

Why talk when you can text? Gen Y's medium for sharing health information

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Abstract

The convergence towards the Long Term Evolution (LTE) mobile standard will result in higher data upload and downloads on mobile devices therefore making it an attractive option for healthcare. There is currently a dramatic global increase in the penetration rate of mobile phones. Mobile phones are portable, easy to use, affordable and they allow for privacy and confidentiality. Teenagers using new technologies for healthcare information are likely to increase. Therefore it is expected that mobile phones will become the main mechanism for sharing health information. This paper discusses our study in which we tried to understand how much health information is disseminated by Generation Y through Mobile Networks, with a primary focus on the texting abilities of mobile phones. In order to understand the current state of health information sharing a survey tool was implemented to collect data. The survey was sent to a population of students from the University of Otago. The selection process was random and over 1500 responses were received. Early conclusions show Mobile phones are clearly being actively used to share health information between, friends family and the general population.

1. Introduction

This technology has grown in leaps and bounds, and over the last decade growth of mobile communication markets has increased exponentially on a global scale. Its impact has been very widespread. Areas that have been previously not had access to communication facilities due to lack of infrastructure have now been connected up via mobile communication devices. This has been realised by many healthcare providers, as they aim to utilise the power of the ubiquitous and pervasive nature of mobile phones to deliver healthcare services to patients at anytime and anyplace. Adler [1] reports the reason that mobile phones are an attractive platform for delivering health-related services is that they are personal, portable, connected and as the new generations of mobile phones are being produced they are increasing in intelligence. However the main strength with these devices, irrespective of how old or new they are, is their ability to send and receive Short Messages Services (SMS) or otherwise referred to as text messages. This study focuses primarily on the Generation Y (Gen Y) cohort of the population, because Gen Y are recognised as early adopters of new technologies and are also extensive users of the Internet and Mobile phones. For this study Gen Y is defined as anyone within the ages of 18 and 32, ie born between 1977 and 1991.

2. Background

Mobile phones have now transcended the notion that they are meant exclusively for the wealthy and according to Katz and Sugiyama [2] they are now an icon that symbolises a conduit of trusted communication. Mobile phones not only provide the technology to deliver content they allow this delivery to occur over greater ranges and quicker times than many other devices [3]. In addition to the advantages of mobile phones that have been described by Adler [1] and Richardson and Lenarcic [3], one of their most powerful capabilities is their ability to send and receive SMS (text) messages. Texting has many advantages over other modes of communication. As mobile phones are not restrained by

cables or data points, it means their texting ability is not restrained to fixed locations. It is fast; transmitted messages are received almost immediately. It is convenient; messages can be stored in the phone until the recipient is ready to read it, or will be received as soon as the phone is turned on, thus making the message a very personal means of communication in a health sense. The cost of sending messages is also relatively low (approximately 20 New Zealand cents). Messages can be sent from mobile phones, computers and some fixed-line telephones. Messages can be sent to multiple recipients simultaneously. A report by the Cellular Telephone Industries Association (CTIA) [4] estimated that over 1 trillion text messages were sent and received globally in 2008, with an average of 3.5 billion text messages being sent and received daily. The usage statistics and the pervasive nature of texting makes it a very strong contender to be used in health applications

A further strength of this medium is its popularity within the Gen Y population group. A recent report by the Participatory Marketing Network [5] found that despite the growth in use of Social Network Sites such as Facebook, if Gen Y was given a choice of dropping any of the communication mediums they currently use only 26% said they would give up texting, their report found that they would rather give up the use of social networks rather than giving up sending texts via their mobile phone. Wilson [6] found that in United States of America this group outnumbered all the other groups in terms of minutes used on their mobile phones, number of calls placed and the number of text messages sent and received, with a reported average of 126 text messages being sent a month in 2006 [7]. Another study carried out in the United Kingdom found that a majority of mobile phones users are within the Gen Y age group (89%) and 62% of them utilise text messaging on a regular basis [8]. The PMN study also found that within the Gen Y group an average of 740 text messages were sent and received per month, which is much higher than that reported earlier by Perez and Gen [7], indicating that within a 3 year period the use of this medium within this group had grown almost 6 times. These statistics within the Gen Y group and their use of this medium make it a prime source of information with their peers.

There have been numerous studies in which the role of mobile phones in particular texting has been studied. However most of these studies have looked at it from a healthcare provider's angle, and have seen texting as a reminder tool, or an intervention tool see [9] for a comprehensive review on studies that have utilised text messages as a communication medium. A New Zealand example is the STOMP campaign [10] and the text messaging trial carried out in family planning clinics [11]. There are however no studies in the academic literature that report the current use of texting as means of communicating health information within peer groups. Fogg and Allen [12] present five categories in which text messages can be used to improve health: Sending information to users, gathering information from users, user question and expert response, people to people connection and transactions. The study presented in this paper focuses on the use of text messages in the people to people connection category. An area which we feel is a very powerful and understudied area in health application.

3. Methodology

The instrument used in this study was a survey. It was decided that an on-line survey would be the best tool. The main reason for using an online survey was because it allowed for an easier method of controlling the survey as it was being sent to a large target group. The group being tested have access to a computer, as they are all University of Otago students and thus have access to one of the many computer labs that are available 24 hours a day 7 days a week. Online surveys also allow for instant feedback and results.. The final reason for using an on-line survey is that the collation of data from online surveys can be conducted in a more efficient manner than the traditional pen and paper survey. These reasons are in agreement with Wright [13] reasons for using an on-line survey. The reason's being access to the population, timeliness of responses and cost. Other factors for using an on-line survey are:

- coding can be built into the survey tool
- data goes straight into a database thus reducing the chance of transfer error
- allows for quick descriptive stats to be done

The survey was being developed in accordance with the Checklist for Reporting Results of Internet E-Surveys (CHERRIES) [14]. This checklist was used to ensure the survey being built conformed to a recognised standard used by researchers that use web surveys. Although this checklist was targeted specifically at authors submitting articles to the Journal of Medical Internet Research (JMIR), it is now a recognised standard within the field. According to its founder Eysenbach, this checklist equates to the CONSORT statement (for randomized trials), or the QUORUM statement (for systematic reviews), which are designed to ensure the quality of reports in the medical literature [14].

The survey was built using a tool called Survey Monkey [15]. This tool has been used by many researchers conducting surveys across various fields of study [16-18], thus was thought to be an adequate tool to be used for the study. It was chosen over an in-house built survey because firstly it is easy to use, build and edit and secondly it has all the tools built in to allow data to be exported for statistical analysis [19].

Participants were randomly selected using the University emailing lists. In order to send a mass email to the student population permission was required and obtained from the Director of Student Services. A file containing the student ID numbers of all the students enrolled at the University was obtained. This list did not have any other information. There were no student names, addresses, gender, age or any other information that could be considered identifiable or that would affect the randomisation of the students chosen. A pilot study was conducted to ensure that the responses that would be obtained from the survey would be sufficient to answer the research question. The paper based pilot also tested if the survey would be easily understood and not contain any ambiguous language. Any suggestions, and discrepancies identified by the pilot study were addressed before the actual survey was released.

4. Results

The survey link was emailed to five thousand randomly selected students at the University of Otago. The link navigated the participant to the survey which was hosted by the SurveyMonkey site. The survey site was left active for a period of four weeks, to ensure that participants had sufficient time to complete the survey. At the close of the survey a total number of 1902 responses were recorded, a response rate of 38%. These responses were analysed to ensure that they were correctly completed and had no missing components. After this process what completed the total number of responses that were correctly completed and could be used for further analysis was 1747, being a 35% response rate. This number was still more than the average response rate of between 20-25% as recorded by Sheehan [20].

The majority of the participants that answered this survey were in the 20-24 age group (55.7%) and lowest number of respondents were from the 30-34 age group (3.7%). As the survey was sent to students at the University of Otago, the population distribution was expected to reflect the University age group, with large numbers between the 18-24 age group. According to the University Academic Services this age group makes up 87% of the total University population. The gender make up of the participant group was 66% female and 33% male, which again reflects the trend reported by the University in their collation of any surveys sent out by the University.

4.1. Number of mobile phones used

Participants were asked how many mobile phones they used. This was asked to determine if this population group utilised more than one phone, which in turn would impact the overall penetration figures that are reported by the media. Participants who said they did not use a mobile phone were automatically directed to a part of the survey that addressed other questions. The responses showed that 77.7% use at least one mobile phone, while 21% use two mobile phones. Only 0.1% stated they use more than 3 mobile phones while the percentage of people that do not use a mobile phone is 0.5%.

4.2. Mobile phone length of use

In addition to asking participants how many phones they used, the study also required participants to indicate how long they have been using their mobile phones for. This would indicate the proliferation of mobile technology within the Gen Y group. Most participants indicated that they had been using a mobile phone for more than 6 years (43.6%), whilst 37% indicated they had been using a mobile phone between 5-6 years. The mean length of use for the participants in this study is 5-6 years.

4.3. Mobile phone ability of use

Following on from the previous question about the length of use of mobile phones, participants were asked how they would rate their ability to use different features on their mobile phone. Most participants rated themselves as proficient (50%) whilst 31% regarded themselves as competent. 13.3% felt that they were experts at using their mobile phone and a small group 4.9% and 0.8% rated the selves as being either advanced beginners or novices as using their mobile phones.

4.4. Texting behaviour

Participants' use of the text message or Short Message Service to share health information was one of the main mediums being investigated in this study. In order to put this sharing in perspective, it is imperative to understand participants' texting behaviour. This section details the findings from the questions around participants' current texting behaviour.

4.4.1. Number of text messages sent

Participants were asked to type in the number of text messages they sent on average per day. They were asked to give the average number of text messages sent to family and to friends. The mean number of text messages sent to family is 3.6 (SD 5) (95% CI = 3.4 to 3.9). With regards to the average number of text messages that this participant group sent to their friends the mean is 18.3 (SD 21) (95% CI = 17.3 to 19.4). Thus on average participants sent more text messages to their friends as opposed to their family per day

4.4.2. Number of text messages received

In addition to asking participants about the average number of text messages sent a day to family and friends, they were also asked about the average number of text messages they received a day from these groups. The mean number of texts that participants' received from the family members is 3.6 (SD 5)(95% CI = 3.4 to 3.9), this matches the number of texts sent to this group. Participants received a mean of 18.7 (SD 23) (95% CI= 17.6 to 19.8) text messages from their friends. This is also very similar to the mean number of texts they sent to this group on average each day. As with the number of texts sent a day, the group in this study received on average more texts from their friends than their family daily.

4.4.3. Cost of sending text messages

Participants were asked if the cost of sending a text message affects the number of text messages they sent. The answer could provide an insight as to whether or not there is an inherent limitation linked to cost as to how heavily this medium is utilised by this group. This limitation may in turn affect the overall use of this medium to share not only health information but any type of information within this group. The answers provided by the participants in this group showed no distinct answer, 50.6% of the participants responded that the cost does have an effect on the number of text messages they send, whilst 49.4% replied that cost did not have an effect.

4.5. Sharing of health information using text messages

This section will detail the responses given by participants regarding their behaviour on sharing health information across text messages. Apart from asking about the frequency of sharing health information via text messages; participants were also asked if the frequency of sharing health information changed when it came to texting family and when it came to texting friends.

4.5.1. Sending text messages with health information

Figure 1 illustrates the responses participants gave when asked if they send texts with general health information and with specific health information to family. From the graph it can be seen that most participants answered that they *Sometimes* send text messages with general health (38.6%) and specific health information (33%). The graph also shows that 14.7% of participants *Never* share general health information by text and this percentage goes up to 22.6% when it comes to specific health information. This indicates that within this group 85.3% have sent a message regarding general health information to their family and 77.4% have sent more specific health information to their family.

When asked the same question with regards to sending general health and specific health information with friends across text messages most participants answered that they *Sometimes* share general health information (39.6%) across text messages. However, when it comes to sending specific health information across text messages most participants responded that they *Infrequently* (42.3%) utilise this medium. Overall 13.4% *Never* share general health information with their friends and 29.2% *Never* send more specific health information with their friend group via text messages. Figure 2 illustrates the findings. Within this group 86.6% has or will send a message with general health information to their friends and 70.8% has sent text messages with specific health information to their friends.

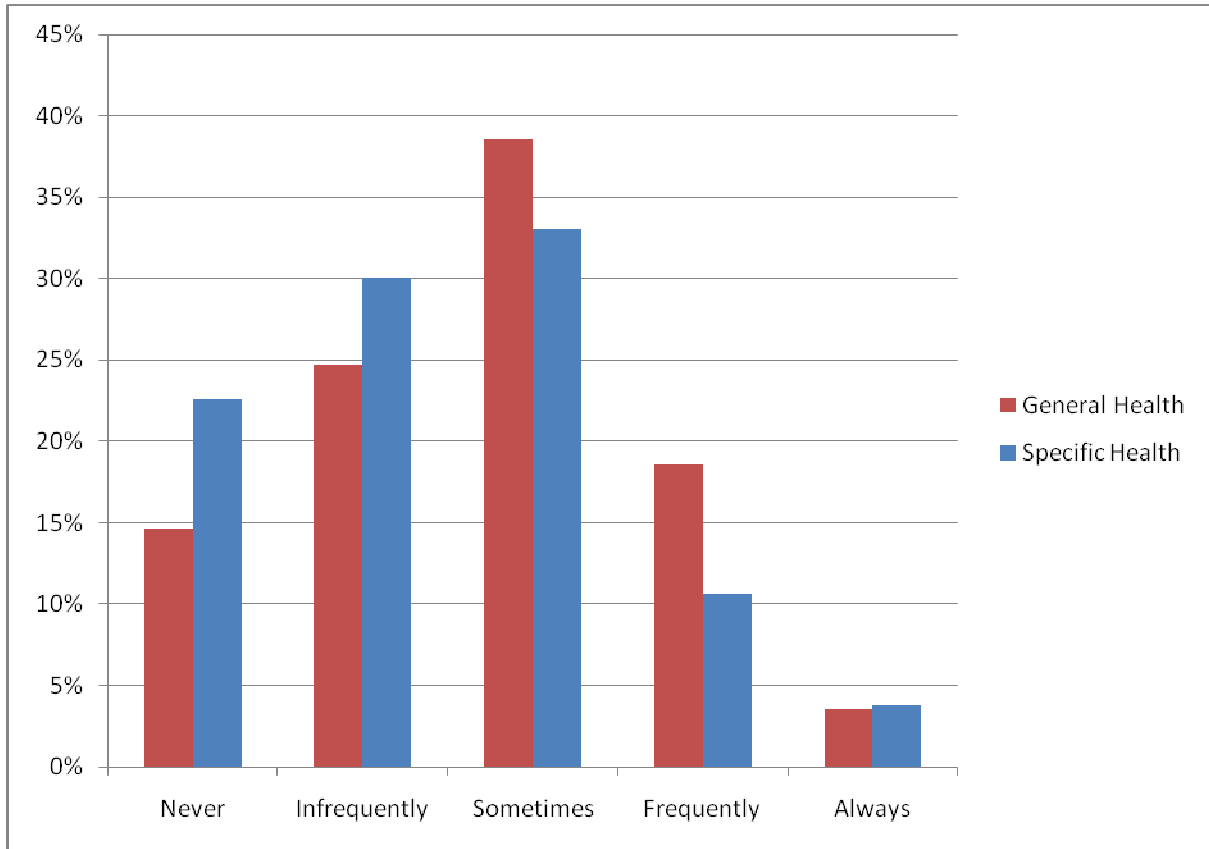


Figure 1 - Participants response to sending general and specific health information to family using text messages

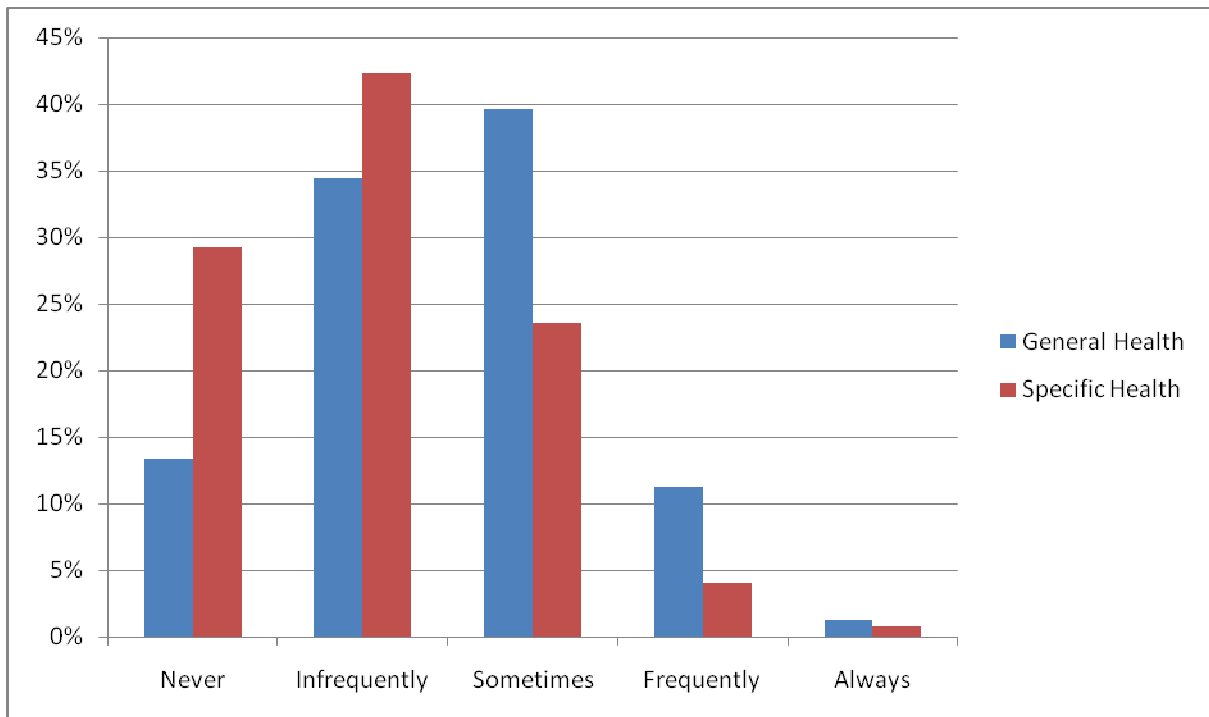


Figure 2 - Participants response to sending general and specific health information to friends using text messages

Participants were then asked more specific questions regarding two areas that are taboo or hard to talk about, sexual health [21] and mental health [22]. Both Marwick [21] and Crisp [22] reported in their studies that participants found it difficult to talk about these topic areas as there was an associated stigma around them. This question aimed to determine if this stigma was also present when using text messages as a medium to talk about these topics.

On the topic of sexual health 86% responded that they *Never* send text messages to their family, whilst 66.4% responded that they *Never* send messages with sexual health information to their friends. This indicates that participants would more readily text message their friends as opposed to their family about sexual health. However, even though they would send messages with sexual information to their friends more than their family, the regularity of sending such messages is *Infrequent* (22.9%).

When asked the same question with a reference to sending text messages with mental health information 57.8% responded that they *Never* send mental health information to their family, whilst 52.9% stated that they *Never* sent messages with such information to their friends. In a pattern similar to sending messages with sexual health, most people that did send mental health information only sent them *Infrequently*; 33.1% to family and 35.0% to friends.

A simple comparison with the responses to sending text messages with sexual health information shows that participants were more willing to send information about mental health than sexual health, see figure 3. The figure also illustrates the fact that when participants do use this medium to send messages about sexual health they are more likely to send that information to their friends than to their family. This pattern is reversed when it comes to sending messages about mental health; participants are more likely to send messages with this content to their family instead of their friends.

4.5.2. Receiving text messages with health information

The preceding section focused on participants' behaviour in sending messages with various pieces of health information. This section focuses on the frequency participants' received text messages that contained health information. The questions asked were identical to those asked about sending text messages.

Figure 4 illustrates the participants' responses with regards to receiving general and specific health information from family via text messages. The graph illustrates that 20% of participants *Never* receive any texts with general health information and 29.7% *Never* receive texts with specific health information. This means that 80% and 70% receive some form of general and specific health information respectively via text message. With regards to general health information 36.2% stated they *Sometimes* received texts with general health information from their family and that percentage drops down to 27.3% when it comes to specific health information. 36.2% stated that they receive messages *Infrequently* from family that contain specific health information.

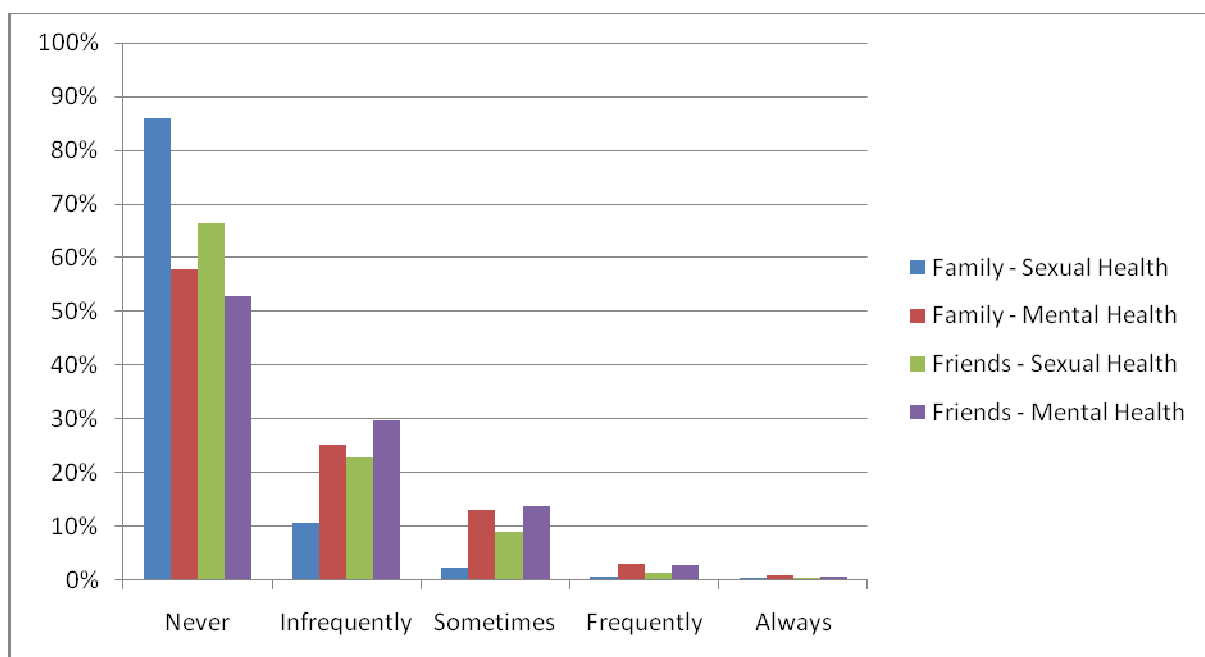


Figure 3 - Participants response to sending sexual and mental health information to family and friends

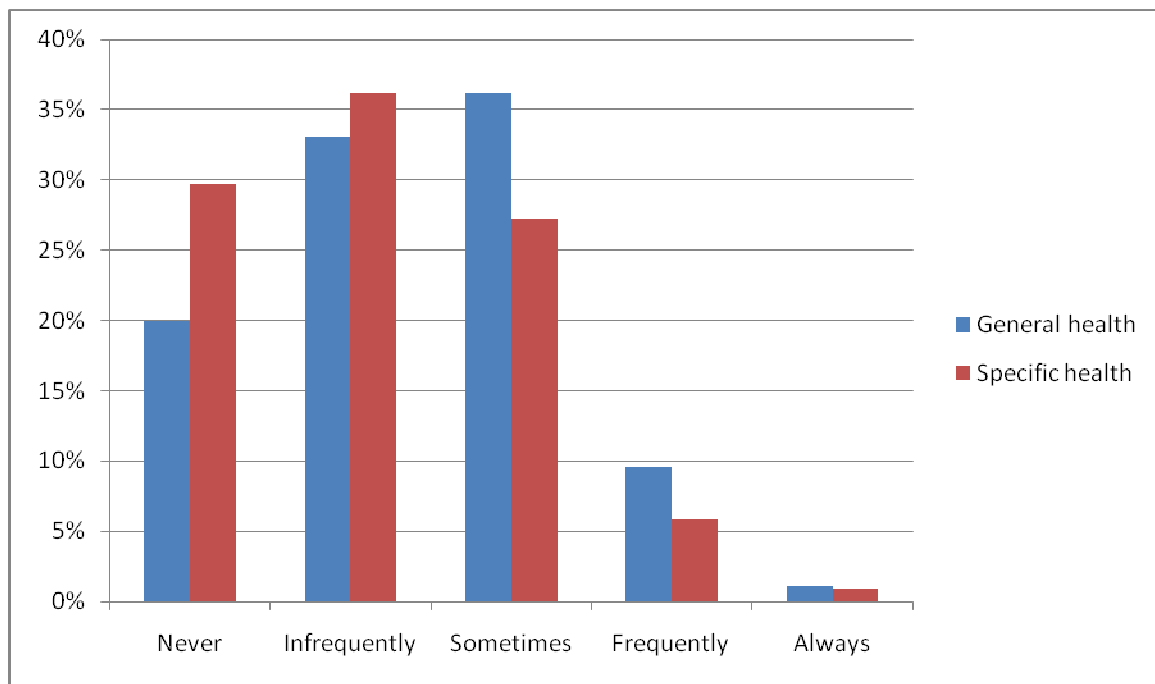


Figure 4 - Participants response to receiving general and specific health information from family by text messages

When receiving text messages from their friends, 41.2% of participants responded that they *Sometimes* received text messages from their friends that contained general health information. This percentage dropped down to 26.8% when it came to receiving specific health information by text message. As in the case with family, most participants answered that they *Infrequently* received text messages with specific health information from their friends (42.2%). Overall 13.1% responded that they *Never* receive any texts from their friends with general health information and 26.0% indicated they *Never* receive texts with specific health information from their friends. Both these results indicate that participants are receiving text messages with both general and specific health; Figure 5 shows the frequency of receiving such text messages.

A large majority of participants' reported that they *Never* sent information with sexual health information to their family or their friends. They also reported a similar trend in terms of receiving messages with sexual health information. 89% responded that they *Never* receive such content from their family as opposed to 60% who responded they *Never* receive sexual health information from friends. Of those that responded that they do receive text messages with sexual health information the majority of the participants answered this happened on an *Infrequent* basis; 8.86% from family and 26.99% from friends.

Receipt of messages containing mental health information did not have as many people responding they *Never* receive such content when compared to sexual health. 62.4% responded that they *Never* received mental health information from their family whilst 50.4% responded they *Never* received such content from their family. Similar to the behaviour reported with receipt of sexual health information, most participants that received mental health information, received this content *Infrequently* from family (25.1%) and friends (31.8%). In both cases, sexual and mental health, only a minority of participants responded that they *Always* receive text messages with such content, irrespective of whether it was from family or friends (see Figure 6).

4.5.3. Sharing health information with a healthcare provider using text messages

The questions that have been covered all addressed the health sharing behaviour between friends and family using text messages. The final question, with regards to texting behaviour, asked participants if they would share information with their healthcare provider if they were given a chance. This importance of this question is to observe if this Gen Y group would extend their texting behaviour to professionals in the healthcare system. Currently there are no known systems in New Zealand where patients are able to text their healthcare provider, unless the healthcare provider gives their number to the patient. There are systems in place to remind patients about appointments [23], getting feedback about a consultation [24], using it as an intervention tool [11], but there are no studies which have asked patients would they use a text medium to communicate with their healthcare provider.

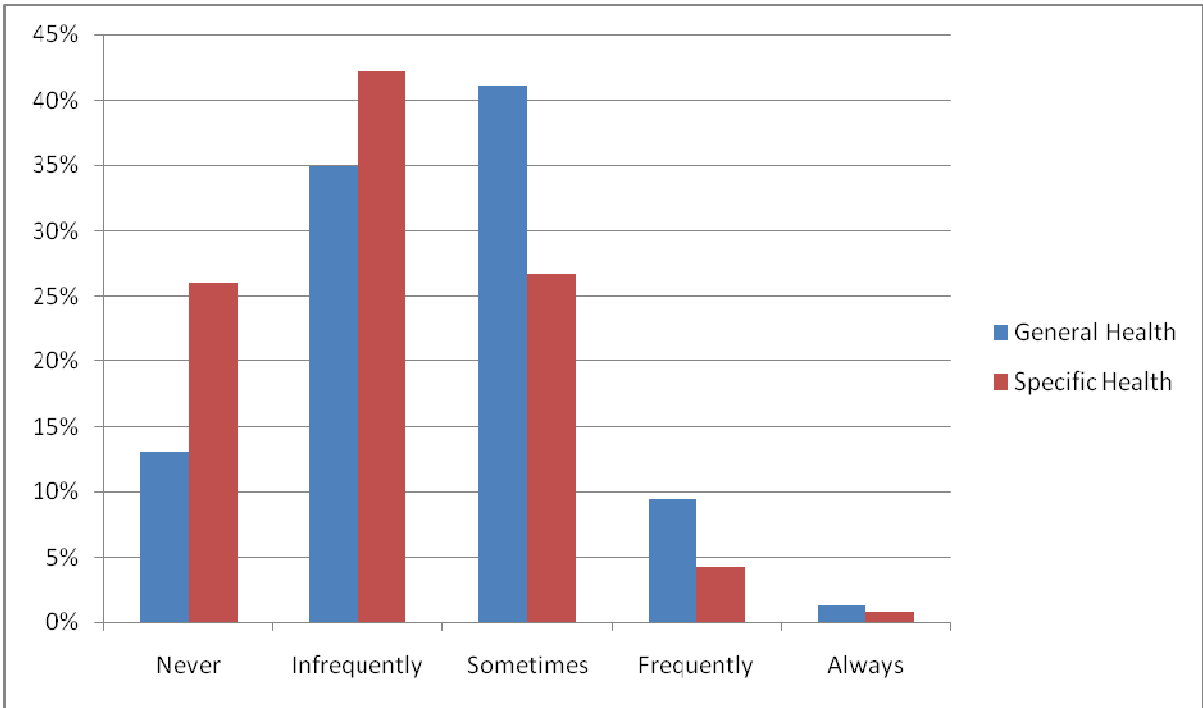


Figure 5 - Participants response to receiving general and specific health information from friends by text messages

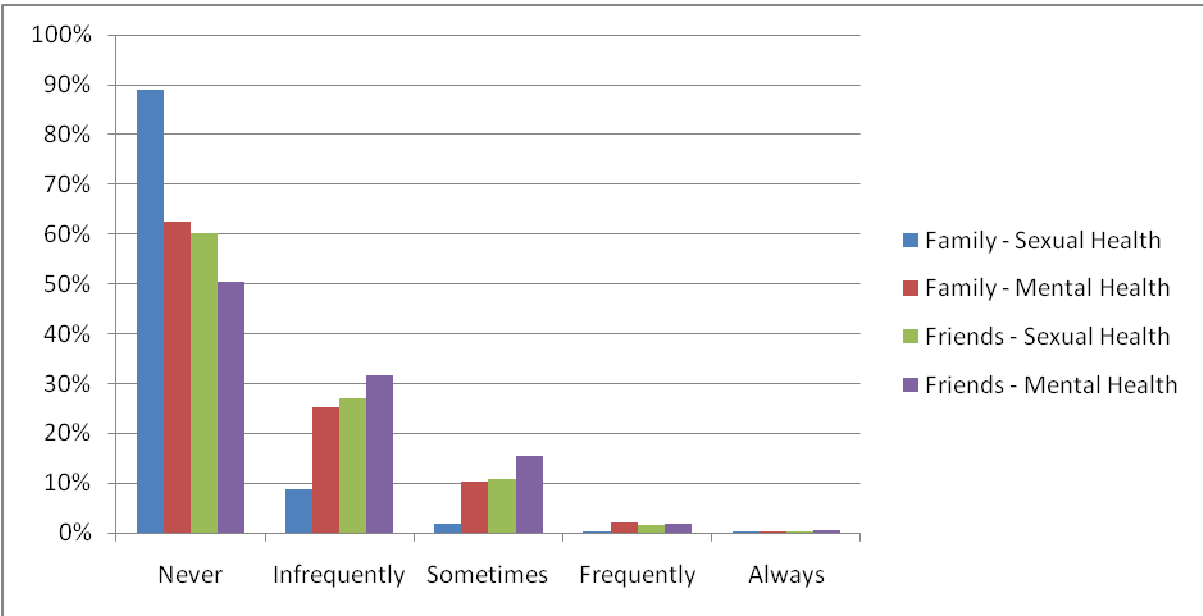


Figure 6 - Participants response to receiving sexual and mental health information from family and friends

The responses in this study indicate that 53.8% said they would use the text message medium to share health information with their health care provider, 43.7% said they would not and 2.5% responded that they are already using this medium to share health information with their healthcare provider.

5. Discussion and Conclusion

This study focused on the people to people connection that text messaging offers to its users. The aim of the study was to find if Gen Y utilise text messaging as a medium to communicate about health information, and if they did so to what extent and how did that information transfer change within two distinct groups, that is, family and friends. The results clearly indicate that the Gen Y behaviour matches that of other countries in terms of their adoption of mobile phones and texting, with only 0.5% of the population group responding that they did not own a mobile phone.

However, New Zealand is very distinct in this area as texting is regarded as the main method of communicating using mobile phones rather than calling. Other findings such as average number of texts sent and received a day to family (4 and 4) and friends (19 and 19) would average out to be 120 text messages sent and received a month with family members and 570 text messages sent and received a month to a friend group [25]. These indicate the proliferation of this technology within the Gen Y group. Using the average found in this study it would mean that a text message is being sent and received ever 90mins between friends, showing that there is a high volume of communication taking place by the average participant. The regression analysis also indicated that when individuals received a text they were very likely going to reply to that text message, thus indicating some form of dialogue taking place.

With regards to health information sharing, there is not a distinct division in the frequency of information that is shared between the family group and the friend group. The results indicate that in the cases of general health, specific health and mental health there is not a very large difference in the frequency of sending messages to family or friends. However with sexual health, as one would expect, participants were more likely to send messages with this content to their friends as opposed to their family. This behaviour was replicated in the frequency of health related text messages that participants received.

An important finding to note is that irrespective of how frequently participants send and receive text messages with health information, it is the fact that this behaviour is taking place. The findings show that within this group participants are talking about their health across this medium, making it a strong case to be used by health professionals as a way of communicating with their clients that is not limited to reminder type messages. More than half the participants answered that given a chance they would communicate with their health professional utilising text messages.

This paper has highlighted the trend that is currently being practised by the Gen Y cohort within a university population. Although this paper has only presented the descriptive findings, it can be seen that the texting medium is being used by members of this cohort to transfer various types of health information to their peer group and their family members. This could be taken on board by various health education and promotion boards as well as the relevant government agencies because they aim to promote well-being among this cohort. Although this study has focused on the behaviour within the Gen Y group, it must be acknowledged that this form of communication is steadily increasing in popularity within other generational groups. The mere fact that family members send messages to this group indicates that the older generation are also taking on this technology medium.

This is an important area and future research is still ongoing in m-health. Some focus had been given to the intertwining of social media and mobiles for health. Future work may be conducted to show how if this population still utilise this medium as a trusted way of communicating about health information. Another area that needs to be addressed is the security [26] of this method for health communication, unlike emails this form of communication does not have an easy method to access archives of any conversation something that would be crucial if it is to be used as a realistic form of health information communication.

6. References

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