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# Can health interventions float? A process evaluation of workplace health intervention onboard a vessel in the North Sea

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# ORIGINAL ARTICLE

# Can health interventions float? A process evaluation of workplace health intervention on board a vessel in the North Sea

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# ABSTRACT

**Objective:** To promote the physical and mental health of employees in a maritime setting and provide knowledge and tools to assist seafarers in managing daily challenges.

**Materials and methods:** The intervention drew on a goal-based approach, including workshops, coaching, health checks, interviews, and questionnaires.

**Results:** A process evaluation was used to explore intervention challenges and barriers. Results show that an intervention at sea is complex and needs flexibility. Findings varied, and the main challenges were low participation in one group and lack of continuity due to Covid-19. Data showed a significant positive shift in how the crew rated perceived stress and a statistically significant increase in intake of salad, fish, and vegetarian food.

**Conclusions:** Workplace interventions in poor health status settings are complex, necessary, and possible, and management's participation is crucial. Increased awareness was achieved.

**Learning outcomes:** The results showed some positive changes, such as lower stress levels and more intake of salad, fish, and vegetarian food. Flexibility is important for workplace interventions. Workplace interventions contribute to health and wellbeing with appropriate management support.

#### Keywords: maritime health, seafarers, offshore, health intervention

#### **INTRODUCTION**

This article presents findings from a health promotion intervention conducted on a North Sea ship between February 2020 and December 2021. Focusing on stress, teamwork, exercise, diet, and smoking, the study, which took place during the Covid-19 outbreak, emphasizes process evaluation and explores the intervention's feasibility and challenges in the maritime setting rather than measuring its effects.

Many studies highlight poor health conditions among maritime workers compared to other professions, including high rates of obesity, smoking, cardiovascular risks, stress, poor sleep, and low physical activity [1–12]. While workplace health interventions have been effective on land, improving well-being and reducing absenteeism [13–16], evidence from maritime settings is scarce due to accessibility and operational challenges [17–19].

The maritime work environment presents unique challenges: prolonged time away from home, demanding conditions, and limited access to fresh food. Addressing these issues requires more research and targeted interventions.

This article reports on a health promotion intervention conducted on a North Sea ship from February 2020 to December 2021. It focuses on stress, teamwork, exercise, diet, and smoking, and emphasizes process evaluation due to the Covid-19 outbreak's impact on data collection, exploring the intervention's feasibility and challenges rather than its effects.

#### MATERIALS AND METHODS

This intervention utilizes goal setting and health communication theories, with coaching as a supportive tool. Goal-setting theory suggests that specific, measurable goals enhance performance by improving focus and strategy [20–22]. Participants set actionable goals and received coaching to support their progress, as research shows coaching positively impacts performance, well-being, and self-regulation [27].

Health communication framed behaviors as either benefits (gain frame) or risks (loss frame) to address various learning preferences [28]. Workshops employed both framing techniques to convey the importance of health behaviors.

The study also includes a process evaluation to assess how the intervention functioned, its impact, and participants' reactions, identifying opportunities and barriers [29].

#### **INTERVENTION AND DESIGN**

The intervention ran from February 2020 to December 2021 and included ten workshops delivered in Danish, English, and Polish, either onsite or online (during hotel quarantines). These workshops covered five health themes with a mix of gain-loss frame messages, research-based knowledge, practical examples, group exercises, and multimedia resources. Participants set personal goals, engaged in coaching, health checks, interviews, and completed questionnaires.

The study involved 120 employees — vessel crew and client technicians — and aimed to achieve the following goals:

- low stress levels,
- strong mental health,
- maintained or improved BMI,
- regular exercise,
- smoke-free lifestyle,
- effective teamwork.

Participants received workbooks for personal notes and goal tracking, a pocketbook on seafarers' work environment issues, and access to onsite or online coaching with a certified coach.

#### **DATA AND DATA COLLECTIONS**

The data included two questionnaires: one in 2021 at the intervention's start and one in 2022 at its end. The questionnaires covered topics such as stress, mental health, social support, working conditions, and lifestyle habits such as eating vegetables, fish etc. or exercising. The second questionnaire also included questions on intervention participation, evaluation, and goal setting. Validated questions from "The Copenhagen Psychosocial Questionnaire II" [32] were used. In total 95 participants fully completed the questionnaire (baseline = 69, follow up = 26). The participants age range from 20–67 years and mean for the whole population was 38.

Additionally, the data set includes 50 health checks conducted by the vessel medic measuring; BMI, cholesterol, height, waist, blood pressure, medical conditions, flu shot frequency, doctor visit frequency, and 33 qualitative interviews — 16 at the beginning and 17 at the end of the intervention — focusing on the intervention's evaluation, personal and team impact, and implementation. Overall, the dataset comprises 111 questionnaire responses, 50 health checks, and 33 interviews. ANALYSIS

The quantitative data from survey has been analyzed by using Independent-Samples Mann-Whitney U Test using the IBM SPSS version 28. All interviews have been transcribed and entered to NVivo pro 12 and analyzed. The qualitative analysis used thematic analysis, inspired by Braun and Clarke [33]. The analyses included both inductive and deductive codes. The deductive codes build upon the 7 components of process evaluation presented above, while inductive codes come from the coding process of the interviews. The final analysis consists of 9 themes which are as follows: context, reach, dose delivered, dose received, fidelity, implementation, recruitment, barriers, and changes.

#### RESULTS

# CONTEXT

External factors impacted the intervention, including unpredictable North Sea weather and 24/7 vessel operations for wind farm construction, which involved multiple shifts and added complexity. Despite the client's request, the intervention was not prioritized by client technicians or managers, and participation was optional and not emphasized in safety meetings. The following quote illustrates this issue: "...there's not been a huge amount of support. I would have thought you would maybe have tied in with the health and safety side. Because we do every month or so like a toolbox talk which has been like a talking point for that month, but it's always been very separate from what you're doing. I think it would have been good to have a more joint up approach and then I think if it had been more a joint up approach you would have had more buy-in from the contractors" (0021).

For the vessel crew, participation was mandatory, and management thought it was a good idea, however no overall project objective was given and there was no involvement by management. The following quote describes this well: "*The most important criticism that I have is, that it is clear, that if (the project) should have given a full benefit, then management should have been involved…*" (0024).

Besides the mentioned factors, the Covid-19 pandemic also had a significant influence on the intervention. This resulted in limited access to the vessel for the researchers, and delays or online participation.

All the above-mentioned factors, involvement, participation, Covid-19 had an influence on the way the intervention was conducted and implemented, and they restricted and, in some cases, hindered the continuity of the project.

#### REACH

The intervention aimed to involve all vessel crew and client technicians, around 120 people in total. Crew participation was nearly 95%, though some couldn't attend all sessions due to crew

changes. On the client technician side, participation was only about 5%, mainly due to shifting work patterns, high turnover, and limited support from the client's management. Technicians could only join after their 12-hour workday. As a result, the reach of the intervention varied significantly between the two groups.

# DOSE DELIVERED

Table 2 presents the ten workshop sessions for each of the four participating teams, Team Client technicians 1 and 2, Vessel crew 1 and 2. Table 2 presents the subject of the workshop in the left column, the dates and the form of dose delivered in the following four columns.

Workshops were conducted on board, online at a hotel, or online on the vessel when researchers couldn't board due to Covid-19, though internet issues halted the latter after three sessions. Some workshops were rescheduled due to work demands. Online sessions were open to all, while onboard sessions were split into 3–4 workshops per day over three days. Vessel crew attended all workshops, but client technician attendance was low.

#### DOSE RECEIVED

In addition to workshops, participants could attend coaching sessions and received workbooks to address workshop topics. Engagement was generally high, especially when workshops were conducted in the participants' language, which improved communication. Onboard sessions saw better participation, while some were quieter during online sessions. The following quote highlights feedback on the sessions: *"The online sessions were very difficult because it's so impersonal. For a meeting they are fine, but if it's a workshop where you're trying to engage people (...) Online to say: Oh, can we talk about this or that? I think if you actually see them face-to-face, it's much better for engagement... I would say the on-site sessions are much more useful" (0021).* 

Participants received a workbook to track personal goals, with themes aligned to the workshop sessions. However, few used it, mainly due to lack of time or forgetting it at home. In interviews, some suggested having a simplified online version accessible on their phones, a useful idea for future interventions.

# FIDELITY

The intervention faced challenges due to unpredictable factors like weather, work delays, and staggered crew rotations. Vessel crew changed every four weeks, while client technicians rotated every two. Covid-19 further limited access, leading to longer gaps between workshops and moving some online. While this maintained continuity, internet issues occasionally disrupted sessions, as seen in the following quote: *"I think it's been difficult because you haven't been able to get on* 

board [due to Covid-19]. I remember when we had the earlier sessions, where I think you were on board, we were in the hotel and the internet was dreadful and so it became very difficult to actually communicate..." (0021).

These issues could not have been foreseen; however, they can be factored into a new intervention as part of the risk analysis.

# IMPLEMENTATION

Due to challenges in data collection, calculating the total implementation score is not possible. However, baseline and follow-up questionnaires provide insights into specific aspects of implementation. The evaluation below compares baseline data with post-intervention survey results for the six project goals.

#### Goal 1: Employees have low stress levels

The participants were given a workshop on stress management, which included tools such as, Stephen Covey's Circles of Concern, to prioritize focus, Bjarne Toftegård's Traffic light tool, to distinguish stress symptoms. They were informed about the importance of sleep, diet, physical training, coaching, quiet time etc., and offered coaching sessions to discuss stress and how they managed it. 12 (35.3%) respondents had chosen reduction of stress as their personal goal. During the interviews, respondents emphasized the importance of dealing with stress and the relevance of tools to manage stress which was addressed in coaching sessions and in the workshops. This can be seen in the quote: *"We have been given tools to manage this stress here a bit. Because it has been very stressful here. (....) I have definitely, I think, used some of those things in relation to stress" (0025).* 

The end survey data showed that there was a negative change on how the teams rated perceived stress compared to baseline data, for one parameter. This means that there is a shift in the category from "almost never" to "sometimes" which can be seen in Table 3.

The Independent Samples Mann-Whitney U Test was significant. This unexpected result may be due to increased stress awareness from the project or the pressure of completing tasks before a contract deadline. Some participants may have also become more aware of stress through knowledge gained during the project. Given the statistical significance, it's recommended to follow up on employee wellbeing to ensure stress levels remain low.

#### Goal 2: Employees have a strong mental health

In the baseline survey, respondents rated their self-perceived mental health quite high, that is they reported at least average and above average mental health, as can be seen in Table 4. The results from the second (post-intervention) survey show some changes, both positive and negative, but none are statistically significant. These score differences may be due to increased awareness of the topic through the project, but this remains unclear. Overall, self-perceived mental health levels were consistently high at both baseline and the end of the study.

In interviews, respondents noted a shared understanding of bullying and harassment after the intervention, as well as a common language to discuss these issues. The following quote illustrates how it became more acceptable to address them: "*It has always been legitimated to talk about diet and bullying too – but now it has become even more open. It is more accessible. About bullying, it is sure that we have such situations. (someone will say) "you need to watch out that it doesn't end... (in bullying)" it is probably a kind of bullying. You got to keep an eye on it..." (0022).* 

Even though only 1/3 of respondents chose mental health as a goal, mental health became an important topic for respondents and a new awareness was created amongst the respondents on the issue of bullying and harassment.

#### Goal 3: Employees maintain or improve BMI levels

17.6% (n = 6) respondents chose goal number 3 as their goal for intervention. The results from the medical health checks on board at the beginning of the project showed that 12% of the respondents were obese, 32% were normal and 56% were overweight. However, this was only a small sample and cannot be generalized to the whole vessel. The final medical exams were not completed by the medic, which made it difficult to compare with the baseline data. In the interviews, respondents mentioned that it had become more legitimate to discuss diet and that there was an increased awareness among the crew about what a healthy diet is, which can be seen in the following quote: "*Well, in relation to eating habits, you can see that this has changed for some and there are some who have moved themselves here on board and so on…*" (0035).

The results from survey showed increased intake of green salad, fish for the main course, and vegetarian food and the Independent-Samples Mann-Whitney U Test was significant. Table 5 shows changes in intake of this kind of food.

#### Goal 4: Employees exercise regularly

38.2% (13 out of 34) of the respondents chose exercise as their goal to work with. Exercise had already become a daily routine for some, as the captain of one of the crews had given the possibility to use one hour in the gym during work hours. This had a positive impact on the frequency of physical activity. As can be seen in Table 5, the crew rated their physical health predominantly

average to above average. Physical health improved on board, and it was a statistically significant change.

The project further motivated goals for some of the employees who had already begun to increase their exercise activities.

The results showed that exercise can be quite easily integrated into the daily routine at work, especially when it is enhanced by senior management.

#### Goal 5: Employees have a smoke-free lifestyle

11.8% (4 out of 34) of the respondents chose smoking as the goal that they would work with. One respondent succeeded in accomplishing a smoke-free lifestyle in the project.

Many of the employees had stopped smoking before the intervention. This was mentioned in interviews, and this corresponded with responses in the questionnaire that 23.4% had already quit smoking before the project began.

#### Goal 6: Employees engage in good teamwork within and across the organization

35.3% (12 out of 34) chose teamwork as their goal. Many respondents positively emphasized the need of more effective teamwork on board. However, they mentioned that this issue should have had more time and focus. One session was too little time, and they felt a need to work further with the subject: "Yes, where other things like diet and the like, that's ok, it doesn't take that long. But you know the Teams [workshop], when you are in a place where you have so many teams, I really think you could have really worked with them" (0037).

Summing up, it is visible from the evaluation of the project goals that some were more easily achieved than others. The survey collated at the end of the intervention indicated that 22 out of 34 (64.7 %) crew respondents succeeded in accomplishing the personal goals that they had set for themselves, predominantly, Goal 1: lower stress levels and Goal 4: regular exercise. 17.6% of the respondents did not choose a goal to work with, and there were no results measured of goals achieved by the 80 client technicians.

#### RECRUITMENT

Before the first vessel trip in 2020, the captain and the technicians' manager received an email with brief information about the intervention's aims. Each time researchers traveled to the vessel, they sent prior and on-board updates. Workshop schedules were coordinated with the captain and line managers to fit into the busy work routine. While vessel crew participation was smooth during work hours, client technicians showed limited interest as they could only join in their free time after their 12-hour workdays.

Another vital factor that we were not informed about prior to the project initiation, was that the turnover rate of the technicians was very high. Some technicians were only on board for a week and then a new team would come, allowing them only once, to take part in the intervention. "*They* [the technicians] will find out about it when they come on board. I'm not sure if it's been communicated out to the subcontractors coming on to the job. This is what's going on. Because there's lots of people that have been through who haven't been involved in it. Because it just happened for maybe one trip..." (0021).

To sum up, recruitment was difficult for the whole group, it required flexibility on the part of the researchers, which did increase attendance for the vessel crew. But it did not enhance attendance from the technicians.

## BARRIERS

There were several barriers which had an influence on the effect of the intervention. One was time, as the following quote shows. There was not given enough time for the intervention, which had an influence on motivation to participate: "We have to eat healthy and we have to work out and then we have to sleep more. And at the same time... we have to have these sessions here. But it can't be during work hours. So it's in our free-time..." (0023).

Another barrier was the lack of engagement of the management in the intervention, and the lack of structural changes necessary for change that did not happen. Several respondents emphasize these issues, and the importance of this for changes to take place. The following quote supports this: "Well, I suppose it has. I just don't think that it's something that will stick, because it has not moved the larger picture. If you look at the way we work, the conditions that we have, the way people still can become stressed and that kind of thing. The way people can still become stressed and the way that people live, then...I can see that a few of my colleagues, it had kick-started things- But as a workplace, I would say no. And this is because the management who created the intervention is not around. One sees this, they don't play along by way of providing the framework necessary, if you want to change something" (0024).

In conclusion, as research [17] already has pointed out, for changes to happen there must be commitment from management. This was also a barrier to the intervention at a structural level, but it did not hinder changes at a personal level.

#### CHANGES

Despite barriers, there were positive changes, mainly at the individual level. The intervention facilitated discussions, providing participants with terminology to address relevant and sensitive

issues. The following quotes highlight some of these changes: "We have benefitted from it. We have talked about it. Then I pointed at them and said, "SEEDS?" and then they say, "Yeah, that's true". In that way we experienced that the crew has ...in that way taken it in. Maybe they do so personally" (0022).

Respondents found that the bullying and harassment workshop created a changed view or a new awareness on the subtle differences between teasing and bullying and how it is important to keep an eye on this, which can be seen in the quote: "Well bullying and teasing people, there is a fine difference. For some more than others. And this here, this campaign has ensured that we are a little more aware of where the line is. Especially for new people. They need to learn, how things are here on board. And we of course need to learn who they are. So this has been a tool for being able to do that. I think" (0029).

As presented above, the intervention did seem to make changes at individual level, and more awareness of bullying and harassment.

#### DISCUSSION

This article presents the main results of process evaluation of a health intervention and research project. Although some significant outcomes were achieved, the results are mixed with both positive and negative aspects. This raises questions about why the intervention did not yield a clearer, more positive result and what could be improved.

Previous studies have called for more rigorous designs and varied interventions. This study addressed these needs with its multicultural component, workshops with diverse framing, researchbased knowledge, practical examples, case studies, self-development opportunities, coaching sessions, and a pocketbook. The intervention spanned 20 months, from March 2020 to November 2021.

#### **COMMITMENT AND INVOLVEMENT**

Commitment and involvement hindered a more positive outcome. As many studies have pointed out [17, 34, 18, 19], commitment from management is essential for an intervention to be successful. While management supported the planning phase, they lacked involvement during implementation. The participants were frequently interrupted during the workshops for operations prioritized by management, frustrating them and disrupting the learning process. Insufficient time was allocated, and this goes against research recommendations. Flexibility was key to supporting participants' success and involvement and commitment, suggesting it may be a prerequisite for any intervention.

# A CONTEXT FOR LEARNING

For behavioral change to occur, the learning context is crucial. This project's onsite delivery provided participants easy access to workshops, coaching, interviews, and questionnaires, compared to ashore-based programs. Health education was offered through goal-based individual coaching and group workshops, catering to different learning preferences.

A key factor was the relational competence built between participants and researchers, who lived on board, fostering familiarity and an informal setting. This helped participants adopt new terminology and discuss sensitive workplace issues (see quotation 0023). Podcasts of the workshops allowed participants to revisit and reinforce learning, while coaching supported behavioral changes [35, 22].

#### **CHANGED BEHAVIOUR**

Another element that was recommended for this intervention was whether it is necessary to change structural conditions for individual learning and changes to be able to take place. Dyreborg et al., [35] studied initiatives and interventions in relation to safety and argued that structural initiatives had positive effects on behavior and work injuries and would be able to contribute to improving safety in the transport industry. But are structural changes necessary for workers to feel better or to change? For example, the participants in this study were given a workshop to manage fatigue- but their structural conditions for sleep did not change. They were given new knowledge, but they didn't have the power to change their sleep conditions — this makes change difficult when responsibility lies elsewhere.

#### LIMITATIONS

This study had some limitations. The aim was to measure the intervention's effect using qualitative and quantitative data. Participants were assigned unique numbers to match pre- and post-intervention questionnaires, but many forgot their numbers, preventing accurate effect measurement.

Although initial health checks were conducted, follow-up checks were canceled due to Covid-19 testing demands, making the health data unusable. The sample size was small, and there was no control group.

Additionally, workshops were delayed by 10 months due to Covid-19, disrupting momentum and continuity in learning.

#### CONCLUSIONS

Onsite workplace health interventions can contribute to the improvement of seafarers' health and well-being, although they are not without challenges. This study shows that such interventions are feasible to some extent. The process evaluation highlights the need for management involvement, integrating health with safety management systems on board.

The quantitative analysis showed positive results for 52.5% of the 40 vessel crew members, including improved diet, reduced smoking, and lower stress levels, but no impact on the 80 client technicians. Mental health awareness also increased. Qualitative results showed an increase in knowledge and awareness about health topics. Participants also mentioned tools that helped improve stress management and terminology to talk about health, stress, team cooperation, and bullying and harassment.

For clearer results, medical testing, stronger management presence, and consistent participation are needed. Future research should focus on management involvement, employee participation, and using a goal-based approach, target stress, fatigue, diet, and physical activity in maritime settings to improve health outcomes.

# ARTICLE INFORMATION AND DECLARATIONS

**Data availability statement:** The data can't be shared due to GDPR rules and given consent from the participants.

**Ethics statement:** The study has obtained needed permissions to conduct study in compliance with national regulations.

**Author contributions:** Lisa Loloma Froholdt contributed with conducting interviews and supporting survey data collection, developing of article idea, developing of theoretical perspectives, analysis of qualitative data, discussion of results, writing and editing the article.

Hanna Barbara Rasmussen contributed with collecting quantitative data and conducting interviews, developing of methodology, analyzing both quantitative and qualitative data, development of article idea, writing the article.

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**Conflict of interest:** None declared.

Supplementary material: No supplementary material.

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# Table 1. Process evaluation

The proc	ess evaluation used in	n this study is based on the work of Steckler and Linnan [30]
and an ac	laptation of their cor	cepts by Parsons and Ellard that includes 7 components [31]
1	Context	Aspects of the larger social political and economic environment
		that may influence implementation
2	Reach	The proportion of the intended target audience that participates
		in the intervention
3	Dose delivered	The number/amount_of intended units of each intervention or
		component provided
4	Dose received	The extent to which participants actively engage/interact with
		recommended resources
5	Fidelity	The extent to which the intervention was delivered as planned
6	Implementation	A composite score that indicates the extent to which the
		intervention has been implemented as planned
7	Recruitment	Procedures used to approach and attract participants

 Table 2. Plan of workshop dose deliveries

SEEDS project plan for Workshops							
Workshop	TEAM Client	TEAM Client	TEAM Vessel	TEAM Vessel			
	technicians 1	technicians 2	crew 1	crew 2			
1.Intro to	Completed	Completed	Completed	Completed			
SEEDS	29.09.2020	1.10.2020	29.09.2020	2.10.2020			
	Onboard	Online	Onboard	Onboard			
2.Fatigue	Completed	Completed	Completed	Completed			
	30.09.2020	13.05.2020	30.09.2020	13.05.2020			
	Onboard	Online	Onboard	Online at hotel			
3.Diet	Completed	Completed	Completed	Completed			
	30.09.2020	13.05.2021	30.09.2020	13.05.2020			
	Onboard	Online at hotel	Onboard	Online at hotel			
4.Stress	Completed	Completed	Completed	Completed			
management	28/29.04.2021	20.03.2021	20/21.03.2021	21.10.2021			
	Online	Onboard	Onboard	Onboard			
	04.08.2021						
	Online						
5.Well-being at	Completed	Completed	Completed	Completed			

the working	26/27.07.2021	05.08.2021	13/14.04.2021	24.03.2021
place	Online	Online covid-	Online	Onboard
		quarantine at		
		hotel		
6.Bullying,	Completed	Completed	Completed	Completed
harassment and	28/29.04.2021	20.03.2021	13/14.04 2021	21–23.03.2021
social isolation	Online	Onboard	Online	Onboard
7.Effective	Completed	Completed	Disrupted	Completed
teams	02.08.2021	17.08.2021	17.08.2021	31.07.2021
	Online	Online	Online	Online
			Completed	
			20.10.2021	
			Onboard	
8.Conflict	Completed	Completed	Disrupted	Completed
management	04.08.2021	18.08.2021	19.08.2021	28.07.2021
	Online	Online	Online	Online
			Completed	
			20.10.2021	
			Onboard	
9.Psychological	Completed	Completed	Completed	Completed
safety	18.10.2021	25.08.2021	29.11 2021	25.10.2021
	Onboard	Online	Onboard	Online during
				covid-quarantine
				at hotel
10.Healthy	Completed	Completed	Completed	Completed
lifestyle and	14.10.2021	30.10.2021	29.11.2021	29.10.2021
health	Online during	Onboard	Onboard	Onboard
promotion	quarantine at		01.11.2021	2.11.2021
	hotel		Onboard	Onboard

**Table 3.** Parameter: Perceived stress — In the last month, how often have you felt difficulties werestacking up so high that you could not overcome them? (Baseline and End survey data)

Category Baseline data	End survey data
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	Frequency	Percentage	Frequency	Percentage
Almost never	49	63.6	13	38.2
Sometimes	25	32.5	17	50.0
Fairly often	2	2.6	3	8.8
Very often	1	1.3	1	2.9
Total	77	100.0	34	100.0

**Table 4.** Question: In general, would you say your mental health is? (Baseline and End survey data)

Category	Baseline data		End survey data		
	Frequency	Percentage	Frequency	Percentage	
Excellent	10	13.0	3	8.8	
Very good	30	39.0	15	44.1	
Good	33	42.9	11	32.4	
Fair	3	3.9	4	11.8	
Poor	1	1.3	1	2.9	
Total	77	100	34	100	

	Salad		Fish for dinner		Vegetarian meals	
	Baseline	End	Baseline	End	Baseline	End
	(n and %)	collection	(n and %)	collection	(n and %)	collection
		(n and %)		(n and %)		(n and %)
Never/very	1 (1.4%)	0 (0%)	9 (13%)	2 (6.1%)	29 (42%)	9 (27.3%)
seldom						
Less than once a	2 (2.9%)	2 (6.1%)	10 (14.5%)	3 (9.1%)	21 (30.4%)	8 (51.5%)
week						
Once a week	6 (7.8%)	0 (0%)	23 (33.3%)	9 (27.3%)	8 (11.6%)	4 (12.1%)
Few times a	27 (39.1%)	6 (18.2%)	24 (34.8%)	12 (36.4%)	7 (10.1%)	8 (24.2%)
week						
Almost	22 (31.9%)	15 (18.2%)	0 (0%)	6 (18.2%)	1 (1.4%)	4 (12.1%)
everyday						
Everyday/severa	11 (15.9%)	10 (30.3%)	3 (4.3%)	1 (3.0%)	3 (4.3%)	0 (0%)
l times per day						
Total	69 (100%)	33 (100%)	69 (100%)	33 (100%)	69 (100%)	33 (100%)

Table 5. Consumption of salad, fish, and vegetarian meals (baseline and end collection)

**Table 6.** Questionnaire response to: In general, would you say your physical health is? (Baselineand End survey data)

	Baseline		End survey		
	Frequency	Percent	Frequency	Percent	
Excellent	6	7.8	6	18.2	
Very good	27	35.1	13	39.4	
Good	29	37.7	11	33.3	
Fair	14	18.2	2	6.1	
Poor	1	1.3	1	3.0	
Total	77	100.0	33	100.0	