability (n=92)

Occupations	No impact	Impacts							
		Positive				Negative			
		Low	Moderate	High	Total	Low	Moderate	High	Total
ADL	32 (34.78)	36 (39.13)	13 (14.13)	5 (5.43)	86 (93.47)	2 (2.17)	3 (3.26)	1 (1.09)	6 (6.53)
IADL	38 (41.30)	32 (34.78)	9 (9.78)	7 (7.61)	86 (93.47)	3 (3.26)	3 (3.26)	0 (0.00)	6 (6.53)
Health management	25 (27.17)	25 (27.17)	17 (18.48)	15 (16.30)	82 (89.13)	6 (6.52)	3 (3.26)	1 (1.09)	10 (10.87)
Rest and sleep	17 (18.48)	28 (30.43)	12 (13.04)	26 (28.26)	83 (90.22)	9 (9.78)	1 (1.09)	1 (1.09)	11 (11.96)
Education	20 (21.74)	17 (18.48)	33 (25.87)	11 (11.96)	81 (88.04)	9 (9.78)	1 (1.09)	1 (1.09)	11 (11.96)
Work	25 (27.17)	20 (21.74)	29 (31.52)	11 (11.96)	85 (92.39)	4 (4.35)	2 (2.17)	1 (1.09)	7 (7.61)
Play	18 (19.57)	16 (17.39)	25 (27.17)	21 (22.83)	80 (86.96)	6 (6.52)	4 (4.35)	2 (2.17)	12 (13.04)
Leisure	24 (26.09)	19 (20.65)	24 (26.09)	18 (19.57)	85 (92.39)	5 (5.43)	1 (1.09)	1 (1.09)	7 (7.61)
Social participation	29 (31.52)	23 (25.00)	26 (28.26)	12 (13.04)	90 (97.83)	1 (1.09)	1 (1.09)	0 (0.00)	2 (2.17)
Total	30 (32.61)	33 (35.87)	20 (21.74)	5 (5.43)	88 (95.65)	3 (3.26)	1 (1.09)	0 (0.00)	4 (4.35)

The relationship between activity limitation and participation restriction and impacts of social media use on occupations

The participants in this study presented the relationship between activity limitation and participation restriction and impacts of social media use on occupations

($r = -.293$, $p = .005$). When considering activity limitation and participation restriction in each type of occupation, the results indicated the relationship of education, work, and social participation (as shown in Table 4).

Table 4 Relationship between activity limitation and participation restriction and impacts of social media use on occupations

Occupations	Activity limitation and participation restriction		Impacts of social media use		<i>r</i>	<i>p</i> -value
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
ADL	.31	.58	1.01	1.28	-.002	.988
IADL	.83	.75	.89	1.29	-.204	.051
HM	.92	.80	1.18	1.59	-.078	.460
RS	.46	.71	1.48	1.63	-.168	.110
ED	1.14	1.05	1.26	1.55	-.255	.014*
WK	1.22	.98	1.31	1.45	-.215	.040*
PL	.95	1.17	1.36	1.79	-.105	.317
LE	.60	.63	1.38	1.53	-.114	.280
SC	.64	.76	1.47	1.27	-.216	.039*
Total	.78	.47	1.18	1.19	-.293	.005**

* *p*-value < .05 ** *p*-value < .01

ADL: activity of daily living, IADL: instrumental activity of daily living, HM: health management, RS: rest and sleep, ED: education, WK: work, PL: play, LE: leisure, SC: social participation

Discussion

This study was conducted in a special education school for students having hearing disability, with most of them being deaf or having severe to profound hearing loss. Those with some hearing ability may not have enough for communicating by listening and speaking, and thus resort to sign language as their main means of communication. This is a challenging situation for youths with hearing disability in Thailand.²⁰

This study reflected the importance of accessing social media as well as assistive devices. The youths with hearing disability in this study mostly used a smart phone, the same as most people in general. Moreover, it was interesting that 36.96% of the participants reported communication methods through the Thai Telecommunication Relay Services (TTRS), which is assistive technology designed specifically for communication between people with and/or without hearing disability, and is located in special education schools for students with hearing disability in Thailand.²¹ In terms of assistive devices for access to social media, most of the participants used hearing aids even though they were deaf or with severe to profound hearing loss, in which case using hearing aids was ineffective. Although hearing aids can be used by these people to hear general sounds, they would be unsuitable for communication purposes. Due to the need for hearing aids for people with hearing disability, their access to social media might be different from people without hearing disability.²²

In terms of activity limitation and participation restriction in performing the occupations of youths with hearing disability, the overall result showed that most of the participants had no difficulty. When considering each type of occupation, it was found that most of the youths did not have difficulty in performing them, except for education, and this may be due to their hearing disability. Furthermore, hearing loss impacts their ability to communicate, thus leaving barriers to engage in activities that involve gatherings and exchange of information. Education is a crucial occupation, as the role of students requires communication and language-related skills for learning.

Overall results had a positive social media impact on the occupations of youths with hearing disability. These were the same results as those found in youths without disabilities, which showed the advantages of social media use in social behavior, with no obvious disadvantages for the disabled.²³ When considering the level of impact, results indicated that most of the youths had low positive impact. In addition, when considering each type of occupation, the results showed a positive impact on social participation by most of the youths. This means that the ICF was the social media used to facilitate occupations. This finding related to the study of Toofaninejad et al.,¹⁰ who found that students with hearing disability often reported a positive impact of social media on their learning, in the form of increased interaction and motivation to learn, as well as personal support. In fact, the current situation regarding social media use also has evolved in youths with

hearing disability. Descriptive text, images and clips now allow access to information for activities that are more convenient and easier. Social media use can help the youths to communicate quickly with not only people with hearing disability, but also those without disability.^{8,24}

The results indicated the relationship between activity limitation and participation restriction and impacts of social media use on occupations. In addition, they indicated the relationships between impacts of social media use and activity limitation and participation restriction in education, work, and social participation. Negative coefficients were represented in the negative relationship. When activity limitation and participation restriction increase from hearing disability, the impacts of social media use on occupation tends to decrease, or vice versa. The reason for this is that youths with hearing disability in this study who have high level of limitation and restriction might meet a barrier in understanding written and spoken language. Social media use might not be preferred in communicating with peers or people without hearing disability in the school context. As a result, social media use might have less impact for youths with hearing disability and a high level of limitation and restriction. On the other hand, those with a low level of limitation and restriction will want to find new ways to communicate with others and gain more information on activities of education, work, and social participation. Youths usually choose social media because they provide extra means of communication, based primarily on text and images⁹. Social media use with hearing disability has grown typically with physical development, and so students with hearing disability are treated and encouraged to do their ADLs and IADLs by themselves, as youths in general do. In addition, this study was made in the special education school context that provided a health management service and performed rest and sleep, and leisure under the school rules. Moreover, youths that play might have less meaningful occupation at a young age. In other words, hearing loss development from childhood is a health condition associated with limited hearing and restriction of involvement in daily life.¹⁴

This study reflected that youths with hearing disability still presented activity limitation and participation restriction in many types of occupation. Most incidents indicated moderately positive impacts of social media use that helped to enable youths with hearing disability to have the same lifestyle activities as youths in general. They could perform occupations and occupy themselves in meaningful activities in the same way as people in general and reach quality in ADL and occupational activities independently.²⁵ As explained in the ICF, impairment and disability cause difficulties in performing personal daily life activities, with the environmental factor being both a barrier and facilitator.²⁶ Therefore, social media might be an environmental option that can support or facilitate youths. However, due to social media relying on the Internet and devices for access, support from public policy and services is necessary. Developing a policy that facilitates access to social media may be an option that

can reduce limitations in communication and activities related to it. However, an imbalance in time management regarding social media use usually impacts occupation in people in general, including youths with hearing disability. This is because although social media use can encourage the ability to learn, connect with other people in society, share viewpoints and relax, it usually involves physical inactivity, short attention span, and mental health problems.^{23,27} Therefore, for occupational therapists to utilize social media as a means of supporting occupations and encouraging time-management skills that lead to an age-appropriate occupational balance is challenging. Social media in the form of individual and group virtual programs might be an effective tool for health promotion and intervention outreach.²⁸⁻²⁹ They could be a channel for communicating and providing a service between occupational therapists and youths with hearing disability in order to build an understanding of proper healthcare and well-being.³⁰⁻³¹

Limitation

The results of this study only give information for understanding behavior, limitations, and impact of social media use on occupations of adolescents with hearing impairment, according to the OTPF-4 classification. Therefore, they did not cover the impacts of social media use on youths with hearing disability in other dimensions. Furthermore, the study area was in the special education school context in upper northern Thailand, which may have limitations in generalizing in other contexts. Future research can be conducted in a wider area with a greater population. Finally, this study investigated behavior in social media use and its impact on occupations, but there is a lack of in-depth studies on patterns of social media use and impacts in terms of health and occupations. A qualitative research approach might be conducted to examine the in-depth impact from the perspective of youths, parents, teachers, or those involved in various contexts.

Conclusion

Social media use of the youths with hearing disability took a similar trend to that of youths in general, although the former was in the special education school context. However, despite their use of sign language in communication, most of the youths with hearing disability still used hearing aids as assistive technology to access social media. In addition, although most of them presented no activity limitation or participation restriction in occupations, they indicated mild limitation and restriction in education. In terms of impact of social media use on occupations, the youths with hearing disability presented positive impact, especially in social participation. Moreover, the findings of this study revealed the relationship between activity limitation and participation restriction and overall impacts of social media use on occupations. However, when considering each type of occupation, the results indicated the relationships of education, work and social participation, despite activity

limitation and participation restriction mostly having no relationship with the impacts of social media use. These findings were applied to social media use as the option of a channel crucial for providing occupational therapy services for youths with hearing disability.

Conflict of interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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